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CRIT3

Unit 3 Beliefs, Claims and Arguments

Report on the Examination

2010 examination - June series

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CRIT3 Beliefs, Claims and Arguments

General Comments from the Chief Examiner

Introduction: The examination as a whole

June 2010 was the first anniversary of the AQA AS-Level in Critical Thinking. It was also the first examination of Units 3 and 4, and so of the first full A-Level. As with any new award there are lessons to be taken from the experience. Generally speaking the question-papers discriminated well. There was a very wide range of ability evident in the scripts, and the papers allowed the most able candidates to demonstrate their more advanced thinking-skills and understanding of the concepts, whilst giving the less-accomplished opportunities to gain a basic level of marks. However, there were also areas of the syllabus and corresponding questions in the exam where too many candidates were missing the point and failing to earn marks that should have been within their grasp.

There is no doubt Critical Thinking is a difficult subject, if judged on the basis of the awards. High grades are not easily gained. This has proved so since CT's inception, not only for AQA but for other boards and other related awards, both in the UK and internationally. There are some obvious reasons for this. Firstly CT is taught in the main by non-specialists whose own academic backgrounds vary widely. Many teachers feel that it takes them out of their comfort zone, not because they lack the requisite knowledge, but because of the general, cross-curricular nature of the subject. Those whose territory is maths or science are sometimes daunted by the discursive elements; arts and humanities specialists by activities involving maths and statistics. Some, it has to be acknowledged, teach it reluctantly. No subject is well taught if not taught with enthusiasm, and Critical Thinking is no exception. Indeed it is probably more dependent on the enthusiasm of the teacher than most subjects. Having said that, there was also clear evidence of some excellent teaching and thorough preparation in many centres, not just of the most able students but of many who were, at best, of average ability.

A second reason for sometimes lower-than-expected attainment in CT is insufficient time to prepare students for the examination. Whilst many centres do make adequate time-table provision, which for the AQA award is a recommended *minimum* of 2 hours per week, a proportion do not, and enter candidates who are not sufficiently immersed in the discipline or confident in the skills. Coupled with this is a perception that because Critical Thinking has less 'content' than other AS-/A-Levels, the syllabus can be covered in significantly fewer hours. This is a misconception: there is a body of knowledge and understanding that is essential to success, and this is laid out and explained in the Specification. If the concepts and related terminology are not well-understood even the most naturally able candidates will struggle to gain the highest marks in the exam. The concepts are not difficult and the terminology is neither technical nor extensive; but much of it will be new to students at the start of the course, and also quite abstract. Moreover it is not just knowledge *of* the concepts or of what terms mean that are tested in CT but their *application*, and it is this which takes time and repetition to bring to the required level.

By its cross-curricular nature much of the conceptual content is not unique to CT, but is drawn from other disciplines. To give one example: in Unit 2 a question may arise that involves data in the form of *averages*. The concepts of mean and median are taught from Key Stage 2 onwards in maths and statistics, and Unit 2 assumes that candidates are familiar with them. Candidates taking CT are not tested on their ability to explain or calculate an average, though in the process of answering the question they may need to make simple calculations of that kind, and again it is assumed that they can, given their general education up to GCSE.

What a CT question will typically test is the candidate's ability to assess reasoning based on such data: What can and/or cannot be reliably *inferred from* it? What might *explain* it (if, for instance, it is surprising, counter-intuitive or anomalous in some way)? What *implicit assumptions* are made in drawing a particular *conclusion* from it? And so on. The true content of Critical Thinking is the conceptual apparatus required for these tasks: inference, explanation, claim, conclusion, assumption, etc. And these too are notions that have their place in other curriculum subjects. (Applying them is, in the jargon, a *transferable* skill.)

The point to take from this is that no teacher or student need be intimidated by the difficulty or complexity of the content of CT, nor of the quantity of what has to be learned. But it must be recognised that there *is* a content (albeit a slender one) and that students need to be thoroughly familiar with it, and practised in applying it in all sorts of contexts, for success in the subject. CT is a set of high-order thinking skills, common to all disciplines and drawing on all.

To end on an encouraging note, a number of this year's candidates consistently demonstrated these skills to a very impressive level, and many others did so to a commendable level. It is hoped that the individual examiners' reports on specific units will assist centres to build on this success and raise performance in future years.

