GESTURES AS PRE-POSITIONS IN COMMUNICATION

Silvi Tenjes

University of Tartu

Abstract. In the first part of the article, I focus my attention on nonverbal means in society and the new perspective of investigating communication through symbolic units. The theoretical part deals with problems related to the paradigm of imagistic language, which is connected with the research of gestures. In the second part, I concentrate on two types of gestures and their use in face-to-face interaction. Gestures of the first type appear during pauses or in word searches in the conversation, etc. Gestures of the second type are pointing gestures that accompany speech in the context of spatial relations. Both types of gestures are referred to as *iconic gestures*. The gestures share the quality of appearing before the concept in the sentence to which they relate in meaning. I also provide some examples and discussion about the onset of iconic gestures and their lexical affiliate.

1. Introduction

The work of Birdwhistell (1970), Dittmann (1974), Kendon (1986b, 1995), Scheflen (1973), Bavelas, et al (1992), and many others clearly shows how body movements and the flow of speech are intimately linked within an individual's communication system and between interactants. While some behaviors may seem less integrated than others, verbal and nonverbal behaviors are unquestionably part and parcel of the same overall system of communication. Just like verbal communication, each body expression or vocal sign conveys a meaningful message, which can be received and processed by other people. According to the definition of communication by Weaver, "... communication will be used ... in a very broad sense to include all of the procedures by which one mind can affect another" (Shannon, Weaver 1959). The term *communication* has two related meanings: the process of transmission of the message, and the outcome of this process. The transmission process will generally be referred to as "interaction" (Schneller 1992).

Nonverbal expressions are also used to transmit messages not expressible through words, when words are not available or are inadequate to convey sufficient differences, e.g.: emotional and physical feelings, moods, interest, attention, reaction, etc. Nonverbal communication also comprises a wide range of social

functions, for instance: transmission of information, integration of action and feelings, social identity, the presentation and protection of the self (Eisenberg and Smith 1971). Nonverbal means may even contradict the verbal message, usually unconsciously so, creating a state of "double-edged" or inconsistent communication (Mehrabian 1971). It is mainly the abstract component and content of human communication that is dominated by words, although even in this domain, verbal communication enjoys functional nonverbal support (Schneller 1992).

Gesticulation is often an important component of the utterance unit produced, in the sense that the utterance unit cannot be fully comprehended unless its gestural component is taken into consideration. In many instances it can be shown that the gesticulatory component has a complementary relationship to what is encoded in words, so that the full significance of the utterance can only be grasped if both words and gesture are taken into account (Kendon 1986a). In the present article I consider hand gestures, which are also a type of nonverbal means. Those gestures are *iconic* gestures. I also explore their use in interaction. Iconic gestures occur during continuous speech and show in their form a meaning related to the meaning articulated in speech. In most cases the related speech unit is a word, called the "lexical affiliate" (Schegloff 1984) of the gesture (Hadar, Butterworth 1997).

2. "Imagistic" language in communication

In recent years, there has been renewed interest in and credibility given to the examination of visible and verbal behavior as they occur in natural conversation (Poyatos 1980). This means interest in "verbal features" – that is, human language and its "progressional" structuring in real time communication. Such a view supports the view of "grammar as symbolism" and "meaning as conceptualization" (Langacker 1988). In order to understand how language works and how meaning is constructed, it is necessary to focus on how language works in interaction. On the basis of a progressional view of language one can understand more clearly the cooperation of verbal and visual features in human communication.

It is useful to remember the emergence of new ideas in linguistics, and "how it was" in the paradigm of cognition. According to Langacker, language analysis should posit that language is symbolic at all its levels, i.e. that grammatical constructions are "schematic, less specific, symbolic units" which "embody conversational imagery". "In choosing a particular expression or construction, a speaker construes the conceived situation in a certain way, i.e. he selects one particular image (from a range of alternatives) to structure its conceptual content for expressive purposes" (Langacker 1988:7). At the level of greater specificity, speakers have vast ranges of options to choose among lexical units, each of which profiles objects, processes, qualities, etc. in a particular way.

In this symbolic alternative, grammatical structure itself is inherently meaning-ful, consisting solely of patterns for the structuring and symbolization of conceptual

content. By choosing one grammatical construction or grammatical marker rather than another, one is inherently choosing to construe and portray a situation in a particular way – the difference in form symbolizes a meaning difference (Langacker 1990).

