14. Function of Nonverbal Behaviors in Conversation

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Gesticulation: gesture as an integral part of utterance [Kendon 2004]
- Structural interpretation
- Orchestration between speech and gestural components
- Semantic interaction between speech and gesture
- Families of gestures: similar movement pattern, similar pragmatic function.

Underlying Cognitive Mechanism [McNeill 2005]

Speaking Turn System
- Gaze [Kendon 1967]
- Back channel [Yngve 1970]
- Speaking Turn System [Dancan 1974]
- Repair in Conversation [Schegeloff 1977]
- Conversation analysis [Sacks 1974]
“Gesture refers to visible bodily activity that is regarded as serving as an utterance or as a component of an utterance. ... When a person engages in gesturing the body parts that are employed in this activity undertake a movement *excursion* or a succession of such excursions. ... This entire excursion, from the moment the articulators begin to depart from a position of relaxation to until the moment when they finally returns to one, will be referred to as a *gesture unit*. ... The gesture unit is the entire excursion of the articulator of the gestural action. This excursion may contain one or more *gesture phrases*.”

**Diagram:**
- Preparation
- Stroke (post-stroke hold)
- Recovery

Gesture phrase

Gesture unit (Gesture phrases)
Deployments of gesture in the utterance

“The relationship between the gestural component and the speech component in the utterance does not seem well understood as a simple causal relationship, where the one is dependent upon the other in some kind of unchanging way. Speakers, rather, can control these two components and can orchestrate them differently, according to the occasion.

[Kendon 2004, p. 128]

“Gesture performance adapted to the structure of spoken discourse

[Kendon 2004, p. 136]

“Speakers may adjust the production of speech so that a gestural expression may be performed in an appropriate relationship with it.

[Kendon 2004, p. 138]

(a) “Speech held up to allow the completion of the preparation phase of the next gesture phase.”

[Kendon 2004, p. 139]

(b) “Speech held up to allow the completion of a complex gesture phrase.”

[Kendon 2004, p. 145]

(c) “Speech is paused to allow a gesture to stand on its own.”

[Kendon 2004, p. 148]
“Techniques of representation that may be used in representational gesturing.”

“Through a collaboration with the verbal component, these gestures come to be recognized as representations of objects and actions.”

“In some of the different ways, the gestures appear to contribute to the meanings of the utterances of which they are a part.”
Six different kinds of contributions of gesture

(1) ‘Narrow gloss’ are used in parallel with those used in parallel with those words or phrases that are often said to be equivalent to them.

(2) Gestures with a ‘narrow gloss’ may also be used in parallel with verbal expressions which are different in meaning from those of the gestures’ verbal glosses. In such cases the gestures are not semantically redundant but may make a significant addition to the content of what the speaker is saying.

(3) Gestures may be used to make more specific the meaning of something that is being said in words. In the cases given it will be seen how a gestural enactment, used in conjunction with a verb phrase, appears to make the meaning of the verb phrase much more specific.

(4) Gesture may be deployed in relation to what is being said as if it is an exemplar or an illustration of it.

(5) Gestures may be used either as a way of laying out the shape, size and spatial characteristics or relationships of an object being referred to, or as a way of exhibiting patterns of action which provide either visual or motoric images of processes.

(6) Gestures can be employed to create objects of reference for deictic expressions.

[Kendon 2004, p. 176]
“[T]he movement by which the gesture is accomplished is thus a movement which appears to be aimed in a clearly defined direction of pointing as ‘movement toward’ and we shall use this term here, also.”

“Pointing gestures are regarded as indicating an object, a location, or a direction, which is discovered by projecting a straight line from the furthest point of the body part that has been extended outward, into the space that extends beyond the speaker.”

