



Welcome!

PSYC 51.09: Human Memory
Spring 2021

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FOUNDATIONS OF HUMAN MEMORY

MICHAEL JACOB KAHANA

$$s_{t+1}(i) = \text{sgn} \left(\sum_j w(i, j) s_t(j) \right)$$

OXFORD



Search or jump to...

Pull requests Issues Marketplace Explore

ContextLab / human-memory

Private

Unv

Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

main

1 branch

0 tags

Go to file

Add file

Code

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Course material
course: Human Memory

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README.md



Human Memory

Welcome! This repository contains course materials for the Dartmouth undergraduate course [Human Memory \(PSYC 51.09\)](#). The syllabus may be found [here](#). Feel free to follow along with the course materials (whether you are officially enrolled in the course or just visiting!), submit comments and suggestions, etc. If you are a course instructor, you may feel free to use these materials in your own courses (attribution is appreciated).



Workload

- **Readings:** we'll work our way through the textbook, along with supplemental readings as needed. You'll read roughly a chapter each week.
- **Problem sets:** practice working with the concepts we cover (first one: **today!**). These contribute relatively little to your grade, and it doesn't matter if you get the "right" answers; the idea is to give you room to learn and make mistakes.
- **Exams:** test your conceptual understanding. The midterm and final will comprise the bulk of your final grade. Both are open book and time "unlimited" (you'll have up to 24 hours to finish each).

Format

- Each week (approximately) we'll discuss a theory
- Then we'll systematically tear it down
- At the end of the course we'll hopefully understand memory a bit better
- Goal: leave my course with a deep, cutting edge understanding of (a subset of) what is known about human memory

What is memory?

Why do we have
memory?

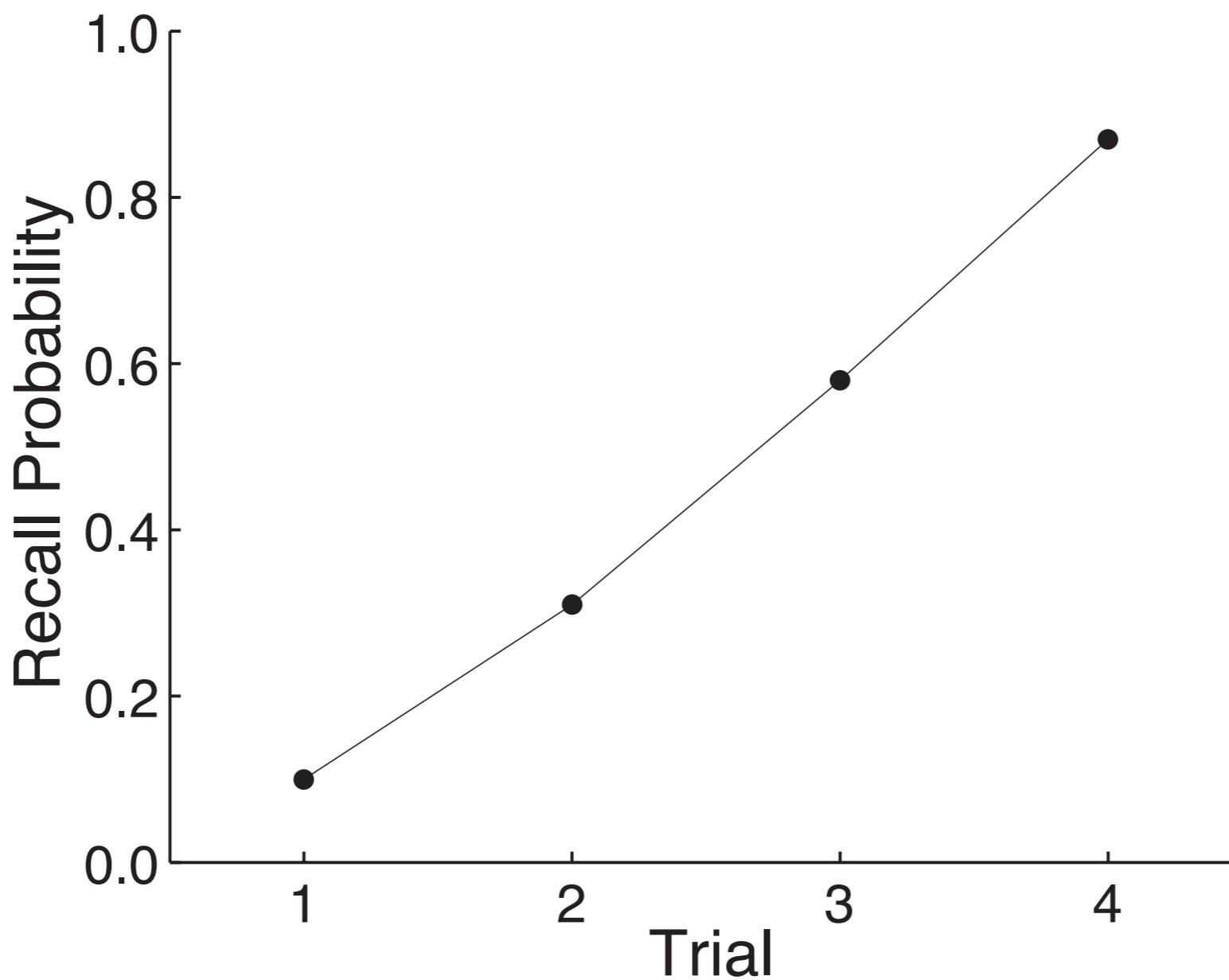
Does memory require
consciousness?

