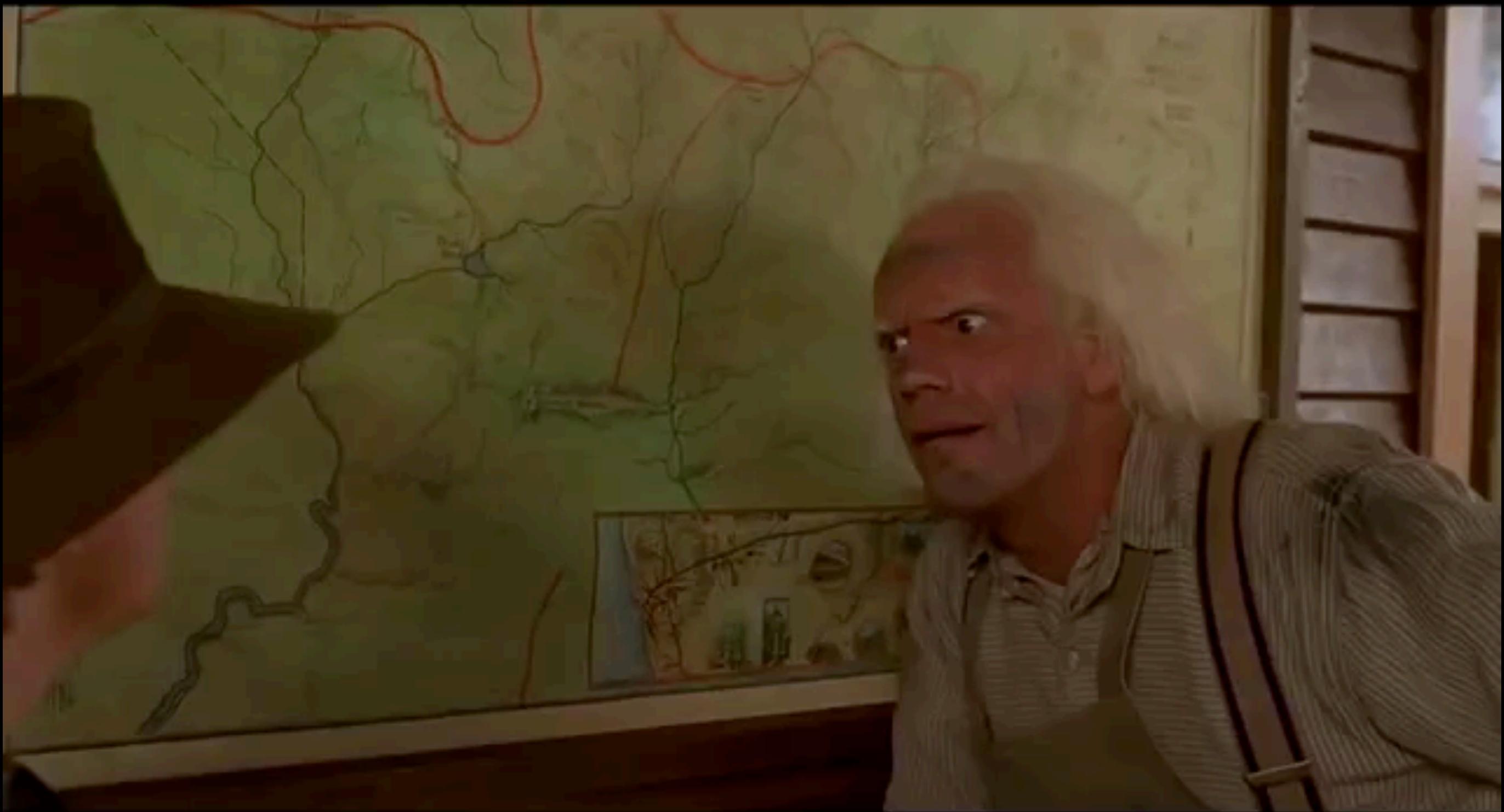


Readings

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

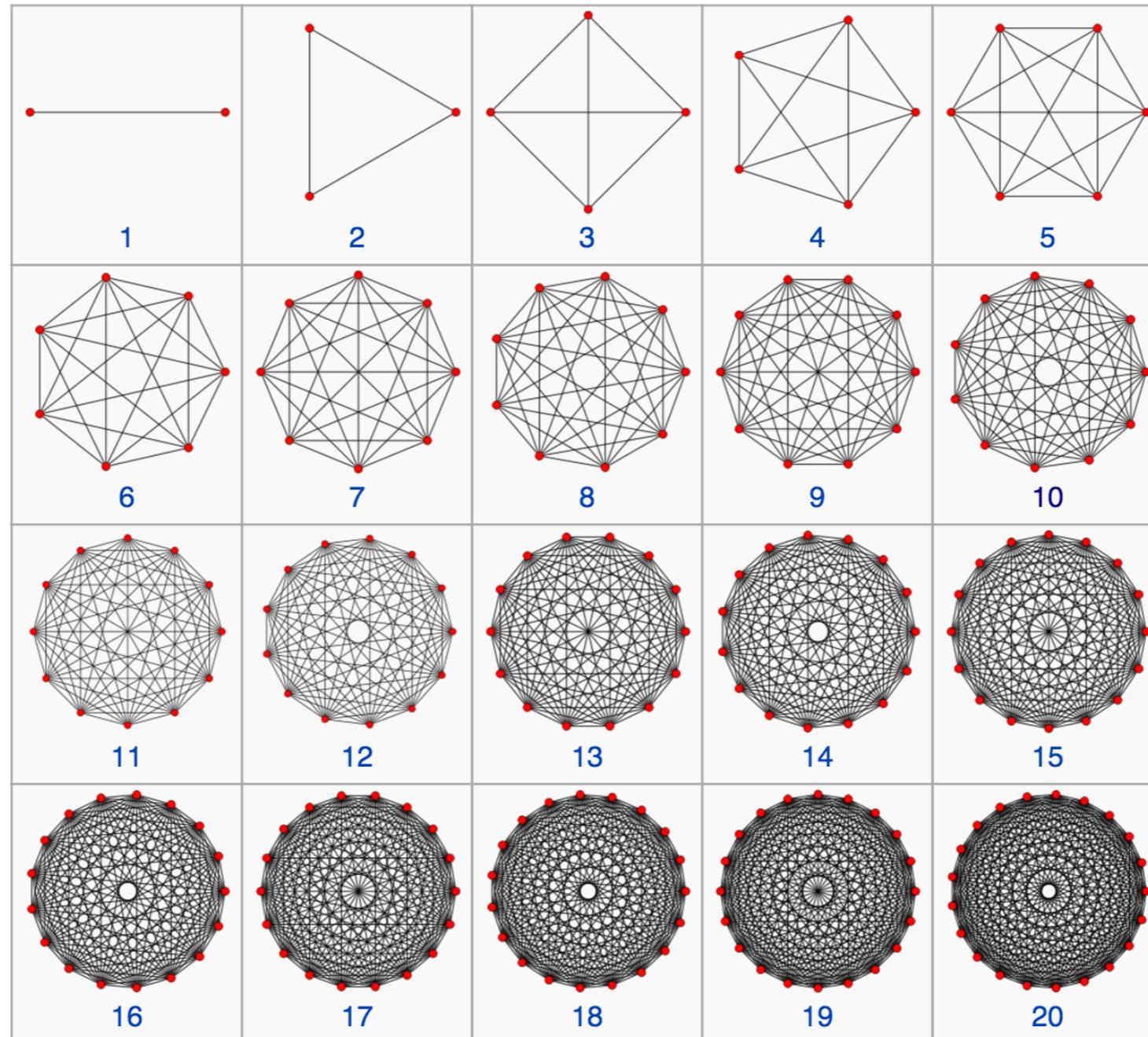
1. Your friend (a native English speaker) is learning Klingon, and he wants to learn some new vocabulary words for his upcoming midterm exam. Unfortunately his midterm exam is in just a few hours, and he hasn't gotten around to studying quite yet. When he learns that you're taking PSYC 51.09, he begs 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; 1 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)**
 - (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.)**



