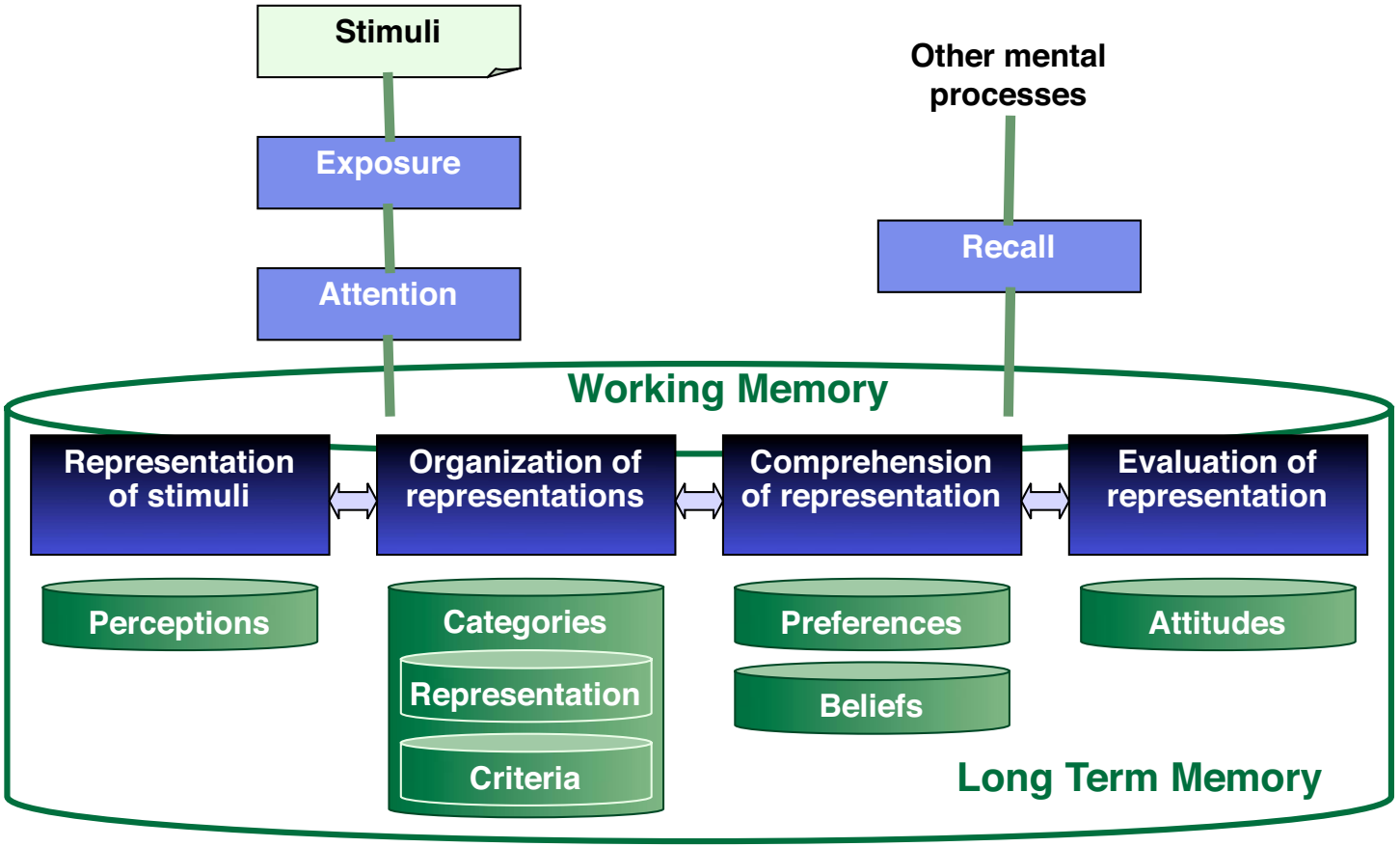
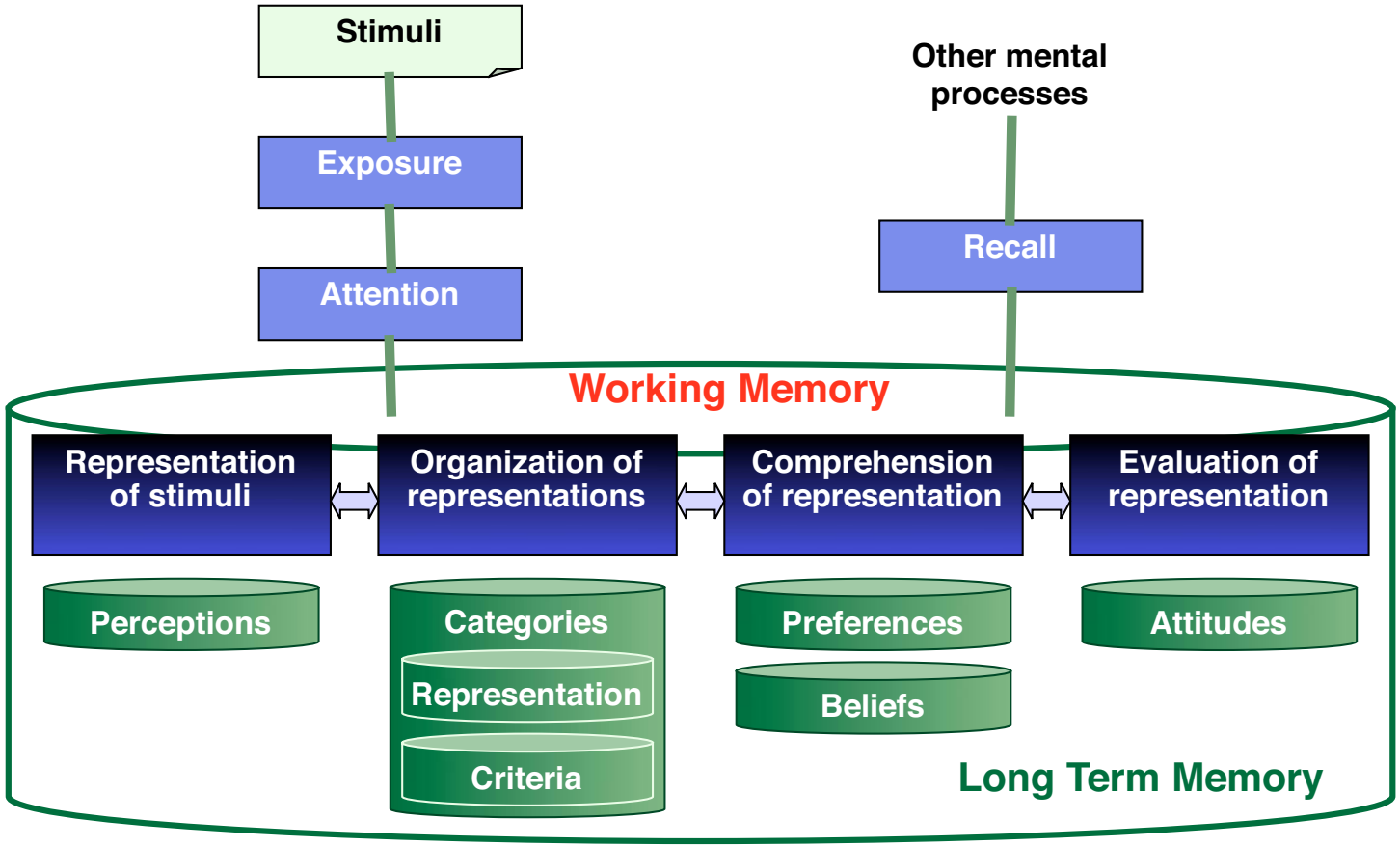
Memory & Recall

