Section A questions

1. The film clips might affect the ecological validity in two ways. First, if participants are watching film clips they are expecting to take note of events, whereas in real-life people who eyewitness accidents are not expecting something to happen which they might need to especially take note of. This means that in Loftus and Palmer’s study, the participants might be better at estimating speed than if they saw an accident in real life. Second, watching a video does not have the same emotional impact as seeing an accident in real life. Emotional impact – shock, fear, worry for passengers, etc. – may affect what details participants can remember.

2. Loftus and Palmer concluded that leading questions do affect memory. Identify two conclusions that can be drawn about memory from the study by Loftus and Palmer.

3. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

4. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

5. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

6. Loftus and Palmer used the experimental method in their study. Outline one strength and one weakness of using this method in this study.

7. The study by Loftus and Palmer used an independent measures design. Explain one strength and one weakness of using this design in this study.

8. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

9. Loftus and Palmer concluded at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

10. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

Section B questions

1. Loftus and Palmer used film clips of car accidents. Outline two ways that this might affect the ecological validity of the study.

2. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

3. Identify two conclusions that can be drawn about memory from the study by Loftus and Palmer.

4. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

5. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

6. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

7. Loftus and Palmer concluded that leading questions do affect memory. Identify two findings that support this conclusion.

8. Loftus and Palmer used the experimental method in their study. Outline one strength and one weakness of using this method in this study.

9. The study by Loftus and Palmer used an independent measures design. Explain one strength and one weakness of using this design in this study.

10. Describe the two samples used in the study by Loftus and Palmer.

11. Outline one weakness of the sample.

Section C questions

1. The study by Loftus and Palmer used film clips of car accidents. Outline two ways that this might affect the ecological validity of the study.

2. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

3. Identify two conclusions that can be drawn about memory from the study by Loftus and Palmer.

4. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

5. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

6. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

7. Loftus and Palmer concluded that leading questions do affect memory. Identify two findings that support this conclusion.

8. Loftus and Palmer used the experimental method in their study. Outline one strength and one weakness of using this method in this study.

9. The study by Loftus and Palmer used an independent measures design. Explain one strength and one weakness of using this design in this study.

10. Describe the two samples used in the study by Loftus and Palmer.

11. Outline one weakness of the sample.

12. In Experiment 1, the participants watched the videos and then the target question was ‘How fast were the cars going when they (smashed, hit, etc.)?’ and the DV was the mean estimate of the speed for each condition. In Experiment 2, participants came back a week later after seeing the videos and being asked the question (conditions were ‘smashed’, ‘hit’ and ‘control’). Here the DV was the response to the question: ‘Did you see any broken glass?’

13. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

14. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

15. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

16. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

17. Identify two conclusions that can be drawn about memory from the study by Loftus and Palmer.

18. Loftus and Palmer concluded that leading questions do affect memory. Identify two findings that support this conclusion.

19. Loftus and Palmer used the experimental method in their study. Outline one strength and one weakness of using this method in this study.

20. The study by Loftus and Palmer used an independent measures design. Explain one strength and one weakness of using this design in this study.

21. Describe the two samples used in the study by Loftus and Palmer.

22. Outline one weakness of the sample.

23. In Experiment 1, the participants watched the videos and then the target question was ‘How fast were the cars going when they (smashed, hit, etc.)?’ and the DV was the mean estimate of the speed for each condition. In Experiment 2, participants came back a week later after seeing the videos and being asked the question (conditions were ‘smashed’, ‘hit’ and ‘control’). Here the DV was the response to the question: ‘Did you see any broken glass?’

24. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

25. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

26. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

27. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

28. Identify two conclusions that can be drawn about memory from the study by Loftus and Palmer.

29. Loftus and Palmer concluded that leading questions do affect memory. Identify two findings that support this conclusion.

30. Loftus and Palmer used the experimental method in their study. Outline one strength and one weakness of using this method in this study.

