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9.00 Introduction to Psychology**A French Comic Midterm****21 October 1999****170 total points**

The French playwright, Moliere, wrote his comedy, "The School for Wives", in 1662. I am quoting from Richard Wilbur's 1971 verse translation. PLEASE NOTE: The play is a lot of fun but you don't need to know anything about it in order to do well on this exam. If you think that the story is confusing you, please ask and I will explain the meaning of any question. We are not trying to be tricky. Write your answers on the exam. Use the back of pages if needed. Good luck.

1. (10 pts) The play concerns Arnolphe's plan to marry his ward Agnes. She is very young (16, I think) and has had a very limited and secluded education in a country convent. This is according to Arnolphe's instruction.

"I told the nuns what means must be employed
To keep her growing mind a perfect void."

Why does he want a naive and stupid wife? He is terribly worried about his wife being unfaithful to him. He thinks that a naive girl will be a safer bet. Arnolphe's sexual jealousy is the driving force of this play.

Another character describes Arnolphe's thinking:

Then grasp this if you can.
Womankind is...the soup of man.
And when a man perceives that others wish
To dip their dirty fingers into his dish,
His temper flares, and bursts into a flame.

This sort of jealousy on the part of a man is the force behind any number of plays and novels. Similar sexual jealousy in female characters has been less common. For the present, let us assume that this reflects an asymmetry in human behavior. How might an evolutionary psychologist explain greater sexual jealousy in the male? Be sure your answer makes it clear that you know something about evolutionary psychology.

2. (10) Arnolphe goes on to say

"I'd choose an ugly, stupid woman rather
Than a great beauty who was over-wise".

Now, this is interesting because, given a choice, most people tend to have a preference for attractive mates. Why? Offer an explanation grounded in material from this course.

3. (5) Arnolphe has added "de la Souche" to his name. He thinks that this makes him sound more noble and important but his friend, Chrysalde, can't manage to remember the new name. Which of the following might be true?

- a) Chrysalde had bilateral damage to his hippocampus some time after he learned the original name but before he tried to learn "de la Souche". The failure to remember "de la Souche" would be an example of "anterograde amnesia".
- b) Chrysalde suffered bilateral damage to his hypothalamus after he learned the "de la Souche" name. The lesion causes trouble remembering recent learned facts like the new name. This failure to remember "de la Souche" would be an example of "retrograde amnesia".
- c) Chrysalde suffered bilateral damage to Broca's area. His problem is that he cannot understand/learn new words. He is still capable of producing words that he knew before the lesion. This is known as a receptive aphasia.
- d) Answer A would be true of the damage were unilateral and the amnesia was described as "retrograde".
- e) either b or c could be true.
- f) Chrysalde needed all his neurons to remember his own weird name.

4. (10) Arnolphe goes to the house where he placed Agnes. She is attended / guarded by a Alain and Georgette. They are stupid, surly (and rather funny) servants. They have a hard time remembering what Arnolphe wants them to do. To help themselves, they use mnemonics (*also known as mnemonic devices*). Please describe one mnemonic. Please do this in a way that makes it clear that you know the meaning of the term. (272-273...page numbers in text for answer)

5. (5) Agnes comes to greet her guardian. He asks her a few questions to make sure that she is as naive as he desires. She certainly seems to be. She is so innocent that she thinks that there is something improper about mixing wavelengths of light. She thinks that monochromatic (single wavelength) lights are the only proper stimulation for a young girl.

Of course, you know that virtually everything she is looking at reflects a broad mix of wavelengths to her eye. However, some of the colors she sees *could* be produced monochromatically. Others could not. Which of the following colors could not be produced by any single wavelength of light. (feel free ... but not required ... to offer a line of justification for any of these answers).

- a) red
- b) pink
- c) white
- d) unique blue
- e) unique yellow

6. (5) By the way, if we were to shine a light that appeared unique blue and a light that appeared unique yellow on to a white surface, what would the resulting *additive* color mixture look like?

