





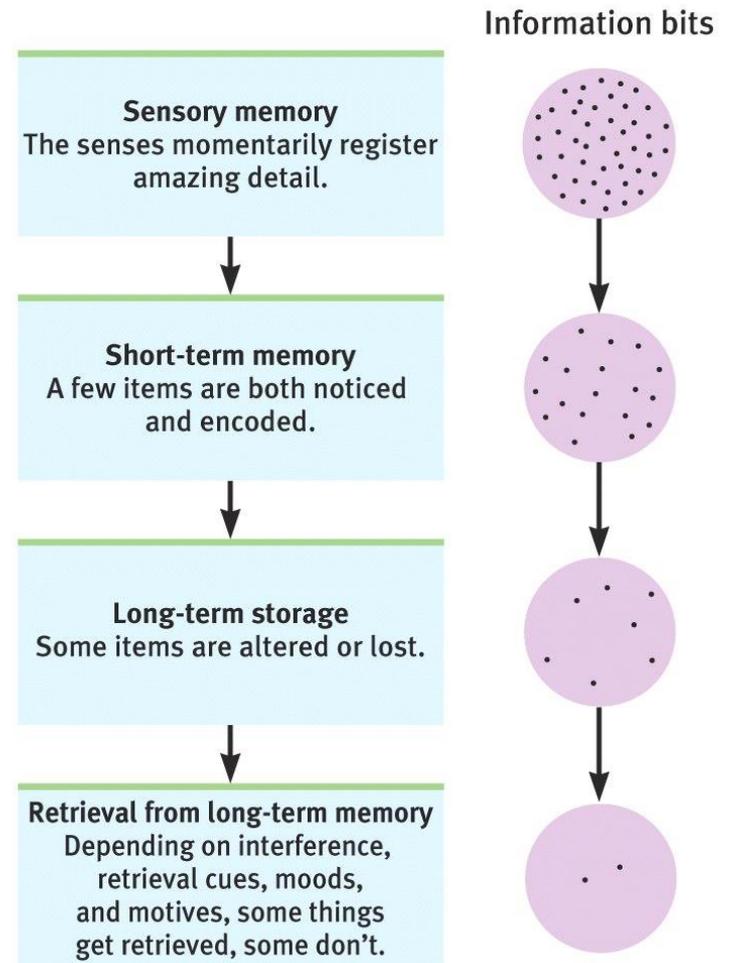
Can you identify the real U.S. penny?

FORGETTING



Why do we forget?

Forgetting can occur at any memory stage. We filter, alter, or lose much information during these stages.

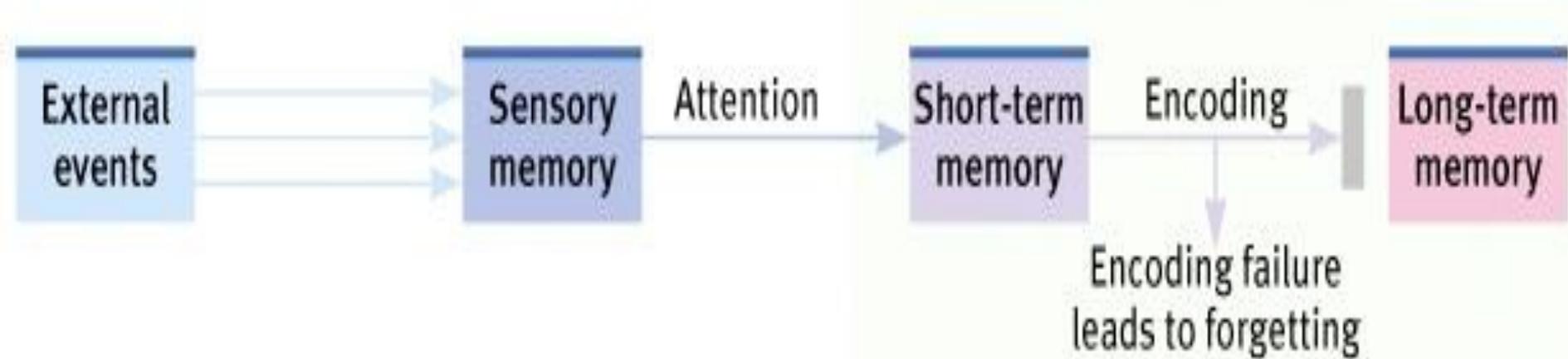


Why Do We Forget? Five Key Theories



- Encoding Failure
- Decay
- Retrieval Failure
- Interference
- Motivated Forgetting

1. Encoding Failure



- We fail to encode the information.
- It never has a chance to enter our LTM.