7 Types
(1) Index finger Extended
(2) Index Finger Extended (palm vertical)
(3) Pointing with the thumb
(4) Open Hand Neutral (palm vertical)
(5) Open Hand Supine (palm up)
(6) Open Hand Oblique (palm oblique)
(7) Open Hand Prone (palm away)
“In all forms in this family, the forearm tends to be maintained in a supine orientation so that the palm of the hand faces upwards. Four different, but closely related expressions using this hand shape will be described and discussed. They are distinguished in terms of how the hand is transformed, either into or out of the grappolo shape, and in terms of the movement pattern of the stroke. The expressions as we distinguish them are as follows:

A. In the action of the gesture, the hand is closed to the grappolo.
B. The hand, in grappolo pose, is oscillated upwards and inwards toward the speaker several times.
C. The grappolo opens to a hand shape in which the fingers are extended.
D. The grappolo hand is sustained in a vertical position and moved downwards vertically.”

[Kendon 2004, p. 229]
Gestures of ‘precision grip’

The R-family: gestures which use the ‘ring’ hand shape

“the R-family, share in common that they all make use of the so-called ‘ring’ or R-hand shape. In this hand shape the tips of the index finger and thumb are brought into contact so that the two digits together outline a more or less circular space.

Our observations on the Ring hand shape in R-family gestures, when used in association with speech, have led us to distinguish three patterns of use:

A. The R-to-Open sequence. The Ring is formed at the initial hand shape in a sequence in which the hand is subsequently ‘opened’.
B. The R-display. The speaker lifts up his hand and forms it into the Ring as he does so, thereafter ‘presenting’ or ‘holding in place’ his hand, as if to show the hand so posed to his interlocutor.
C. The R-vertical. The hand, formed in the Ring pose, is held so that the palm of the hand and the hand is then moved vertically downwards one or more times in coordination with points of stress in the vocal discourse.

The semantic theme that seems to unite all of these usages is the theme of “making precise”

[Kendon 2004, p. 239]
The Open Hand Prone (‘palm down’) family

“A context-of-use study of Open Hand Prone gestures suggests that they all share the semantic theme of stopping or interrupting a line of action that is in progress. By ‘line-of-action’ we mean any project that someone might be engaged in, whether this involves physical action, communicative action (such as saying something), or mental activity, such as pursuing a train of thought or assuming a certain mental attitude toward something.”
“The contexts in which we have observed ZP gestures in use

(1) When a person states that something they were trying to do or something they had embarked upon was stopped or interrupted by something or someone else, or when a situation is described which renders some project or its continuation impossible. The ZP gesture may be used in such contexts, whether the speaker uses negative or positive terms to characterize the situation.

(2) When reference is made to circumstances in which no further action is necessary, as when a statement is made that is deemed complete or sufficient, requiring no further inquiry or comment.

(3) When statements are made which are universal, for which no exception is possible.

(4) When an extreme assessment is made, whether positive or negative.”
Two gesture families of the open hand

“The Open Hand Supine (OHS) or ‘palm up’ family of gestures

The open hand is maintained on a supine forearm, so that the palm of the hand faces upwards.

In the gestures of this family that are accountable in terms of the themes of ‘offering’ and ‘receiving’, the Open Hand Supine may be extended into the space immediately in front of the speaker, as if it is being presented or displayed there. It may also be directed toward the interlocutor, as when, for example, the speaker requests something or offers something. It may also be used in indicating objects in the external environment.

Palm Presenting gesture
- Palm Presentation (PP) gesture: a gesture in which the Open Hand Supine is ‘presented’ or ‘displayed’ but which is not moved as if to indicate something.
- Palm Addressed (PA) gesture: a gesture in which the Open Hand Supine is directed toward something (whether to another person or an object)

PL gesture: the open hand with palm up is moved laterally and often somewhat backwards, as well. Both hands are often employed and the effect of the lateral withdraw and backward movement is that the hands, moving away from one another, withdraw from the speaker’s central and frontal space. The semantic theme of PL gestures is that of ‘withdrawal’ rather than that of ‘offering’ or ‘presentation’. The lateral and backward movement of the hands appears to indicate that whatever has been presented is withdrawn from, as if it is being let stand or abandoned.”