General Comments from the Principal Examiner

Critical Thinking Unit 3 (CRIT 3) is subtitled: *Beliefs, Claim and Arguments*. More specifically it is concerned with theories or hypotheses and the reasoning that is used to support, test and challenge these. To give some rigour to these studies, the specification also covers certain non-technical elements of theory of knowledge, scientific method and elementary logic, which are assessed informally by a series of practical tasks.

As with all the other units, CRIT 3 is topic-based. The topic for the 2010 paper is the puzzle of altruism for the theory of Natural Selection. Two explanatory hypotheses are compared: kin selection and reciprocal altruism. The questions and tasks require candidates to demonstrate from their reading of the source documents: (1) an understanding of the main problem; (2) an understanding of the competing hypotheses; (3) ability to assess some of the reasoning for and against of the hypotheses. Finally (4) they have the opportunity to construct a concise argument of their own.

There is no doubt that this was a challenging paper. It requires candidates from a wide range of speciaslism to apply higher order thinking skills to a complex topic. Whilst no *prior* technical or specialist knowledge of biological science or of evolution are required, (i.e. nothing beyond Level 2–3 National Curriculum), the ideas are quite abstract. The texts, likewise are intellectually demanding and aimed at adult audiences.

That said, a good proportion of the candidates showed more than adequate comprehension and critical skills, as well as general knowledge, to engage intelligently with the text. Although there was quite a lot to read, time was not an obvious problem. Very few failed to complete the paper, despite in many cases writing lengthy – often too lengthy – responses. However, the range of performance was considerable. There was also a sizeable group who not only found this paper difficult but whose responses suggested that would have struggled with any discursive A level subject.

Marks (out of 70) ranged from 61 (87%) down to the mid teens (c. 20%), with 14% achieving 50 marks or more (i.e. >70%). The average mark was 34.8 (50%) and the standard deviation 11.6.

Two general comments need to be made with a view to examination success in this paper. The first is the importance of reading the question and being clear about the nature of the task being set. The command words and phrases in the question are crucial: 'identify', 'explain', 'evaluate', 'analyse', 'compare', 'give example(s) of…', etc. Some candidates underline or highlight the main command word/s before starting on a question: a good practice that helps to engage with the task. Also worth highlighting are important qualifying phrases like, 'if true…'. When asked what can be inferred from a particular claim, *if true*, it is not a constructive objection to say that it might not *be* true. Lastly, some questions have more than one strand, so that both or all its parts need to be answered to access the marks. These are obvious points, but they cannot be over-stated.

The second comment concerns the length of responses: as a rule candidates write more than they need do to obtain even the maximum mark for a question. Despite the instruction to confine answers to the space provided, candidates routinely overshot, sometimes needing to attach extra sheets. Whilst they were not penalised – and all work submitted was marked – it is a counter-productive practice, especially on questions with an allocation of 4 marks or less. Over-elaborate answers, and worse repetitive answers, simply use time which could be put to better use. On the whole the space provided should be regarded as a guideline, except for those with exceptionally large writing. The overriding rule to instil is that if a question is answered correctly in a couple of sentences, it will qualify for full marks. On top of that no amount of writing will add any *extra* marks.

However, there is an optimum as well as a minimum length for acceptable answers. For example, in response to question 1, the following response would, strictly speaking, have been sufficient for a full mark.

A: There is no apparent survival advantage to an individual organism in being altruistic.

However, few A-level students would have the self-assurance to write quite as blunt an answer as this, (and none did.) A single sentence like this has to be exactly right, whereas two or three sentences may between them constitute a right answer. A more suitable, comfortable length for an answer to this question would be:

B: Because there is no apparent advantage to an individual organism in being altruistic, it does not fit well with the theory of natural selection which most scientists accept.

Or:

C: If natural selection is right the most selfish individuals should have a better chance of survival than those that take risks for others or put others first. Therefore altruism seems to contradict Darwin's theory, and that is why it is puzzling to many scientists.

Clearly B and C do say more than is strictly necessary, but they are safer answers, and give a more rounded explanation than A. But in the examination almost every candidate wrote at much greater length than any of the above. Some launched into a summary of the theory of NS, and the notion of survival of the fittest, and gave contrasting examples of altruistic behaviour. Some able candidates answered the question fully in the first three lines of their response, but then went on to write fifteen or twenty lines more.