2. Storage Decay (Transience)

- Even if we encode something well, we can forget it.
- Without rehearsal, we forget things over time.
- Ebbinghaus's forgetting curve.



Ebbinghaus's memory experiments showed that...

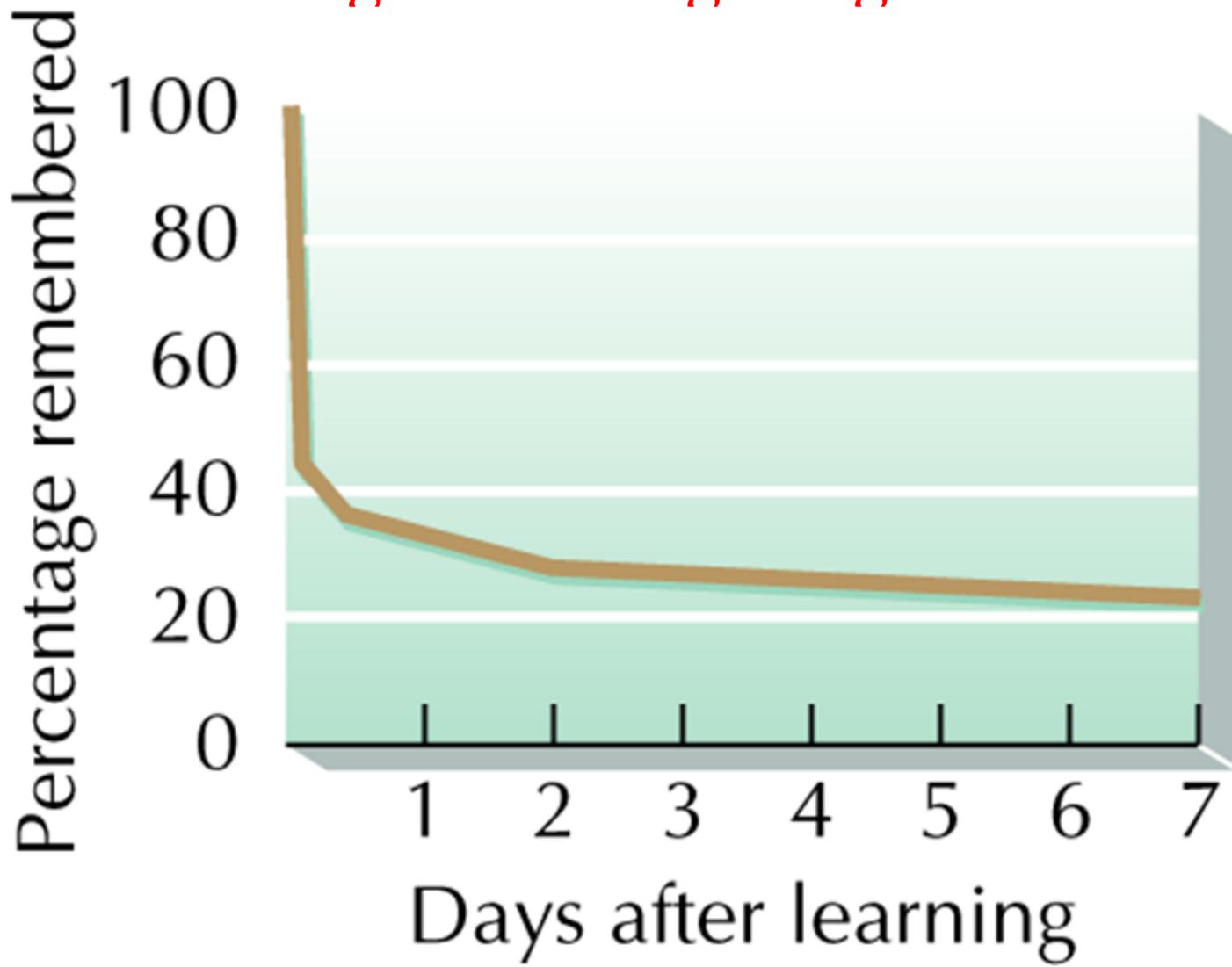
- Forgetting is most rapid within the first 9 hours.
- Material that is studied beyond mastery (over-learned) is remembered longer.
- Repeated learning sessions over a longer interval of time improves memory retention in any subject.
- Items toward the beginning and end of a series are most easily remembered.
- Meaningful things are remembered for about 10 times longer than random meaningless things.
- Items forgotten can be relearned faster than new ones learned for the first time.

