Concepts and categorization

Categorization

• Consider Joe
  – What do you know about him?
• Joe is a cat
  – What do you know about him?
  • Lots
  – If you learn that Joe is 15 and showing signs of aging, what have you learned about other cats?
  • That 15 is old for a cat
• Categorization is extraordinarily useful
  – So we do it automatically
• What information do we use?

Context

Background knowledge

Grew on a tree

Typicality

Prototypes

Prototype for category 1

Prototype for category 2
Category representations

- **Exemplars**: Examples of the concept
  - Particular cats, cups, apples
- **Prototype**: The average exemplar
  - Average face = average eyes, average nose, average mouth, ...
- Typicality effects are evidence that we represent prototypes
  - Other evidence suggest we also store exemplars

Category levels

- What is something that's common to...
  - All items of furniture?
  - All chairs?
- How different are...
  - A desk chair and a kitchen chair?
  - A chair and a table?

Category levels

- **Chair** (basic level) is more informative than **furniture** (superordinate level)
  - Learn more by knowing it’s a chair than knowing it’s a piece of furniture
- **Chair** is not that much less informative than **desk chair** (subordinate level)
  - Don’t learn that much more by knowing it’s a desk chair than by knowing it’s a chair

What is it?

![Superordinate: Vehicle
  Basic: Car
  Subordinate: Corvette (1956)

  Superordinate: Musical instrument
  Basic: Guitar
  Subordinate: Fender (Stratocaster)]

A novice’s subordinate-level category can be an expert’s basic-level category

The basic level and memory

(Pansky & Koriat, 2004)

- Participants read 133-word stories
  - About a day in a girl’s life
  - Incidental memory conditions

Conditions

- Sentences from different conditions:
  - While she was dressing, she noticed that her pants were stained.
  - While she was dressing, she noticed that her clothes were stained.
  - While she was dressing, she noticed that her jeans were stained.
- Pants = basic, clothes = superordinate, jeans = subordinate
Memory test

- After a week, participants completed the sentences:
  - While she was dressing, she noticed ___.

Results

<table>
<thead>
<tr>
<th>Proportion responses</th>
<th>Super output</th>
<th>Basic output</th>
<th>Sub output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sup input</td>
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<tr>
<td>Basic input</td>
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Interpretation

- The basic level biases memory
  - Could have distorted the memory representation over time
  - Could have biased a guessing process during the memory test