Languages, thus, provide their speakers with vast and constantly evolving stocks of symbolic units which enable them to conceptualize and represent content in a subjective, situationally adapted, and "recipient-designed on selline väljend" fashion (Streeck and Knapp 1992). Whenever a speaker constructs an utterance, he or she "instantiates" units with which he/she describes the process as an imposition of a "profile" onto a given "base". While languages are repertoires of symbolic units and supply "conventional imagery" (Langacker 1988) for conceptualization and expression, there is no categorical boundary between repertoire and use. Conceptualization is incorporated in material forms. Fully evolved languages provide speakers with vast resources for "alternative" conceptualizations, and since everything that has become part of the repertoire ultimately derives from creative, situated inventions, much of language structure is inherently metaphorical. This "imagistic" view of language differs from the majority position in communication studies by declaring that "meaning" is a feature of – and at the same time inseparable form – "material symbols".

Many researchers have attempted to describe how cognition is related to physical embodiment. Image schemata are not abstract relations between symbols and some objective, external reality; rather, they organize our experience and understanding at the level of body perception and movement. Varela, et al (1991) present very much the same argument in their attempt to study cognition not as the recovery of a pregiven and labeled outer world (realism) or a pregiven inner world (idealism) but as embodied cognition. Communication is, thus, an "embodied" process. Rather than using "verbal" and "nonverbal" aspects as separate systems, interactants use all the sensory modalities associated with the body.

Just as a hearer perceives speech, whether comprehended or not, as "figure", no matter what the "ground" may be, and just as speech is always regarded as fully intentional and intentionally communicative, movements, if they are made so that they have certain dynamic characteristics, will be perceived as "figure" against the "ground" of other movement, and such movements will be regarded as fully intentional and intentionally communicative. We may recognize a number of features that a movement may have. Any movement a person produces may share these features to a lesser or greater degree. The more it does so, the more likely the movement is to be given privileged status in the attention of another and the more likely it is to be seen as part of the individual's effort to convey meaning. What are normally called "gestures" are those movements that partake of these features of manifest deliberate expressiveness to the fullest extent. They are movements at the extreme end of the scale, so to speak (Kendon 1986b). The word "gesture" serves as a label for that domain of visible action that participants routinely distinguish and treat as governed by openly acknowledged communicative intent.

3. What is gesture? Classification of gestures

There have been various competing classifications of gestures in the literature, though the terminology has often been somewhat misleading (see, for example McNeill 1985; Feyereisen and de Lannoy 1991). Typologies of gesture often involve two broad crosscutting dimensions: *representationality*, and *convention* or *autonomy* (Haviland 1996:11). The first dimension has to do with whether and how the bodily movements that accompany speech depict or represent the referential content of what is being conveyed by an utterance. Some gestures seem tailored to the "meaning" of speech, via various semiotic modalities, whereas others, for example, appear to be more closely aligned with the rhythm of speech. The various typologies of gestures that have been put forward are in part attempts to classify gestures in terms of the information they encode, albeit at very general levels. These typologies are often logically inconsistent, in many cases formed on the basis of rather hasty observation with a good admixture of "folk" categories thrown in (Kendon 1998). One of the best is the one put forward by David Efron (1941/1972). Ekman and Friesen paper of 1969, one of the most cited in the literature, presents Efron's ideas in a more systematic way, but some of the subtlety of Efron's original discussion is lost.

According to David Efron's influential views, the problem of determining the factors that condition the gestural behavior of a given human group cannot be solved by speculative assumptions or by vague generalizations. There are only two legitimate ways of approaching it: (a) the experimental, (b) the historical. He has given an example (Efron 1972:44):

> *Foreigners talk with their arms and hands as auxiliaries to the voice. The custom is considered vulgar by us calm Englishmen. ... You have no need to act with the hands, but, if you use them at all, it should be very slightly and gracefully, never bringing down a fist upon the table, nor slapping one hand upon another, nor poking your fingers at your interlocutor. Pointing, too, is a habit to be avoided, especially pointing with the thumb over the shoulder, which is an inelegant action. ... You should not be too lively in your actions. ...*

Thus reads a passage in a treatise on good manners of the Victorian period.[1] Similar passages may be found in many other social codes of that period. The English gentleman of 1870 does not seem to have considered gesticulation an innate impropriety, characteristic only of certain non-"Nordic" groups, but merely a "foreign" vulgar custom, disliked by "us calm Englishmen". He seems to have assumed, however, that *all* Englishmen of all times were as calm and parsimonious in their expressive bodily motions as were apparently the habitués of his club. Had he spent some time looking through the window of history, instead of leisurely watching from his club window the sidewalks of an exclusive section of Victorian London, he might have learned that a good many of his ancestors of the Georgian

---

[1] Cf. *The Habits of Good Society: A Handbook for Ladies and Gentlemen.* By the man in the Club Window (London, Low and Co., 1870) pp. 284–85.

epoch used to gesticulate as warmly as the "foreigners" of his own lifetime (Efron 1972:45).