Ethics of memory

- Perfect model of memory
- Memory in the courtroom

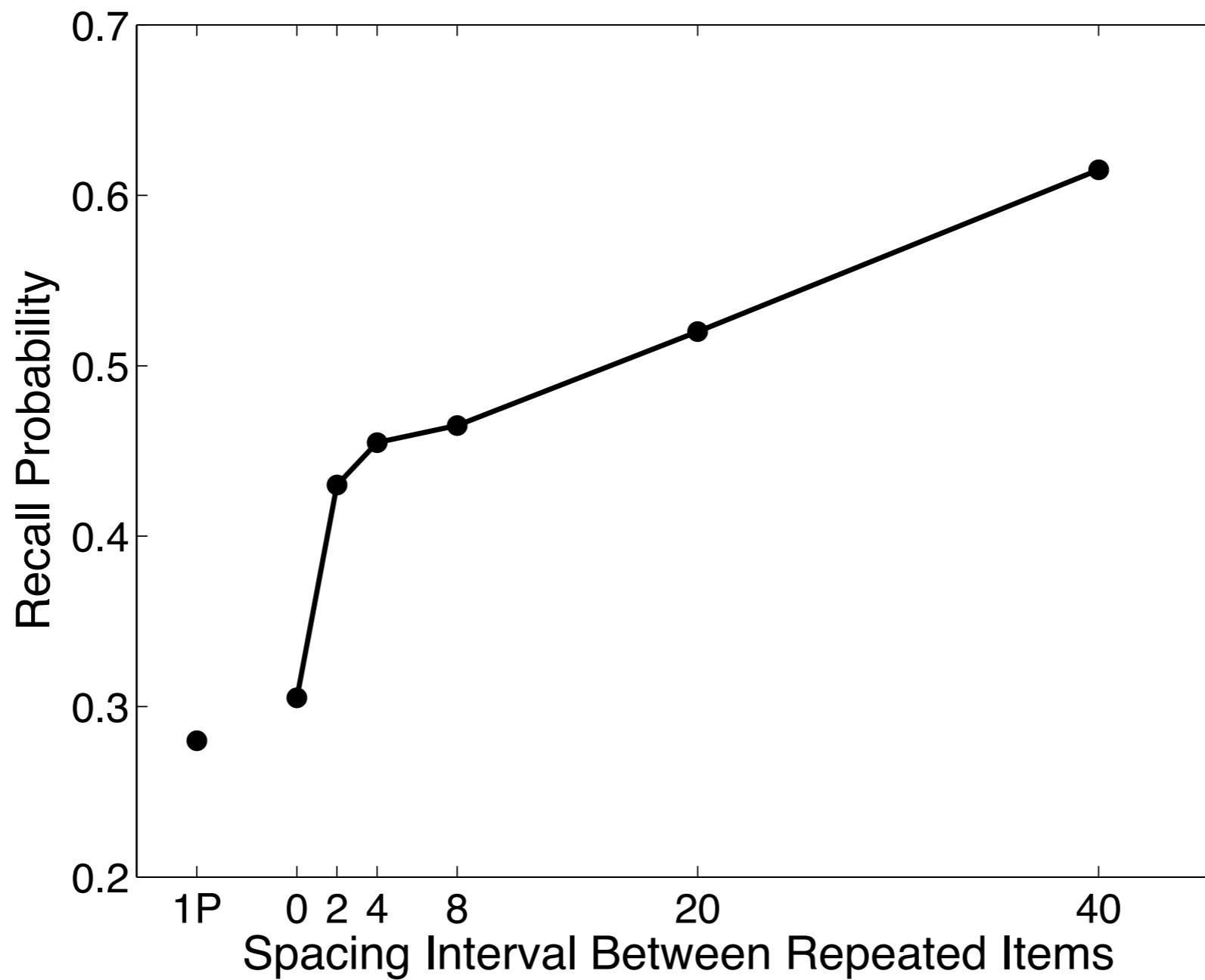
What have you heard
about how memory
works?

