

Quiz 3

Name: _____

1. Of the following two excerpts, which corresponds to the opening paragraph of a science news article and which corresponds to the opening paragraph of a scientist summary or perspective article? When identifying the identity of each excerpt, make sure to give at least two concrete examples for *why* you think that is the identity of the piece. [2 pts; Science Communication]

Excerpt 1 (Source 1):

One of the most deep-seated misconceptions about the human psyche is that men are simple and women are complicated (1). Gender psychology scholars trace this belief back to at least the 19th century, when the long-standing view that women were inferior versions of men started to fall out of favor (2). In response, biological theories on the sexes were restructured into a narrative that characterized the emergent psychological properties of the female brain—“sensitivity, perceptual acumen, and emotionality”—as not lesser than, but complementary to, those of men's brains (1). This framed women as a disordered, unstable yin to men's rational, orderly yang, thus preserving the patriarchy. So-called scientific explanations of why women's mental proclivities deviated from men's relied heavily on the purported influence of reproductive physiology on the female mind (3). More than 100 years later, this idea still shapes not just how society perceives women but also how biomedical scientists approach animal research.

Excerpt 2 (Source 2):

The male mind is rational and orderly while the female one is complicated and hormonal. It is a stereotype that has skewed decades of neuroscience research towards using almost exclusively male mice and other laboratory animals, according to a new study.

Scientists have typically justified excluding female animals from experiments – even when studying conditions that are more likely to affect women – on the basis that fluctuating hormones would render the results uninterpretable. However, according to Rebecca Shansky, a neuroscientist at Northeastern University, in Boston, it is entirely unjustified by scientific evidence, which shows that, if anything, the hormones and behaviour of male rodents are less stable than those of females.

Space to write:

2. You are a developmental researcher and hypothesize that 1-year olds are capable of detecting semantic violations in spoken language. In your experiment, you are recording EEG from 1-year olds who are seated in front of two speakers (left and right) that alternately play spoken sentences. The left speaker plays regular sentences while the right speaker plays sentences entailing semantic violations. Which of the following findings would support your hypothesis? [1 pt; Language]

- A. The infants spend more time orienting toward the left than toward the right speaker, and they display a suppressed N400 ERP to the semantic violations
- B. The infants attend equally to both speakers but show a larger N400 ERP to the semantic violations
- C. The infants spend more time orienting toward the right than toward the left speaker, and they display an enhanced N400 ERP to the regular sentences compared to the semantic violations
- D. The infants spend more time orienting toward the right than toward the left speaker, and they display an enhanced N400 ERP to the semantic violations

3. During our discussion on language, we went over several examples of how context might affect the processing and perception of language. Describe two behavioral effects and what role context plays [2 pt; Language].

4. Based on the findings of Bergelson and Aislin (2017) and Yu et al. (2019) on how 6-month-olds and 9-month-olds understand language, what might you recommend to parents? That is, what can parents do to better help their infants understand what the parents are saying? Point out something directly related to the paper you discuss as evidence for that piece of advice. [1 pt; Language]

5. Compare and contrast Atkinson and Shiffrin's short-term memory model against Baddeley's revised (i.e., later) working memory model. What is different and what is similar? Give at least two concrete examples. [2 pt; Working Memory]

6. If Peyton Manning, a professional football player, wanted to remember his 16-digit credit card number, which of the following memory techniques would you recommend? [1 pt; Working memory]

- A. He should think of the numbers as a sequence of football statistics.
- B. He should picture each of the numbers in his head printed in a bright color.
- C. He should first memorize a few other sequences of 16 digits to gain some practice.
- D. He should visualize the front of his credit card showing a picture of him dribbling a basketball.

7. You have administered a word-list (e.g., barricade, trout, etc.) free recall task to a group of normal control subjects and a group of amnesiacs with MTL lesions. Which of the following statements is most accurate? [1 pt; Working Memory/LTM]

- A. The controls will show the best recall for the most recent items on the list, and the worst recall for the earliest items on the list
- B. If the controls are distracted between list-learning and recall, they will not demonstrate a recency effect
- C. Because of their MTL lesions, amnesiacs will show no recency effect
- D. All of the above

8. You are conducting a memory experiment where you manipulate the *level of encoding* of word stimuli. In the “shallow” encoding condition, subjects have to indicate whether words are printed in lower or upper case letters (a non-semantic task), and in the “deep” encoding condition they have to indicate for each word whether it refers to a living or a non-living thing (a semantic task). After this encoding phase, you perform two memory tests: a standard recognition memory test to probe declarative memory, and a stem-completion test to probe for priming (e.g., _S S _ S S _ _). What is the most likely result? [1 pt; LTM]

- A. The shallow encoding condition would produce greater declarative memory but less priming effects than the deep encoding condition
- B. The shallow encoding condition would produce equal declarative memory as the deep encoding condition but greater priming effects
- C. The shallow encoding condition would produce worse declarative memory but greater priming effects than the deep encoding condition
- D. The shallow encoding condition would produce worse declarative memory than the deep encoding condition, but priming effects would be about the same for the two conditions

9. You are now cognitive psychology scholars, well versed in memory research. What advice would you give to a Duke freshman on how to study most effectively? Provide at least two concrete tips based off behavioral effects that we discussed in class or were mentioned in either your textbook or academic readings [2 pt; LTM processes].

10. Similarly, now that you know some research on working and long-term memory, how would you apply this research to your Science Communication pieces? Give at least one concrete point based off something different than what you might mention in #9 [1 pt; LTM].

11. We talked on our first day of class about how all models are wrong, but some are useful. Describe two sources of evidence for two different branches in our current model of long-term memory structure, which make this model a useful model of LTM [2 pt; LTM].

Bonus Point—

12. In Bergelson and Aslin (2017), the authors discuss performance differences for 6-month-olds who are asked to identify semantically related and unrelated words. One of the limitations the authors identify is that the performance difference they observe could be the result of two factors: competition or underspecification. The infants could know something about tested words, but couldn't overcome competition between activation of related concepts ("car" leads to looking a car, but also activating 'stroller' to a similar degree, so that means poorer performance), OR the infants could tell apart unrelated vs. related items, but not really know what belongs in particular categories ("car" isn't referring to juice, but is stroller in the "car" category?). How might you tell the difference between the 2 possible explanations in a follow-up experiment? [bonus point; Language]