31. The study by Loftus and Palmer used an independent measures design. Explain one strength and one weakness of using this design in this study.

32. Describe the two samples used in the study by Loftus and Palmer.

33. Outline one weakness of the sample.

34. In Experiment 1, the participants watched the videos and then the target question was ‘How fast were the cars going when they (smashed, hit, etc.)?’ and the DV was the mean estimate of the speed for each condition. In Experiment 2, participants came back a week later after seeing the videos and being asked the question (conditions were ‘smashed’, ‘hit’ and ‘control’). Here the DV was the response to the question: ‘Did you see any broken glass?’

35. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.

36. Loftus and Palmer asked participants to estimate the speed of two cars in a traffic accident. They used different verbs in the questions they asked. Name two of the verbs. What was the effect of using the different verbs you identified in (a)?

37. Loftus and Palmer used the same set of standardised procedures with each participant. Describe two of these procedures.

38. Loftus and Palmer concluded, at the end of the first experiment, that there were two possible explanations for why leading questions affect the accuracy of memory. Outline these two explanations.
Section B questions

(a) ‘Participants are more likely to report seeing broken glass when they are given the word ‘smashed’ in a previous question than when they have the word ‘hit’.

(b) The sample used were 45 university students in the first study. In the second study, the sample were again students, but this time a new group of 150. Both samples were probably gained opportunistically and were just available and easy to recruit at the time. One limitation of this sample is that they are not like the general population in a number of ways – they are relatively young and similar in age, unlike the general public. Their memories, in some ways, may be better than average because they are younger (memory is said to decline with age) and because they are used to having to revise for exams and retain information.

(c) Participants came to the laboratory in Experiment 1 and were shown some videos of car crashes. They were then asked a number of questions immediately afterwards. The key question was ‘How fast were the cars going when they ****ed?’ The verb here was the IV. Different groups of participants had different words – smashed, contacted, bumped, hit, collided. The participants estimated a speed in miles per hour and Loftus and Palmer calculated the mean for each group. For Experiment 2, again participants were shown videos of cars and immediately afterwards asked the question ‘How fast were the cars going when they ****ed?’ There were only two verb conditions – ‘hit’ or ‘smashed’. There was also a control group who were not asked this question. Loftus and Palmer calculated the mean speed estimate (mph) for each group. But the main DV was measured when, one week later, participants were shown the clips again and asked the same questions. This shows that participants’ memories had been altered after watching the video by the leading questions. Memory is not 100% accurate and any memory is composed of both the event itself as well as the information afterwards (such as the accident being much more perceptually rich (with louder noises, smells of oil or burning rubber, etc.) and so the leading question will have less influence. Another change could be to keep the experiment in the laboratory and with the same procedure but with different participants. The sample could be selected from a larger target sample – adults from the general public. They could be recruited opportunistically or through adverts in newspapers. Obviously, this sample would be more expensive and time consuming to recruit than a sample of students, but it would be more representative of the general population and therefore the results would be more generalisable. I think this sample might have an impact upon the results. Again, I think the leading question would have less impact upon people’s recollections of speed because they would be more experienced in life, have their own opinions, and more experience of cars and estimating their speeds. However, it is possible the leading questions would have some effect, just not as much.

Section C questions

(a) One assumption of the cognitive approach is that people’s brains process information a bit like a computer – there are inputs and outputs and the memory is like a storage system.

(b) The cognitive approach could explain memory as a storage system which retains information accurately and for a long time. A bit like a computer memory, information is organised along fairly logical lines. When we ‘remember’ information or ‘recall’ information, it is retrieved from memory.

(c) One similarity between Loftus and Palmer and Baron-Cohen et al. is that they both conducted their study in a laboratory under controlled conditions. In Loftus and Palmer, they showed them videos so as to ensure each participant saw exactly the same and so that any differences in the DV was due to the IV (verbs in the leading questions). Similarly, in Baron-Cohen et al., participants were shown specific pictures of faces to ensure high levels of control. One difference between Loftus and Palmer and Baron-Cohen et al. is that Baron-Cohen et al. used a diverse sample of autistic adults, adults suffering from Tourette syndrome as well as non-clinical (normal) adults. Therefore, they were quite a diverse set of participants. However, Loftus and Palmer used a more homogeneous sample – all students and probably all of a very similar age.

