

Memory and more

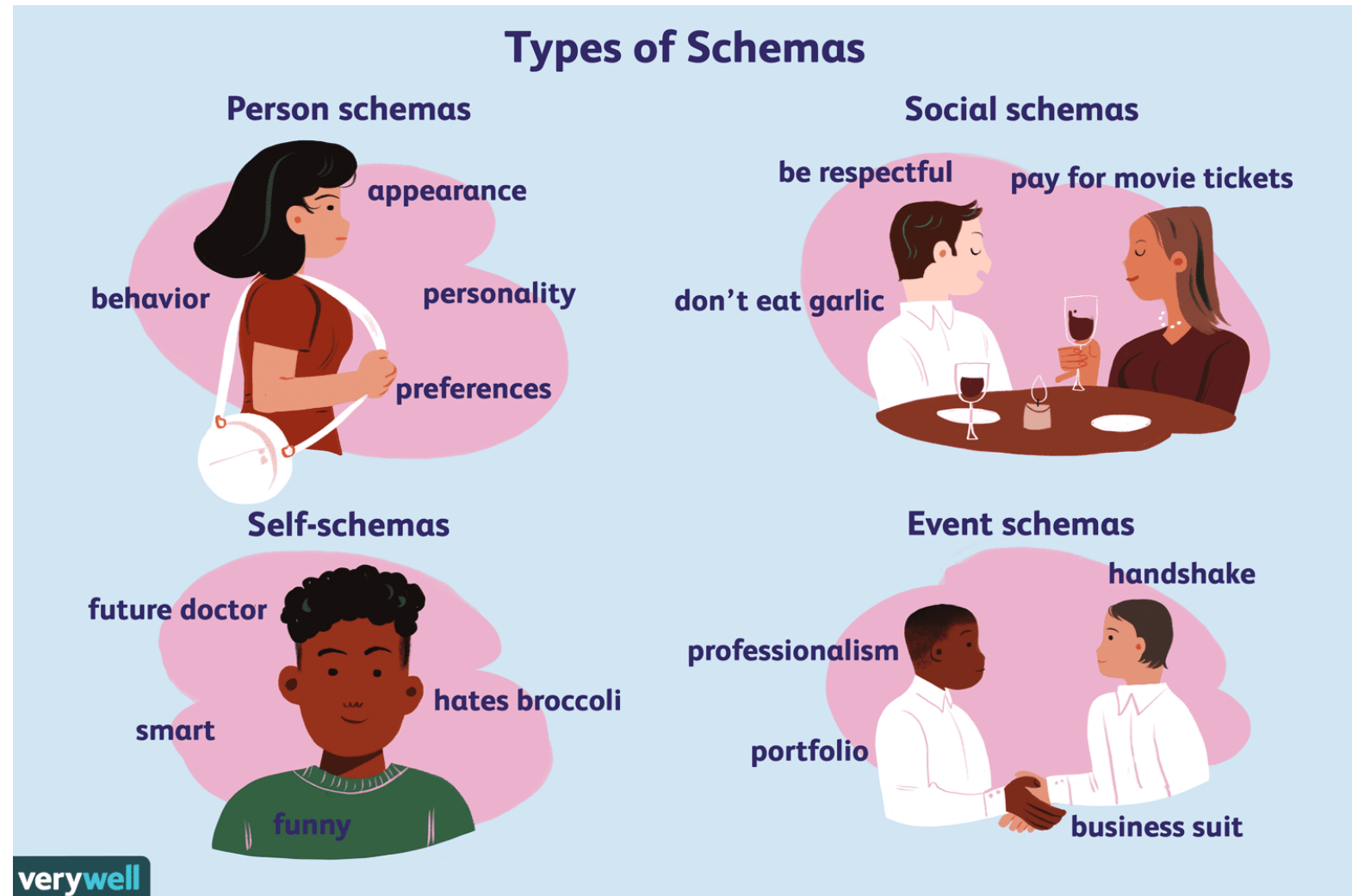
31st March 2022

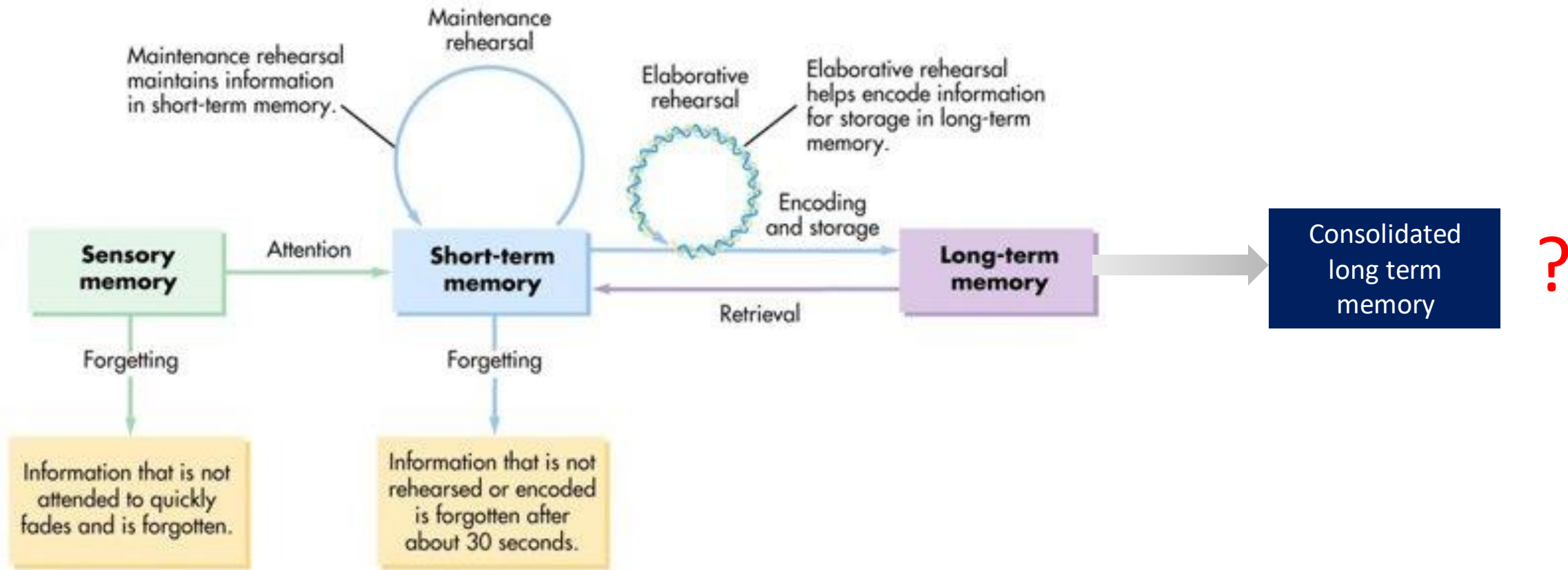
Bhaktee Dongaonkar

What do you typically do when you go to a restaurant?

Schemas

A schema is a cognitive structure that serves as a framework for one's knowledge about people, places, objects, and events.





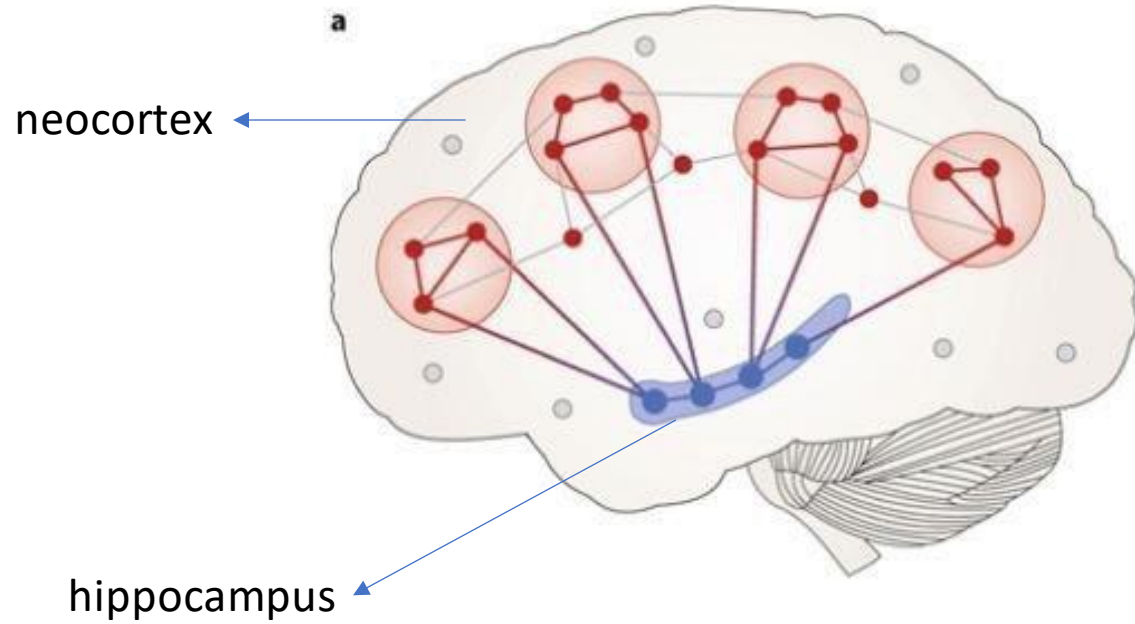
verb

1. make (something) physically stronger or more solid.

