

Basic memory (cont.)

- Forgetting: What is it?
- How can memory be modeled?
- Connectionist models

What does it mean to forget?

- When do we talk about forgetting?
 - Forgetting someone’s name
 - May know that you knew it at one point
 - Realizing when you get home that you forgot to go to the store
 - The information was temporarily inaccessible
 - Forgetting an event that occurred when you were young.
- Are these the same?

Possible ways of forgetting

- How can we forget things?
- Information may be totally wiped out of memory
 - Perhaps it decays over time
- New information might interfere with retrieval of what you learned
- Information in memory might be changed.

How could we tell?

- Failing to recall is evidence of forgetting
 - Not evidence of why forgetting occurred.
 - Recall may not be a very sensitive measure
- Savings in relearning
 - Goes back to Ebbinghaus (late 19th century)
 - Learning something once may ease relearning it later.
 - Burt(1941)
 - Greek passages read to a toddler (15 m.o.)
 - Old passages re-learned faster than new ones at ages 8.5, 14, and 18
 - Amount of savings declined over time.

Recall vs. recognition

- Recognition is also generally more sensitive than recall
 - Contains more of the original learning context
- Intentional forgetting experiments (Bjork)
 - People are told to forget all of the words that appear after a signal
 - Their recall performance for these words is worse than for words they are told to remember
 - These words are still recognized
- Suggests the information is still in memory

Decay vs. Interference

- Do memories just decay?
 - Probably not
 - Learn a list before bed, and recall it when you wake up
 - Performance is better than if you learn the list in the morning and recall it in the afternoon
 - Absolute amount of time is not important
 - Suggests that memories are being interfered with.

Types of interference

- Retroactive interference

Group	Original Learning	Interpolated Learning	Test
Experimental	List A	List B	List A
Control	List A	Rest	List A

← Recall is worse.

- Proactive interference

Group	Prior Learning	Learning	Test
Experimental	List B	List A	List A
Control	None	List A	List A

← Recall is worse.

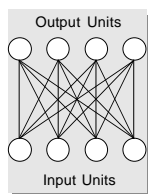
- Proactive interference may seem strange.

How can interference occur?

- One possibility is disruption of context
- Other events will share context with the items to be remembered
 - The more events there are, the less unique the context will be as a retrieval cue.
- In your first year, you remember details about classes quite well
- By the time you graduate you remember less about each class.
 - More things are associated with the context.

Alteration during storage

- Memory is not simply a set of locations.

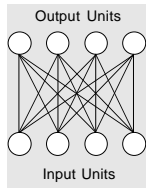


- Connectionist models
 - Described in Chapter 6
 - The details are complicated.
 - Just want to give a flavor

The brain is a network

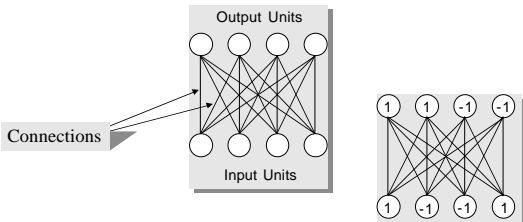
- The brain carries information using neurons
 - Each individual neuron sends signals to other neurons
 - Neurons are “firing” all the time at different rates
 - The pattern of firing carries information
 - That means each neuron is involved in many different patterns.

Input Patterns			
1	-1	-1	1
-1	1	-1	1
Output Patterns			
1	1	-1	-1
-1	-1	1	1



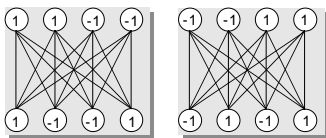
Connectionist models

- Methods for setting up connections so that input patterns can create output patterns



Connectionist models (cont.)

- The same units (neurons) are used for many inputs
- New inputs may interfere with learned memories



There are more details in Chapter 6 for those who are interested.

Summary of memory (so far)

- Short term memory (STM)
 - Limited capacity and duration
 - Storehouse of information currently active
 - Working memory
- Long term memory (LTM)
 - Storehouse for what we have learned
 - Encoding and retrieval interact
 - Forgetting occurs through interference