(d) One strength of the cognitive approach is that it focuses upon the mind and this should be central to the study of psychology. For example, Loftus and Palmer have shown how the mind is not just a straightforward perfect record of events, but that our minds are complex. According to Loftus and Palmer our memories are formed not only from the event itself but from information afterwards (such as leading questions) which can alter the original memory. This shows us that because our memories might be a more complex construction of the event, that eyewitness testimony may not be 100% accurate. Another strength of the cognitive approach is that it is one of the more scientific approaches to the study of memory.
approaches. For example, in the Loftus and Palmer study, they conducted the research in a laboratory and had a high number of controls, e.g. the event was duplicated for each participant because they watched a video. Participants saw seven videos and these were deliberately seen in a different order to prevent any order effects from the sequence of the videos. All participants were asked exactly the same questions (except for the target question). Because the study is highly controlled and reduces the possibility of extraneous variables, we can be more certain the changes in the DV are just due to the IV rather than anything else. One weakness of the cognitive approach is that it ignores emotion. We do not know from this study how it feels to really witness an accident and what impact that might actually have upon recollection. For example, because a car accident is unexpected, it must be very surprising and shocking. Car accidents are also very noisy events and they are probably quite scary. Witnesses probably get a big adrenaline hit and feel scared. The cognitive approach often overlooks the impact of emotions on thought and treats us much more logically and like a human computer, and this probably ignores a really important influence on what and how we recall events. Another weakness of the cognitive approach is that cognitive functioning cannot be directly observed. This means that we can only really deduce or guess what is going on in the mind (from measuring ‘outputs’ or responses, etc.), and we may not be right. For example, in Loftus and Palmer, because we cannot directly observe memory, we cannot be 100% certain if they were changed or not. Even in Experiment 2 when more of the ‘smashed’ group said they had seen glass, it may have just been that they were responding to demand characteristics or response bias from their original question. We cannot be 100% sure that the conclusions are actually correct.
Section A questions

1. (a) In the study by Baron-Cohen et al. why did they need to devise a new test of Theory of Mind? [2]
   (b) Explain what is meant by the term ‘Theory of Mind’. [2]

2. In what ways are individuals with autism the same as those with Asperger syndrome, and in what ways are they different? [4]

3. (a) From the study by Baron-Cohen et al., describe one of the control tasks that was used. [2]
   (b) Outline the findings from this task. [2]

4. Identify one similarity and one difference between the participants in the autism/Asperger group and the normal adults tested. [4]

5. (a) In the study by Baron-Cohen et al. theory of mind was tested using the Eyes Task. Describe this task. [2]
   (b) Describe a different way to test Theory of Mind. [2]

6. Baron-Cohen et al. say that earlier tests of Theory of Mind produced ceiling effects if used with participants aged over six years. Explain the term ‘ceiling effects’. [2]
   (b) Explain how such effects were avoided by the newer Eyes Task. [2]

7. (a) Explain what is meant by the term ‘ecological validity’. [2]
   (b) Explain in what way the study by Baron-Cohen et al. may be described as lacking ecological validity. [2]

8. (a) Give one example of a word pair in the Eyes Task. [2]
   (b) Outline one finding from the Eyes Task. [2]

9. (a) Identify two ways that quantitative data was collected in this study. [2]
   (b) Give two examples of quantitative data collected in this study. [2]

10. What evidence from this study suggests that adults with autism do not have a Theory of Mind? [4]

Section B questions

Answer the following question with reference to the Baron-Cohen et al. study:

(a) Outline the aim of this study. [2]
(b) Describe two examples of quantitative data recorded in this study. [4]
(c) With reference to this study, suggest one strength and one weakness of quantitative data. [6]
(d) Describe the procedures of this study. [8]
(e) Suggest how this study could be improved. [8]
(f) Outline the implications of the improvements you have suggested for this study. [8]

Section C questions

(a) Outline one assumption of the cognitive approach. [2]
(b) Describe how the cognitive approach could explain autism. [4]
(c) Describe one similarity and one difference between the Baron-Cohen et al. study and any other core studies that take the cognitive approach. [6]
(d) Discuss strengths and weaknesses of the cognitive approach using examples from any core studies that take this approach. [12]

5. (a) In the Eyes Task, participants were shown 25 pictures of the eye area of faces. Each set of eyes was displayed for just three seconds and then participants were asked to choose an emotion from two possibilities (e.g. happy versus sad) that were presented.
   (b) Another way to test Theory of Mind would be the Sally–Anne Task. There are two dolls, Sally and Anne, and they are made to move around by the researcher. Sally puts a ball in her basket and walks away. Anne gets the ball from the basket and puts it in a box. Sally comes back into the room. Participants are then asked ‘Where will Sally look for her ball?’ Autistic children generally say ‘in the box’ as they cannot appreciate (due to lack of ToM) that Sally will not ‘know’ that Anne has moved the ball.

6. (a) ‘Ceiling effects’ occur because a test is designed for a certain group or ‘ability’ of people. When people well above that ability take the test, the test will not discriminate (show individual differences) between them. The measuring tool does not ‘go high enough’.
   (b) This is a much harder test because it focuses only on reading the emotion of a limited part of the face and also because it involves reading some relatively complex mental states (e.g. daydreaming versus observing).

7. (a) Ecological validity concerns the ability to generalise a research effect beyond the particular setting in which it is demonstrated to other settings. ‘High ecological validity’ is when a task or setting resembles a real life situation so the behaviour the participant shows is more likely to reflect their natural behaviour.
   (b) Baron-Cohen et al.’s study could be said to be low in ecological validity because the participants were asked to identify emotion from only a small section of the face (the eyes), when normally people use a whole face to judge emotion. The fact that the face was shown in a
Chapter 2 Cognitive psychology

8 (a) Concerned – unconcerned
(b) The normal and the TS groups performed identically on the Eyes Task whereas the autism/AS group significantly less able to cope with the Eyes Task.
(c) Weakness: It may not give a full picture of why there are differences. Without collecting qualitative data, we cannot be absolutely sure of the reason why the autism/Asperger group did not do so well overall. If participants had been asked why they had given one answer rather than another, it may be possible that in some cases it was not due to misreading the emotion, but to problems with the vocabulary used.
(d) There were three groups of participants: 16 people with HFA/AS, 50 age-matched ‘normal’ controls; and 10 adults with Tourette syndrome. They all underwent the Eyes Task where they were shown 25 different faces of males and females, showing only the eye region. They were shown the photos for three seconds and were given a forced-choice question to indicate what emotion the person in the photo was feeling. The forced-choice was a pair of terms, one emotion and its ‘foil’ or opposite, e.g. friendly – hostile. It was correct if it corresponded with judgements made by neutral observers. The participants also underwent the Strange Stories Task and two control tasks where they had to recognise gender from eyes in photos and basic emotions from whole faces in photos.
(e) One change to this study is that Baron-Cohen et al. should have used a larger number of participants in the autistic group. In the current study, he only used 16 adults, which is actually quite a small sample. They should have used about 50 autistic adults instead, again of normal IQ.
(f) This would probably improve the representativeness of the sample to the general population as well as making the findings more certain. Possibly, these changes might make the difference between the autistic group and the normal group more pronounced and more statistically significant.

9 (a) Counting the number of emotions correctly identified in the Eyes Task; counting the number of correct answers in the Strange Stories Task.
(b) Mean scores for correct answers on the Eyes Task: correct answers in the Strange Stories Task.