"the first phase of the project is to consolidate the outside walls"

2. combine (a number of things) into a single more effective or coherent whole.

"all manufacturing activities have been consolidated in new premises"



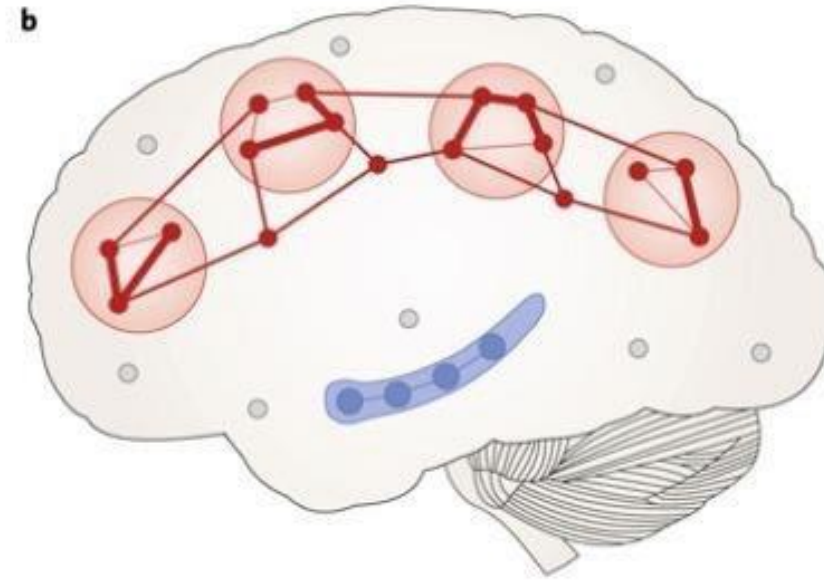
Cell ensembles contributing to...



Recently encoded neocortical part of a representation



Recently encoded hippocampal part of a representation

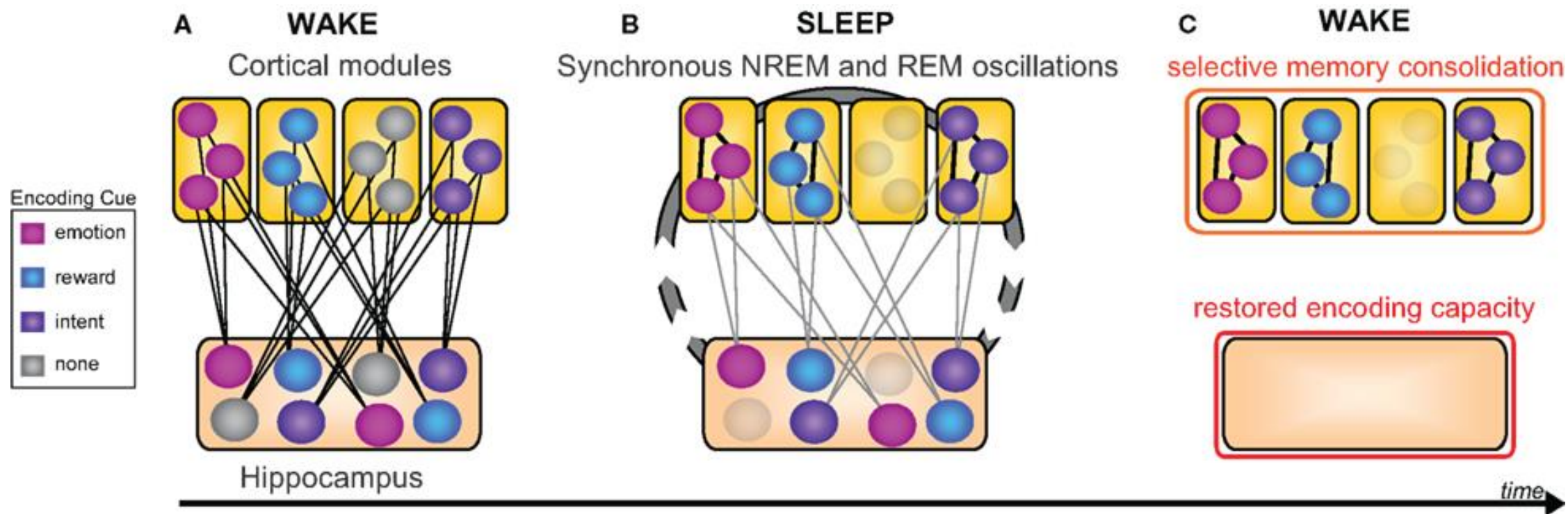


Associated pre-existing representation



Unrelated pre-existing representation

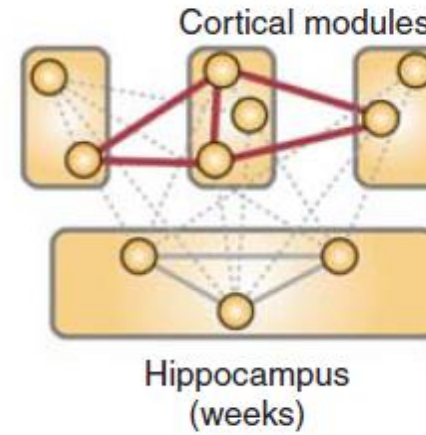
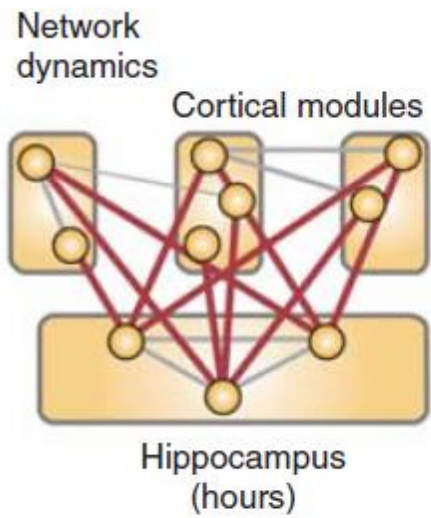
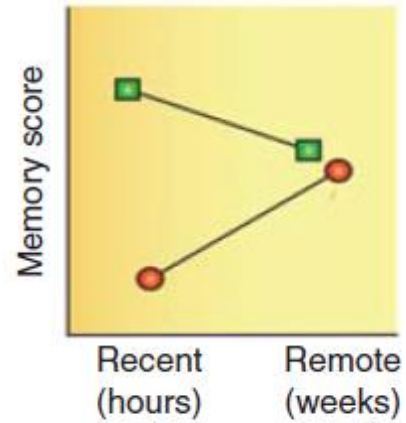
nature
neuroscience



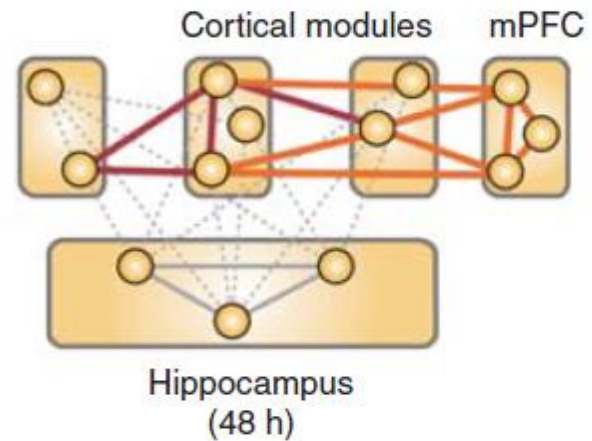
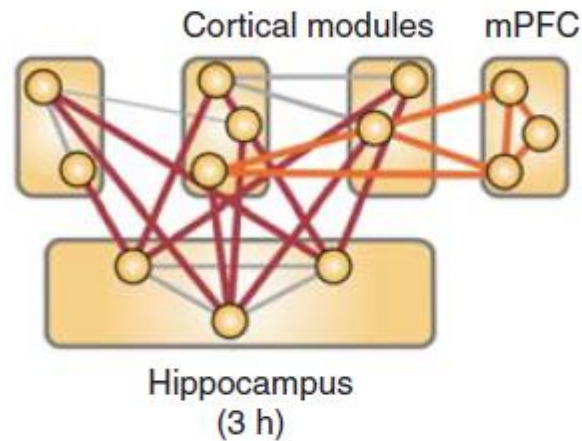
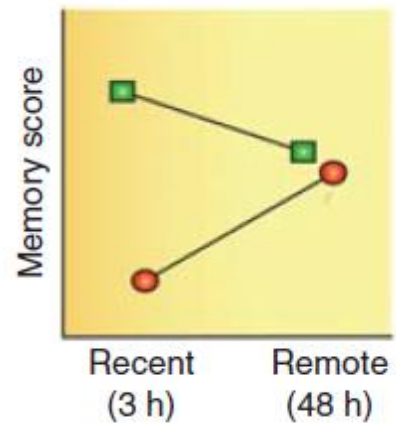
A Standard systems consolidation