A general framework for memory



Short term memory



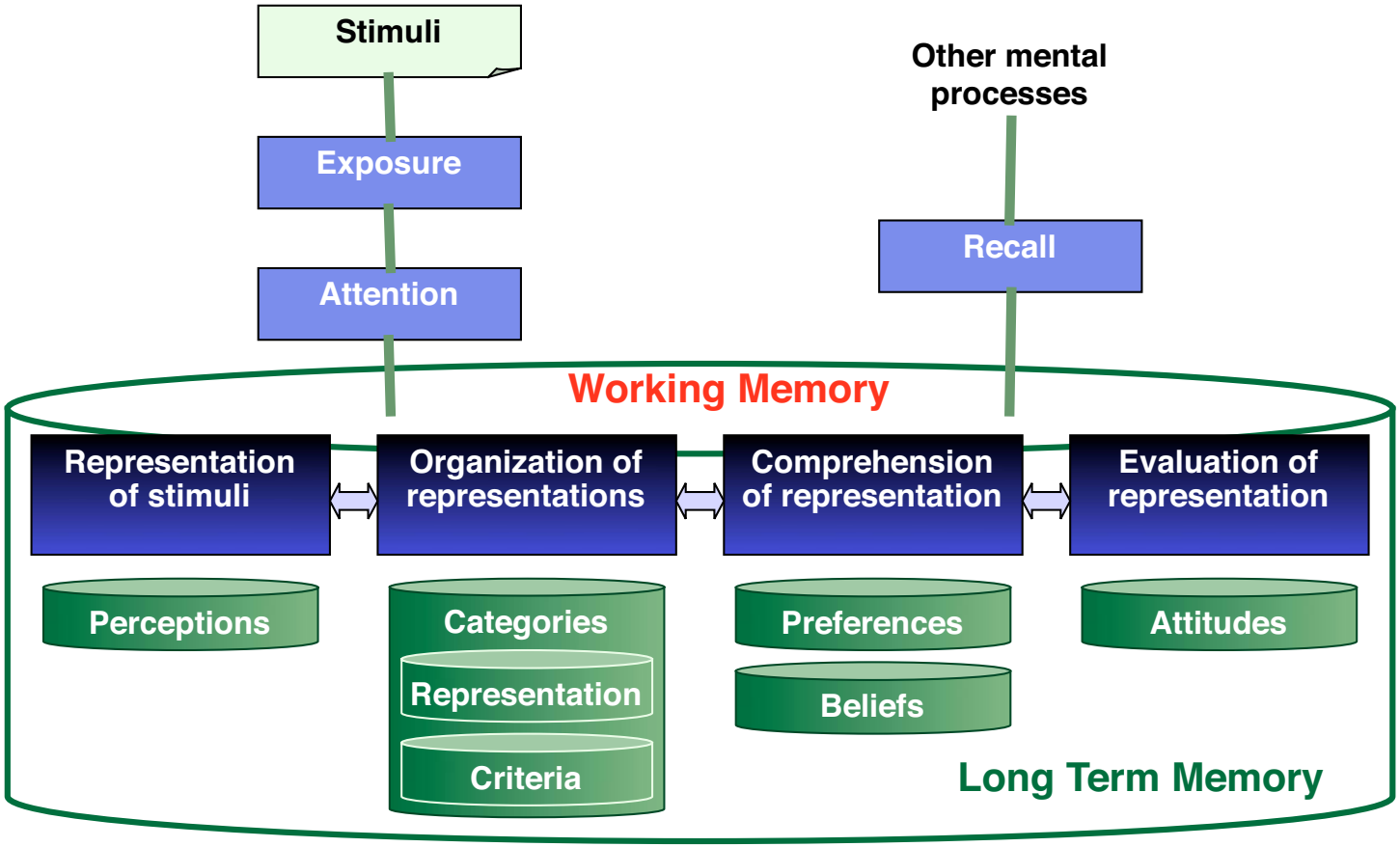
Duration: short, about 15-20 sec.