10 That adults with autism performed worse on the Eyes Task than both of the other groups. This means that they have trouble inferring what is in someone else’s mind, and this is related specifically to those with HFA/AS because the Tourette group performed identically to the ‘normal’ group. This means it cannot be put down to having any mental disorder.

Section B questions

(a) In order to assess whether high-functioning ASD adults do really have Theory of Mind a new test was devised, the Eyes Task.
(b) Mean scores for correct answers on the Eyes Task; correct answers in the Strange Stories Task.
(c) Strength: You can easily compare the performance of each of the groups of the task and see if there are differences in the ability to read emotions.
   Weakness: It may not give a full picture of why there are differences. Without collecting qualitative data, we cannot be absolutely sure of the reason why the autism/Asperger group did not do so well overall. If participants had been asked why they had given one answer rather than another, it may be possible that in some cases it was not due to misreading the emotion, but to problems with the vocabulary used.
(d) There were three groups of participants: 16 people with HFA/AS; 50 age-matched ‘normal’ controls; and 10 adults with Tourette syndrome. They all underwent the Eyes Task where they were shown 25 different faces of males and females, showing only the eye region. They were shown the photos for three seconds and were given a forced-choice question to indicate what emotion the person in the photo was feeling. The forced-choice was a pair of terms, one emotion and its ‘foil’ or opposite, e.g. friendly – hostile. It was correct if it corresponded with judgements made by neutral observers. The participants also underwent the Strange Stories Task and two control tasks where they had to recognise gender from eyes in photos and basic emotions from whole faces in photos.
   Number of correct answers were recorded.
   (e) One change to this study is that Baron-Cohen et al. should have used a larger number of participants in the autistic group. In the current study, he only used 16 adults, which is actually quite a small sample. They should have used about 50 autistic adults instead, again of normal IQ.
   One other change could be that Baron-Cohen et al. could conduct the study using the same Eyes Task, but instead of providing only two possible answers – the correct answer and its ‘foil’ – to try to reduce the impact of guessing, it would be better to provide four possible answers with one correct and three ‘distractors’.
(f) This would probably improve the representativeness of the sample to the general population as well as making the findings more certain. Possibly, these changes might make the difference between the autistic group and the normal group more pronounced and more statistically significant.

Section C questions

(a) One assumption of the cognitive approach is that humans are like computers. In particular, the way the mind works is like a computer in that it has information inputted (stimuli). It does some processing (e.g. storing information) and it gives some output (e.g. recalling information).
(b) The cognitive approach would explain autism along the lines of a cognitive deficit. So it wouldn’t explain it in terms of genes, biology, neurotransmitters or brain areas, but in terms of some faulty thinking processes. For autism, a popular cognitive explanation is lack of theory of mind as suggested by Baron-Cohen et al. This means that an autistic person is not able to infer in other people mental states such as beliefs and emotions. So, an autistic child might think that someone else is also thinking and feeling in the same way as they do, and knows the same things.
(c) One similarity between Baron-Cohen et al. and Loftus and Palmer is that they both use a kind of experimental approach and this is a popular methodology for cognitive studies. In Baron-Cohen et al., the IV is whether the participant is autistic, has Tourette or is normal. The DV is measured through a task (the Eyes Task). In Loftus and Palmer, the IV is the word given to the participants and again, the DV is measured through a task (recall of speed of the car in the video). One difference between Baron-Cohen et al. and Savage-Rumbaugh et al. is that Baron-Cohen et al. uses a comparatively large sample whereas Savage-Rumbaugh et al. uses a small sample which is discussed in a lot of detail and follows over time. This is therefore more like a case study and so not generalisable, whereas Baron-Cohen et al.’s sample is probably big enough that it could be said to be representative of his target population.
(d) One strength of the cognitive approach is that it focuses upon what people think and this is very relevant to the whole subject of psychology. For example, Baron-Cohen et al.’s study has demonstrated how autistic people are not able to conceive of what other people are feeling as easily as non-autistic people, i.e. not capable of ‘mind-reading’. This is shown because the autistic/AS participants scored less well on the Eyes Task than the non-autistic groups. This is useful research because it can help people know how best to communicate with and treat autistic children.