Law of repetition



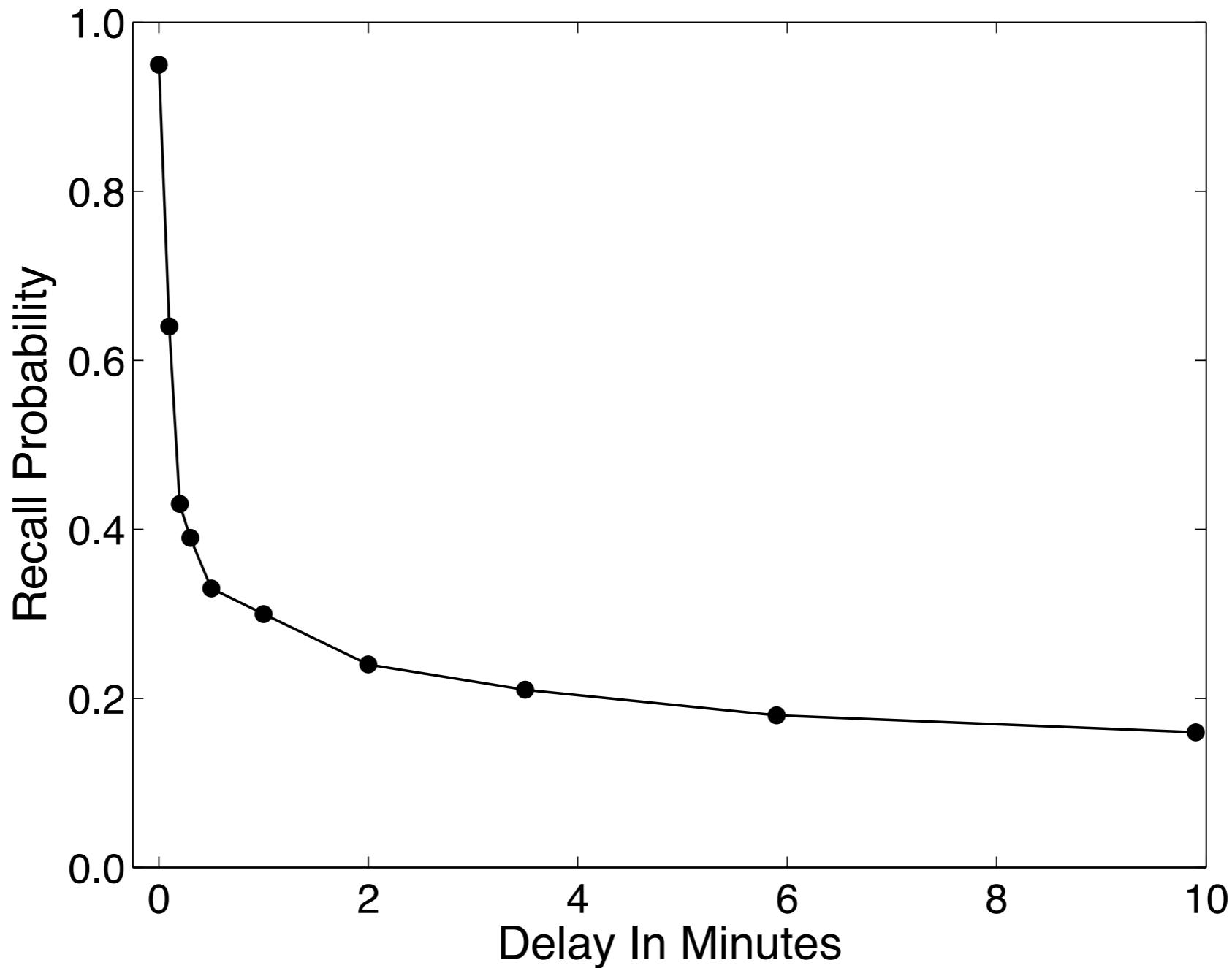
Murdock, 1989

Spaced vs. massed learning



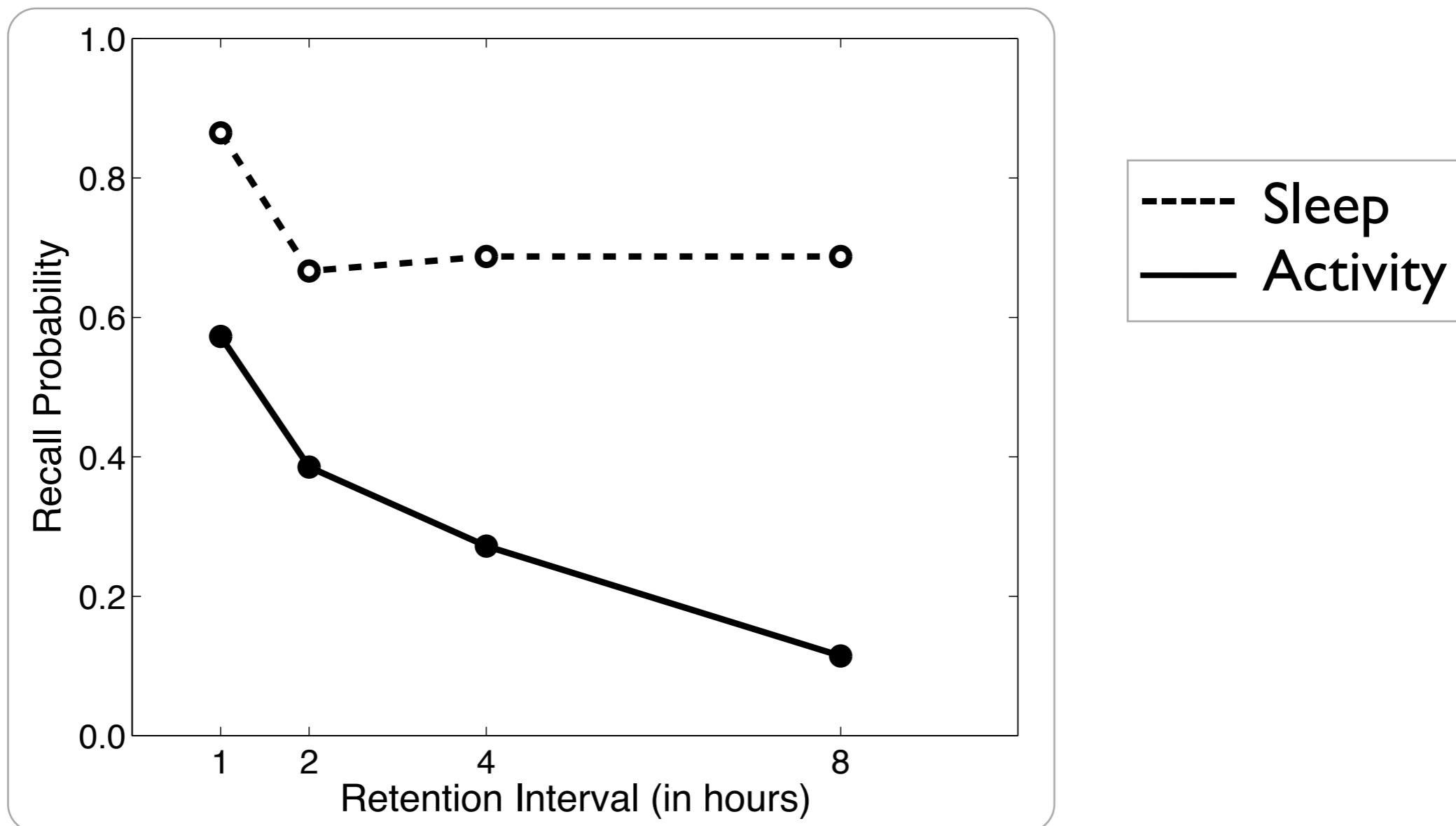
