

23. EX.1 · Evolutionary and comparative perspectives

Starter Quiz ·

GRE Subject Test · GRE Psychology

Name: _____ Score: _____

1. In the simple model, take $r = 0.25$, $B = 12$ and $C = 2$ in comparable reproductive units. What is $rB - C$?

2. Assume first-cousin relatedness $r = 0.125$, $B = 8$ and $C = 2$ on the same fitness scale. What is $rB - C$?

3. In the classic goose example, an egg-retrieval movement continues after the egg is removed. Which classical ethological concept is illustrated?

☐ habituation
☐ a fixed action pattern
☐ imprinting
☐ operant learning
4. In a rat procedure, later avoidance is tied more strongly to taste after illness-producing treatment but to light/sound after shock. Which concept does this most directly support?

☐ social loafing
☐ extinction
☐ fixed action patterns
☐ prepared learning
5. A plausible adaptive explanation is enough to establish that a behaviour evolved for that function.

☐ True ☐ False
6. With $r = 0.5$, $B = 4$ and $C = 2$, which conclusion fits the simple model?

☐ The margin is positive because the recipient is related.
☐ The margin is zero, so the strict inequality is not met.
☐ Helping must be impossible.
7. A negative value of $rB - C$ proves that no helping behaviour can occur for any other reason.

☐ True ☐ False
8. Which is the best use of the full-sibling relatedness value 0.5?

- ☐ Treat it as the probability that one sibling decides to help.
 - ☐ Use it as an expected value in the stated outbred diploid family model and check other cases separately.
 - ☐ Apply it automatically to every social insect colony.
9. Which observation best fits filial imprinting?
- ☐ A bird has never encountered an object, so exposure cannot matter.
 - ☐ Every species forms an unchangeable bond at exactly the same age.
 - ☐ A young bird selectively approaches an object made familiar through early exposure.
10. Under a controlled observational procedure, monkeys acquire fear of snake stimuli more readily than flower stimuli. Which conclusion goes beyond this evidence?
- ☐ Experience can interact with a bias in learning.
 - ☐ Every monkey is born with a fully formed fear of snakes.
 - ☐ The associations differ under the tested procedure.

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Answers ·

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1. **1**

$0.25 \times 12 - 2 = 1$. This positive margin meets the inequality under the supplied values; it does not establish the history of a real behaviour.

2. **-1**

$0.125 \times 8 - 2 = -1$. The stated kin-selection comparison does not favour the act; other explanations for helping are not excluded.

3. **a fixed action pattern**

The stereotyped sequence is described as a fixed action pattern. This example does not establish that every action in every animal is identical or independent of its context.

4. **prepared learning**

Prepared learning concerns selective associations under the tested conditions. The changed outcome reverses which cue is more effective, rather than showing that light/sound cannot be learned about.

5. **False**

A plausible story supplies a hypothesis, not proof of selective history. Relevant comparative and reproductive evidence can test it, while alternatives such as shared experience or a by-product remain to be evaluated.

6. **The margin is zero, so the strict inequality is not met.**

$0.5 \times 4 - 2 = 0$. Equality gives no net advantage in this comparison, rather than a positive advantage or proof that helping cannot occur.

7. **False**

The result is limited to the supplied kin-selection comparison. Direct mutual benefit, reciprocation or other influences are not ruled out.

8. **Use it as an expected value in the stated outbred diploid family model and check other cases separately.**

Relatedness is a genetic parameter under a model, not a behavioural choice probability. Sex and mating structure can change the relevant relatedness.

9. **A young bird selectively approaches an object made familiar through early exposure.**

Filial imprinting involves learning through exposure, interacting with predispositions and developmental conditions.

10. **Every monkey is born with a fully formed fear of snakes.**

A difference following observational experience does not establish a universal fear present at birth or a result for every species and setting.