Behavior

■ Controls
● HPC lesion

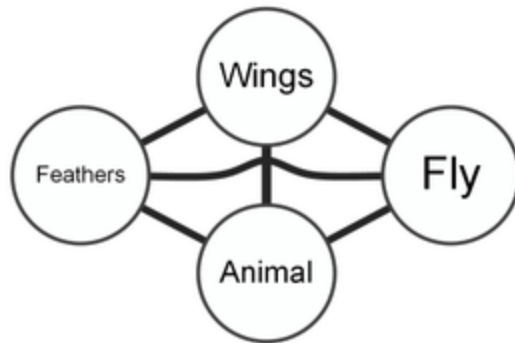


B Systems consolidation with schema

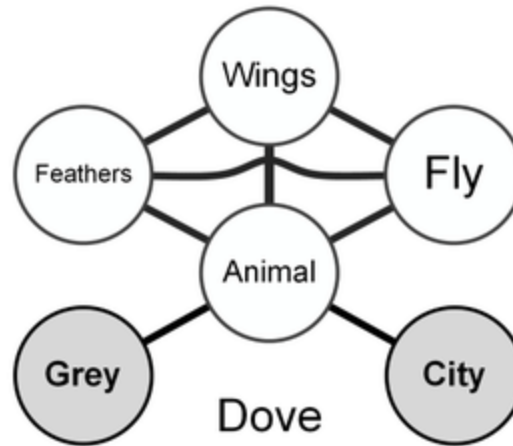


Sleep

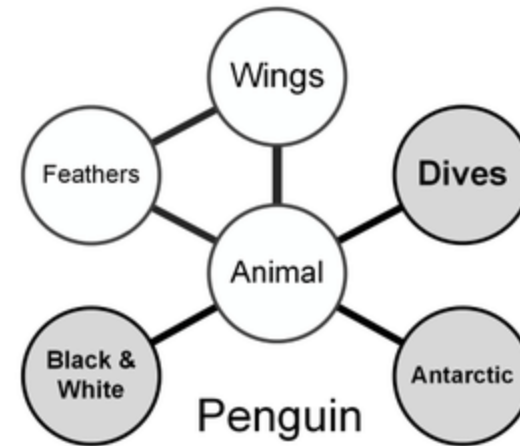
Concept of a Bird



Prototypical Bird

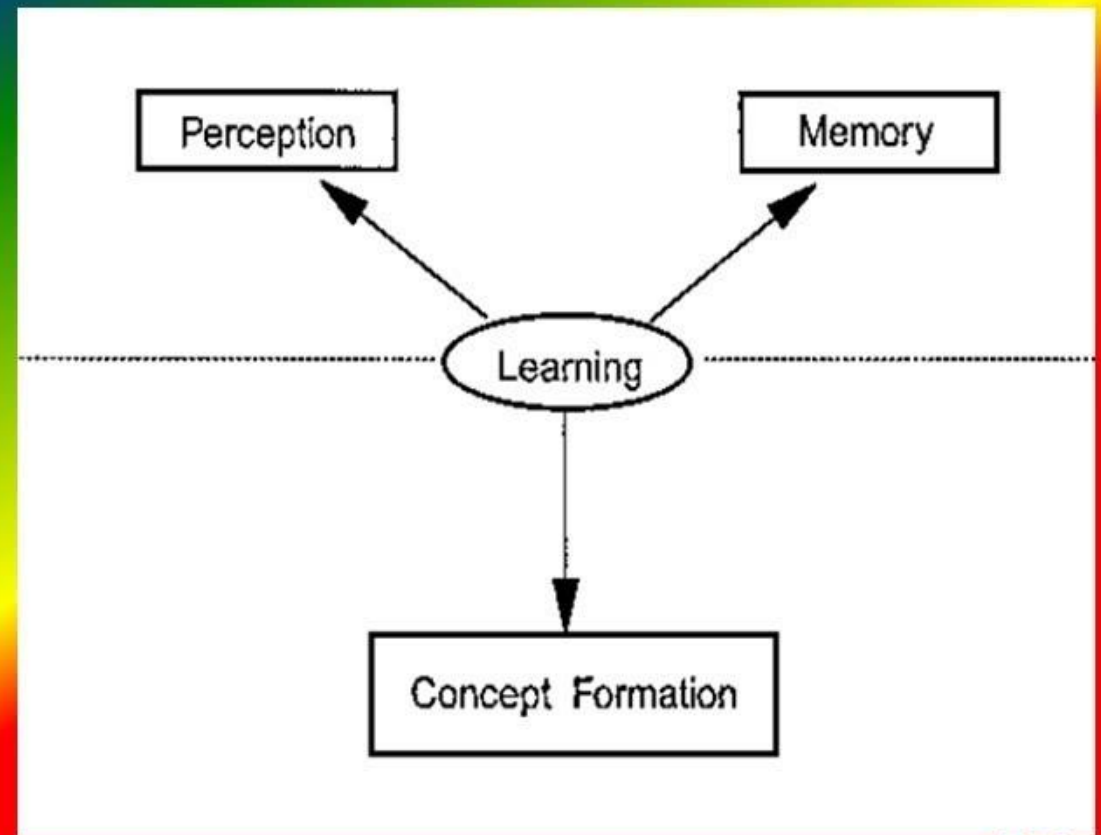
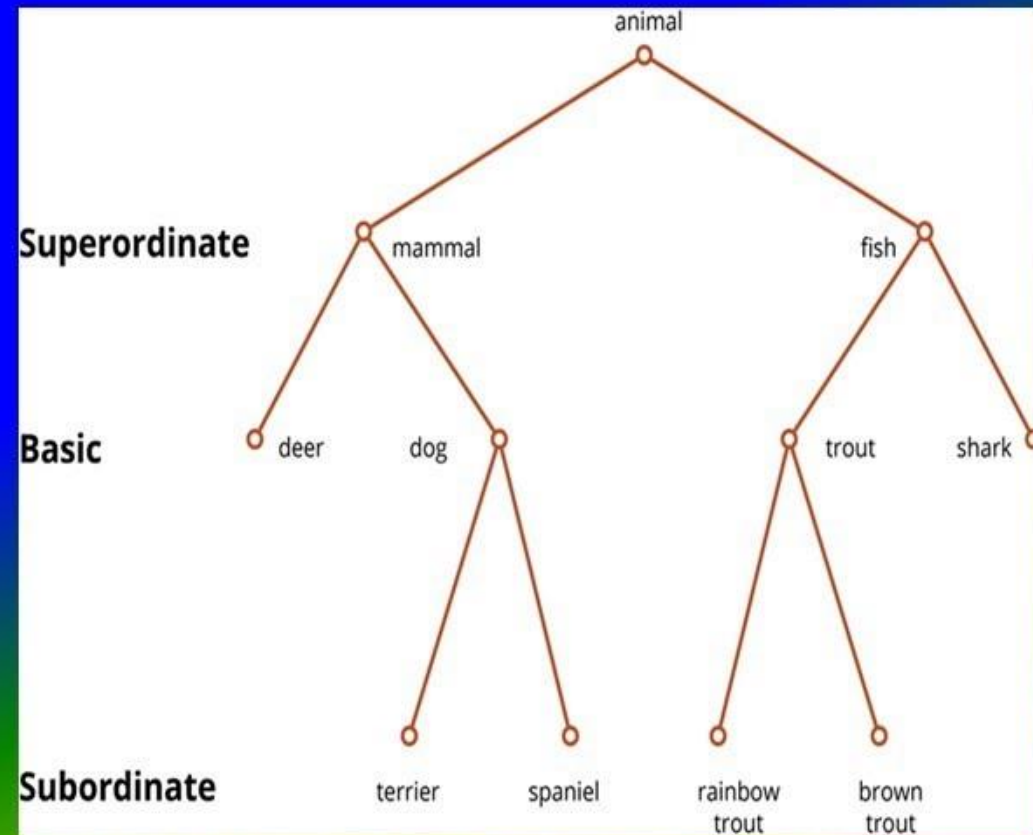


Dove



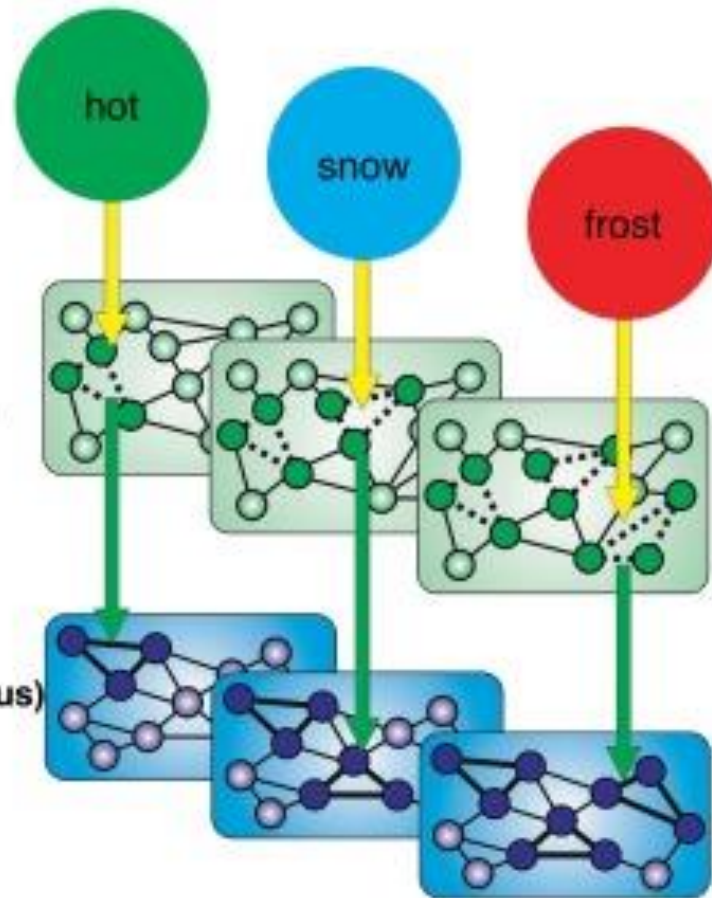
Penguin

CONCEPT FORMATION



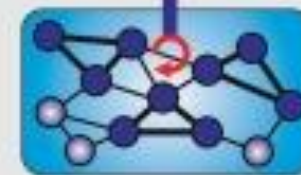
Wakefulness

Encoding of large amounts of items



Sleep

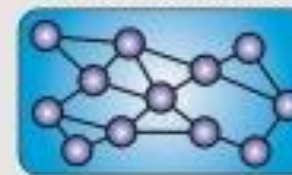
Active systems consolidation



Synaptic homeostasis

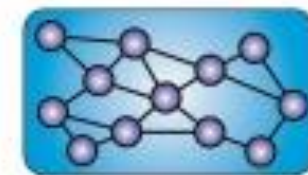
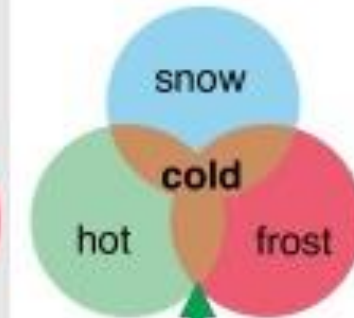