7. (5) Suppose we mixed a paint that reflected only unique blue with another that reflected only unique yellow, what would the resulting *subtractive* color mixture look like? Why? WARNING: *THIS IS AN EVIL QUESTION. THINK.*

8. (5) Arnolphe goes back out to the street to walk to his own house. He meets Horace, the son of an old friend. Horace has just come to town. He does not know that Arnolphe has taken the new name "de la Souche" and he does not know that Arnolphe plans to marry Agnes. As a result, he is perfectly happy to tell

Arnolphe all about his efforts to seduce Agnes. Arnolphe is not pleased:

"Oof! I'm too tense to speak. I'd like to shed
these blasted clothes. I'm burning up with dread.....
I'm sweating, and I need some air.
I must calm down: I'll walk around the square."

This sounds like a classic pattern of physiological response. Would this be produced by activation of the sympathetic or parasympathetic branch of the autonomic nervous system?

9. (5) Well, umm...I can never remember which is which either. However, I do remember a few things: Pick the TRUE statement(s) out of the following.

- a) The other branch of the autonomic system mediates vegetative functions (think of a Zebra, calmly eating). (93)
- b) This pattern of responses is a reflexive reaction to a perceived threat (uh oh... a lion). (93)
- c) The response to threat includes release of adrenaline (also known as adrenal epinephrine). (93)
- d) Since we are not zebras and we don't see many lions, this primitive autonomic arousal rarely occurs in humans and has minimal behavioral or physiological impact. (96)
- e) Actually, all of these are true.

10. (10) Arnolphe races back to the house where Agnes is living and, after calming down...a little...asks her if anyone has been to the house. Being totally naive, she says, 'oh yes. Horace has all but lived at the house for the past few days.' Then she narrates the whole affair. He saw her on the balcony. He bowed to her, so she bowed back - just to be polite. So he bowed again and she responded, and so on.

Indeed, had night not fallen, I declare
I think the I might still be sitting there,
And bowing back each time he bowed to me
For fear he'd think me less polite than he.

It sounds like Horace's behavior could be explained by Thorndike's "Law of Effect". Please explain (briefly).

11. (15) After all this bowing, Horace sent a messenger who explained to Agnes that poor Horace was dangerously 'ill' and that he could be cured only by visiting Agnes. Agnes asked what was wrong. The messenger listed three problems. Your job is to describe the symptoms that would result from each of these.

a) His circadian rhythm had doubled in frequency. (103)

b) His left cochlea was inactivated. (190)

c) He had stopped having action potentials ("spikes") in his neurons.

12. (20) Arnolphe is relieved to learn that Agnes' "cure" did not go any further than letting Horace kiss her hands. He commands that the door be locked and tells Agnes that she must throw a brick at Horace if he appears below her window. Horace appears and Agnes throws the brick.

Let us consider this brick, in mid-air. Horace needs to avoid the brick. That means he needs to know where it is in three dimensional space (four dimensions, if we include time). What visual clues can Horace use to determine the brick's location in space and its trajectory toward him? Please describe four cues. (Just naming them is not enough. Pictures are welcome, if you like.).

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13. (10) Horace tells Arnolphe about the brick. Arnolphe asks him for details. The way in which Arnolphe asks about the event will influence the way in which Horace recalls the event. Please describe one piece of experimental evidence that the context of remembering can alter what is remembered.

14. (5) It turns out that Agnes is not totally naive. She has attached a note to the brick declaring her love for Horace. Well, Horace tells Arnolphe about the letter because he still doesn't realize that Arnolphe is Agnes' guardian. Horace also tells Arnolphe about a plan to elope with Agnes. She will light a faint candle at her window to tell him when it is safe to bring his ladder to her balcony. The problem is that the candle is very faint and he must watch from a long distance so he is worried about missing her signal. Sounds like a signal detection problem. If this is a signal detection problem, which of the following ideas could be helpful to Horace. (False ideas are not helpful.)

