



**General Certificate of Education (A-level)
June 2011**

Critical Thinking

CRIT3

(Specification 2770)

Unit 3: Beliefs, Claims and Arguments

Report on the Examination

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CRIT3 Beliefs, Claims and Arguments

General Comments from the Principal Examiner

This was the second session for this unit, and performance was largely consistent with that of last year. Marks were spread a little more widely, however, and it was pleasing to see more candidates at the upper ends of the scale, with some accessing close to 100% of the marks available. Yet while there was evidence that some candidates, and perhaps some centres, had been better prepared, it was still a concern to see large gaps in candidates' overall skills and knowledge bases that are needed for success in this unit.

As with last year, there was a clear distinction between those candidates who were well prepared and those who weren't. The impression was that candidates knew their way around Critical Thinking in its more general aspects relatively well, but the Unit-specific skills and content seemed less secure. It is important to emphasise that while Critical Thinking is more skills- than knowledge-based, there is nevertheless a real knowledge / content element to the subject, and particularly to this unit. Generic critical thinking skills are not sufficient. Mere acquaintance with the concepts and terminology is not sufficient either; things like the logic of scientific reasoning and the logical structure of explanations is conceptually hard, overlapping with difficult areas in philosophy of science and epistemology.

Some candidates impressed with the breadth and depth of their knowledge in these areas, often going well beyond that which is expected of them or specified in the syllabus (for example citing the work of Karl Popper or Thomas Kuhn). However, more often than not this kind of thing was misunderstood or misapplied, suggesting that they had tried to cover too much too quickly, and had come away with poor understanding. It is certainly a good idea to try to cover these sorts of things if the teaching time is available to do justice to them. Failing that, it is recommended that teachers focus on the areas that are clearly specified on the syllabus.

Lack of subject knowledge was evident in the responses of clearly bright students who unfortunately had to waffle their way through answers, suggesting they lacked the training, skills and perhaps confidence to produce effective answers. The candidates who were well trained were obvious; they stood out from the candidates whose subject knowledge and understanding appeared very shaky (in some cases showing familiarity with the terminology but ultimately misunderstood or misapplied). This was particularly the case with Questions 2(b), 4 and 5.

In contrast, more central Critical Thinking questions, like Question 9(a), were done very well; also questions like Question 6 and Question 8 which *could* be done with specialist knowledge about the rules of hypothesis testing could also be done with more standard Critical Thinking techniques.

One notable area of weakness was candidates' reading skills. In several cases marks were lost due to basic misunderstandings of the original documents, perhaps because they had been read too quickly, or because people had read what they wanted or expected to see in order to give them the answers they wanted to write. There is a tendency for candidates to get carried away by their lines of response without checking carefully enough that the response applies to the question and the source materials. Candidates must be encouraged to read closely and carefully and to keep referring back to the text throughout their answers.

Finally, it was noticeable that candidates who had used additional scripts very seldom added to their marks. The exception was candidates on the longer question who had not made their position clear, or (on the questions in general) who had not really answered the question but then finally did so. On the shorter questions there was pointless addition; on the longer question, very often similar lines of argument were explored without really adding anything, often actually losing quality due to poorer organisation in the hurry to scribble stuff down. Again, candidates should be encouraged to think more and to write less; they should also be reminded of one of the wider objectives of Critical Thinking with AQA: to acquire and demonstrate confidence in their reasoning. More often than not the need for extra answer space does not demonstrate this: if anything it demonstrates the opposite! (Note that all the examples of good responses which are cited in this report fitted comfortably into the answer space provided.)

Section A

Comments on individual questions

Question 1

Few candidates failed to score on this question. Many however got one mark. It was not enough to say '*Where our human features came from*', as this is too vague. Candidates who scored zero tended to confuse the theory itself with what the theory was trying to explain – '*It explains how apes moved from the trees to the grasslands*', for example, would not merit a mark.

Question 2(a)

This was also a straightforward question, with many getting both available marks. A significant number lost a mark for inaccuracies in paraphrasing, where important aspects of the meaning were missed. The prediction needs at least to qualify their answers with 'some'; if they just say '*Savannah animals should have the same characteristics as humans*', while it is fairly clear from the context that they are probably intending the right answer, they need to take care to express it, since as it stands, this is wrong (the theory doesn't imply Savannah animals should talk and wear clothes and sit Critical Thinking exams!). This may appear pedantic; yet accuracy of expression is important when forming or testing hypotheses, since apparently slight variations will alter the situation dramatically. For example, with this phrasing, the hypothesis would be inconsistent with a single instance of an animal *not* having the adaptations; but the actual prediction is consistent with this outcome. As with the first question, there were a number of candidates who confused the hypothesis itself with the prediction it is supposed to support, thereby earning no marks. '*That the apes came down from the trees and adapted to savannah conditions*' was a common 0-mark response.