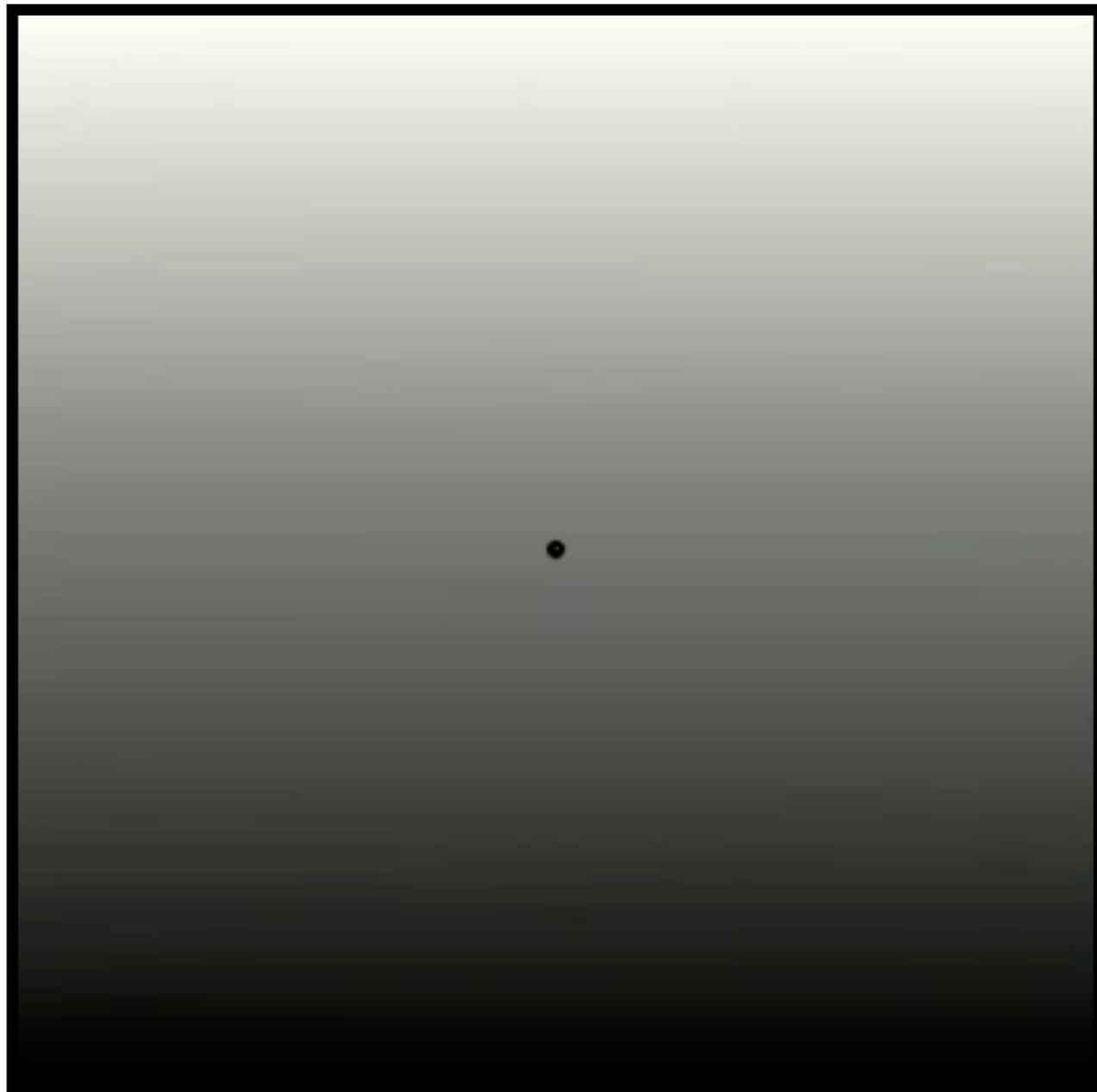
The simplex

- A generalization of the equilateral triangle to arbitrarily many dimensions
- <https://en.wikipedia.org/wiki/Simplex>

The simplex



The simplex



Recap

- Classic vs. gestalt view of associations
- Paired associates
- Cued recall
- Anticipation method
- Free association
- Incremental vs. all-or-none learning

TREE – ???

WINE – ???

??? – CLAY

??? – ZEBRA

So: can we remember
everything? Let's try a test...

**MAIL
ROOM**

**SEC.
B-13**

What is the new guy's employee number?

