15.2 Ethological and Evolutionary Explanations of Aggression

AQA 7182 · about 50 minutes · Write-in edition

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Outline what is meant by a fixed action pattern (FAP) in ethology, and give one clear example relating to aggression in a non-human species, explaining why it counts as a FAP.

(Total for Question 1 is 2 marks)

2 Outline one empirical piece of evidence, from Daly and Wilson or allied research, that supports an evolutionary link between jealousy and male aggression. State the finding and how it supports the evolutionary account.

(Total for Question 2 is 3 marks)

3 Outline Daly and Wilson's evolutionary account of sexual jealousy and cuckoldry risk as an explanation for some types of male aggression in humans. Include the adaptive problem identified and the behavioural responses proposed.

(Total for Question 3 is 4 marks)

4 Outline an evolutionary explanation for why aggression might be adaptive in gaining resources, status or mates in humans. Give one concrete human example that illustrates this adaptive account.

(Total for Question 4 is 4 marks)

5 Outline one piece of cross-cultural evidence that challenges a simple evolutionary account of aggression, and explain why it poses a problem for universal genetic explanations.

(Total for Question 5 is 3 marks)

6 Explain one methodological problem with extrapolating from animal ethology studies of aggressive fixed action patterns to human aggression. Give a specific reason why the generalisation may be limited.

(Total for Question 6 is 3 marks)

7 Discuss ethological and evolutionary explanations of aggression. In your answer, refer to the idea of innate releasing mechanisms and fixed action patterns, the evolutionary accounts such as cuckoldry risk and resource/status competition, and consider evaluation points including extrapolation from animals to humans, cross-cultural variation and potential bias in evolutionary theorising.

(Total for Question 7 is 16 marks)

8 A workplace scenario: Kwame discovers messages suggesting his long-term partner has become emotionally close to a colleague and sometimes meets them outside work. Kwame is distressed and confronts the colleague angrily in front of others, later explaining he feared losing his partner and not knowing whether any sexual infidelity had occurred. Using Daly and Wilson's account of sexual jealousy and cuckoldry risk, explain why Kwame's aggressive confrontation could be interpreted as an evolved adaptive response. Refer to specific elements of the evolutionary explanation in your answer.

(Total for Question 8 is 6 marks)

Mark scheme · 15.2 Ethological and Evolutionary Explanations of Aggression

Question 1

defines FAP as an innate, stereotyped sequence of behaviour that, once triggered, runs to completion oe — **B1**

gives an aggression-related example, e.g. a species-typical threat display or ritual fight with a predictable sequence of actions, and links it to the definition oe — **B1**

Answer: A FAP is an inherited, stereotyped sequence of behaviour that once triggered runs to completion; for example many bird species perform a fixed threat display of raised feathers, vocal call and approach-retreat movements, a predictable sequence that qualifies as a FAP.

Question 2

states a genuine empirical finding, e.g. higher rates of male violence associated with suspected infidelity or evidence that men show more distress at sexual infidelity compared with women in some studies oe — **M1**

links the finding to the evolutionary claim, e.g. men are more likely to respond aggressively to perceived sexual infidelity because of paternity uncertainty and the costs of cuckoldry oe — **A1**

may note the study/source, e.g. Daly and Wilson's comparative analyses of homicide or survey evidence on reactions to sexual versus emotional infidelity oe — **A1**

Answer: For example, Daly and Wilson report patterns where male violence is often triggered by suspected partner infidelity and survey evidence shows men report greater distress at sexual infidelity than women, supporting the idea that paternity uncertainty underlies some male aggression.

Question 3

states that sexual jealousy evolved to protect paternity certainty and reduce the risk of cuckoldry oe — **M1**

explains that males face higher reproductive costs from investing in unrelated offspring, so mechanisms to detect and deter infidelity would be adaptive oe — **A1**

identifies behavioural responses such as mate-guarding, vigilance for infidelity cues, and sometimes aggressive or retaliatory behaviour toward rivals or unfaithful partners oe — **A1**

links the account to Daly and Wilson's emphasis on evolved psychological mechanisms sensitive to cues of cuckoldry risk oe — **A1**

Answer: Daly and Wilson argue sexual jealousy evolved to protect paternity certainty by motivating mate-guarding, vigilance for infidelity cues and, in some cases, aggression to deter rivals or punish unfaithful partners. Because raising unrelated offspring imposes high fitness costs on males, such responses would have been favoured by selection.

Question 4

states that aggression can increase access to resources, social status or mating opportunities, which can improve reproductive success oe — **M1**

explains that individuals who secured resources or status would have had better survival or mating prospects and so such tendencies could be selected for oe — **A1**

gives a concrete human example, e.g. male-male physical competition for mates or status fights that gain access to resources or higher social standing oe — **A1**

links the example to reproductive advantage, e.g. higher status leading to more mating opportunities or better provision for offspring oe — **A1**

Answer: Aggression can be adaptive because it may secure resources, status or mates, improving reproductive success. For example, male-male competition that results in higher social status can lead to more mating opportunities and better ability to provide for offspring, which would be favoured by selection.

