Nothing Never Happens

Seeing the Cognitive Aspects of Patterns of Behavior

Captured on Video

Tools for scientific seeing

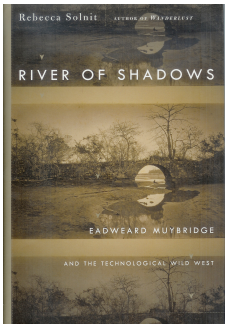
- Microscope
- Telescope
- Still camera
- Motion picture camera
- Audio recording
- Video recording

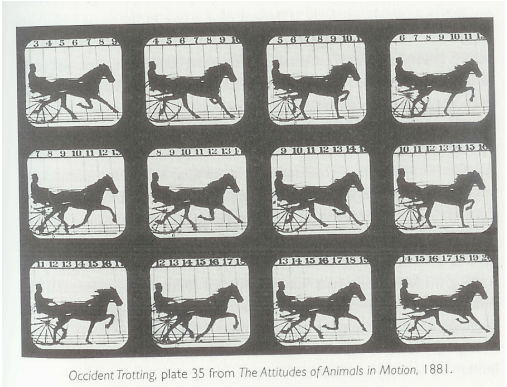
- Microbes
- Planets, stars, galaxies
- A moment
- A linked sequence of moments
- Speech
- Activity

Cognitoscope Cogniton

When a horse gallops does it ever have all four feet off the ground at once?

Eadweard Muybridge





Occident Trotting, plate 35 from *The Attitudes of Animals in Motion*, 1881.

The natural history of an interview

- Object of analysis: a film of a couple in a psychiatric interview
- Analyses: linguistic, non-verbal behavioral, cultural, psychiatric
- Attempts to find the patterns in each and in the relations among them
- Product: a 1500 page manuscript! It was never published.
- Is there ever a moment in interaction in which nothing is happening?
- "Nothing never happens."

Audio recordings and discourse analysis

- Malinowski recorded Trobriand Island Magic texts by writing them down in his notebooks. This is the only sort of language he could record word-for-word using that technology.
- Philosopher Dorothy Lee studied those texts and concluded that Trobrianders do not understand the concept of causality.

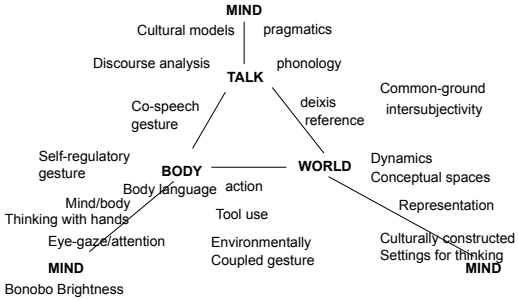
My audio recordings and different inferences

- What words are actually uttered in natural discourse?
- Word order and logical relations (they do conceive of cause-effect relations and they can reason logically)
- Tempo and rhythm
- Stress contours
- Rhetorical devices:
  - Repetition,
  - alliteration, enumeration

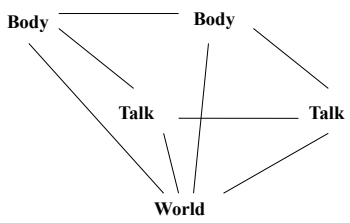
Audio recording makes possible

- Phonology
- Pragmatics
- Discourse analysis
  - (openings, closings, adjacency pairs, conditional relevance, multi-speaker sentences…)
- Protocol Analysis
- Cultural Models analysis

Video recording makes possible



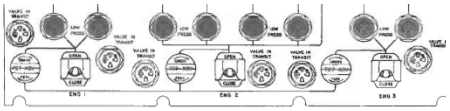
Unit of Analysis (Square cut gem of interaction)



Some ways to do video transcription

- Hutchins and Palen, fuel leak
- Robert Williams, time telling instruction
- Charles Goodwin, interaction with an aphasic man
- Gillian Sebestyen-Forrester Gorilla motion

SPEECH	GESTURE IN SPACE
to both	hand raised away from the surface of the fuel panel
engine one	moved hand across the fuel panel to the area of the controls for tank and engine number three
and three	moved hand back across the fuel panel to the area of the controls for tank and engine number one



Robert Williams

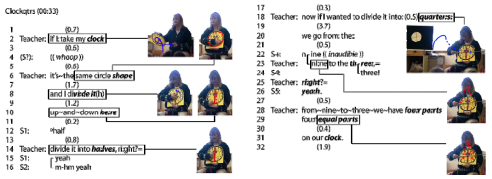
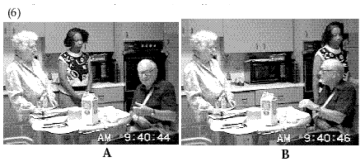


Figure 1. Transcript of the 'dividing the clock face into quarters' segment.

Charles Goodwin

(6)



A B

18 Wife: Just jelly?
19 A (1.0)
20 Husband: No-
21 (0.9)
22 Nurse: Lemme show ya.
23 Wife: English muffin.?
24 (0.3)
25 Husband: B Yes
26 (0.3)
27 Wife: Do you want an English muffin.
28 (0.4)
29 Husband: Yes

Gillian Sebestyen-Forrester

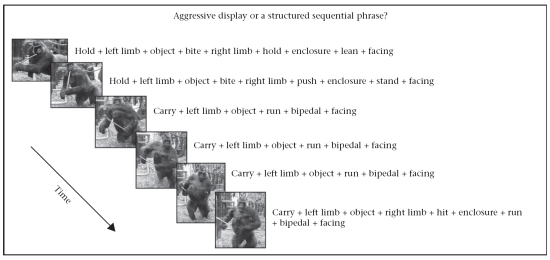


Figure 3. A signal phrase is broken down by event record to highlight the multiple components that comprise this nonarbitrary sequence of signals. This figure illustrates only a portion of the data points collected using the multidimensional method.

Gillian Sebestyen-Forrester

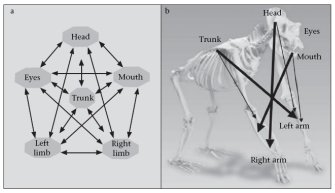


Figure 5. (a) The multidimensional method evaluates all physically synchronous actions of the body in a reciprocal manner. (b) Analysis can reveal coordinated physical action and thus demonstrate differences in lateral motor activity. The heavy arrow indicates a stronger correlation between body segments for the focal subject.

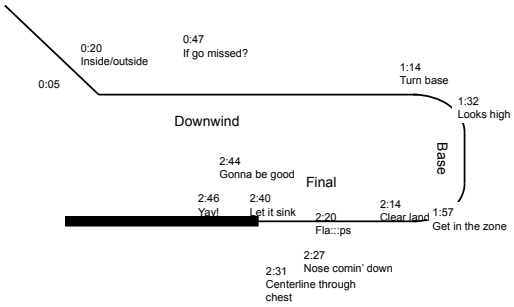
More examples

- Marty on Machines that Shape surfboards
- Representations of situation awareness and the visual approach
- Collaborative construction of multimodal meaning

Marty on machines that shape surfboards

Flying a visual approach

The visual approach path



Human-Feline interaction

Recipient design in referential actions