1. C78-7490a/6

2. 67H7049a/6

3. 6780479a/4

4. 33

5. 33-7

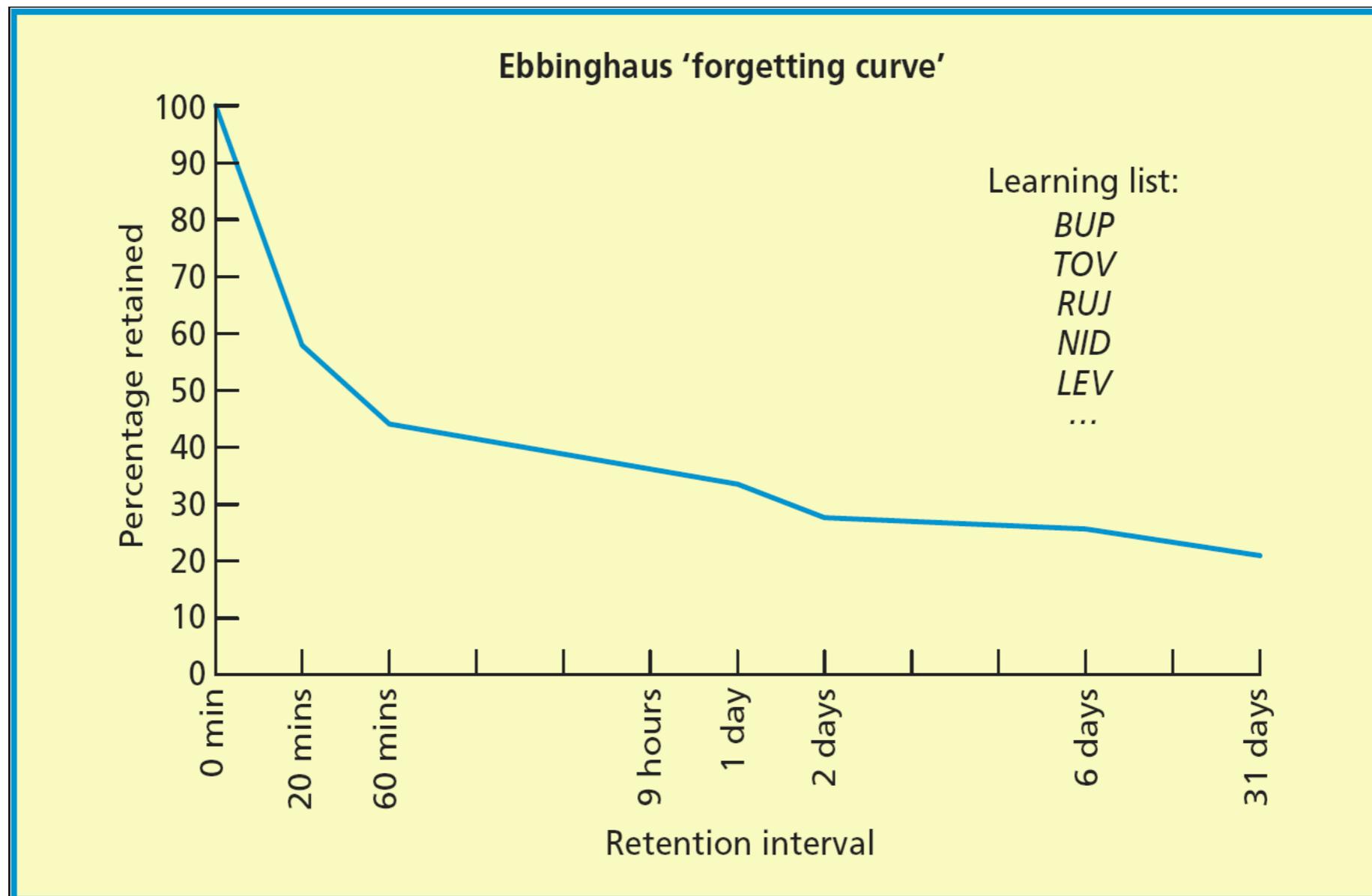
6. 37-3



Why can't we remember everything?