I risk being accused of ignoring my own advice by writing at such length about this issue! But it is an important point to emphasise – perhaps the most important single point of exam technique in Critical Thinking. I hope that the above examples will provide some concrete guidance for future candidates as to how much or little they need to write; and to explain why the space provided in the answer-book may seem to them inadequate

Question-specific comments

Question 1

The majority of candidates gave an appropriate explanation in response to this question, but as observed above, wrote too much and used up valuable time.

Question 2

Again the full range of marks was available for simply identifying lack of conscious thought, and/or intention, as the key difference between biological and ordinary altruism respectively. Most answered correctly.

Question 3

(a) The three examples were easily identified in the text, and most candidates picked them out. But many did not give a strong answer to the second, evaluative part of the question. There were several acceptable answers here: e.g. that not all altruism involves close relatives, and therefore is not fully or convincingly explained by kin selection.

(b) As in 3(a) the first part of the question is relatively simple: it is obviously a potential problem for kin selection if the orphan is not a relation (the parents being dead.) There were some perceptive and imaginative answers to the second part: for example, that the adopting parents might simply mistake the orphan for their own.

Question 4

A straightforward question. Most answered correctly.

Question 5

(a) (i) This marks the start of the more challenging questions. 5(a) proved difficult, involving as it does the notion of 'confirmation'. This is a semi-technical term used in philosophy of science, theory of knowledge, and Critical Thinking. Candidates who were clearly familiar with the relevant section in the Specification, 3.3.4 and 4a, and recognised the question as addressing those issues, found it easier than those who had to answer it purely intuitively. The concepts are not difficult, and the Specification covers the knowledge that is needed, but direct teaching and practice in applying the concepts is essential.

Basically (i) refers to a number of 'confirming instances', i.e. instances that are consistent with the theory (of RA) and are what one would *expect* to observe (i.e. *predict)* if the theory is correct. Many confirming (or positive) instances of a prediction add to the likelihood or reasonableness of a hypothesis being true provided there are no *disconfirming* instances. Unless the latter can be ruled out, the hypothesis remains weakly supported. Moreover, as many candidates noted, 'many' is a very uncertain quantification / a vague term. So what *can* be inferred? Very little. But the question also asked what can*not* be inferred. What cannot be inferred is that the hypothesis is true or even highly probable on the strength of the many observations / confirming instances alone.

(a) (ii) These, of course are not confirming instances. However, they are not really disconfirming either since the theory, as presented in Doc C, does not require that *every* occurrence of an observed altruistic act involves / is explained by reciprocal behaviour. In other words RA could be true even in the face of these observations: it even has an explanation for them: the existence of 'cheating'.

Few candidates were awarded full marks for both (i) and (ii), though many demonstrated some commendable understanding of the basic concepts and methodology.

(b) This continues to address the notion of prediction / expectation (Spec. 3.3.4a). It requires some imagination as well as understanding of the concept. There are various acceptable answers and candidates came up with some very interesting ones – e.g. that some acts of apparent altruism do not involve relatives; or that some 'cheaters' are observed, on occasions, meeting with retaliation or punishment.

NOTE: The concepts and methodologies addressed by Q5 – namely hypothesis testing and justifying beliefs / theories / claims to knowledge – is central to the CRIT 3 (Section A) syllabus. Questions relating to this part of the Specification are likely to occur regularly, and preparation for them should not be neglected.

Question 6

(a) A straightforward question, generally well answered. A 3 or 20 year sentence is a worse option than 7 or 0.

(b) This proved more difficult than expected. The whole point of the prisoners' dilemma is that it concerns a one-off event, with nothing to gain or lose long term by the decision taken. In the long (evolutionary) term, altruism pays off, and by analogy the prisoner's dilemma explains how, thus supporting NS / arguably explaining away the problem of altruism for NS. Many candidates got the wrong end of the stick and argued that the prisoners' dilemma showed that *selfishness* paid off and supported NS by denying that altruism had benefits.

(c) This should have been a relatively easy question, but many candidates, including some otherwise high-scorers, made a meal of it. Selfishness, truth-telling, promise keeping, trust, callousness, courage, and much more are among the many ethical issues that could have been raised without going into technical detail. More technically, a *utilitarian* point could have been made for choosing cooperation as the way to the shortest total / shared number of years spent in prison. Alternatively the case for cooperation / promise-keeping / loyalty /… / could be made in terms of *virtue*; or of *duty* / *obligation*; or of treating others as we would want to be treated (the so-called Golden Rule). The (Kantian) view that we should not treat another as means to our own ends could also be cited. Many did raise one or more of these ethical issues, but fewer than might have been expected.