In 1885 Hermann Ebbinghaus became the first psychologist to systematically study learning and memory.



Hermann Ebbinghaus

Ebbinghaus's Forgetting Curve



Nonsense Syllables

84. 100

1₂^{xx} dot chauf maud tair rok zhen kok shül
löm chin jös noit sil mök häm leit

2₂ jäim nol feis lech chiup mis joch dom
deik laut tur bäl bim san jän gaut

3₂ tüch dük höf sheik ras hin chois mam
jin much nik geist lush chois san gam

4₂ noif deun kos laf dauf zik saush jof
zheim paut nöm wen chaush shup buf zheil

5₂ par loit reis jöp wir non jush pek
müf jof meul tof dok sof löm har

6₂ hif zhus shant zhash tash löf nos küch
saush kün zhir xim bauf säm dal dut

7₂^{4/8} hoir gäs dön fosh söt sash köch leif
lak maun sach laut goist nur choit zhan

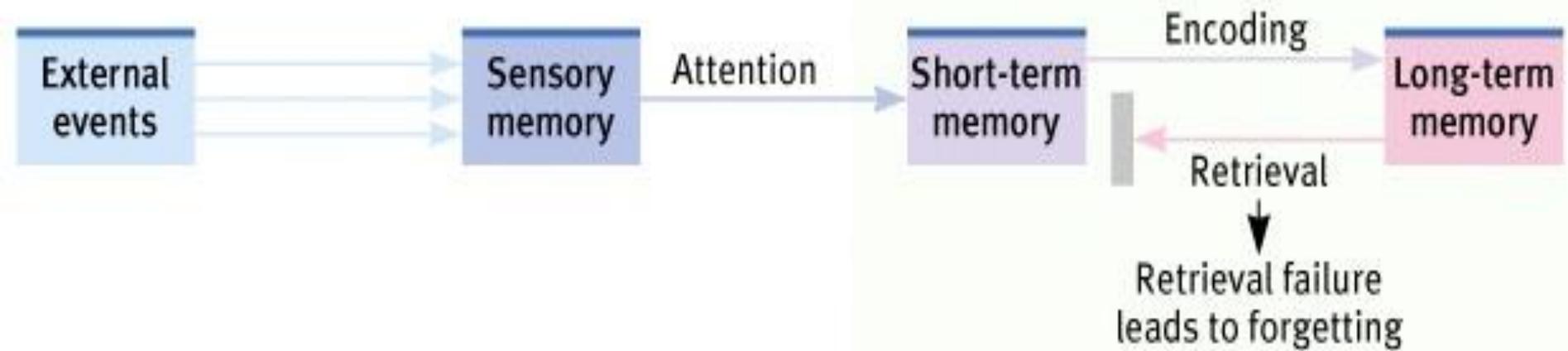
8₂ bit dup shäs nam zhest düi laut thal
zäf zech map shan shül seim mäz gün

9₂ neif shün daum shich not lich buf them
küm tich löm müs thäf wön lür chäm

E. B. Titchener wrote that Ebbinghaus's invention of the nonsense syllable was the greatest advance in memory research since the time of Aristotle.

3. Retrieval Failure

- The memory was encoded and stored, but sometimes you just cannot access the memory.



4. Interference

Proactive Interference

- The disruptive effect of prior learning on the recall of new information.



If you call your new girlfriend your old girlfriend's name.

4. Interference



Retroactive Interference

- The disruptive effect of new learning on the recall of old information.

When you finally remember this years locker combination, you forget last years.

