

PSYC 51.09: Problem Set 4

Introduction

This problem set is intended to solidify the concepts you learned about in this week's lectures and readings. Your responses will be worth 5% of your final grade. *After attempting each question on your own*, you are encouraged to work together with your classmates in small groups, and/or to post and answer questions on the course's Canvas site. **However, you must clearly indicate who your collaborated with and submit your own (uniquely worded) responses.**

We will go over the answers to this problem set in class on **Thursday, October 24, 2019 at 10:10 am**. You must upload your answers before then in order to receive credit. No late submissions will be accepted.

Readings

1. Read Chapter 4 of *Foundations of Human Memory*. What were your thoughts on the reading? For example, did you learn something interesting? Were you surprised by something? Do you disagree with the author? Did you think some concept was described especially well (or confusingly)? **(Ungraded)**

Graded questions

1. Your friend (a native English speaker) is learning Klingon, and he wants to learn some new vocabulary words for his upcoming midterm exam. Unfortunately his midterm exam is in just a few hours, and he hasn't gotten around to studying quite yet. When he learns that you're taking PSYC 51.09, he begs you for some tips to help him quickly learn the words. What can you tell your friend to help him learn his vocabulary words quickly in time for his exam? For example, suppose he's already made a set of flashcards where one side lists the word in English and the other lists the Klingon translation. Should your friend study the flashcards in the same order each time, or shuffle the flashcards with each repetition? Should he "peek" at the answers he's unsure about? Should he shuffle only the "tricky" words (e.g. that he couldn't translate) back into the deck with each round of repetitions, or should he go through the full set of flashcards each time? When should he stop studying the words? Provide four recommendations, along with clear explanations for why you are making those particular recommendations. **(4(ish) paragraphs; 3 points– 0.75 points per recommendation. Each recommendation must include a clear explanation of the recommended studying technique and the reason you are recommending it, and you should use 1–2 paragraphs to describe and explain each recommendation.)**
2. The recently developed synthetic lifeform *Roboticus Metallicus* has a perfect memory for everything it experiences. It also has no way of prioritizing one memory over another, or of strengthening one association versus another. Suppose a member of the species signs up to do the free association experiment you're running for your senior project.
 - (a) Would you expect the *Roboticus Metallicus*'s free association responses to differ from those of a typical *Homo Sapiens*? If so, how? If not, why not? **(2 paragraphs, 2 points)**
 - (b) Suppose you run many *Roboticus Metallici* in your experiment– enough to build up a large and reliable database of free associate responses. Next you decide to construct a "thought space" based on their responses (analogous to the "Word Association Space" idea we discussed in class). Describe some features of the *Roboticus Metallicus*-based thought space (e.g. as compared with Word Association Spaces constructed using human data). What would the thought space "look" like? How would words be arranged? **(1-2 paragraphs; up to 1 bonus point to be applied to your final grade at the end of the term. To get bonus credit you need to have some sort of diagram and you need to clearly, intuitively, and thoroughly explain how you came to your answer.)**