Question 7

A straightforward question, generally well answered. Argument analysis has clearly been well taught and practised at AS Level and beyond. A high number of candidates gave a precise, clear interpretation of the short text, using semi-technical language confidently and correctly. (See mark scheme for creditable responses.) Some came to grief however by confusing analysis with evaluation in the question. (See comments on the next question.)

Question 8

Evaluation questions involve two main strands: assessing the claims (explicit assumptions) on the basis if their truth, plausibility, acceptability, (logical) strength, etc., and assessing the validity of the inference from reasons/s to conclusions. In the process candidates need to be alert to the presence of implicit conclusions and be prepared to determine whether or not they are warranted. In this text the first step consisted of a proposed definition of 'true altruism', and the conclusion that reciprocal altruism, as described, is not real altruism. Most candidates rightly accepted this as an acceptable sub-argument. The next step required acceptance of the explicit assumption that reciprocal altruism is the only plausible theory we have for altruism, and therefore that true altruism does not exist. Again, most candidates saw this as a valid argument, but questioned or rejected the added premise. Some candidates also identified and challenged the *implicit* assumption that being the only plausible theory we have means there are no other true or possible theories. Some candidates also challenged the definition of 'true' altruism; and some criticised the use of the phrase 'so called Reciprocal Altruism…' as a rhetorical / persuasive / question-begging device. All in all, there were some very impressive responses to this demanding question.

Two important points to take from Q8: The first is that technical, logical terms should be used only when the candidate is entirely sure of them. To describe a text as a valid deduction is fine if it is correct *and* so long the rest of the response indicates that the candidate knows, and can explain, why it is correct – for example by saying that the conclusion is inescapable if all the premises hold true. In this instance both of the steps in the reasoning were broadly valid, with the question mark being over the truth / acceptability of the final premise. A candidate who writes: 'If we accept the definition of true altruism and the claim that reciprocal altruism is the only plausible theory, the author is right to conclude that there is no true altruism in nature…' will not be faulted for using plain, non-technical terms. Moreover he or she will score more marks than the candidate who happens to pick the right technical term but is unclear as to why it is correct.

The second is point concerns a common weakness, that of rejecting a claim because the author has given no evidence for it. This is not, generally speaking, credited as a serious critical comment. Many candidates – predominantly, it has to be said, the weaker ones – habitually throw it at claims, as if that alone made them unacceptable. Some, for example, suggested that the author should have provided 'evidence' for his definition of altruism. Of course, it is perfectly reasonable to object, as some candidates did, that the author helps himself / herself to the notion of 'true', as opposed to 'ordinary', altruism; or that s/he gives too narrow a definition of altruism. But these legitimate objections have nothing to do with lack of evidence. The simplest and most effective challenge to a narrow *definition* is to give a counter-example: something that we would normally include that the definition rules out. In this case we could argue that there are examples of what most people mean by altruism that are done for some reward, even if it are only personal satisfaction, 'feel-good', appreciation or gratitude, etc. If that argument stands up even *true* altruism is in some respect reciprocal.

Similarly, the questionable assumption that reciprocal altruism is the only plausible theory has nothing to do with 'lack of evidence'. The right challenge to that is that there are other theories, e.g. kin selection. Of course there are some claims of which it is true to say that the author has given insufficient evidence, for example
when he or she draws an inference from a data set that does not support the inference. But at other times it is at best an empty comment; at worst a fallacious one.

One further caution: As noted above (Q7) a number of candidates misread 'analysis' as 'evaluation'. Of those some realised the mistake when they moved from Q7 to Q8, and changed the numbering of the questions. Others mixed analytical comments with evaluative ones in Q7 and then repeated themselves or gave partial answers to Q8. Marking was conducted as positively as possible, crediting evidence of the two skills where they were found, but candidates who failed to read the questions carefully inevitably put themselves at some disadvantage.