-can be lengthened through rehearsal

Capacity: 7 + or - 2

-chunking

long term memory

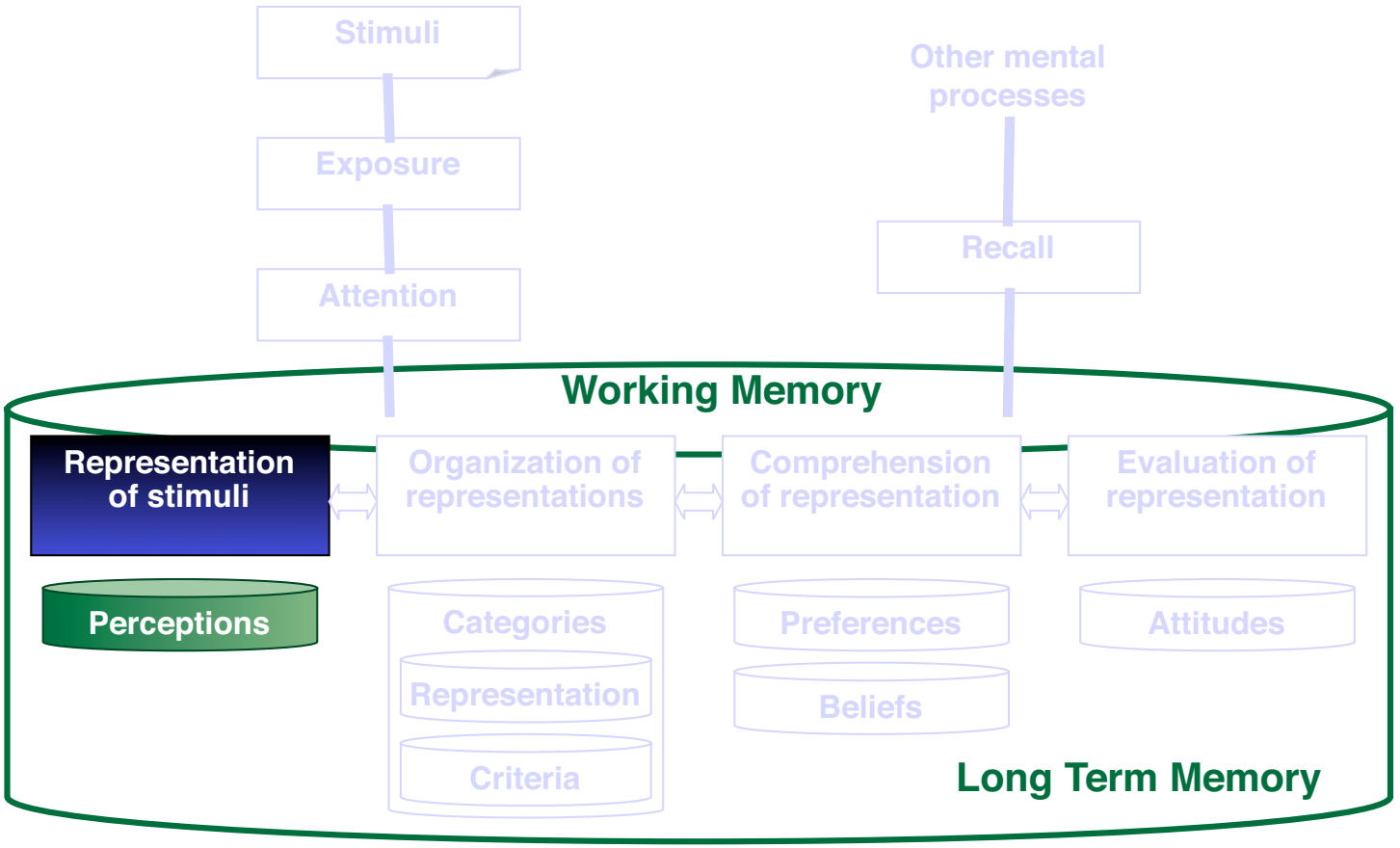


Not <u>really</u> long term. Some things are constructed, some last forever.

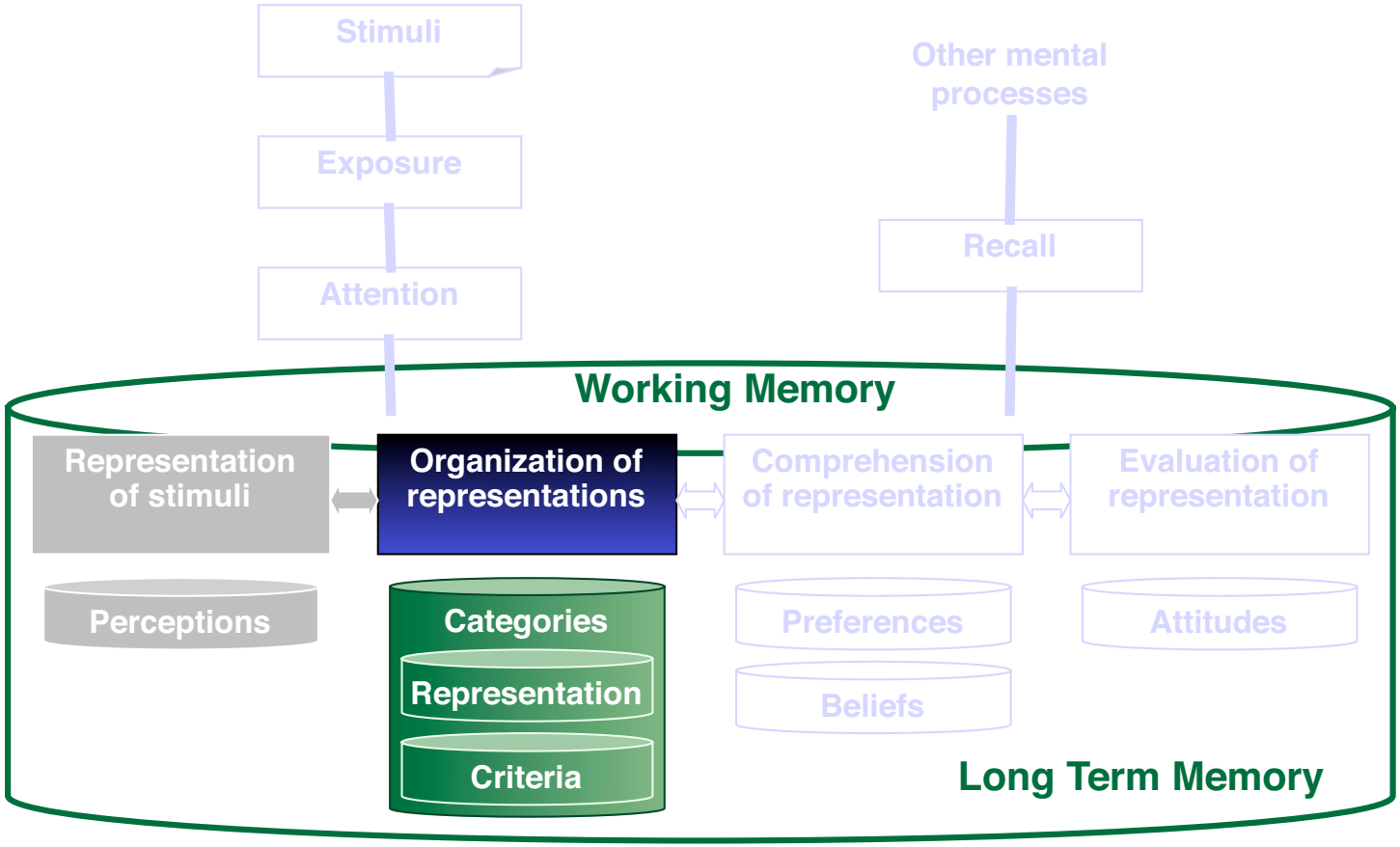
No capacity constraints!