Another strength of the cognitive approach is that it is quite scientific. For example, in Baron-Cohen et al. it is scientific because it uses the experimental method and there are many controls, e.g. matched ages, two control groups, standardised tasks, etc. This means we can be more sure that the results are valid.

One weakness of the cognitive approach is that it ignores emotion. We do not know from Baron-Cohen et al.’s study how it feels to be an autistic child or person and what their experience is. This means that the cognitive approach tends to be reductionist as it focuses on one aspect of psychology, missing out others.

Another weakness of the cognitive approach is that it is really only guessing about how people think as you cannot directly observe thinking in the way that you can observe behaviour. So, in the Eyes Task, we do not know why the autistic people did less well – it might not be because of poor theory of mind or it might have been for some other reason, e.g. they didn’t understand the adjectives, or they didn’t concentrate. Thought processes cannot be directly observed and rely on inferences and producing valid ways of measuring.
Savage-Rumbaugh et al.

Section A questions

1. From the study by Savage-Rumbaugh et al., outline two methods that were used to record the lexigrams used by the chimpanzees. [4]

2. Describe two differences between the language acquisition of pygmy chimpanzees and common chimpanzees. [4]

3. Savage-Rumbaugh et al. claim that Kanzi and Mulika were exposed to language in a different way to Sherman and Austin. (a) Explain in what way this was different. [2] (b) How might this difference have affected their development of language? [2]

4. Savage-Rumbaugh et al. conclude that Kanzi’s use of language might be ‘a precursor of syntactical structure’. Explain is meant by ‘syntactical’. [2] (b) Describe one other conclusion from the study by Savage-Rumbaugh et al. [2]

5. Identify two similarities between Kanzi’s acquisition of language and the way children acquire language. [4]

6. (a) Savage-Rumbaugh et al. used formal tests with the chimpanzees. Why were such tests necessary? [2] (b) Describe one of the formal tests that was used to test Kanzi. [2]

7. In the study by Savage-Rumbaugh et al. explain the criterion used to decide whether a chimpanzee had acquired true comprehension of a word. [4]

8. In the Savage-Rumbaugh study quantitative data was gathered. (a) Identify two methods used to collect this quantitative data. [2] (b) Give two examples of the quantitative data that was collected in this study. [2]

9. The study by Savage-Rumbaugh involved two subjects who were studied over a long period of time. (a) Describe the subjects studied by Savage-Rumbaugh. [2] (b) Explain why these subjects may not have been representative of their own species. [2]

10. In the study by Savage-Rumbaugh qualitative data was recorded. (a) Describe one example of qualitative data that was recorded. [2] (b) Give one advantage of using qualitative data. [2]

Section B questions

Answer the following question with reference to the Savage-Rumbaugh et al. study:

(a) Briefly outline the previous research or event which was the stimulus for this study. [2]

(b) Describe two ethical issues raised by this study. [6]

(c) Give two strengths of the case study method as used in this study. [6]

(d) Give two weaknesses of the case study method as used in this study. [6]

(e) Outline the results of this study. [8]

(f) Suggest how this study could be improved. Give reasons for your answer. [8]

Section C questions

(a) Outline one assumption of the cognitive approach. [2]

(b) Describe how the cognitive approach could explain language acquisition in apes. [4]

(c) Describe one similarity and one difference between the Savage-Rumbaugh et al. study and any other core studies that take the cognitive approach. [6]

(d) Discuss strengths and weaknesses of the cognitive approach using examples from any core studies that take this approach. [12]
(b) Because they may have been particularly bright, or have a particular affinity with humans, or may have had a particular aptitude for language.