Question 9

The short essay question at the end of CRIT 3 always carries between 12–15 marks. These are awarded for the quality of the candidate's reasoning, not for expressing opinions. Credit is given for:

- articulating a clear conclusion, consistent with the accompanying argument/s;
- supporting the conclusion with one or more relevant and persuasive lines of reasoning, relevant to the question and the context;
- supplementing the above, as appropriate, with one or more of the following: example, counter-example, analogy, explanation, sub-argument, anticipated objection, principle

These are very much in line with the criteria for the longer essay question in Units 1 and 2, the difference being that the level of reasoning expected is commensurate with the step up to A level. It has to be said that many of the responses were on the flimsy side. Quite simplistic reasons, such as freedom of choice, risk being part of the job, praise for heroism, etc., were often given without much development as grounds for a 'Yes' answer. 'No' conclusions tended to be better developed, possibly because the grounds were plainer and more readily quantifiable. Explicit conclusions were often omitted, or were vague; and not always consistent with the direction implied by the accompanying reasons. In some responses there was no clear position stated at all. Weak or contradictory answers, on the lines of: 'They should risk their lives, but not if it's a danger to their own' were not uncommon. Clearly in a short argument like this, the candidate is well advised to take one side and argue for it firmly. Balancing pros and cons is an option, but it a harder task to do well, and takes more time.

Candidates should be aware that the stimulus material accompanying the question – in this case the Faludi quote and the events of 9/11 – is there for a reason, namely to put the question into a specific context, and to give a particular slant to the question. It is also there to help, so that the candidate has a contention to support or challenge, and/or some information to draw on. Faludi's point, which a number of candidates missed or ignored, is about the negative consequences of a rescue operation when more lives are lost than saved. A number of candidates recognised this as a *utilitarian* point, and used it either as grounds for a No answer – the sum of benefits being negative – or as the target for a Yes answer – there are virtues, duties, high ideals etc., which override the quantifiable gains and losses.

As with the logical terms mentioned above, references to specific ethical theories, and thinkers, should be avoided unless they are (a) genuinely relevant and (b) well understood. The specification for CRIT 3 lists a number of concepts and principles which may help candidates to express and explore ethical ideas. They are not expected to expound or even to name particular theories, or the thinkers associated with them. It is creditworthy if they make the connections, but not a requirement.

The issue of how much or how little to write on a question like Q9 is a useful one, as it was for shorter question like Q1. 'Short argument' can and should be taken at face value, given the time and mark allocation. But there is a certain extent (probably around 150 words) below which the criteria would become difficult to meet. The following specimen (not a candidate's response) would be a minimum, but even here there is enough reasoned argument to earn a respectable mark:

> Rescuers, such as trained fire-fighters, should risk their own lives to save others even if sometimes they fail. That is the whole point of their training: it raises the chances of rescuing people without getting killed themselves. Of course it doesn't remove the risk altogether, and sometimes rescuers will die. But many more people will survive than die in fires if rescuers don't take some life-endangering chances. People like Faludi may say a fire-fighter's life is as valuable as the person they are trying to save, and that is true. But if over time the rescuer saves a hundred people, then dies in a fire, that is better for the world than letting the hundred die because of risks to the rescuer. It is a matter of the greatest good for the greatest number. Faludi's mistake is to argue from one single and unusual case. (142)

Though short, this paragraph provides all of the following:

[1] A clear statement of the conclusion (the first sentence).

[2] A single or main line of reasoning premised on the probabilistic claim that more lives are saved if trained rescuers take risks than if they do not.

These are supplemented by:

[3] Reference to a general principle: the greatest good for the greatest number.

[4] A potential objection: 'People like Faludi may say…'.

[5] Response to the objection – the last three sentences.

[6] Reference to, and critical comment on, the stimulus material.

Conclusions

This was the first sitting of CRIT 3. Under the circumstances candidates performed very well, and in many cases outstandingly well, with insightful and well-judged critical responses to difficult tasks. There is evidence in the scripts of some excellent teaching and learning. It is hoped that the above comments will be useful in preparing students to achieve even more in future exams.

New Numbering System and New Style Answer Book

Centres are thanked for preparing so thoroughly their candidates to work with the new numbering system and the new style answer book. The majority of candidates responded well to the changes to the June 2010 exams, but where difficulties were experienced, centres are asked to draw candidates' attention to the comprehensive range of guidance material that is available on this subject in order that they are confident about what is required of them in future examinations. Support available on this issue includes Guides for teachers and students, and specimen question papers and mark schemes showing the changes in action. All documents published in support of the changes to exams can be accessed via notices published on all qualification homepages, all subject notice boards, and on the parent and student area of the web.

Mark Ranges and Award of Grades

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