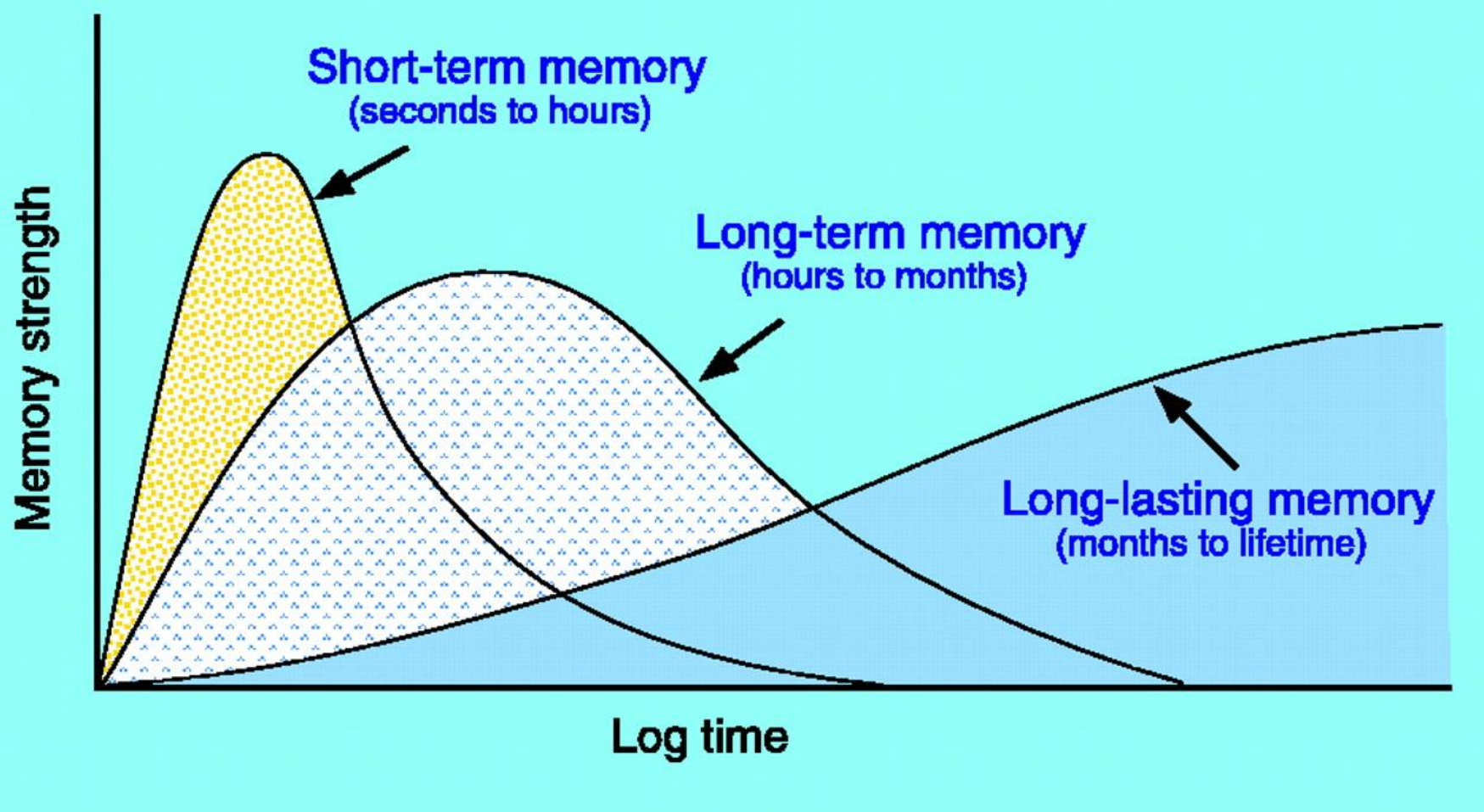
Global synaptic renormalisation



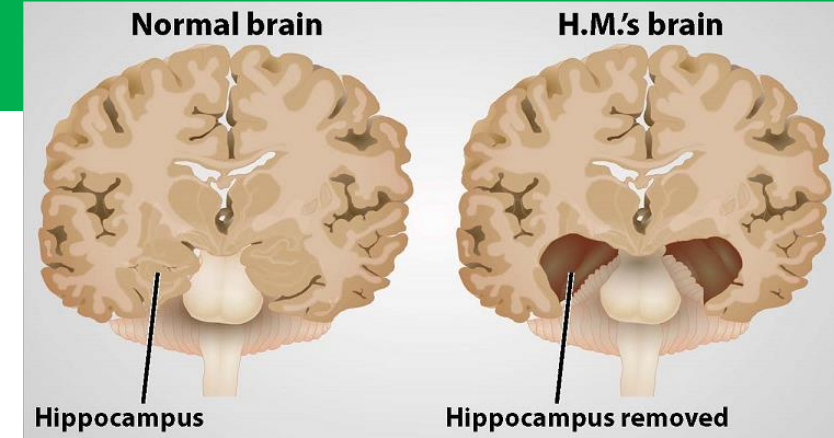
Wakefulness

Increased gist retrieval & decreased item memory





Patient HM



- Henry Molaison (1926-2008)
- At age 7, HM was knocked down by a bicycle
- Accident resulted in seizures, could not lead a normal life
- At 27, HM's bilateral medial temporal lobes removed to control his seizures.
- After surgery, HM could remember his name, family, and childhood.
- But he could not remember his day- to- day activities, not even his doctor, Dr. Scoville, who visited HM daily.



Patient HM

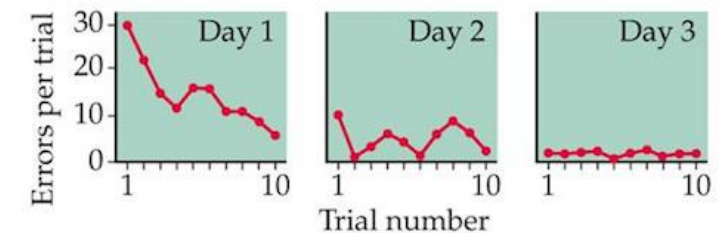
Dr. Brenda Milner
Clinical Neuropsychologist
McGill University
Montreal, Canada

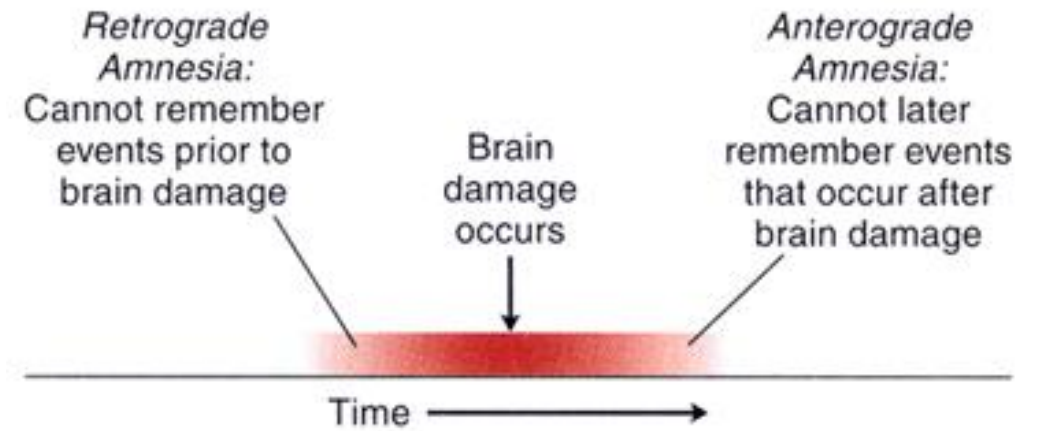
- IQ was intact.
- Could remember facts, schemas, and general knowledge.
- Could learn motor skills (like tracing a star by looking at its mirror reflection) over many practice trials, but was never conscious of these learning sessions.
- Short term memory was intact
- NO LONG TERM MEMORY

