

Exercise walk-through

23.1

Evolutionary and comparative perspectives: evidence and transfer

GRE · GRE Subject Test · GRE Psychology

Concepts 1 (1)

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Kin selection explains helping by inclusive fitness: a gene spreads by aiding relatives who share it. Hamilton's rule says helping pays when $rB > C$ — benefit to the recipient weighted by relatedness exceeds cost to the helper. With benefits and costs held equal, closer relatedness makes the inequality more likely to hold: compare siblings ($r=.5$) with first cousins ($r=.125$). The rule predicts direction and rough ordering, not exact human behaviour. Ethology studies species-typical behaviour.

Concepts 2

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Evolutionary explanations ask about function: how a behaviour raised reproductive success in ancestral environments. They compete or combine with learning accounts; prepared learning (fast acquisition of evolutionarily relevant fears like snakes) shows both at once. An evolutionary story is a hypothesis about history, and needs comparative or experimental evidence, not plausibility alone.

Comparative caution cuts both ways: do not read human motives into animal behaviour (anthropomorphism), and do not assume a human behaviour is learned when cross-species patterns suggest otherwise. The examinable skill is matching each explanation to its evidence type.

Check the transfer argument

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Experience supplies the association; evolved predispositions could affect how readily particular associations are learned. Compare acquisition across relevant stimuli with exposure, salience and reinforcement controlled, and use comparative evidence where justified. Speed alone cannot establish an ancestral history or eliminate all learning alternatives.

Accept a different explanation when its evidence and limits are justified.

Exercises 2.1·2.2

2.1 Under Hamilton's rule, helping is favoured when: [1]

A. benefit exceeds cost B. $rB > C$ with relatedness r C. the recipient shares the group D. the helper is older E. costs are zero

2.2 A bird courts a painted model with an oversized tail while ignoring real mates. The model works as: [1]

A. a conditioned stimulus B. a supernormal sign stimulus C. an imprinting object D. a negative reinforcer E. a discriminative operant cue

Exercises 2.1·2.2

2.1 Under Hamilton's rule, helping is favoured when: [1]

A. benefit exceeds cost B. $rB > C$ with relatedness r C. the recipient shares the group D. the helper is older E. costs are zero

2.1 Answer: B. The benefit must be weighted by relatedness before comparing with the cost. The other options do not satisfy the stated defining conditions.

2.2 A bird courts a painted model with an oversized tail while ignoring real mates. The model works as: [1]

A. a conditioned stimulus B. a supernormal sign stimulus C. an imprinting object D. a negative reinforcer E. a discriminative operant cue

2.2 Answer: B. Exaggerated features of a releasing cue form a supernormal stimulus hijacking a fixed action pattern. Compare the exact process, design or evidence, rather than an associated keyword.

Exercises 2.3·3.1

2.3 Revisit the worked case. State one conclusion its evidence supports and one stronger conclusion it does not support. Explain the difference. [2]

3.1 An animal quickly learns one fear association. Explain why this can be compatible with both learning and an evolutionary account, and what evidence is needed. Give the interpretation, supporting reasoning, a relevant alternative or limitation, and an appropriate check. [4]

Exercises 2.3-3.1

2.3 Revisit the worked case. State one conclusion its evidence supports and one stronger conclusion it does not support. Explain the difference. [2]

2.3 Use the worked case evidence to support a bounded claim and explain why a causal, universal or stronger claim needs additional evidence. The claim must fit the specific design and observed process.

3.1 An animal quickly learns one fear association. Explain why this can be compatible with both learning and an evolutionary account, and what evidence is needed. Give the interpretation, supporting reasoning, a relevant alternative or limitation, and an appropriate check. [4]

3.1 Experience supplies the association; evolved predispositions could affect how readily particular associations are learned. Compare acquisition across relevant stimuli with exposure, salience and reinforcement controlled, and use comparative evidence where justified. Speed alone cannot establish an ancestral history or eliminate all learning alternatives. Award B1 each (authored) for the interpretation, its reasoning, a relevant limitation/alternative and an appropriate check, up to four points. Accept a different justified answer satisfying these demands.