Constructing a Novel Blend Through Gesture

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Introduction

Creativity & Conceptual Blending
Creativity

• Mechanism: Combining mental representations
  – bisociation of conceptual matrices (Koestler 1964)
  – conceptual blending (Fauconnier & Turner 1998, 2002)
  – neural convolution (Thagard & Stewart 2011)

• Criteria: Combinations are creative if they are…
  – new, surprising, & valuable (Boden 2004)
A Novel Blend
(Fauconnier & Turner 1998: 146-9; 2002: 270-4)

Question
How do novel blends emerge in human activity?
Constructing Blends *in situ*

**Conventional blend:**
Reading 9:30

**Novel blend:**
Reading o’clock times by angles
First Example

Conventional Blend for Reading 9:30
Conventional Blend for 9:30: Video Clip
Conventional Blend: Hour Hand

Emergent property
Tip of hour hand is trajector moving along path from source to goal

Consequence
Can read time from portion of path traveled (halfway to next number)

One Hour (9 to 10)
Conventional Blend: Minute Hand

Emergent property
Tip of minute hand is trajector moving along path from source to goal

Consequence
Can read time from portion of path traveled (= # of minutes)
Constructing the Blend
a series of mapping gestures

The minute hand is **down** ...
**Down** is halfway from ...

So it’s **half an hour** ...

the **top** back to itself ...

30 minutes
Minute Hand Cycle
Second Example

Novel Blend for Reading O’Clock Times
Novel Blend for O’Clock Times: Video Clip

“How would you read the time without seeing the numbers?”
Novel Blend

Emergent property
Hour hand defines angle relative to minute hand

Consequence
Can read “o’clock” times from angle:
- 90° is three o’clock
- 180° is six o’clock
- 270° is nine o’clock
Phase 1: Constructing the Blend
a series of mapping gestures

- Straight up ... straight-up-and-down
- We’ll put our ... our zero angle up here (straight-up-and-down)
- Ninety degrees is three
- A hundred ’n eighty degrees is six
- Two hundred and seventy (or ninety-degrees-the-other-way) two seventy ... is nine
Clock Angles Blend
Phase 2: Running the Blend
manipulations (to run) & gestures (to profile)

So you can see it...

### 3 turns of minute hand
- That’s obviously three
  (now-we-know-it-without-the-numbers)

### 3 turns of minute hand
- That’s six ...

### 3 turns of minute hand
- It’s … pointing up and down

### 3 turns of minute hand
- That’s … nine
Discussion
Enaction, Imagination, and Insight (Hutchins 2010)

- Two key ideas:
  - **Embodiment** = “the premise that the particular bodies we have influence how we think” (428)
  - **Enaction** = “the idea that organisms create their own experience through their actions” (428)

- Enactments make material patterns into representations
  - “Humans make material patterns into representations by enacting their meanings” (434).
  - “To apprehend a material pattern as a representation of something is to engage in specific culturally shaped perceptual processes” (429-30).
  - ‘Seeing-as’ is enacted representation (434).
Gestural Enactment vs. Actual Manipulation

• Gesturing over objects to:
  – explore possibilities (act in “hypothetical mode” [Murphy 2004])
  – construct an anchored blend for others or interpret its state (“guided conceptualization” [Williams 2008b])

• Manipulating objects to:
  – prepare a material anchor for a blend (to make a representation)
  – run a blend to generate an inference
How Creative is the Clock Angles Blend?

• Using Boden’s (2004) criteria:
  – New? Yes
  – Surprising? Yes
  – Valuable? Not very

For time-telling, the hand configurations are useful, but the angle measures are not (esp. for children).

The clock angles may have other uses:
  - relating clock hands, the sun, and compass direction?
  - estimating angles by relating them to clock hand configurations?
Conclusion

- Continuity between conventional and novel blends
  - Common conceptual mechanisms
  - Inherent in everyday activity but not noted unless novel (new, surprising) and useful (valuable)

- Emergence through embodied interaction with world
  - Perception: ‘situated seeing’ or seeing-as
  - Action: manipulation of objects (incl. adventitiously)
  - Enaction: gesturing in hypothetical mode

- Propagation through multimodal discourse
  - Gestures map conceptual entities and relations onto material structures, building anchored blends
  - Manipulation of the material structures ‘runs’ the blend to generate inferences