(a) The mirror-tracing task



(b) Performance of H.M. on mirror-tracing task

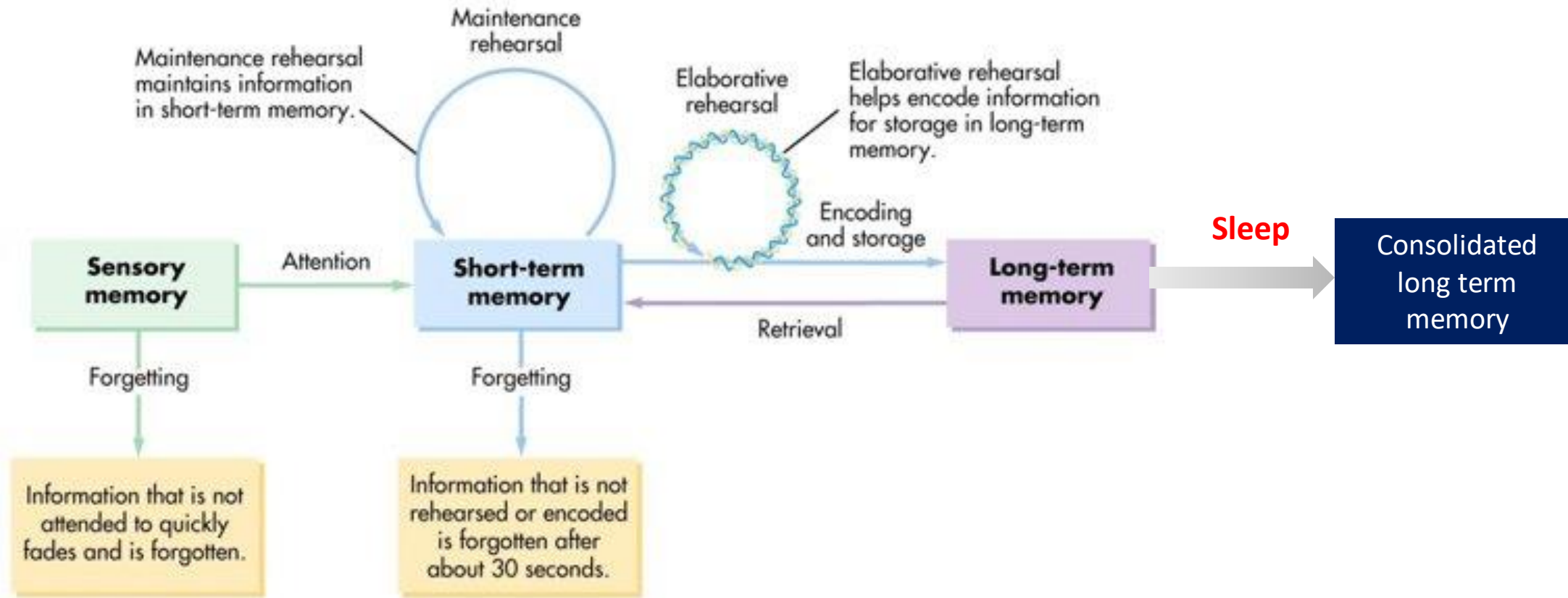




Retrograde amnesia - difficult to remember events from the past few years leading up to his surgery

Antero-grade amnesia – HM could not form new memories

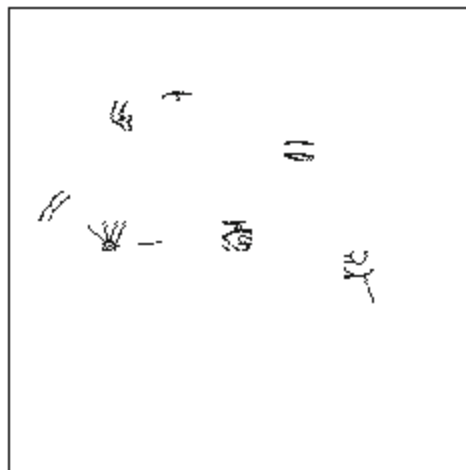
He lived only in the present.



What are memories used for?