Madigan, 1969

Recency



Rubin et al., 1999

Sleep and forgetting



Jenkins & Dallenbach, 1924

Repetition, spacing, and recency



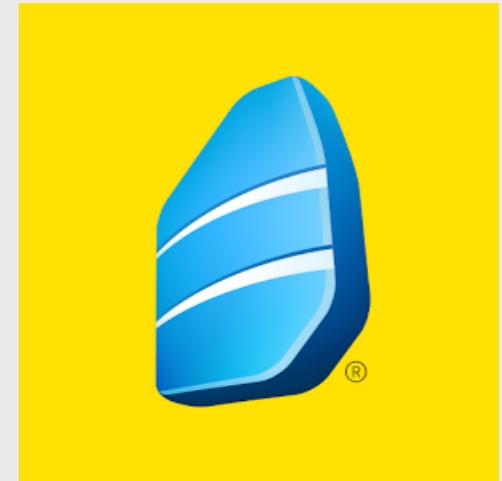
Duolingo



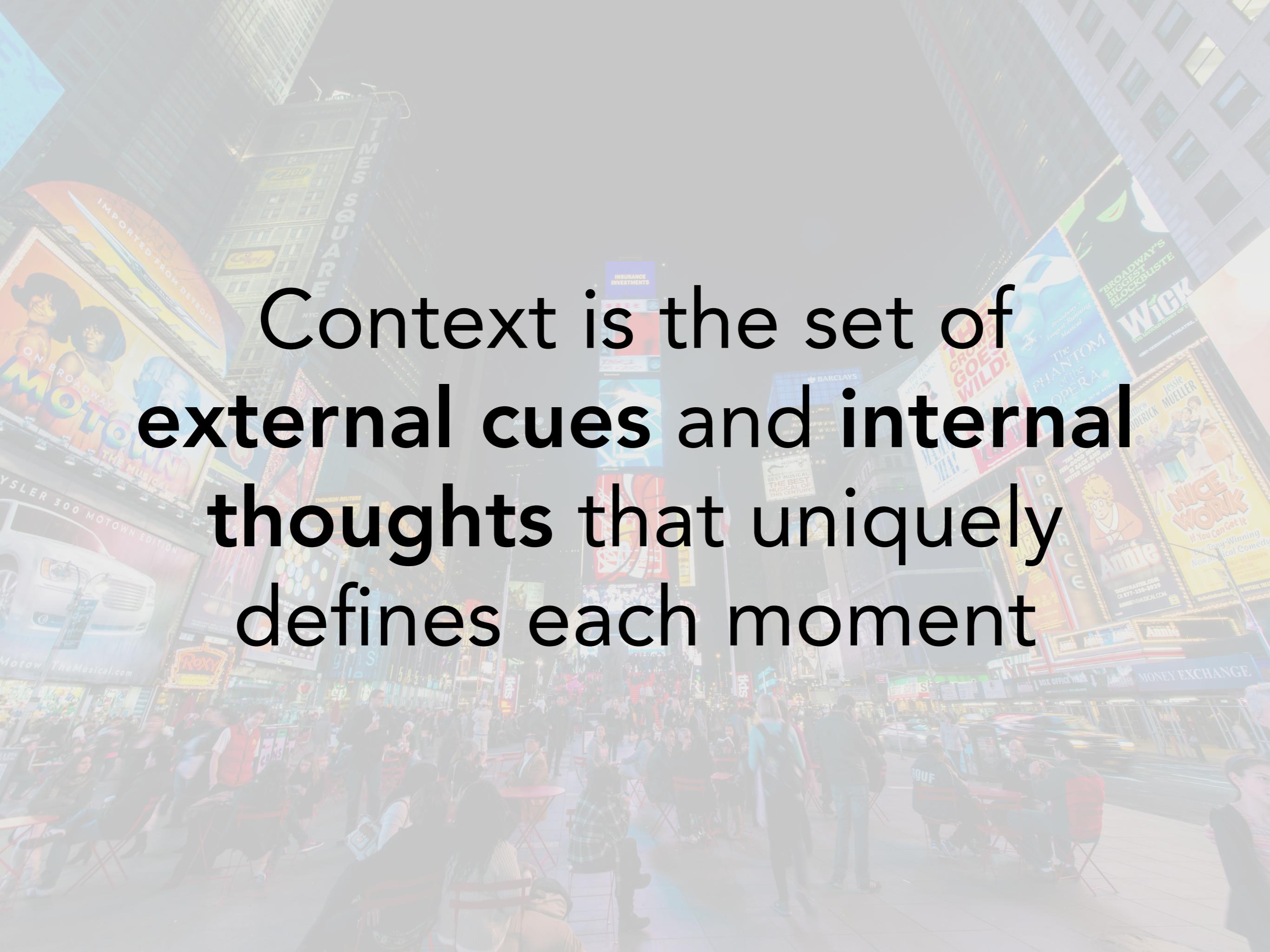
Memrise



Knewton



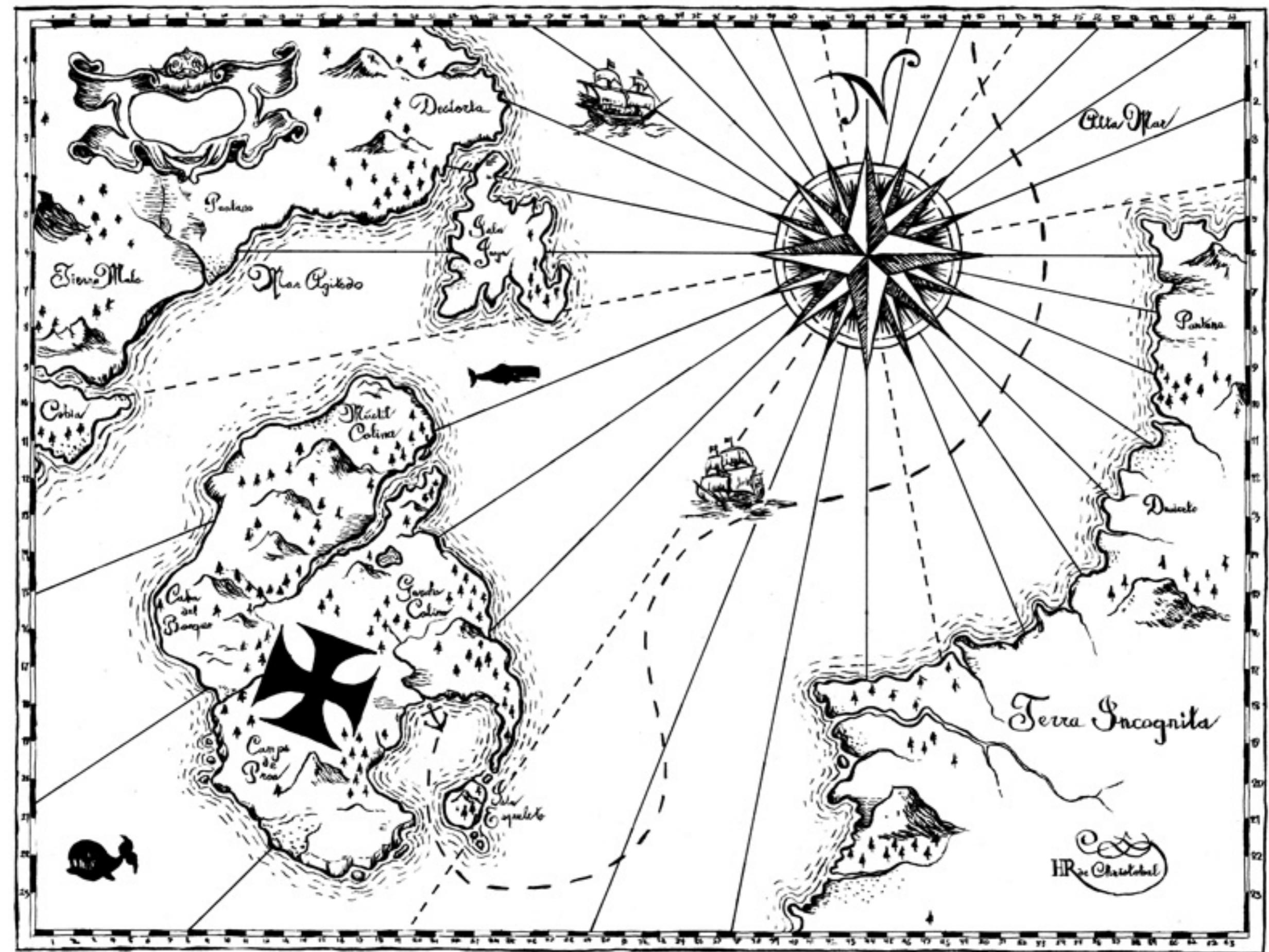
Rosetta Stone



Context is the set of external cues and internal thoughts that uniquely defines each moment











Veniți și luați-le!

