

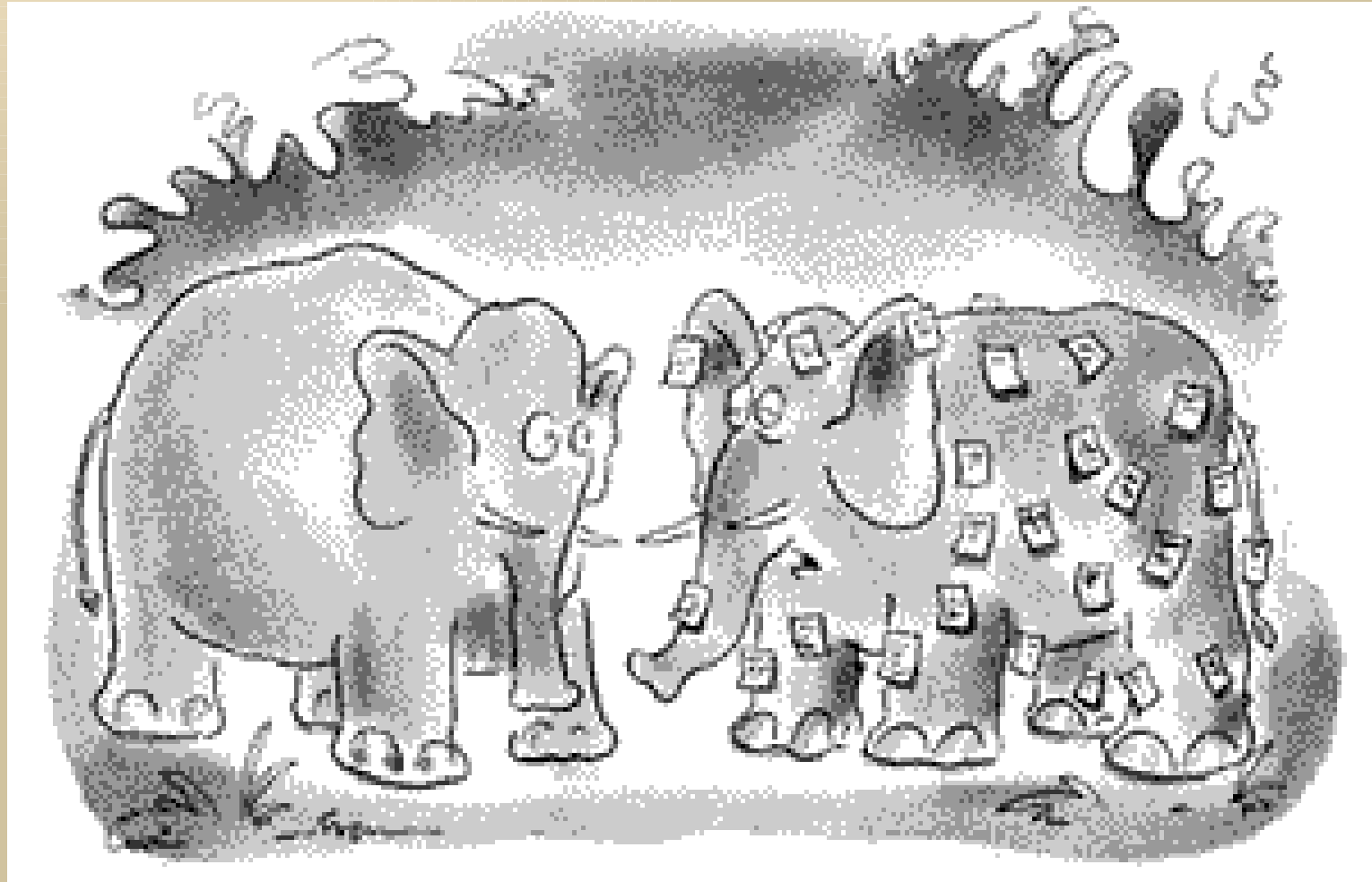
Memories are made of this:  
how memory works and why it may  
start to fail with age

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“As I get older, I find I rely more and more on these sticky notes to remind me”



# What *is* memory?

- The ability to *encode, store* and *recall* information
- Memory may fail because of problems at any one of these stages

# How many memory systems are there?

## Sensory memory

Immediate recording of sensory information

## Short term memory

Allows us to 'hold on' to small bits of recently learned information

## Long term memory

Relatively permanent and limitless storehouse

## Attention:

Novel or important sensory memories are attended to

## Rehearsal:

If we don't use or rehearse information, the memory is lost

# The limited nature of STM

Digit Span

3825

94318

596382

7918546

86951372

163874952

7154856138

Age effects?

# Increasing STM demands

- STM often involves storage AND transformation of information (i.e. ‘working’ memory)
  - e.g., mental arithmetic  
Backwards Digit Span: e.g. 23569 = 96532
- Age effects?

# Age effects on **long term** memory?

Procedural memory

Semantic memory

Episodic memory

# Procedural LTM

- Information relating to the performance of various tasks
  - Riding a bike
  - Playing an instrument
- Age effects?

# Semantic LTM

- Memory for facts and knowledge
  - How far is it from New York to Sydney?
  - How many colours are there in a rainbow?
- Age effects?

# Episodic LTM

- Memory for experiences and events
  - What did you have for breakfast?
  - Where did you park your car?



# How do we *test* episodic LTM?

BUTTER  
BREAD  
LEMONADE  
ORANGES  
LENTILS  
CHEESE  
PEPPER  
MILK

- Older adults
  - Recall fewer words
  - Make more intrusion errors
- Why?
  - Both encoding and retrieval of episodic memories are effortful processes

# Level of effortful retrieval

**Low:** which of these words  
were in the list presented previously?

MILK LEEKS BREAD CHEESE  
SALT APPLES BUTTER ONIONS

**High:** Write down the list of words presented  
earlier. . . .

# So why are some (but not other) aspects of memory affected by age?

## 1. Physiological changes

- Frontal lobes - “Working” memory
- Hippocampus - Episodic memory

## 2. Cognitive factors

- Control over memory performance

## 3. Sociocultural factors

- Effects of retirement?

# Conclusion

1. Ageing does not affect all types of memory in the same way
2. Certain types of memories do not show any decline with ageing and may even improve
3. Where deficits are seen, this is believed to be because there are increased difficulties with effortful encoding and retrieval