Visual Priming

2



RED

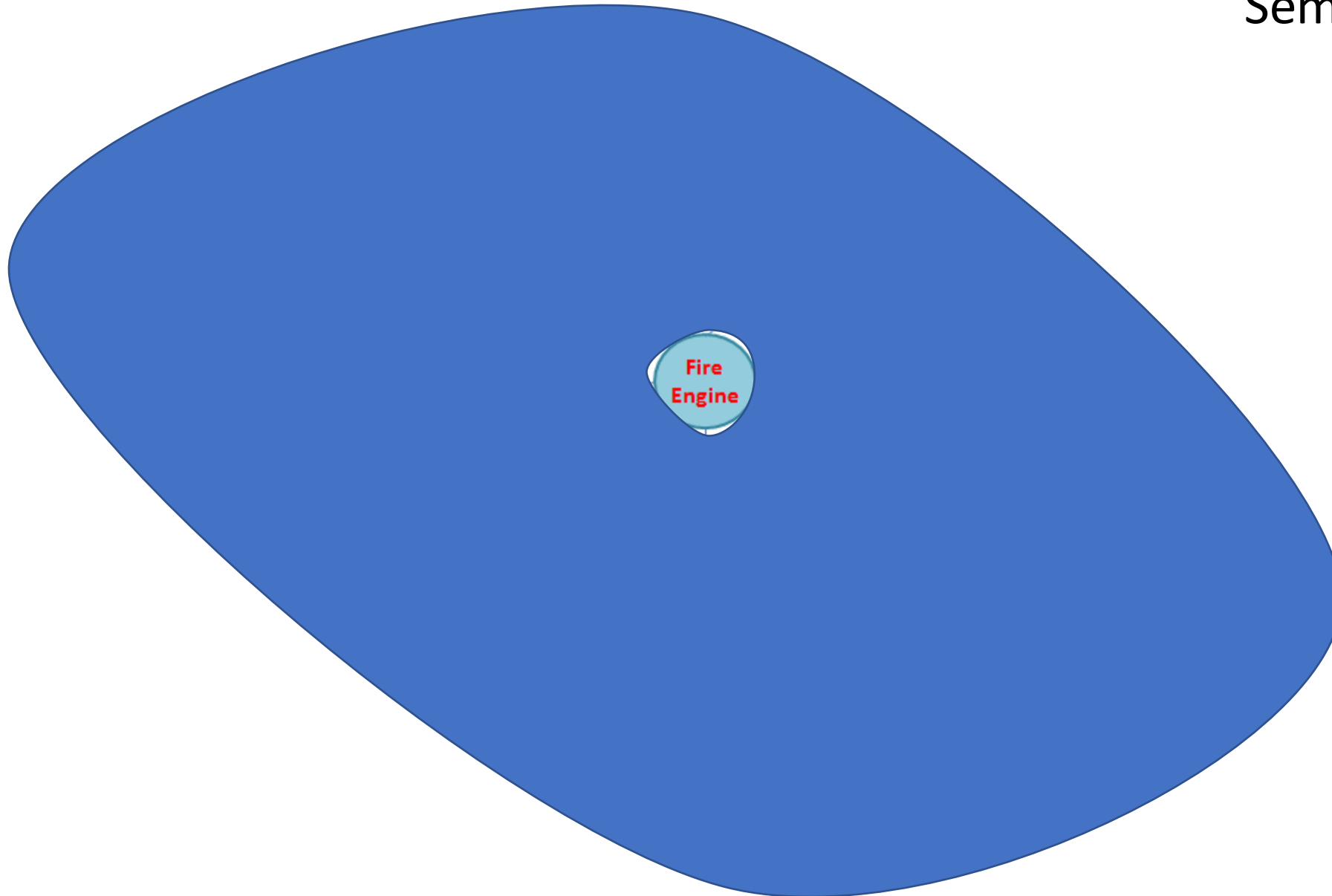
BLUE

ORANGE

YELLOW

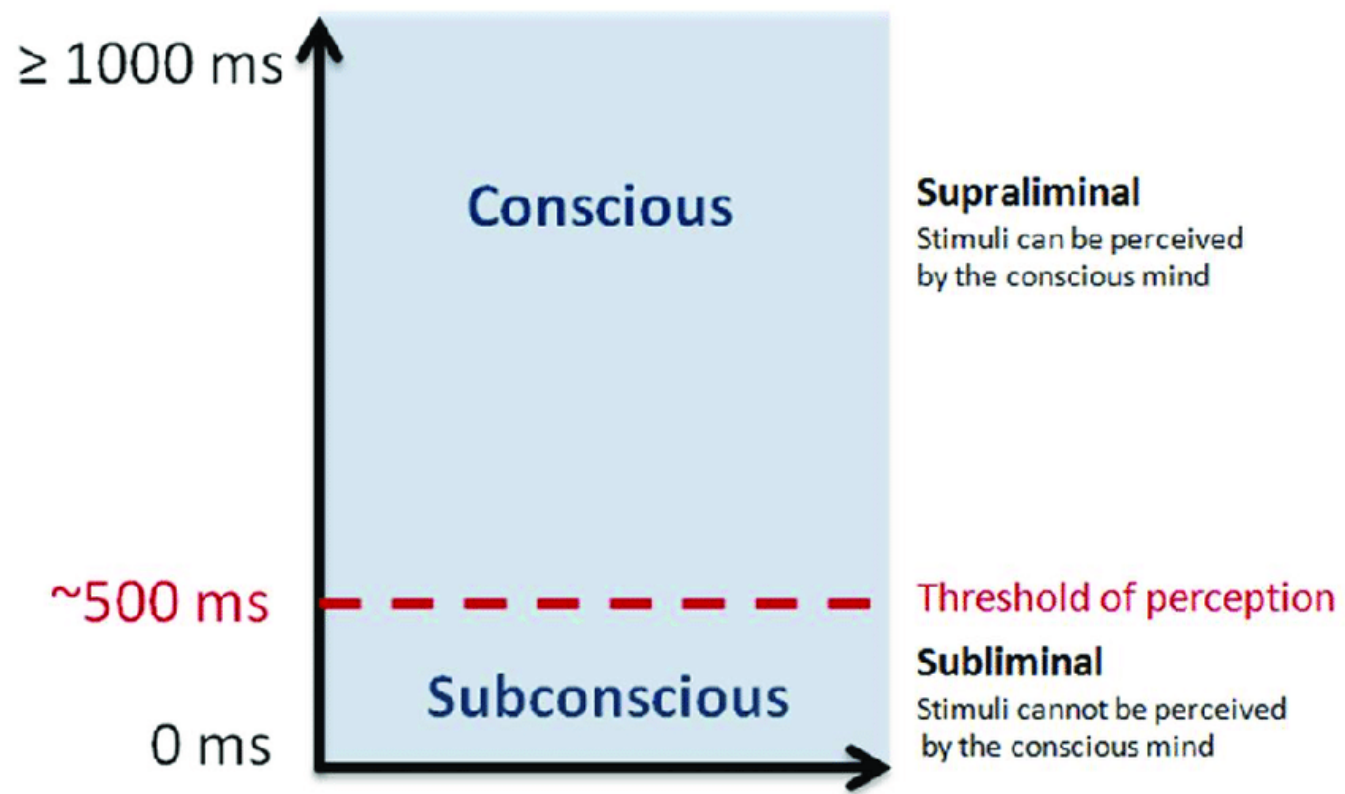
Gr_____

Semantic Priming





Priming works by using associations made in our subconscious, and are almost always unnoticeable to the subject.





<http://karakreative.blogspot.com/2013/02/graphic-designer-of-month-paul-rand.html>
<http://vimeo.com/puotocri>

<http://tech.fortune.cnn.com/2011/06/27/guara-designing-woman/>
http://topics.nytimes.com/topics/reference/timestopics/people/d/shepard_fairfax/index.html



Is India a safer place to live in now compared to a decade ago?

Does the letter *k* occur more often at the beginning of a word or as the third letter?

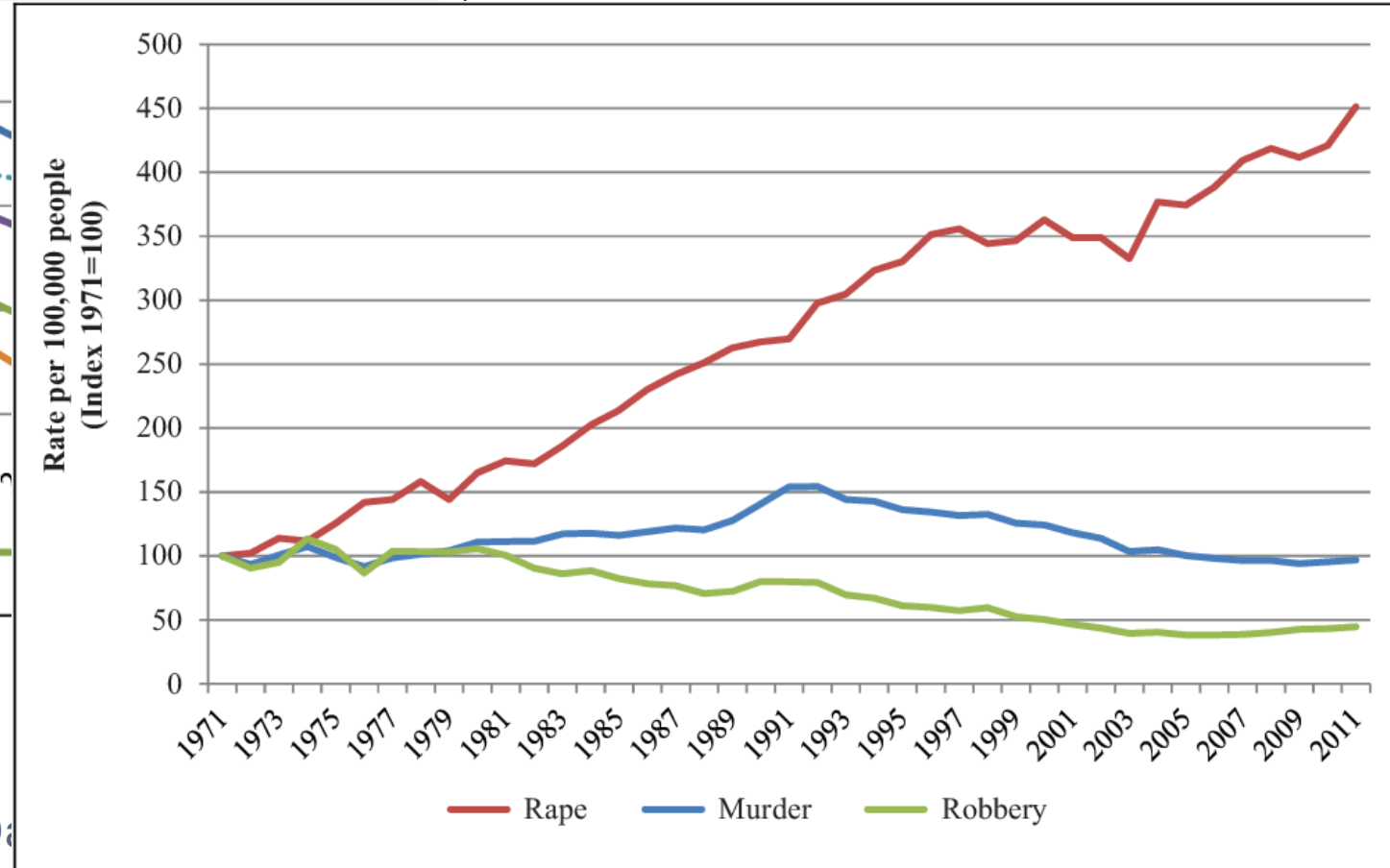
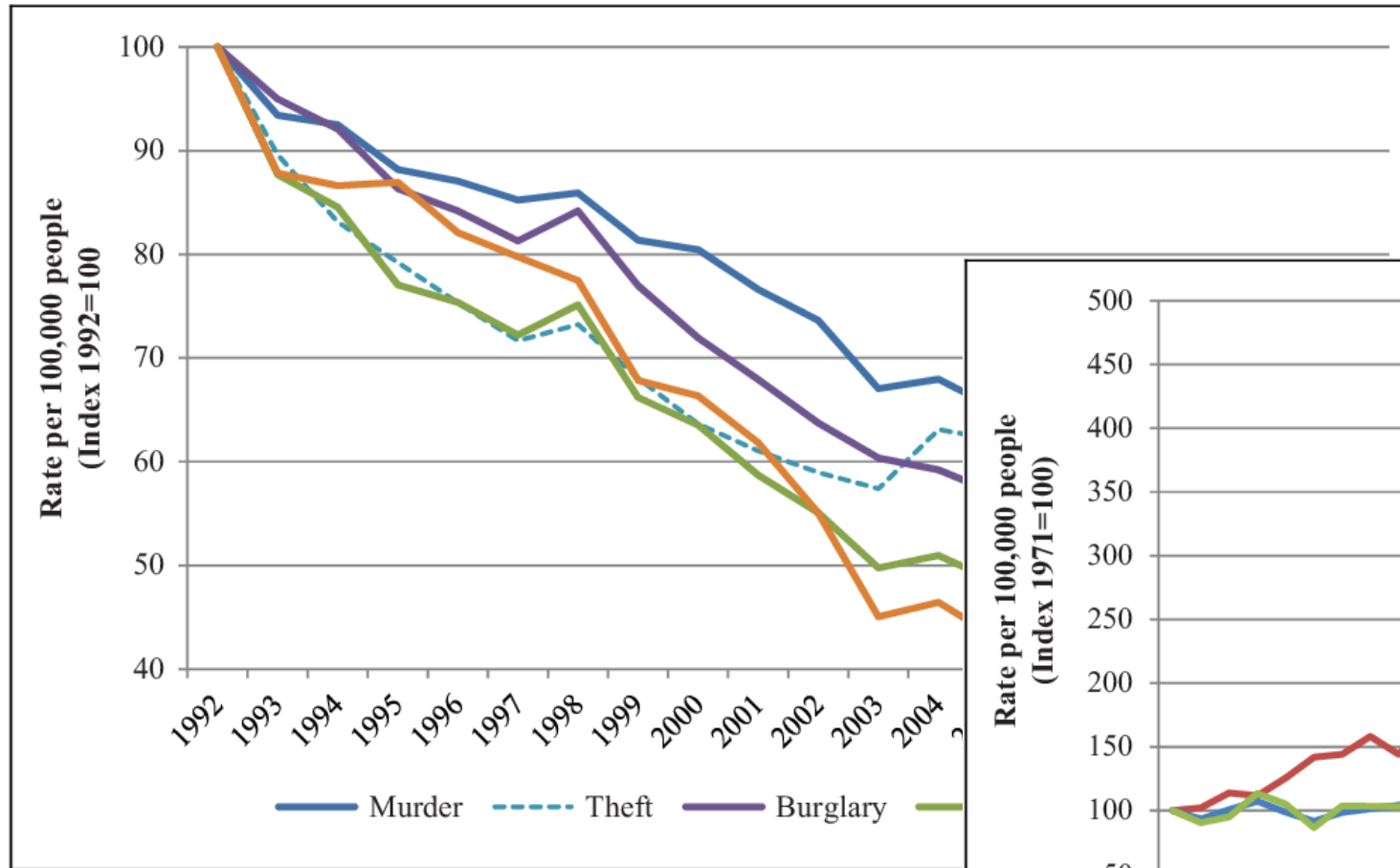
Covid has killed a devastating number of people !