Visual, verbal, conceptual, procedural etc.

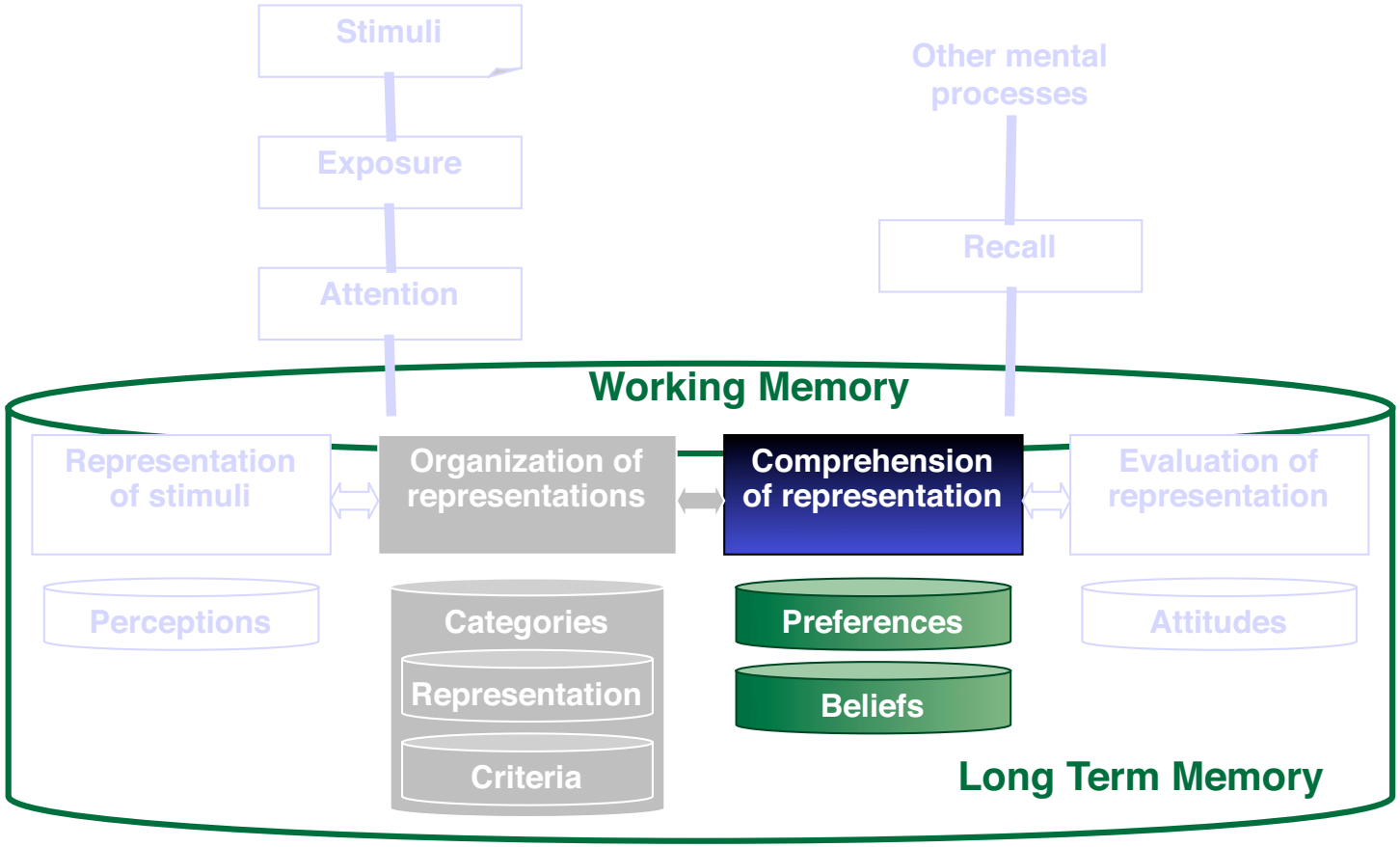
Individuals represent stimuli in context-dependent perceptions; these perceptions are all the reality for the individual



