Distinctiveness and Memory

I. Demonstration
II. Definition of Distinctiveness
III. Primary Distinctiveness
IV. Secondary Distinctiveness

II. Definition of Distinctiveness
A. Material that is incongruent with an active-conceptual framework (Schmidt, 1991)
B. The processing of difference in the context of similarity (Hunt, 2006)
C. Distinctiveness as an alternative to Levels of Processing (Eysenck, 1979).
   Semantic processing leads to increased processing of potential differences between a group of similar items.

How Distinctiveness influences memory:
Processing:
Increased storage of information concerning the distinctive item.
   rehearsal, elaboration, processing differences
   (evidence: cortical responses to items that are different – Fabiani, 2006)
Representation:
Distinctive items standout, or are more easily retrieved, less susceptible to interference, than common items.
   (evidence: isolation effect for the second item in a list – Hunt, 1995)
C. Types of Distinctiveness (Schmidt, 1991)
   1) Primary Distinctiveness
   2) Secondary Distinctiveness
   3) Emotional Distinctiveness
   4) Processing Distinctiveness

Classification scheme of extraordinary events (Schmidt, 2012).

- Features match high priority stimuli (Significant Stimuli)
  - High emotional engagement
  - Features match content of primary memory
- Features do not match high priority stimuli
  - Low emotional engagement
  - Features do not match content of primary memory

Examples:
- Nudes, taboo words
- Key Concepts
- Bizarre imagery
- Isolation Effect
III. Primary Distinctiveness

A. Definition: Incongruity defined with respect to the immediate context.

Example:
The isolation Effect (von Restorff effect).

Bireta & Mazzei (2015)

IV. Secondary Distinctiveness

A. Definition: Incongruity is defined with respect to past experience.

Examples: First day of college.
First time in a big city.
IV. Secondary Distinctiveness (cont)

B. Bizarre Imagery
(McDaniel & Einstein, 1986)
Compared memory for:

Common sentences:
The banker dropped the newspaper in the puddle.

Bizarre Sentences:
The banker floated across the puddle on a newspaper.

McDaniel & Einstein, 1986

Results

<table>
<thead>
<tr>
<th></th>
<th>Bizarre</th>
<th>Common</th>
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<tbody>
<tr>
<td>Words Recalled</td>
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<td>.38</td>
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<tr>
<td>Sentences Recalled</td>
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</table>

IV. Secondary Distinctiveness (cont)

C. Unusual faces (Going & Reed, 1974)
Faces rated as unusual or unique by participants were easier to recognize than usual or typical faces.
IV. Secondary Distinctiveness (cont)

D. The Humor Effect:
(Schmidt & Williams, 2001)

Compared memory for three types of cartoons:
Originals: Gary Larson Far-Side Cartoons
Literals: Literal translations of originals
Weird: Literal translations with incongruent objects added.

--- Sample Materials: ---

--- Cartoon Memory (Schmidt & Williams) ---

<table>
<thead>
<tr>
<th>Cartoon</th>
<th>Pictures</th>
<th>Captions</th>
<th>Words/Version</th>
</tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>Weird</td>
<td>.37</td>
<td>.31</td>
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Cause of the Humor Effect

Several Possibilities:
1) Increased processing (elaboration) in an effort to “get” the humor.
2) Humorous material may be “distinctive” relative to non-humorous material.
3) Humorous material may be arousing, and physiological arousal may lead to increased memory.

Elaboration vs. Distinctiveness

The humor effect in within (mixed) versus between list designs:

Elaboration explanation: the effect should occur in both types of designs.
Distinctiveness explanation: the effect should only occur in mixed lists containing humorous and non-humorous material.

<table>
<thead>
<tr>
<th>Within-Subjects Design</th>
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<th>Pictures</th>
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Distinctiveness vs. Arousal

**Arousal explanation**: the humor effect is associated with measures of increased sympathetic arousal (i.e., heart rate acceleration)

**Distinctiveness explanations**:
- a) the humor effect is associated with measures of increased attention to a novel stimulus (i.e., initial heart rate deceleration)
- b) the humor effect is associated with the degree to which the material “stands out” in a series (i.e., secondary heart rate deceleration)

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Idealized Heart Rate Responses to Stimulus Presentations (Gatchel & Lang, 1973)

Heart Rate Components

Conclusion: larger secondary deceleration to humorous cartoon is indicative of increased attention associated with stimuli standing out in a series.
Conclusions

A. Distinctiveness as an explanation of memory performance above and beyond elaboration.
B. Distinctiveness increases memory by:
   a) increased attention to the distinctive items
   b) increased retrievability of distinctive items
C. Two major types of distinctiveness:
   Primary: e.g., the von Restorff effect
   Secondary: e.g., unusual faces, humor, etc.