Does the letter *k* occur more often at the beginning of a word or as the third letter?

<i>K</i> in first position	105 (69.1%)
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<i>K</i> in third position	47 (30.9%)
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Is India a safer place to live in now compared to a decade ago?



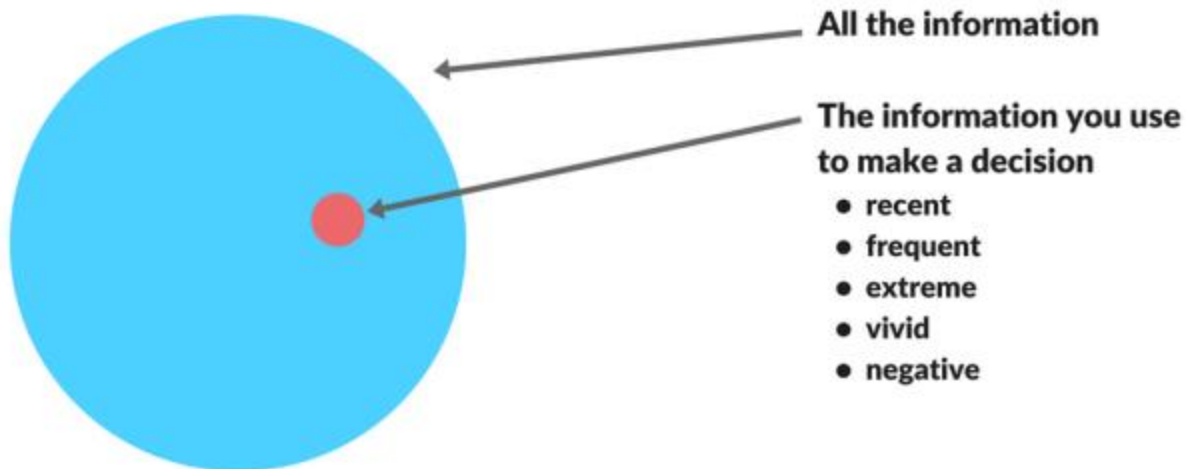
Published in 2015

[Crime Rates in India](#) S. Ansari, A. Verma, K. D.

1. Frequent is easier to recall than infrequent
2. Extreme is easier to recall than ordinary
3. Negative is easier to recall than positive
4. Recent is easier to recall than the distant past
5. Vivid is easier to recall than non-vivid

what comes to mind the easiest—what's most available—is true.

The availability heuristic





Donald J. Trump ✓

@realDonaldTrump

Follow

In the East, it could be the COLDEST New Year's Eve on record. Perhaps we could use a little bit of that good old Global Warming that our Country, but not other countries, was going to pay TRILLIONS OF DOLLARS to protect against. Bundle up!

4:01 PM - 28 Dec 2017



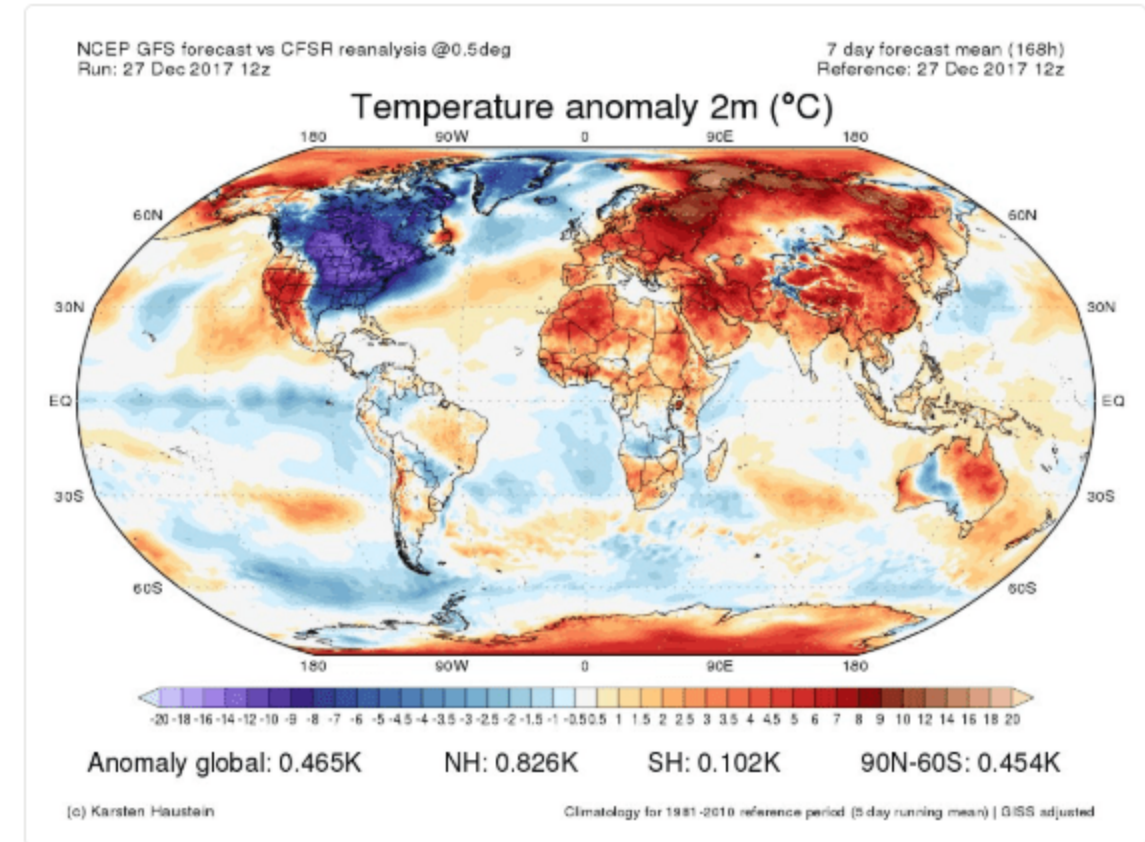
Zack Labe ✓

@ZLabe

Follow

The coldest weather (relative to average) will be positioned right over North America through at least the next 7-days...

[Maps: karstenhaustein.com/climate]

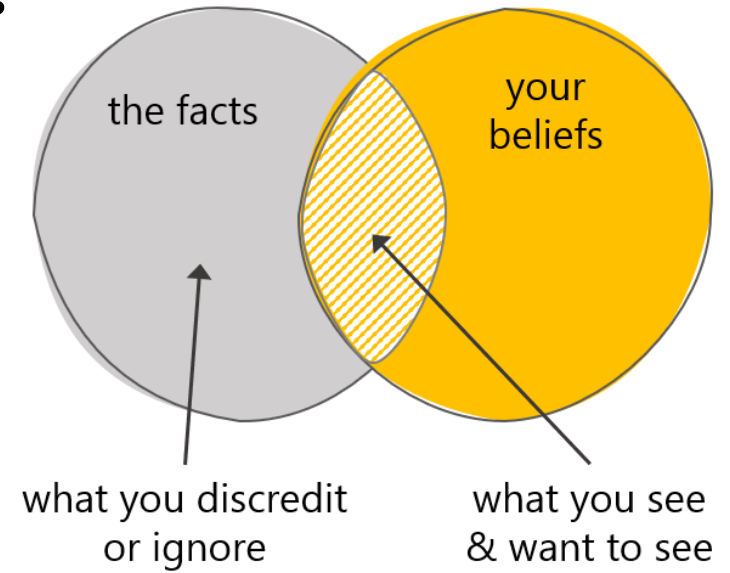


9:15 AM - 27 Dec 2017

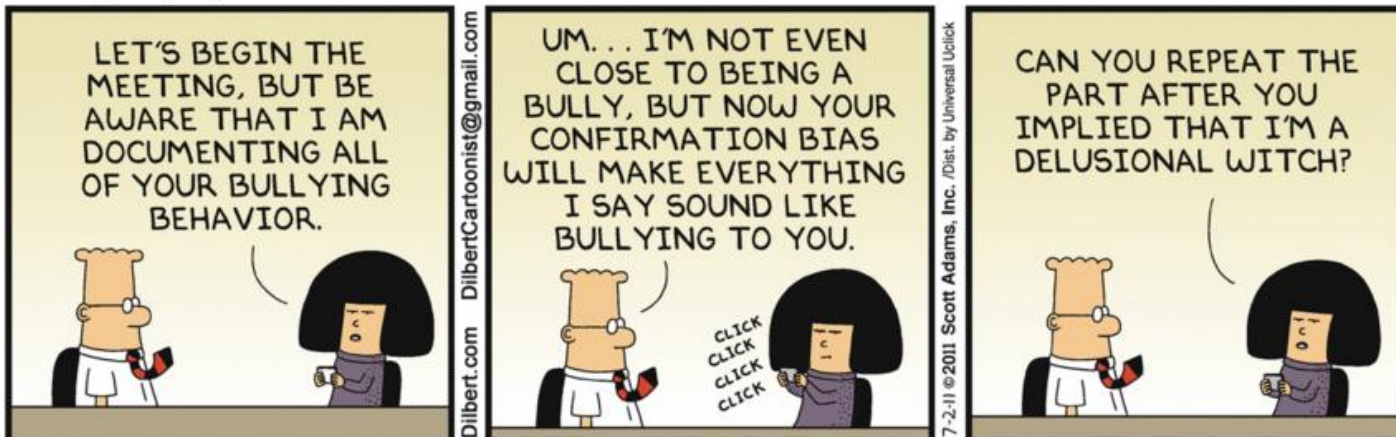
A particular university ranks high because it takes high ranking students