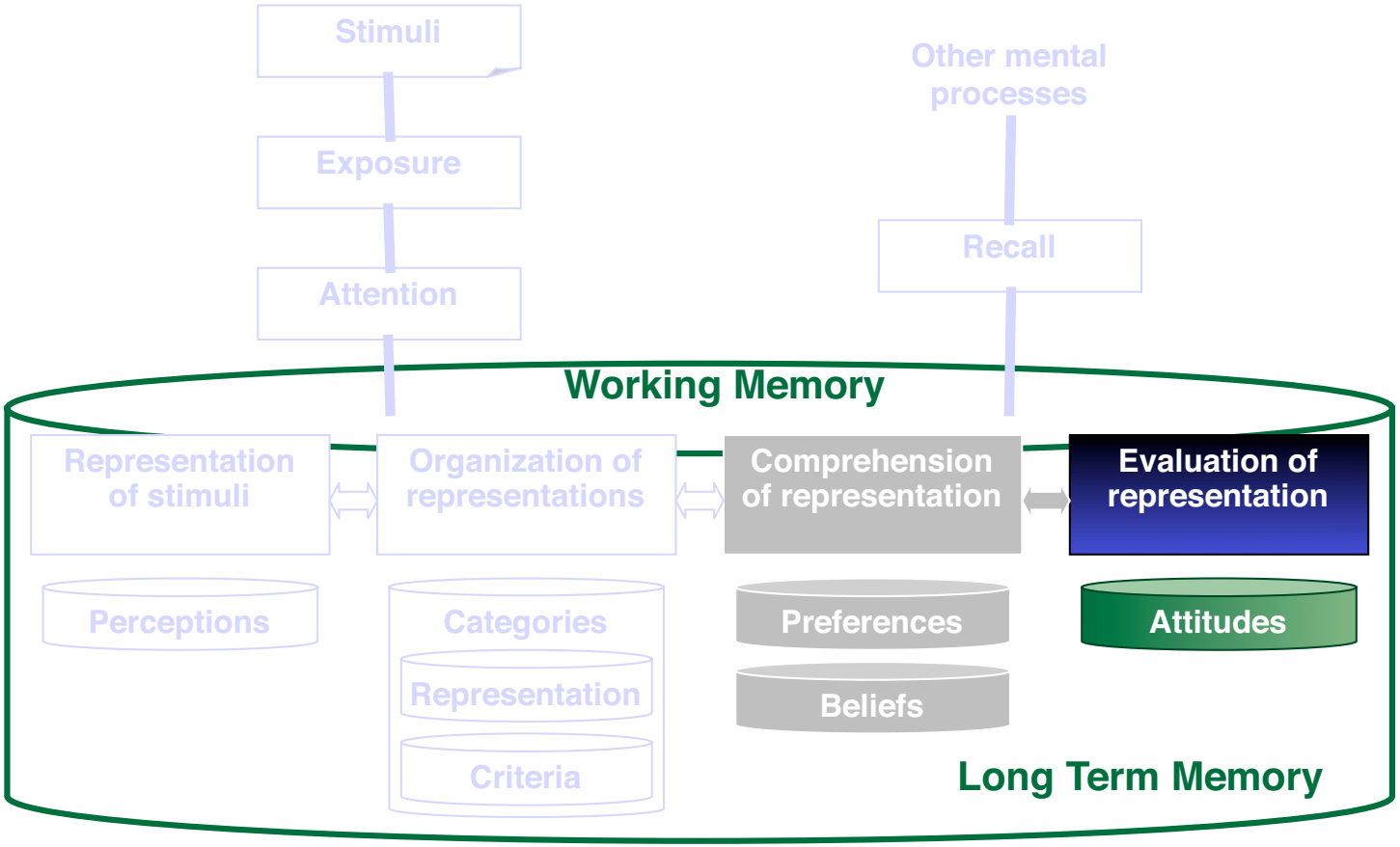
Knowledge in the individual's mind (including the perceptions) is organized into hierarchical categories



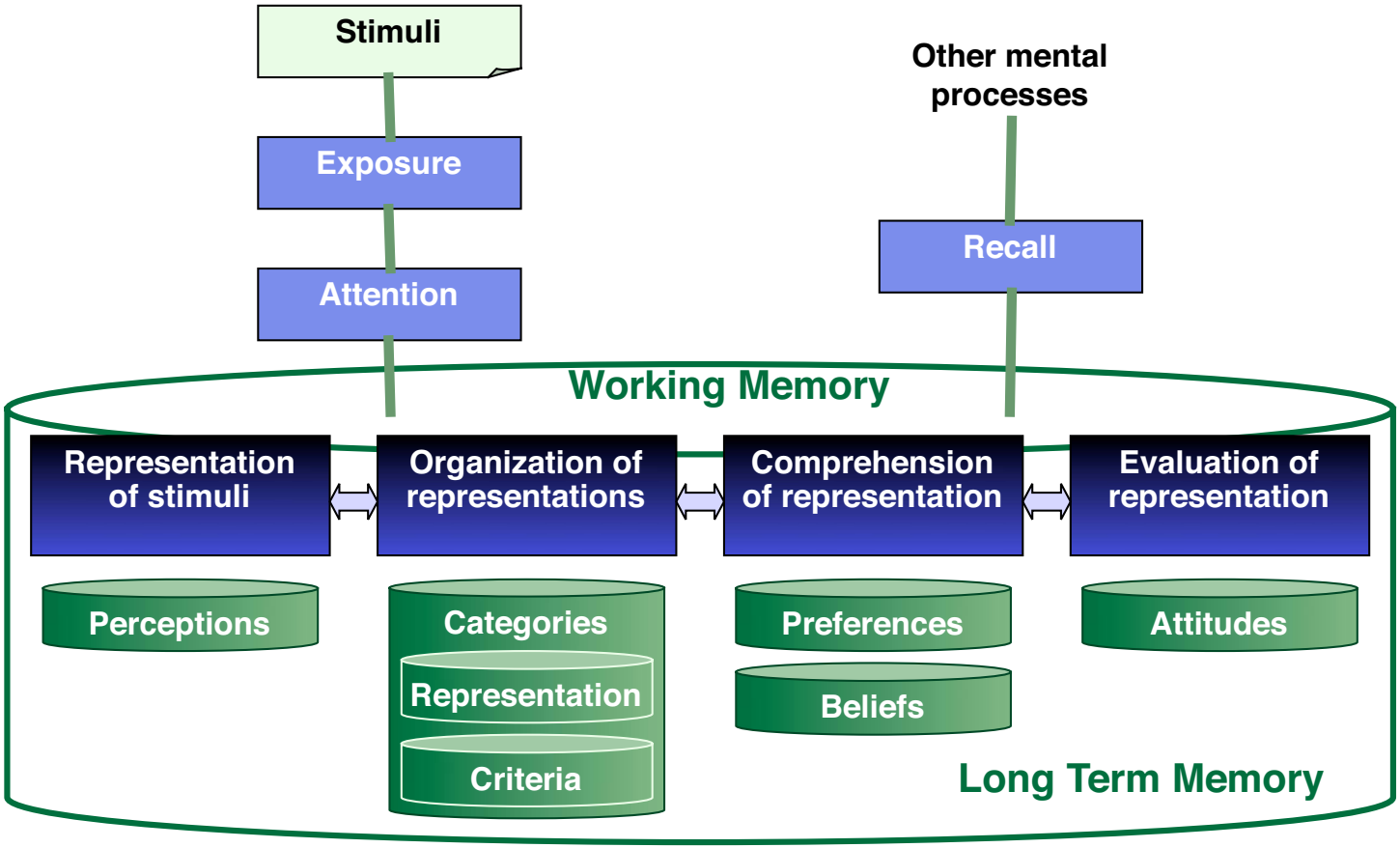
The individual understand stimuli by forming or updating beliefs and expressing preferences



