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## Why study gesture?

- important part of language
- not just peripheral to speech
- window to unspoken thoughts.
- can indicate when people are ready to learn
- how we think about abstract concepts.

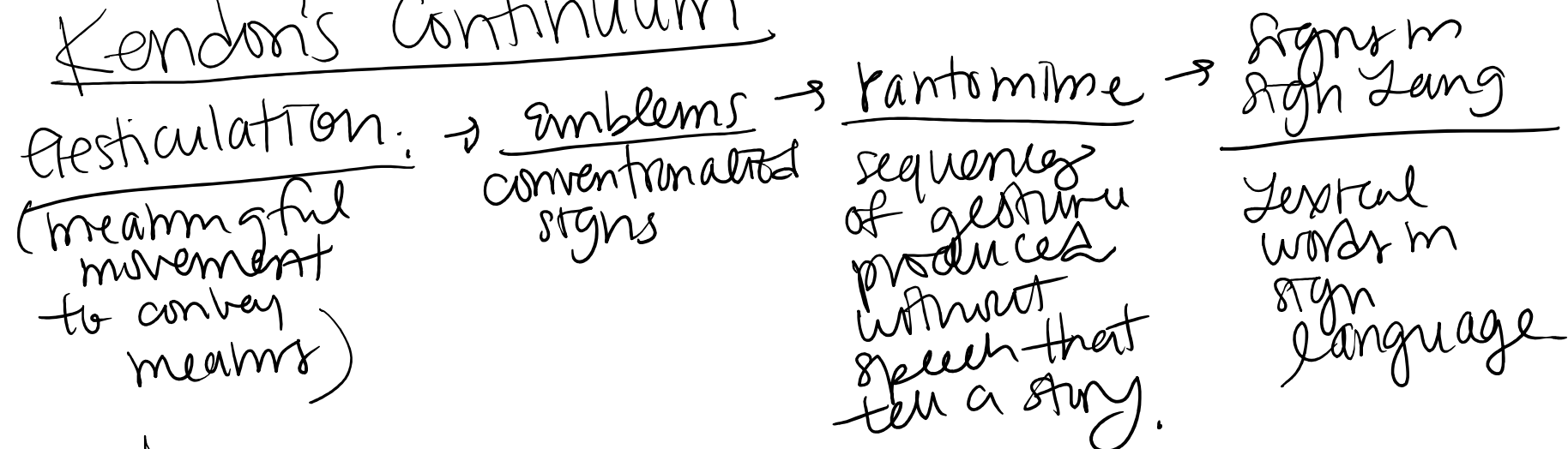
## What is a gesture?

- movement of a part of a body to represent meaning.

### Co-speech gesture

- co-timed
- co-expressive (not redundant)
- communicating slightly different information
- expressing information in its own way.

## Kendon's Continuum



- often performed w/ little awareness
- serve as part of communication.
- non-conventionalized
- no rules like w/ emblems / language

- not restricted to "standards of form"
- ↳ sign language restricted in this way.

## McNeill's Gesture Dimensions

1. Iconic, Metaphoric, Deictic, Beat

### ① Iconic

- depict, display, present images of concrete entities or actions (playing the violin)

### ② Metaphoric

- gestures of the abstract
- contain iconic dimension, used them to represent the abstract.

### ③ Deictic Gestures

- indexicality in gesture
- pointing gestures

### ④ Beat Gestures

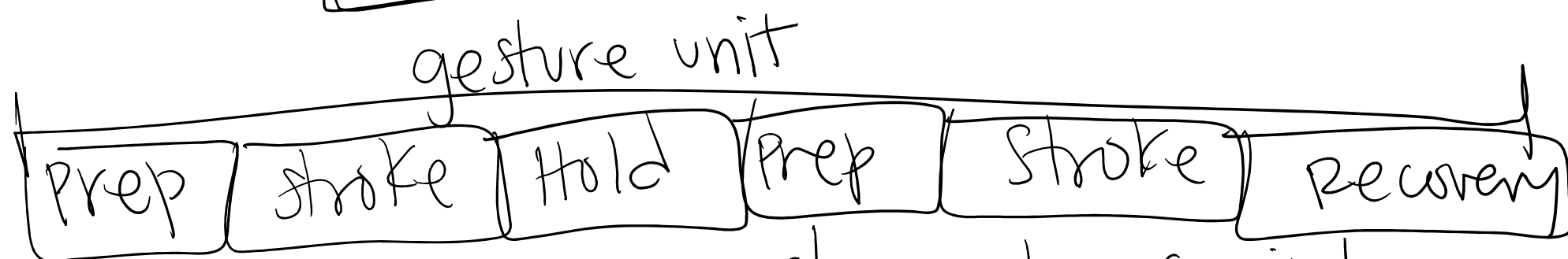
- beat rhythm of the speech
- often the same form regardless of speech content
- can be used to mark transition words. (Barack Obama gesturing)
- keeps the beat
- continued w/ stress of the speech.

# Anatomy of Gesture

Preparation → stroke → recovery

↑  
hands return to rest.

Stroke + Hold ← holding the gesture  
nucleus



can have many gesture phrases into 1 gesture unit.

## Co-timing of Gesture & Speech

Lexical affiliate → word that most closely corresponds in meaning to the gesture.

↳ gesture stroke & lexical affiliate

↳ gesture stroke

almost always comes after the gesture stroke.

- preparation of gesture precedes the stroke
- stroke precedes or co-occurs with lexical affiliate
- ∴ preparation always precedes lexical affiliate

⊛ Speech + gesture are tightly intertwined.

- gesture does a lot of things that speech can't.
- takes on things that speech can't assume
- speech linked to manipulative activity.

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### Shuttering in gesture and speech

- no shuttering ever occurred during onset of a gesture stroke
- if stuttered speech began mid-stroke the hand would freeze

### Information migration between gesture & speech

## Information Migration Between

- info that is conveyed in gesture may later be recalled by the listener's speech.
- communication between speech + gesture
- individuals may recall information that was orig. presented in speech as presented in gesture

## Fluency in Speech & Gesture

- $\downarrow$  speech fluency =  $\downarrow$  gesture fluency
- $\uparrow$  speech fluency =  $\uparrow$  gesture fluency.
- preventing speakers from gesturing disrupts speech when they're talking about spatial content.  
( $\downarrow$  speech rate,  $\uparrow$  disfluency rate)

## Gestures in the Blind

- blind people produce gestures when they speak even though they've never gestured themselves
- blind children gestured just as frequently as

# stigmatized children

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## Gestures Predict Learning

- children gestures predict what aspects of a task they will learn after instruction.
  - conservation
  - arithmetic.

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Gestures: reflections of thought/  
shapers of thought.

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- reveals what solution strategy adults will choose
- reveals what children learn.

etc.

- does teaching kids to gesture w/ math help them learn mathematics.
  - ↳ test with correct, partially correct, and wrong gestures.
- gesturing correct got more correct
  - ↳ conceptually understanding the





question more.

## Gestures & Abstract Thought

- continued & co-expressive, with speech but aren't redundant.

## Emotional Valence & Space

"good" = right side of the space

"bad" = left side of the space

(right answer, right hand man)

(2 left feet, sinister → latin for left).

Why?

- most people have a dominant hand → asymmetrical motor experience
- majority of people are right handed

- Emotional valence & space

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