[Kendon 2004, p. 265]
“Open Hand Supine with lateral movement: PL gestures

(1) When the speaker expresses unwillingness or inability to intervene in respect to something.
(2) When the speaker admits, accepts or claims that something is ‘obvious’, about which nothing further need be said.
(3) When the speaker asks a question but has no expectation that an answer will be or can be forthcoming from anyone else.
(4) When the speaker displays being open to suggestions or shows that something that has been suggested is a possibility which the speaker neither denies or accepts. In such cases the gesture is a way of saying that something ‘could be so’ but without making any commitment to any position with regard to it.
(5) When the speaker indicates that the other is free to do something, as when the other is invited to enter a shop, to make themselves comfortable in a restaurant, or in other situations where the speaker shows being available to serve the other.

In all such cases, the lateral movement of the Open Hand Supine indicates that the speaker is not going to take any action with regard to whatever may be the focus of the moment.”

[Kendon 2004, p. 278]
Hypothetical cognitive process

- Message generator
- Action generator
- Communication planner
- Working memory
  - Spatial & motoric
  - Propositional
  - Other
- Discourse model
- Environment
- Gesture-Speech Package
  - Growth Point
  - Catchment
- Gesture module
  - Action generator
  - Motor control
- Speaking module
  - Lexicon
  - Formulator
  - Message generator
- Dialectic

Growth Point

[McNeill 2005]
“In any society, whenever the physical possibility of spoken interaction arises, it seems that a system of practices, conventions, and procedural rules comes into play which functions as a means of guiding and organizing the flow of messages.”

[Goffman 1955, p. 226]

“Just as it is desirable to avoid bumping into people on the street, it is desirable to avoid in conversations an inordinate amount of simultaneous talking.”

[Duncan 1972]

“Is there such a thing as 'ordinary conversation'?”

[Schgeloff 1999]
The goal: understanding the function of gaze-direction in dyadic conversation.

- $p$: the individual who is being discussed; maybe either the speaker or the auditor
- $q$: the person $p$ is interacting with.
- $q$-gaze: $p$ is looking at $q$.
- $a$-gaze: $p$ is not looking at $q$.
- Mirror image of $q$
- Video camera

[Kendon 1967]
In a nutshell

[Kendon 1967]
Over back channel, the person who has the turn receives short messages such as “yes” and “uh-uh” without relinquishing the turn.

[Yngve 1970]
Speaking-turn system

- Hypothesized to account for findings on structured phenomena related to the exchange of speaking turns in dyadic conversations.

- A ‘speaker’: a participant who claims the speaking turn at any given moment.

- An ‘auditor’: a participant who does not claim the speaking turn at any given moment.
The Speaking-turn system

Signals

- Speaker within-turn signal
- Speaker continuation signal
- Speaker gesticulation signal
- Speaker turn signal

- Auditor back-channel signal
- Speaker-state signal

[Reference: Duncan 1974a]
1. Speaker turn signal (turn-yielding signal)

- Allows the auditor to claim the turn. In proper operation of the system, if the auditor so claims the turn in response to the signal, the speaker is obliged to relinquish immediately his claim to the turn.

- When the speaker is not displaying the turn signal, however, auditor claims of the turn are inappropriate, leading to simultaneous turns.

- The turn signal is permissive, not coercive. The auditor is not obliged to claim the speaking turn in response to the display of the signal by the speaker. The auditor may alternatively communicate in the back channel, or remain silent.