Individuals evaluate certain representations; the evaluation is called a judgment (if it is operational) or an attitude (if it is not)



A general framework for memory



Specific memory effects

Constructed memory

The memory myth

- We usually think about our autobiographical memory as a veridical representation
  - This is not the case!
- Memory is constructed

Evidence (Loftus & Pickrell)

- Adult participants were implanted with a childhood memory that at age five they had been lost in a shopping mall and rescued by an elderly person.
- People falsely remember shaking Mickey and Bugs Bunny's hand at Disneyland

Constructed memory

- Evidence from cases of early child abuse
  - This is not to say that there is no child abuse
- Some people don't accept this evidence
  - How could you study this level of constructed memory?

Alien Abduction !

Susan Clancy

Alien abduction

- Susan Clancy showed that people who claim that they were abducted have many more false positive memories & that they are higher on the autism scale.
- She also proposed a "sleep-awake" mechanism
- This work has help not only to show that false memory are real and that they have real impact on people, but helped us understand the mechanism underlying it.

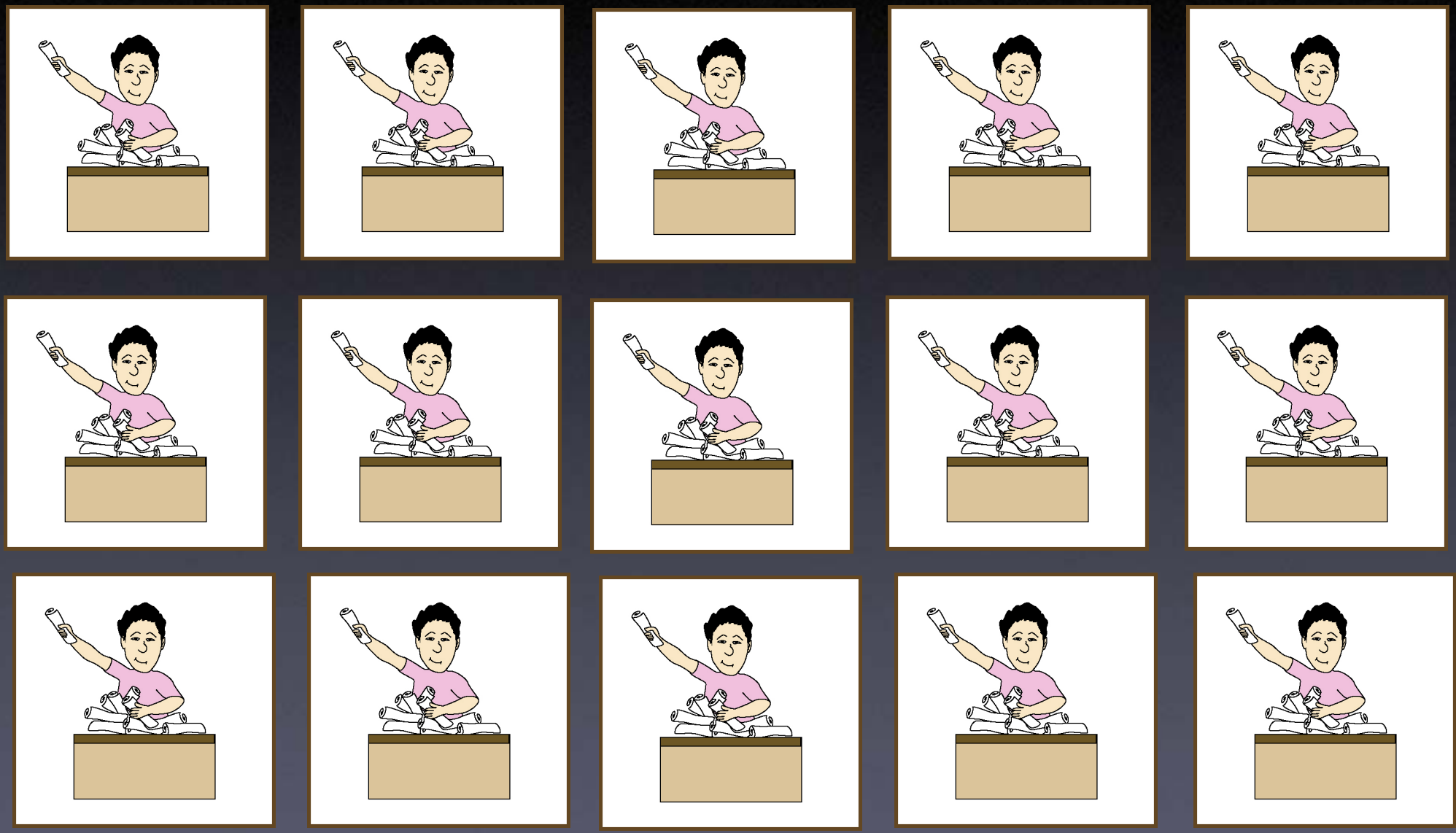
Source monitoring