10 (a) Description of Kanzi’s behaviour when showing the ‘blind’ visitor around, i.e. going to the area that was usually not allowed.

(b) Gives a detailed description allowing a level of understanding not shown by numbers; complex behaviour such as Kanzi’s merits a ‘word-picture’ to do it justice rather than a simple count of particular actions or reactions.

Section B questions

(a) Past research with chimpanzees has provided lots of evidence of associative symbol learning but representational usage, i.e. using language to refer to objects, has less research history.

(b) One ethical issue is that Kanzi and Mulika have no choice about being included in the study or about living in a situation that is not natural for chimps. There is a question about whether it is right to subject animals to this kind of treatment, particularly apes which are intelligent and very aware of their surroundings.

Another is that Kanzi and Mulika can never now be ‘normal’ Bonobos again; they will always be different from others of their species and as such would not be accepted by a bonobo community. This means that they will inevitably have to spend the rest of their lives in human company and captivity, and rely on their keepers to ensure that they have good treatment and an acceptable quality of life for their very individual needs.

(c) One advantage of conducting case studies is that they give really in-depth data so that you can understand what is being studied very well and not just superficially. This study by Savage Rumbaugh et al. is the first study where the entire language usage and comprehension has been recorded for apes. This means that we can gain a thorough and valid understanding of the ways in which the chimps acquired language and how it is similar or different from child language acquisition.

Another advantage is that their longitudinal nature means that we can see how the Bonobos changed over time, gaining an overall picture of their language acquisition as it happened rather than just a snapshot of the outcome once the process itself was over.

(d) One disadvantage of conducting case studies is the lack of generalisability. Thus, because only a small number of participants are being studied, it might be that they are not representative of the whole ape population and therefore the conclusions may not hold true for the whole population. In this study, it might be, for example, that Kanzi and family are particularly gifted chimps and that other pygmy chimps might not be.

Another disadvantage is that it is very time-consuming and complex to maintain the chimps’ environment, the training and the testing procedures over many months.

(e) Kanzi and Mulika used gestures to communicate without being trained to do so, for example Mulika showing she wanted a balloon blown up by pushing it towards a person’s mouth. Although there was no direct attempt to teach lexigram use, both chimps started to use them without being shown. At 14 months, Mulika used some new words such as cherry and surprise. During the study, Kanzi acquired 46 words and Mulika 37. Kanzi used 2,540 non-imitative combinations of symbols, almost all of which were judged to be appropriate and understandable. Kanzi and Mulika imitated others when learning new words; about 15% of their utterances were imitative. In formal tests, both chimps could select photos with the lexigram, and vice versa. Kanzi could choose a symbol or photo and then go to the correct area of the forest.

(f) One change that could be made to this study would be to raise one pygmy chimp and one common chimp at the same time in the same way and give them the same opportunities to learn language. In the study as it is, Kanzi seemed to get much more natural opportunities to converse than Sherman and Austin. For example, they could both be spoken to in the same way, introduced to the lexigram at the same time; both could be present when conversation between the ‘teachers’ was translated onto the lexigram etc. It is difficult to say what impact this might have on the results. It still may end up being the case that the pygmy chimp acquired language faster and better than the common chimp – however, one impact of this change would be that, because both species would be reared side by side, we would be able to be more convinced and certain that differences in language acquisition were due to the species, and not just due to differences in treatment and language exposure. Another change could be to use a portable touch screen laptop. In the current study, the researchers had to take a board with the lexigrams on and make notes of which lexigrams the chimps used when they went outside into the more natural habitat. This way, the laptop will automatically record, e.g. Kanzi’s choice of lexigrams so that the researchers do not have to painstakingly record what was said, which may have got in the way of a natural ‘conversation’. With this change, it is likely that the validity of the recordings will increase as it will be less prone to error from missing things out, misremembering what lexigrams were signalled. It might also mean that Kanzi’s language improved as the researcher would have more time to converse and expose Kanzi to language, rather than busily taking notes.