5. Motivated Forgetting

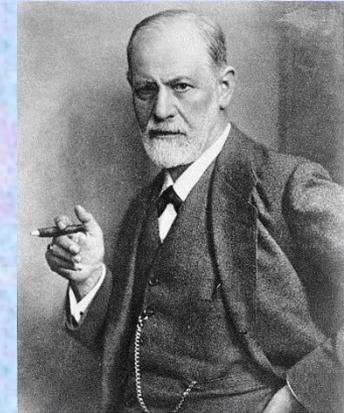
Motivated Forgetting: People unknowingly revise their memories.

Why does it exist?

One explanation is

REPRESSION (dissociative amnesia):

- in psychoanalytic theory, the basic defense mechanism that banishes anxiety-arousing thoughts, feelings and memories from consciousness.



Segment 77

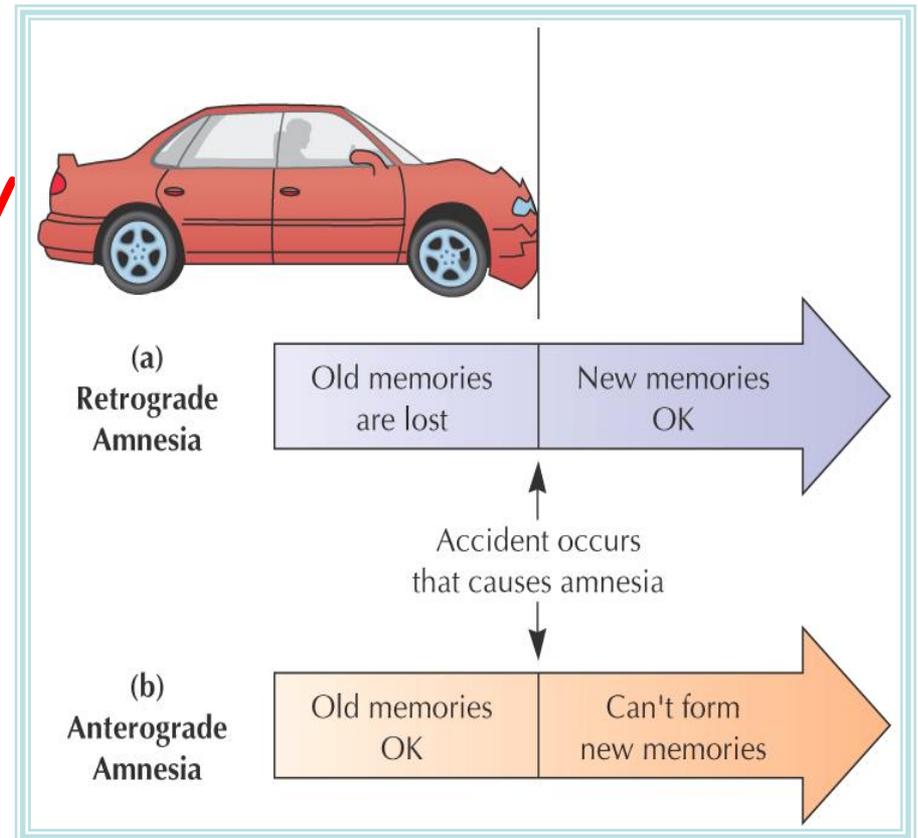
**Dissociative Amnesia:
Convicted Murderer Set Free After
Repressed Memory Evidence Is Invalidated**