- Not everything gets written to memory
- Stuff makes it into memory but we can't read it out
 - Noise/interference
 - Forgetting
 - Insufficient cues

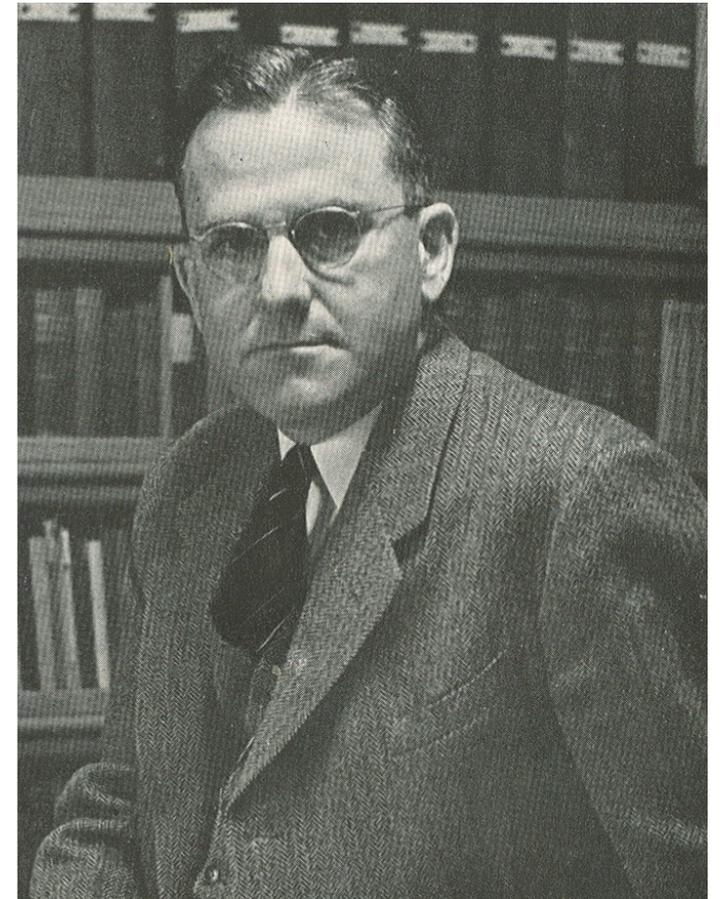
Ebbinghaus: forgetting curve



Data from Ebbinghaus (1913)

Decay or interference?

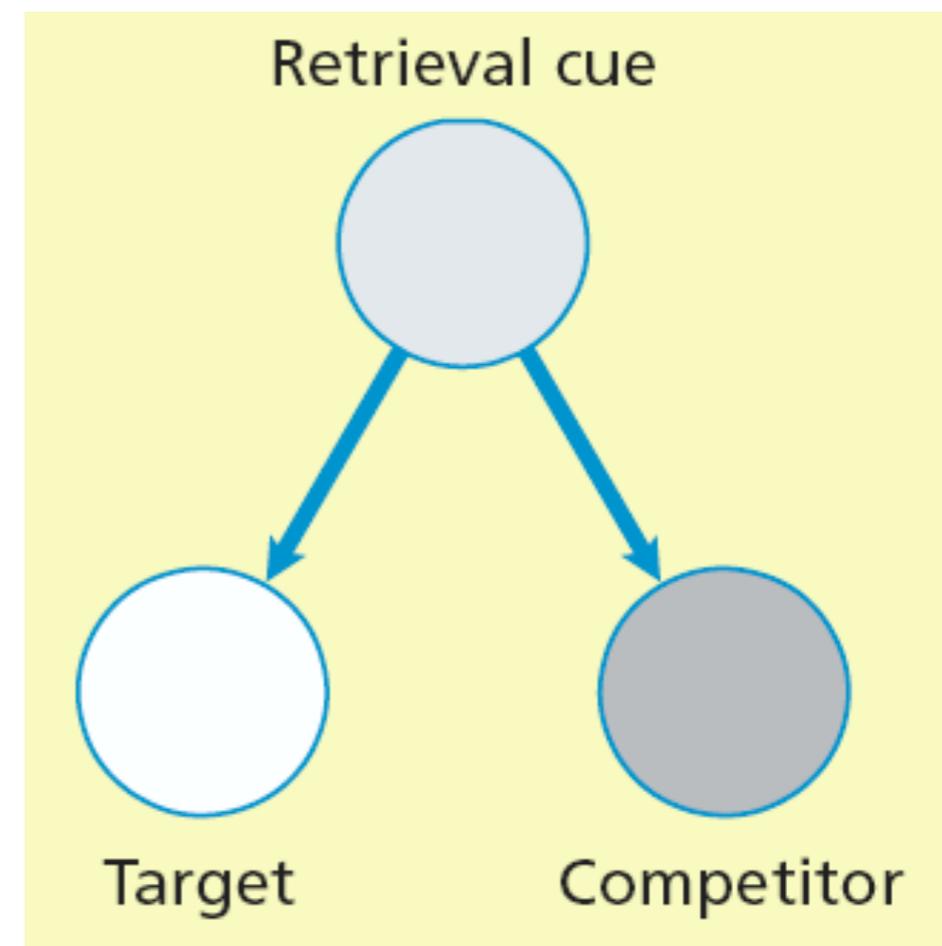
- McGeoch: any theory of forgetting that says memories decay with time is a poor sort of theory
- It's like saying that time is responsible for iron rusting! Really there's some other process that proceeds with time
- Alternative: memories interfere with each other!