Section C questions

(a) One assumption of the cognitive approach is that behaviour is the result of information processing, and in this way the mind is like a computer. Some data is input, a process such as thinking or learning happens, and there is an output in terms of reaction or behaviour.

(b) The cognitive approach could explain language acquisition in apes by identifying how the mental process involved in the learning of language is developed through cultural transmission. Savage-Rumbaugh et al. can help demonstrate how pygmy chimps were able to acquire language through being immersed in human culture – this environment led the chimps to acquire language spontaneously in the same way that a child acquires language. The ‘input’ in the computer analogy is the stimuli from living with the humans who were using speech and the lexigram; the processing goes on in the learning in the chimpanzee’s mind, and the ‘output’ is the behaviour of using the symbols and lexigrams themselves, and responding the spoken words.

(c) One similarity between Savage-Rumbaugh et al.’s study and Baron-Cohen et al.’s study of autism is the use of a formal, standardised test procedure. Kanzi and Mulika were tested using standardised questions requiring a specific, correct or incorrect response. In the same way, Baron-Cohen et al.’s participants were tested using the *Eyes Task*, Happé’s *Strange Stories*, the Basic Emotion Recognition Test and the Gender Recognition Test, which all had a standardised procedure and a very clear-cut answer that could be scored as right or wrong.

One difference between Savage-Rumbaugh et al.’s study and Lotus and Palmer’s study of eyewitness testimony is that the former collected both quantitative and qualitative data while the latter only gathered quantitative data. Savage-Rumbaugh included descriptions of the Bonobos’ behaviour, such as descriptions of how Kanzi’s use of words varied across different contexts, and his use of the lexigram on his own. She also gathered quantitative data such as number of words correctly used and number of nonimitative combinations of symbols. This means that we have an increased understanding of the outcome of her study. Lotus and Palmer, however, only gathered quantitative data in the form of speed estimates and numbers of people reporting having seen broken glass. This makes the results easy to compare but doesn’t give us a depth of data explaining people’s motivations and reasons for their behaviour.
(d) A strength of the cognitive approach is that it has many practical applications, relating to processes and functions that we see and experience every day. For example, Baron-Cohen et al.’s study enabled us to better understand autistic behaviour and why they don’t have a Theory of Mind. This is a strength because it created modern types of therapy which are based on the cognitive approach. Although Savage-Rumbaugh et al.’s study could be said to be less directly relevant to everyday life, it is interesting to compare language acquisition in apes with that of children, and learning is of profound interest to psychologists; it also leads us to consider the nature of the cognitive difference between humans and animals.

Another strength of the cognitive approach is that it uses scientific lab-based methods which are high in control. For example, Loftus and Palmer were able to control the age of the participants, the use of video and where the experiment took place. Savage-Rumbaugh used standardised testing as part of her procedure for the same reasons. This is a strength because by having highly controlled conditions within an experiment we can test for reliability and eliminate confounding variables.

However, a weakness of the cognitive approach is that it tends to be reductionist. For example, Savage-Rumbaugh et al. focus on the influences of humans in ape language acquisition without discussing the input of genetic influences or individual differences between specific Bonobos. This is a weakness because the cognitive approach ignores other influences such as biological and social factors that may have an impact on a cognitive processes. However, reductionism can also be of benefit when it allows a researcher to focus on a particular aspect of psychology which may otherwise be too complex for useful research conclusions.

Another weakness of the cognitive approach is that it often uses laboratory methods that tend to be low in ecological validity. For example, Loftus and Palmer conducted a lab experiment on memory in an artificial environment. This is a weakness because in an artificial situation it may be hard to generalise the findings in a real-life situation; people’s memories for a video may be very different from their memories for a real-life car crash when emotions may be running high. Similarly, Baron-Cohen et al.’s conclusions from the Eyes Task may not hold true in real life when there are other cues for people to use such as context, full facial expression and facial mobility, all of which may lead to relatively improved emotion recognition.