- Even when we remember we don't necessarily remember where the information is from

Implication

- The legal system usually treats person eye witnesses and memory as the highest level of accurate evidence
- The same goes in our personal and professional life

THE MERE EXPOSURE "Costanza" EFFECT:
We like things that are familiar



Evidence for mere exposure

- Zajonc (1968) showed Chinese characters to people from one to 25 times, asking them to guess the meaning. The more they saw a character the more positive a meaning they gave.
- Miller (1976) showed people posters about stopping foreign aid up to 200 times. They were persuaded most by moderate exposure. After 200 exposures they reacted negatively to the message!

Organizational memory

- People use memory as a asset and as a tool to ensure their position
- Knowledge management is an attempt to get out of this problem

Urban legends

- This is another version of collective (constructed) memory
  - You only use 10% of your brain.
  - The Great Wall of China is the only man-made structure visible in space.

Halloween

- Newsweek, 1975:

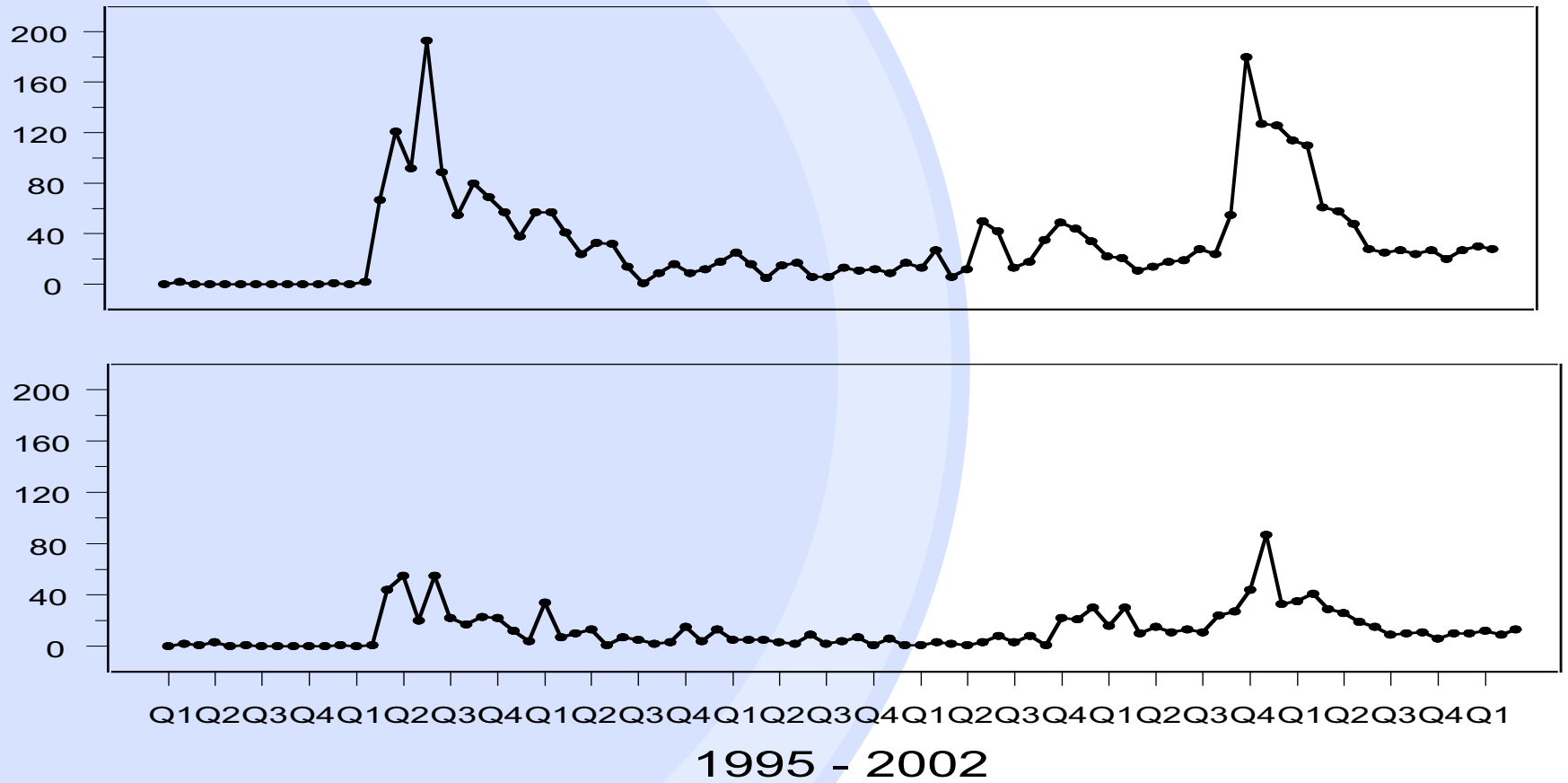
  "In recent years, several children have died and hundreds have narrowly escaped injury from razor blades, sewing needles, and shards of glass purposefully put into their goodies by adults."