John McGeoch

Interference & the competition assumption

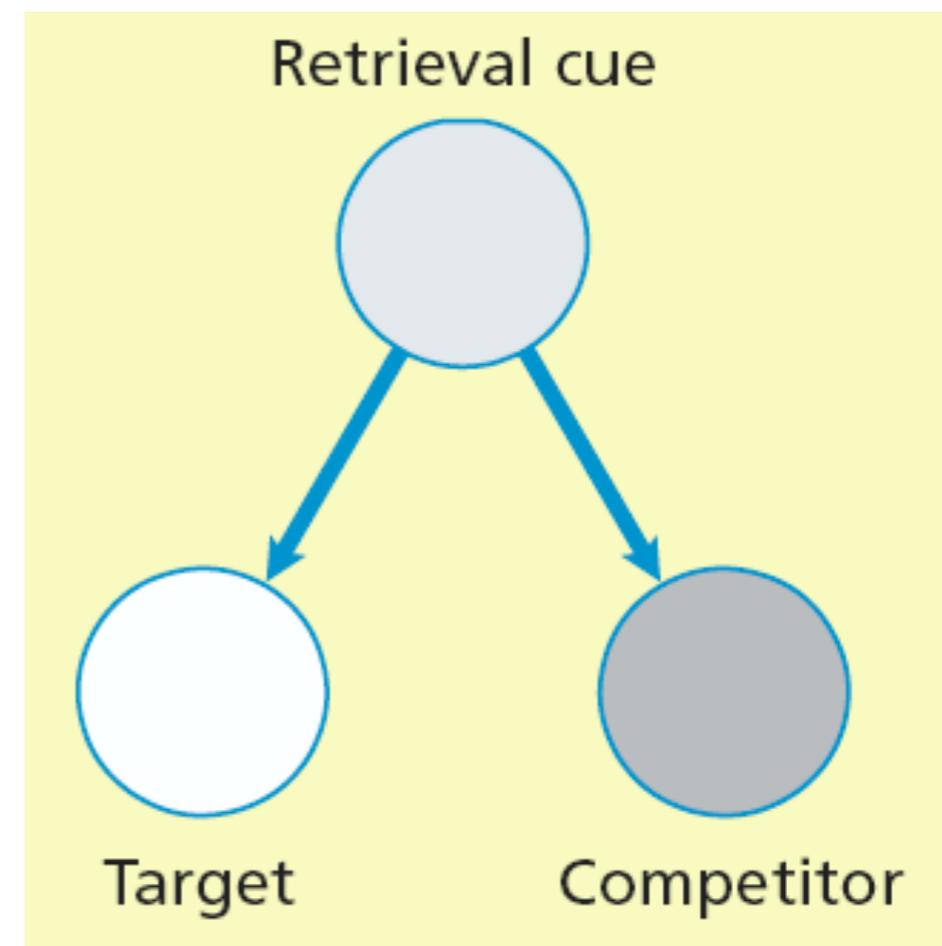
- Anderson, Bjork, & Bjork (1994)
- A cue activates all of its associates to some degree
- The activated associates compete for access to conscious awareness
- Competitors are any associates other than the target memory



Adapted from Anderson and Neely (1996)

Interference & the competition assumption

- **Cue overload** (aka the “fan effect”): if you add more associates, memory for the target gets worse



Adapted from Anderson and Neely (1996)

Proactive interference

- Older memories “get in the way” of newer memories
- Memory for Monday and Tuesday’s breakfasts get in the way of memory for Wednesday’s breakfast

Proactive interference

- Underwood demonstrated the importance of this to the memory community
- Participants get progressively worse at remembering things