- a) Horace should set his criterion so as to simultaneously minimize both the false alarm rate and the miss rate.
- b) No, he wants to set his d' level to minimize true negatives.
- c) No, he should add noise to the signal so that the level of activity in his nervous system is distributed normally.
- d) No, he wants to set his criterion level high so as to maximize d' .
- e) No, no, he wants to hold signal strength constant so as to minimize noise.
- f) Actually, he wants to do all of the above.
- g) No, no, no....he doesn't want to listen to any of ideas a-f since they are all nonsense.

15 (10) Arnolphe, of course, is furious. His first plan is to lesion Horace's brain. There are lots of choices for possible bits to lesion. He wants to be fairly subtle but he does not want Horace to be able to carry out his plan. Pick one brain bit from the following list and explain why it would be the best choice for a lesion. Two notes: 1) There are multiple "correct" answers here. We are most interested in evidence that you know

what a lesion in this area would do. 2) Assume a bilateral lesion unless right or left is specified. Of course, if a structure is not bilateral to start with, then the lesion is not going to be bilateral either.

- a). Lateral hypothalamus b) corpus callosum c) prefrontal cortex
d) basal ganglia e) right parietal cortex f) adrenal cortex

ANSWER ON NEXT PAGE

16. (10) OK. Now pick another piece of brain from that list and explain why it would be a bad choice.

17. (10) Brain lesion proves to be impractical. Instead, Arnolphe and his two servants wait at the top of the ladder and, when Horace comes up, they beat him and he tumbles down the ladder. They think that Horace is dead. They run off. Agnes runs to his side and discovers that he was just briefly knocked out. His fall could have done all sorts of things to his head. Write a possible account of the consequences that includes the words amnesia, aphasia, and agnosia. Your answer should show that you know what each of these means. It is not necessary that you make poor Horace amnesic, aphasic, or agnostic. (2 pts extra credit if your answer is in verse...but don't waste a lot of time on this).

18. (10) Horace recovers fast. He and Agnes run away fast. However, Horace has no place to keep Agnes safe so, he turns to his good friend, Arnolphe (groan). So Arnolphe has Agnes back again. He plans to ship her off to a convent. Then Horace father, Oronte, comes to town with another man, Enrique. It turns out that Agnes is Enrique's long-lost niece who Enrique has promised to the son of Oronte...That's Horace.

Now Agnes must choose between Horace and Arnolphe. Now, we know that she really loves Horace but, for the sake of argument, suppose that she is totally undecided and uninformed. She wishes to make a rational choice based *only* on the following descriptions of the two men.

Horace: Average wealth	Arnolphe: Very wealthy
Average attractiveness	Very attractive
Average sexual jealousy	Extreme sexual jealousy
Average male chauvinism	Extreme male chauvinism

Based on what you know about people's preferences, and the importance of the way in which a question is phrased, who would you expect Agnes to choose if asked:

- Which of these men will you choose as a husband? _____
- Which of these men will you reject as a husband? _____
- Explain why you would expect Agnes to make these choices.

19. (10) While trying to think of reasons for her decision, Agnes tried to think of instances in which friends of hers married wealthy, attractive men who were very jealous male chauvinists (like Arnolphe). It was difficult for her to think of any instances in which such marriages were happy ones. However, she could easily think of instances in which her friends were married happily to men of average wealth and attractiveness and average levels of sexual jealousy and chauvinism (like Horace). She decided that the frequency of happy marriages to men such as Arnolphe is lower than the frequency of happy marriages to men such as Horace.

Agnes has just used one of those reasoning heuristics to make her decision. When does use of this heuristic lead to errors in the judgment of frequency? (You get 1 extra credit point if you can give the name of the heuristic.

When the dust settles, Horace and Agnes are going to live happily ever after and Arnolphe is told:
 "I know that you are in a painful state of mind
 Yet what the Fates have done is not unkind.

Since your chief treasure is a hornless head
The safest course for you is not to wed.
(Horns were the traditional mark of the husband of an unfaithful wife.)