[Duncan 1974a]
1. Speaker turn signal (turn-yielding signal)

- Intonation: the use of any pitch level-terminal junction combination other than 2 2| at the end of a phonemic clause.
- Paralanguage: drawl on the final syllable or on the stressed syllable of a terminal clause.
- Body motion: the termination of any hand gesticulation used during a speaking turn or the relaxation of a tensed hand position.
- Sociocentric sequences: the appearance of one of several stereotyped expressions, typically following a substantive statement.
- Paralanguage: A drop in paralinguistic pitch and/or loudness in conjunction with one of the sociocentric sequences.
- Syntax

[Duncan 1974a]
2. speaker-state signal

- Hypothesized to mark a participant's shift from the auditor to the speaker state. In our corpus, speaker-state signals were typically displayed at the beginning of speaking turns, and were rarely displayed in association with back channels.

- The display of at least one of a set of two discrete cues:
  - A shift in head direction, away from one pointing directly toward the partner
  - Initiation of a gesticulation
  - Audible inhalation [Duncan 1974b]
  - Paralinguistic overloudness [Duncan 1974b]
A state of simultaneous turns can be created
- if the auditor attempts to take his speaking turn in the absence of a turn-yielding signal by the speaker or;
- if the speaker displays a yielding signal, and the auditor acts to take his turn, and the original speaker then continues to claim his speaking turn.

[Duncan 1972]
The Speaking-turn system

Signals

- Speaker within-turn signal
- Speaker continuation signal
- Speaker gesticulation signal
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- Speaker-state signal

speaker

auditor

[Duncan 1974a]
The Speaking-turn system

Signals

- Speaker within-turn signal
- Speaker continuation signal
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- Speaker turn signal

- Auditor back-channel signal
- Speaker-state signal

speaker

[auditor]

[Duncan 1974a]
Simplest Systematics

“Grossly apparent facts”

(1) Speaker-change recurs, or at least occurs.
(2) Overwhelmingly, one party talks at a time.
(3) Occurrences of more than one speaker at a time are common, but brief.
(4) Transitions (from one turn to a next) with no gap and no overlap are common. Together with transitions characterized by slight gap or slight overlap, they make up the vast majority of transitions.
(5) Turn order is not fixed, but varies.
(6) Turn size is not fixed, but varies.
(7) Length of conversation is not specified in advance.
(8) What parties say is not specified in advance.
(9) Relative distribution of turns is not specified in advance.
(10) Number of parties can vary.
(11) Talk can be continuous or discontinuous.
(12) Turn-allocation techniques are obviously used. A current speaker may select a next speaker (as when he addresses a question to another party); or parties may self-select in starting to talk.
(13) Various 'turn-constructional units' are employed; e.g., turns can be projectedly 'one word long', or they can be sentential in length.
(14) Repair mechanisms exist for dealing with turn-taking errors and violations; e.g., if two parties find themselves talking at the same time, one of them will stop prematurely, thus repairing the trouble.
“Rules”

(1) For any turn, at the initial transition-relevance place of an initial turn constructional unit:
(a) If the turn-so-far is so constructed as to involve the use of a 'current speaker selects next' technique, then the party so selected has the right and is obliged to take next turn to speak; no others have such rights or obligations, and transfer occurs at that place.
(b) If the turn-so-far is so constructed as not to involve the use of a 'current speaker selects next' technique, then self-selection for next speakership may, but need not, be instituted; first starter acquires rights to a turn, and transfer occurs at that place.
(c) If the turn-so-far is so constructed as not to involve the use of a 'current speaker selects next' technique, then current speaker may, but need not continue, unless another self-selects.

(2) If, at the initial transition-relevance place of an initial turn-constructional unit, neither la nor lb has operated, and, following the provision of le, current speaker has continued, then the rule-set a--c re-applies at the next transition relevance place, and recursively at each next transition-relevance place, until transfer is effected.
Summary

2. “Gesture refers to visible bodily activity that is regarded as serving as an utterance or as a component of an utterance.” [Kendon 2004]
3. Orchestration of utterance and gesture components.
4. Illustrative gestures: adding meaning.
5. Referential meaning.
6. Gestures of similar shape have similar meaning.
7. Growth points and catchment as hypothetical cognitive entity
8. Speaker turn system designates a nominal cooperative behaviors of participants.
9. Reality is not always regular.