- ABC News poll, 1985

  60% of parents worried their kids might be victims

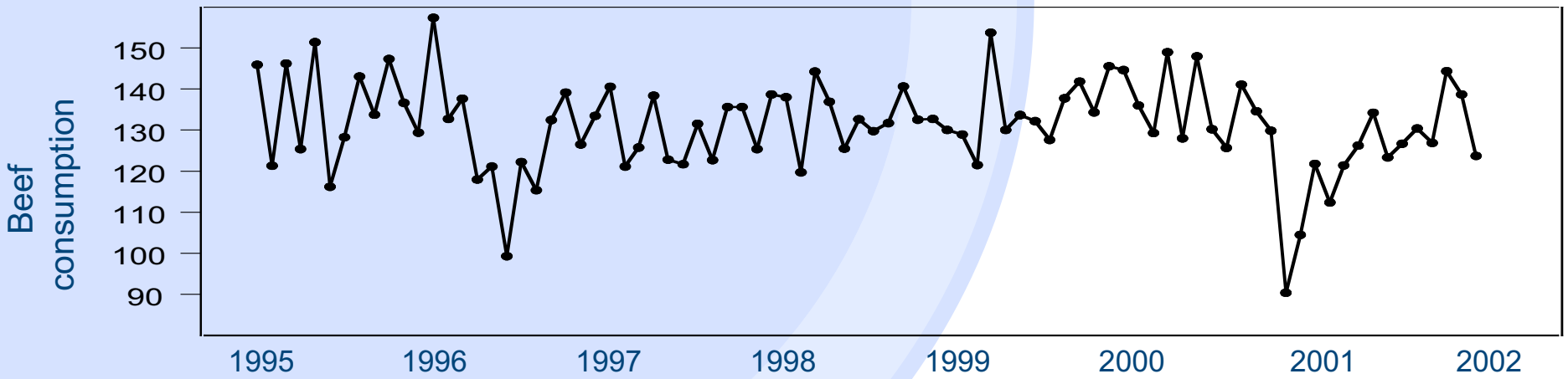
Mad cow in France

- Scientific papers, and newspapers



Mad cow II

- Mad cow had a real effect on beef consumption in the US.
  - How many people died?
  - How many people die each year of salmonella?



Urban legends summary

- Urban legends are a "collective false memory effect"
- Common and interesting
- Real effects on the market
  - *An important question is what makes a "good" urban legend?*
  - *What predicts that a story will become and urban legend?*

Applications I

- Eyewitness Testimony
- Improving memory
  - Make meaningful (self)
  - Make Salient (images)
  - Rehearsal
  - Mnemonics

Technological aids

- **The Remembrance Agent**
  - **Brad Rhodes**
- ARIA: An Agent for Integrated Annotation and Retrieval of Images
- Memory Prosthesis
- Visualizing health

The Remembrance Agent

- Watches over the shoulder of the wearer of a wearable computer and displays one-line summaries of notes-files, old email, papers, and other text information that might be relevant to the user's current context.

Brad Rhodes

Courtesy of Brad Rhodes. Used with permission.

ARIA:

[Annotation and Retrieval Integration Agent]

- Assists users by proactively looking for opportunities for image annotation and image retrieval in the context of the user's everyday work
- Continuous, ranked searches are automatically performed from an image library, and images relevant to the current text can be inserted in a single click

Henry Lieberman

Memory Prosthesis

- computer attempts to determine the most important parts within audio recordings.
  - Speaking
  - Tone
  - Humor

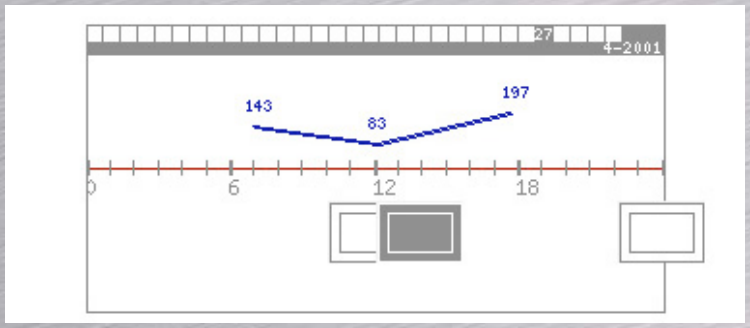
- tries to pick a good set of short audio clips that, in turn, will serve as good memory triggers

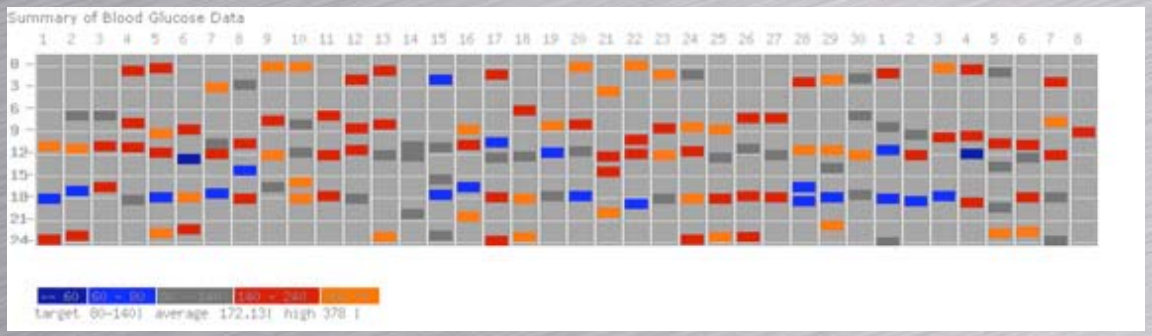
Sunil Vermuri

Visualizing health

- Photo journals and data visualization to understand health practice

  Jeana Frost





Courtesy of Jeana Frost. Used with permission.

Other examples

- Cell phones
- Auto complete
- Google

Summary

- Memory is complex and important
- Memory is about organization and "sense-making" -- and hence not always accurate.
- We have volitional access to some aspects of memory but not others
- Memory is a central psychological process that almost everything we do depends on.