Question 5

identifies genuine cross-cultural evidence, e.g. societies where rates or forms of aggression differ markedly from the patterns predicted by a simple evolutionary account oe — **M1**

explains why this challenges universality, e.g. cultural norms, social structure or resource distribution can change the expression of aggression and so a purely genetic explanation is insufficient oe — **A1**

may give an example such as lower rates of lethal male violence in certain egalitarian or matrilineal societies, undermining a claim that male violence is universally inevitable oe — **A1**

Answer: For example, some societies show low rates of lethal male violence or different forms of conflict resolution, which suggests cultural norms and social organisation shape aggression. This challenges a universal genetic account because it shows the expression of aggression varies with culture and context rather than being fixed across humans.

Question 6

identifies a methodological or conceptual problem, e.g. differences in cognitive complexity, social learning, language and conscious decision making in humans compared with animals oe — **M1**

explains why this limits extrapolation, e.g. human aggression is often mediated by culture, moral reasoning and complex social institutions that animal models do not capture oe — **A1**

may give a concrete example, e.g. ritual displays in birds are innate and stereotyped, whereas human displays and violence are context-sensitive and subject to norms and laws oe — **A1**

Answer: Animal FAPs are useful models, but humans differ in cognitive complexity, social learning and language, so human aggression is more influenced by culture, moral reasoning and institutions. Therefore simple extrapolation from animal ritual displays to human violence can be misleading.

Question 7

Level 4 Knowledge of ethological and evolutionary explanations is accurate and detailed. Discussion is thorough and balanced, integrating AO1, AO2 and AO3 material effectively. Evaluation considers strengths and limitations with clear, developed reasoning and relevant evidence. Counterarguments and applications are addressed and specialist terminology is used accurately.	**13-16**
Level 3 Knowledge of the explanations is sound, with clear description and some detail. Discussion includes relevant evaluation and some integration of evidence, but may be less developed in places. Application to human behaviour is present and mostly appropriate. Specialist terms are used correctly.	**9-12**
Level 2 Some relevant knowledge of ethological or evolutionary accounts is present but limited. Discussion and evaluation are basic or partially developed. Application to humans is attempted but may be superficial or occasionally inaccurate. Answer may show limited organisation.	**5-8**
Level 1 Knowledge is very limited and answer tends towards unsupported assertions or lists. Evaluation is minimal or absent. Little or no relevant application is provided. Specialist terminology is largely missing or used inappropriately.	**1-4**
Level 0 No creditable content.	**0**

Indicative content:

- AO1: Ethological concepts include innate releasing mechanisms (IRMs) that detect specific external releasers and activate fixed action patterns (FAPs), innate stereotyped sequences of behaviour. In animals these explain ritualised fighting and appeasement displays.
- AO1: Evolutionary explanations argue aggression can be adaptive by securing resources, status and mating opportunities, and that specific forms such as male sexual jealousy evolved to reduce cuckoldry risk, as argued by Daly and Wilson.
- AO2: Application to humans includes mate-retention behaviours, male-male competition for status and resources, and culturally variable expressions such as honour-related aggression in some contexts. Describe how an IRM/FAP model might map onto human ritualised aggression such as formalised duels or status displays.
- AO3: Strengths include explanatory power for cross-species similarities, the ability to generate testable hypotheses and empirical support such as correlations between suspected infidelity and male violence in some datasets.
- AO3: Criticisms include the problem of extrapolating from animals to humans because humans have culture, complex cognition and social institutions that alter behaviour; animal FAPs are more rigid than human actions which are flexible and learned.
- AO3: Cross-cultural evidence shows wide variation in forms and frequency of aggression, challenging simplistic universal genetic claims; some societies have low levels of lethal violence, suggesting cultural moderators.
- AO3: Beta bias and gender issues: many evolutionary accounts emphasise male competition and may underplay female strategies or context-dependent female aggression, risking biased theorising.
- AO3: Ethical and practical implications: evolved tendencies may be used to justify aggression unless tempered by recognition of cultural and moral controls; modern social costs can make formerly adaptive behaviours maladaptive.
- AO3: Balanced conclusion might argue ethological and evolutionary accounts offer valuable frameworks but must be integrated with social, cultural and individual explanations for a full account of human aggression.

Question 8

identifies the key feature of Daly and Wilson's account applied to the scenario, e.g. fear of cuckoldry or threat to paternity certainty as the adaptive problem oe	**M1**
explains that aggression or mate-guarding behaviours would be predicted where cues suggest partner's emotional closeness to another, as these cues may have indicated infidelity risk in ancestral environments oe	**A1**
links Kwame's public confrontation to a deterrent function, showing aggressive action might reduce rival access or signal commitment, consistent with evolved mate-retention strategies oe	**A1**
considers male-specific costs: explains that males face the unique adaptive problem of paternity uncertainty which can lead to stronger jealousy-based aggression in some contexts oe	**M1**
applies this to Kwame by noting his distress at possible loss of reproductive opportunity and how aggression could be a proximate behavioural response aimed at protecting that opportunity oe	**A1**
may note limitations briefly, e.g. modern social norms can make such aggression maladaptive today, but this does not contradict the evolutionary explanation for why the impulse arose oe	**A1**

Answer: Kwame's angry confrontation can be interpreted with Daly and Wilson's account as an evolved mate-retention response to cues suggesting possible infidelity, addressing the adaptive problem of paternity uncertainty. Emotional closeness or secret meetings may be perceived as cues of cuckoldry risk; aggressive deterrence can reduce rival access and signal commitment. Because males historically faced costs from investing in unrelated offspring, such aggression would have been selected as a proximate mate-guarding tactic, although in modern society the behaviour may be maladaptive or socially unacceptable.