Voters seek info that supports their opinion/beliefs

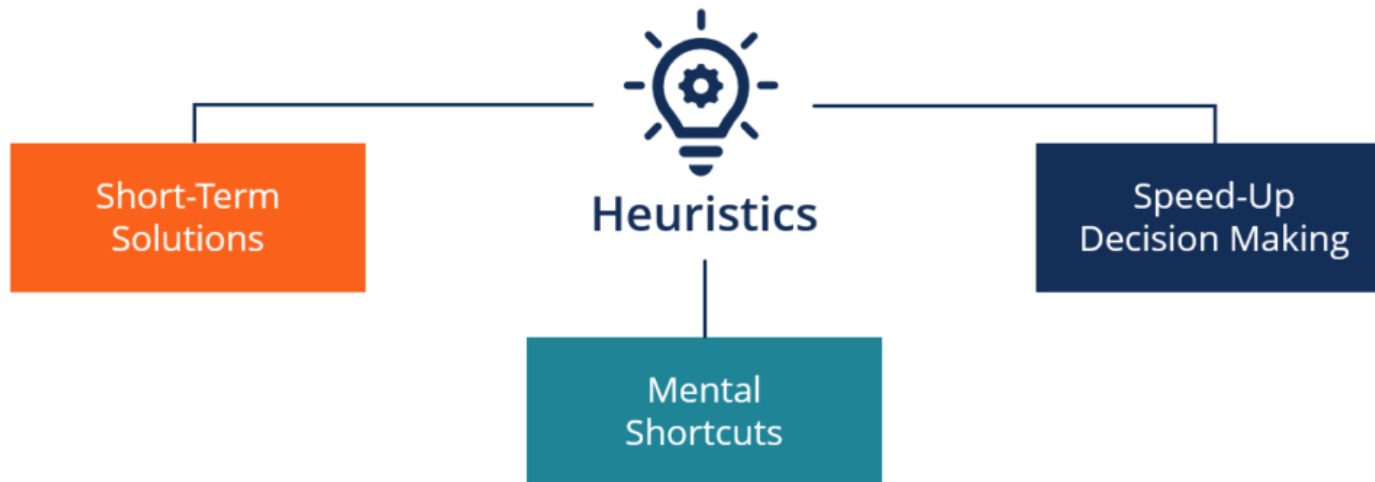
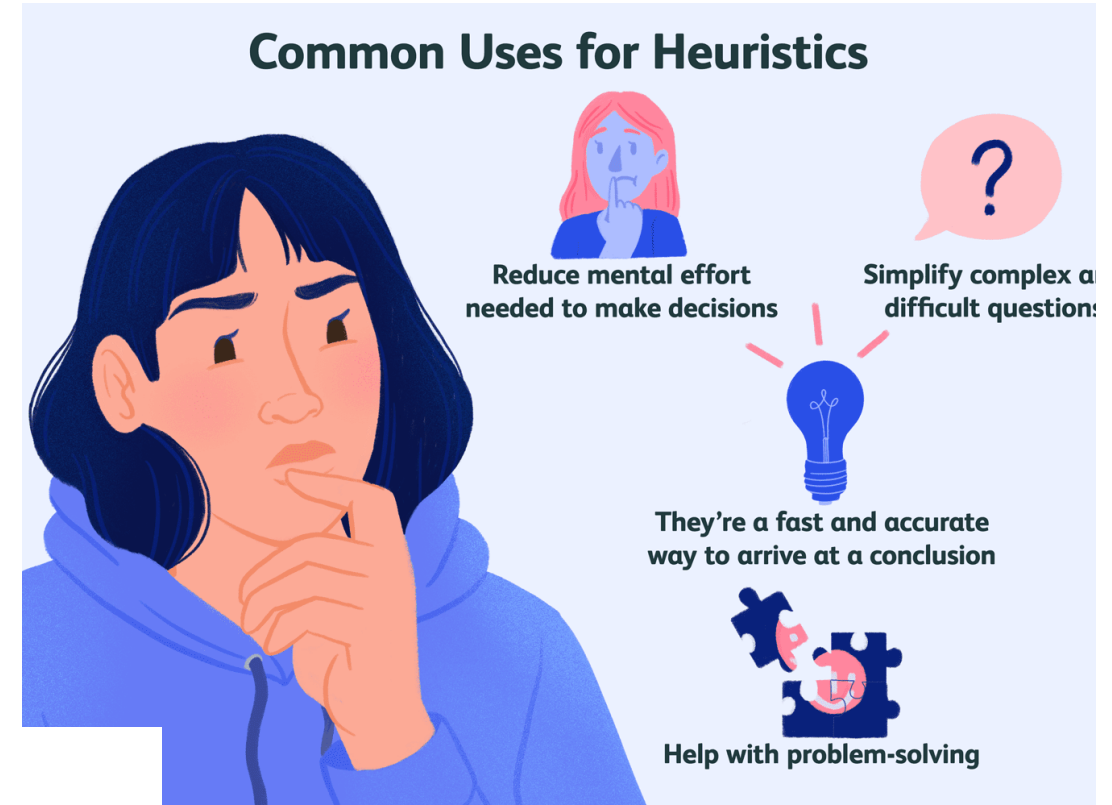
will ignore information from news broadcasters
that contradicts their existing views.

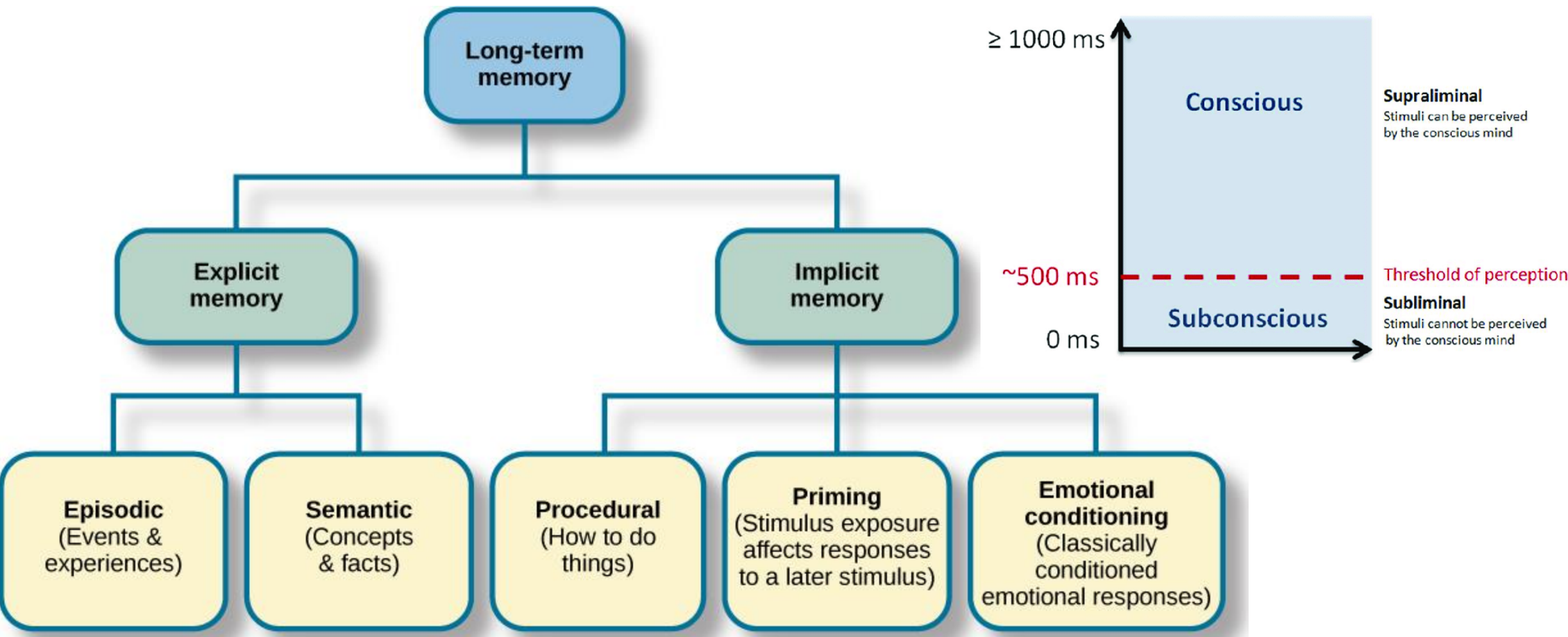


Confirmation bias



Heuristics?





Which factors affect memory?