Length: 1:26

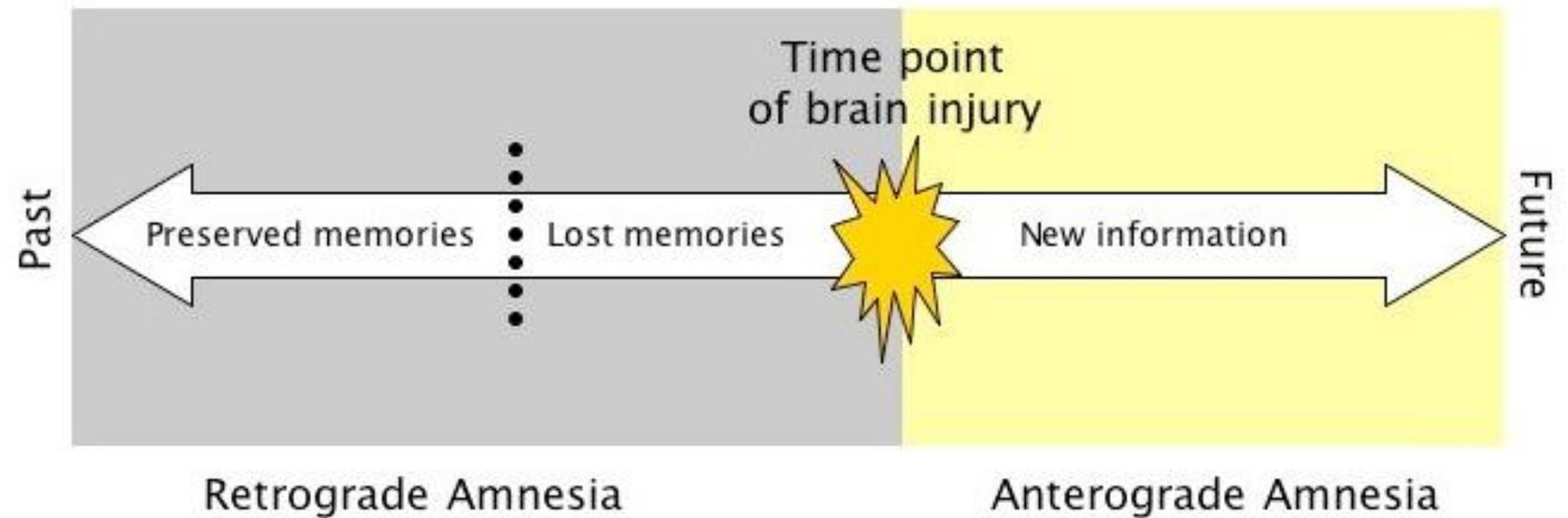
Source: NBC News, 7/3/95

Biology and Memory Loss: Injury and Disease

- Amnesia: (memory loss from brain injury or trauma)
- Retrograde amnesia (old memories lost)
- Anterograde amnesia (new memories lost)



Types of Amnesia and forgetting



SOUR

HONEY

BITTER

HEART

TOOTH

NICE

SUGAR

GOOD

TASTE

TART

CANDY

SODA

CHOCOLATE

CAKE

PIE

HERE WE GO AGAIN...

MAD

WRATH

FEAR

HAPPY

HATE

FIGHT

RAGE

HATRED

TEMPER

MEAN

FURY

CALM

IRE

EMOTION

ENRAGE

How did you do? Better on the 2nd try?

SOUR
HONEY
BITTER
HEART
TOOTH

NICE
SUGAR
GOOD
TASTE
TART

CANDY
SODA
CHOCOLATE
CAKE
PIE

MAD
HAPPY
RAGE
MEAN
IRE

WRATH
HATE
HATRED
FURY
EMOTION

FEAR
FIGHT
TEMPER
CALM
ENRAGE

"False Memory"

"Lost in the mall study" 1992

- Subject was told 4 stories from his past, including one that was made up about him being lost in the mall at age 5.
- Over the next two weeks, he jotted down whatever memories he had of the 4 events.
- After 2 weeks, he came back and was told to rate the four stories for clarity.
- False memory given **SECOND HIGHEST RATING** of the four stories, an 8/11.
- When subject was told that one of the stories never happened, he picked one of the **REAL ONES** as being the story that never happened!

Elizabeth Loftus



Constructed Memory (False Memory)

1. We sometimes alter our memories as we encode or retrieve them.

OR....

Imagination Inflation

Once we have an inaccurate memory, we tend to keep adding more imagined details, as perhaps we do for all memories.



2. Your expectations, schemas, or environment may alter your memories.

Source Amnesia/Misattribution

Have you ever discussed a childhood memory with a family member only to find that the memory was:

- from a movie you saw, or book you read?
- from a story someone told you about your childhood, but they were kidding?
- from a dream you used to have?
- from a sibling's experience?

If so, your memory for the event may have been accurate, but you experienced **source amnesia and misattribution.**

Type 1: Misattribution

- Source Amnesia

Attributing an event we have experienced, heard about, read about or imagined to the wrong source.

- Example: Where did you learn that a wrench was a tool?



- Sleeper Effect

A piece of information from an unreliable source is initially discounted, but is recalled after the source has been forgotten