Music as context

- Music can evoke a variety of emotional responses
- These responses are often similar across people and cultures (sometimes they're learned)
- Movie directors exploit this to influence how we interpret what's going on in the movie and how we feel about it

JAGUAR XJ



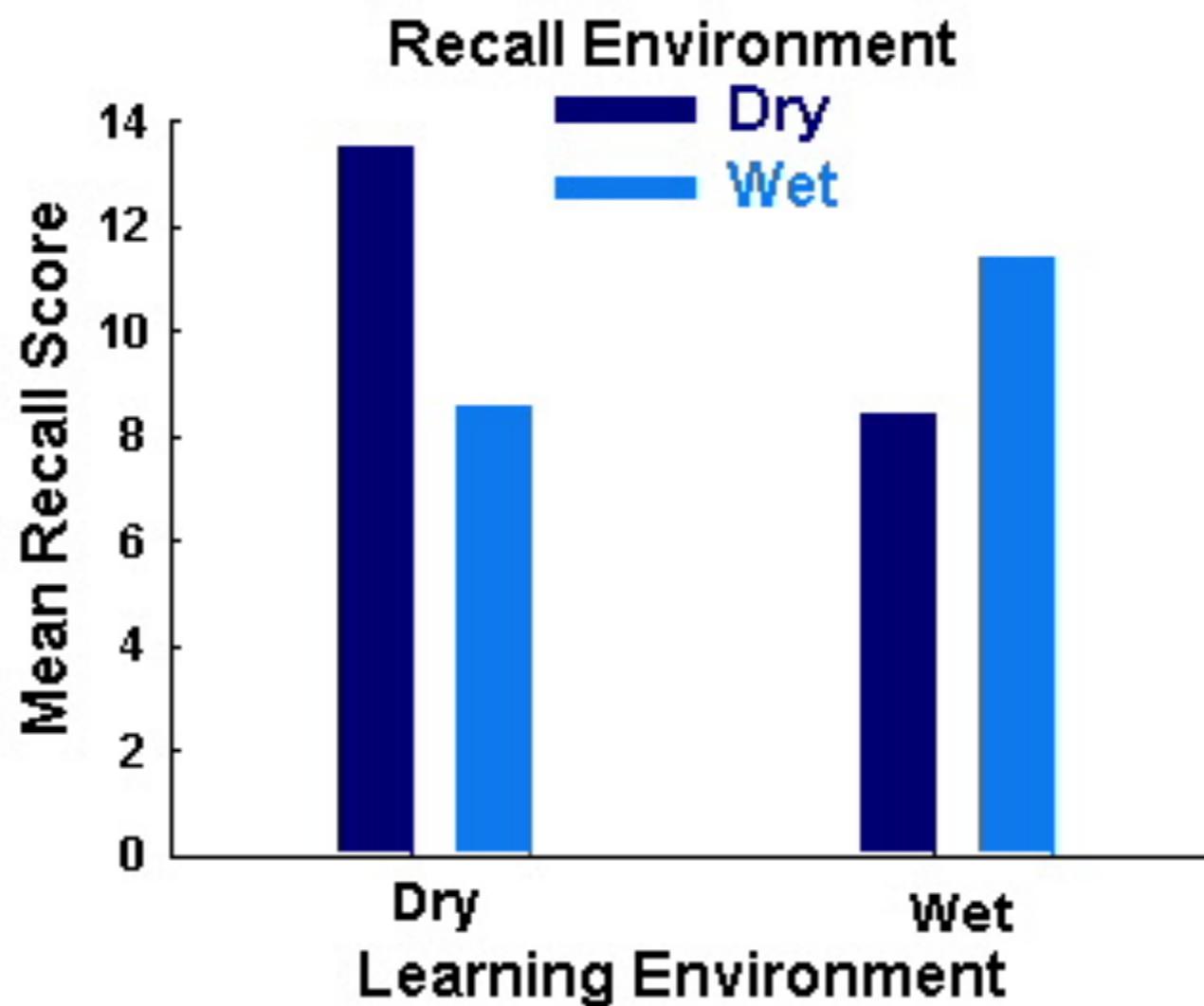
Context in advertising

- If you buy the car, you'll fit in with the image the advertiser is selling
- Contextual cues in the commercial also help us understand what's going on in limited airtime

Why does context matter?