Question 2(b)

This was not an especially hard question, but a number of candidates misunderstood the reasoning the author had presented.

Many candidates understood the author to be saying that, since humans do not share the features that other savannah animals have, we are therefore unlikely to have evolved in the savannah. But this is getting things the wrong way round. The author's reasoning is that, if the savannah theory is correct, and if it *does* explain (i.e. predict) the features we have, why does it *not* explain (i.e. predict) the features of other savannah animals? Why is it that the other savannah animals appear to falsify the theory (and yet, candidates could point out, as does the author, the theory is still accepted)? In other words, the weakness the author is pointing out is not that *we* don't share *other* Savannah animals' features, it's that *they* don't share *ours*!

The following is an example of a response that earned full marks:

She uses the prediction to challenge the theory by saying that since the prediction is false, and these adaptations are not present in savannah animals, then savannah theory must also be false. It is a partially effective prediction in that it is not clear whether savannah theory would necessarily entail it, since other animals may have evolved other means of adapting. However it seems likely that if the theory were true other animals would have evolved these characteristics. Therefore the prediction provides a challenge which makes the theory less likely, but not impossible.

Question 3

Fairly straightforward question, many candidates accessing 2 marks. Dropped to 1 mark for careless and inaccurate paraphrasings or overstatements such as '*AAT can explain everything about humans whereas SH cannot*'. While it wasn't the anticipated answer, candidates were awarded 1 mark for quoting or paraphrasing the first sentence of paragraph three; 1 mark also for picking up on a specific point which the AAT can, arguably, explain better (for example our bipedalism).

Question 4

Responses to this question were disappointing, with many candidates failing to pick up on the fact that this was a standard question on core skills and concepts about hypothesis testing and comparing the efficacy of explanations.

Many saw 'explanation' as simply 'justification', i.e. '*The author explains that the AAT theory is better by giving good reasons for it...*' A number of candidates took the route of saying things like: '*the author supports the AAT by showing how we share our features with aquatic animals*', but this does not have anything to do with explanation.

The fact that candidates misunderstood the question was evident in the way they were using the word 'explain': '*He continues to explain characteristics of the Savannah theory, before going on to...*' Or: '*The author explains his theory very well by...*'; or: '*He explains what is wrong with the S H by...*'. Often the way it was used was completely synonymous with 'claim': '*In paragraph 4 the author explains how out of all the primates only humans are classed as naked.*' This is fine in a loose colloquial sense, but candidates ought to be tightening up their expression when it comes to key words such as 'explanation', especially when being used in a semi-technical sense in a paper – and question – such as this.

As with a number of the questions, misreading was evident: some candidates did manage to get onto the right areas but made highly unfair / inaccurate assessments which were patently untrue given the material in the document (for example saying that *'the author does not show why the AAT is better at explaining fat'*).

Finally, candidates who claimed the author was unfair were often very unfair themselves! One candidate alleged of the author of the document a *'Lack of statistical knowledge or reference to actual evidence, to show what he is explaining is actually true.'* This is nonsense, and was worrying to see in the same answer space of a candidate actually discussing some of the factual elements (i.e. 'evidence') that the author was presenting! Not only are these allegations untrue on the face of it, they are unfair assumptions to make about an author who is probably scientifically trained. Candidates deemed the author's knowledge so lacking they felt it appropriate to offer mini-lessons in evolution – *'hasn't the author understood that evolution takes thousands of years? Evolution occurs when a certain group within a species... etc'*. Apart from the fact that this sort of response is unlikely to elicit marks, it is disappointing given the virtues that the subject aspires to instil. Critical Thinking is supposed to encourage fair-mindedness, **not high-mindedness**; and to inspire confidence in one's own reasoning.

Question 5

This was a straightforward question about the use of terminology, yet it was often poorly answered. Common wrong answers misunderstood the meaning of 'strong' when attached to a claim, thinking it meant strongly supported. The second half of the question therefore often became *'because if it's a strong claim it makes the argument stronger'*, or even, *'it is harder to prove wrong'* (when in fact the opposite is true!) Many candidates wasted a good deal of time recounting all the evidence in the text and even evaluating it in detail in order to establish that the claim was not strong because the support was not strong; in doing so they often made interesting and sometimes intelligent, yet entirely irrelevant critical comments.

On the other hand, candidates who pointed out that it was right to call this a strong claim because the evidence was not strong enough to warrant / justify it were credited (i.e. it's a strong claim / too strong in the context of the support provided) were given full credit, as this answered the question very well.

Here is an example of a simple answer that accumulated all four marks:

It is a strong claim because of words such as 'only' because it claims that there aren't any other theories that could account for the discrepancies with the SH. This is very difficult to do. Its strength is relevant as the stronger the claim, the greater the strength of evidence needed to back it up and the easier it would be to disprove.

Question 6

Candidates did reasonably well on this question, generally accessing at least three of the six marks available. Many candidates saw this as a question about cause and effect, and those who did tended to produce very effective answers, questioning the certainty with which any conclusions about the AAT can be drawn on the basis of causal links (and the direction of those links) between our voluntary breath control, aquatic origins, and our ability to speak.

Question 7

This question was done really well and brought out some pleasingly intelligent and imaginative answers. Anything that could potentially damage the theory was credited. Where the force of candidates' questions was weakened by their lack of general knowledge, e.g. thinking that aquatic mammals such as seals can 'breathe underwater', focus was on the principle behind their objection. Some really good answers made use of the source materials themselves to ask difficult questions of the theory, for example '*IF as the author states our features are so poorly suited to life on the savannah / on land, why did we keep them and not re-adapt to e.g. walking on four legs?*' Sometimes however the force of candidates' objections was weakened by inaccurate reading of the source material: thinking for example that the AAT did not still involve us evolving from/ being closely related to the earlier African apes.

Question 8

Candidates found this question accessible and some good answers were given. One problem was lack of focus on the section of the text cited. Another was a tendency to drift too far into abstract discussions of the rules of theories etc without applying the discussion to the case at hand. Having said that, candidates were credited for showing knowledge of the relationship between theory and evidence, for example pointing out that there is inevitably a degree of speculation in any theory. Yet to get full marks candidates needed to consider the specifics of the case. Worryingly, there was also rather a lot of candidates who exhibited very muddled understanding of the theoretical aspects, for example saying that '*you need to find contrary evidence to prove a theory is true*'.

Section B

Question 9(a)

Some really good answers were in evidence here, and different strategies were used to obtain full marks. Some candidates tended to veer too much into evaluation, and were correspondingly thin on analysis. Some began well and it was frustrating that they didn't finish the job, wandering into evaluation after e.g. identifying that suppositional reasoning was being used, and giving an e.g. of something supposed.

On the down side, candidates suffered from misunderstanding, or perhaps just misreading, the argument, seeing it as an argument against AAT in itself rather than an attempt to undermine a particular aspect of the support for AAT. This is an understandable misreading given the time constraints, but candidates again need to remember the importance of careful reading in an exam of this nature (i.e. involving logic and reasoning, and therefore accuracy and precision). Candidates who did the analysis very well but slightly mis-read / mis-interpreted the main conclusion still got 5 marks. (However, while the marking could tend towards leniency here, these candidates were likely to fall down badly in part (b), as they were liable to argue that the argument was flawed when it wasn't, because they had accredited it with the wrong conclusion).

Question 9(b)

Candidates did quite well here, but – as indicated above – many fell down due to misunderstanding of the original argument. Lines of criticism were offered which were entirely consistent with the argument. For example, candidates attacked the absurdity of the claim that we must have evolved from the sea (in the distant past) simply because we are attracted to it (in the present day) – but this is precisely the claim the author is trying to prove false! There is a danger that candidates, thinking they need to be 'critical', become overly hostile in their evaluation. Candidates seemed keen to challenge every individual claim the author was making in isolation without thinking whether or not the author agreed with them, or what role they played in the original argument.

People wrote huge amounts here, often going well beyond the space provided and filling the whole page, arguing *vituperously* as to why the author was crazy to think that simply because we liked somewhere we must have evolved there – when this was precisely what the author was aiming to establish. Obviously candidates are pressed for time, but they must be encouraged to think a little longer (and write a little less), so as not to waste time like this. Short and even relatively simple answers were often very effective and picked up plenty of marks. The following extract would easily get around five or six of the eight marks available:

... the argument is good because it shows how the idea that we must have evolved somewhere if we like living there is clearly wrong. Since this is an argument used to support AAT, this makes AAT seem less credible. However, we don't know how significant this argument is for a lot of AAT followers; this might be a minor argument, only seen as adding a little extra support, therefore it becomes less effective. However, it does show that this particular support for the theory is wrong.

Question 10

On the whole this was reasonably well answered, though the strength of argumentation was perhaps a little disappointing compared to the previous year. Candidates made good points although there were tendencies towards lack of development and / or repetition. There were also problems with consistency and coherence, which meant the argument lacked impact where a little more attention to organisation and expression would have helped. In terms of content, there was a tendency to drift into questions about creationism versus evolution without really being clear why. On the other hand, many candidates made relevant and intelligent observations about how the very fact that we have theories at all demonstrates we are both different and better than other animals, and also that the kind of theories we now consider as plausible or credible take us *closer* to the animals than previously (here consideration of evolutionary theory versus biblical accounts of our origins was clearly relevant). Humour was sometimes used to good effect, but there was a distinct lack of irony in candidates who argued vociferously against the accusation of human vanity on the grounds of our ‘unbelievably enormous brains’, ‘unbounded intelligence’ in contrast to animals (even in one case, our ‘omnipotence’!)

Mark Ranges and Award of Grades

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