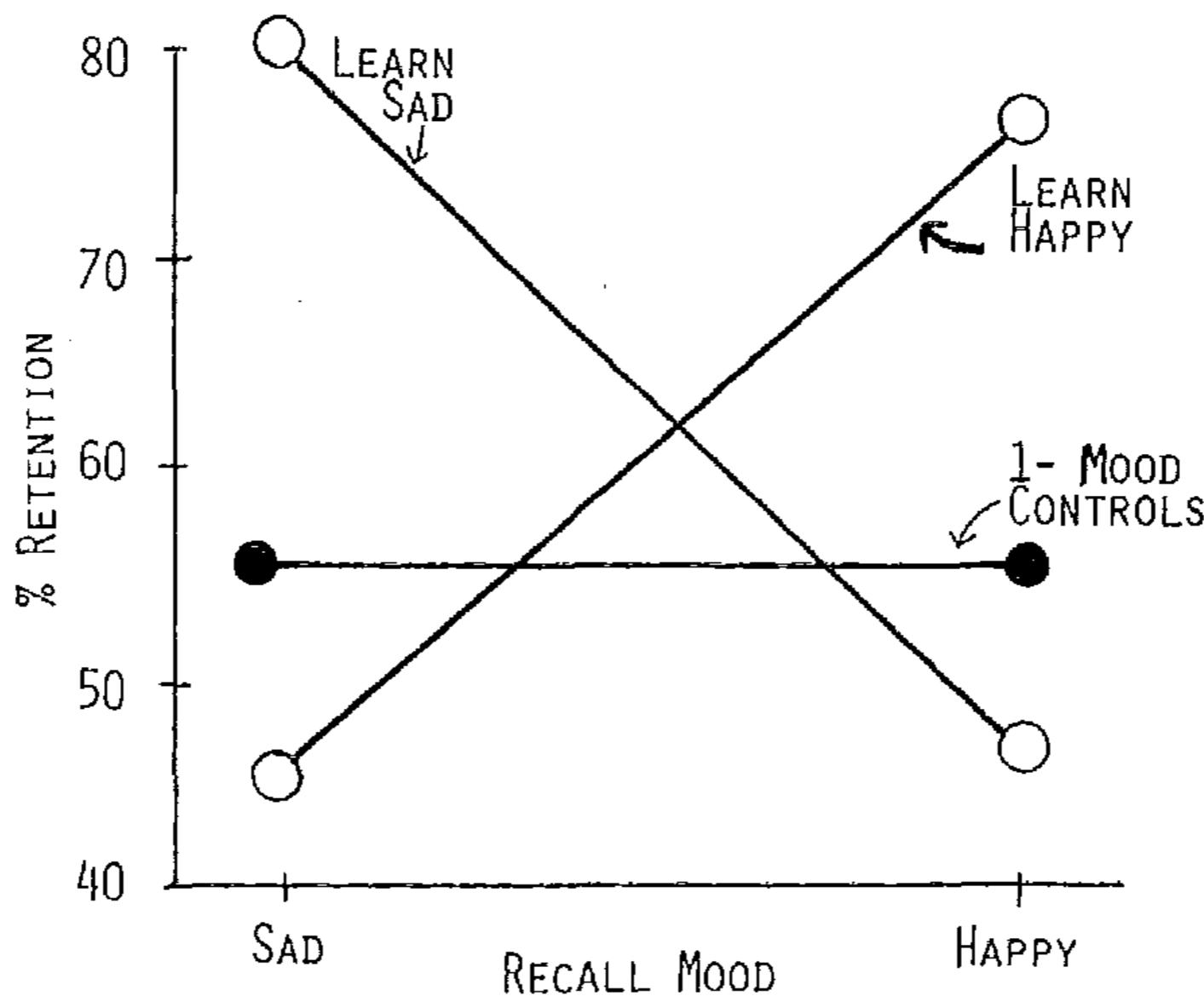
- Context is reflected in the **statistical structure of our experience**
- Our brains **exploit this statistical structure** to help us remember what we need, when we need it
- This plays a **fundamental role in how we remember**

Context and memory



Godden & Baddeley (1975)

Context and memory



Bower, 1981

The dynamics of thought

Global pandemic

Ready for a nap

Need coffee

Today's class

Breakfast

Morning run

Wake up



Context and repetition

- When we repeat something, we experience it in multiple contexts
- Each context is an opportunity for us to recall it
- The more opportunities, the better our chances of recall

Context and spacing

- Context changes gradually
- The more time we wait, the more context changes
- The more different two memories' contexts, the more distinct opportunities for recall

Study/test context

- Studying something in a particular contexts builds associations between what is studied and the context it's studied in
- Re-visiting that context later re-activates thoughts about that context and anything associated with it

Real-world implications

- How might you overcome study/test context effects?
- How might you intentionally influence your mood?
- How might you intentionally forget something?

For Wednesday...

- Check out the course [GitHub page](#)
- Read Chapter 1 in FoHM
- Start working on [Problem Set 1](#), due before class on April 5
- [Register to get COVID vaccine](#)