The time has come to investigate gestures, even different kind of pointing gestures, which would have been so vulgar an activity in the 19th century. McNeill (1985) claims that gestures that ordinarily accompany speech can and often do serve referential functions. He also reports on an exhaustive study of gestures that accompany speech and comes to several conclusions about the nature of gestures (at least those that accompany speech):

1. Iconics depict, by the form of the gesture, some feature of the action or event being described; such as "he climbed up the pipe" accompanied by the hand raising upwards to show the path (Cassell, McNeill, McCullough 1999:5). "An iconic gesture is one that in form and manner of execution exhibits a meaning relevant to the simultaneously expressed linguistic meaning. Iconic gestures have a formal relation to the semantic content of the linguistic unit" (McNeill 1985:354). He also says "Iconic gestures are typically large complex movements that are performed relatively slowly and carefully in the central gesture space". He also claims that such gestures accompany "only sentences classified as narrative" (1985:359).

2. Metaphoric gestures are representational as well, but the concept being depicted has no physical form. An example is "the meeting went on and on" accompanied by a hand indicating rolling motion. Some common metaphoric gestures are the "process metaphoric" just illustrated, and the "conduit metaphoric", which objectifies the information being conveyed, representing it as a concrete object that can be held between the hands and given to the listener. "Metaphoric gestures are like iconic gestures in that they exhibit a meaning relevant to the concurrent linguistic meaning. However, the relation to the linguistic meaning is indirect. Metaphoric gestures exhibit images of abstract concepts. In form and manner of execution, metaphoric gestures depict the vehicles of metaphors" (1985: 356).

3. *Deictics* spatialize, or locate aspects of the story being narrated in the physical space in front of the narrator; such as "Adam looked at Chuck, and he looked back" accompanied by a hand pointing first to the left and then to the right.

4. Beat gestures: small baton-like movements that do not change in form with the content of the accompanying speech. A beat is a "simple and rapid hand movement of a type that usually accompanies words whose importance depends on multisentence text relations" (1985: 354). Beats are not iconic in nature.

It is useful here to remember D. Efron's valuable ideas on the typology of gestures. A gestural movement may be "meaningful" by (a) the emphasis it lends to the content of the verbal and vocal behavior it accompanies, (b) the connotation (whether deictic, pictorial, or symbolic) it possesses independently from the speech of which it may, or may not, be an adjunct. In the first case its "meaning" is of a *logical* or *discursive* character, the movement being, as it were, a kind of gestural portrayal, not of the object of reference, or "thought", but of the course of the ideational process itself (i.e. a bodily reenactment of the logical pauses, intensities, inflections, etc. of the corresponding speech sequence). This type of gesture may in

turn be (a) simply *baton-like*, representing a sort of "timing-out" with the hand the successive stages of the referential activity, (b) *ideographic*, in the sense that it traces or sketches out in the air the "paths" and "directions" of the thought-pattern. The latter variety might also be called *logico-topographic* or *logico-pictorial*. In the second case the "meaning" of the gesture is "objective", and the movement may be (a) *deictic*, referring by means of a sign to a visually present object (actual pointing), (b) *physiographic*, depicting either the form of a visual object or a spatial relationship (*iconographic* gesture), or that of a bodily action (*kinetographic* gesture), (c) *symbolic* or *emblematic*, representing either a visual or a logical object by means of a pictorial or a non-pictorial form which has no morphological relationship to the thing represented (Efron 1972: 96). In this article the pointing and referring gestures are *deictic* and *iconographic* according to Efron.

A. Kendon (1998) has set out in broad terms what appear to be the main ways in which gestures are used. Gestures (i.e. phrases of bodily action that have the characteristics that permit them to be "recognized" as components of intentional communicative action) may be:

- utterances on their own
- they may be employed as components of utterances in alternation with speech
- they may be employed in conjunction with speech

Gestures usually mean hand movements. It was said that *gesture* is behavior that is treated as intentionally communicative and that such behavior has certain features, which are immediately recognizable (Kendon 1986b). A gesture is a hand movement accompanying speech and acquiring its meaning in the context of conversation, or possessing a language-independent meaning (Tenjes 1996). However, gestures are not simply symbols, entities for carrying meaning about something else, but physical actions with their own distinct properties – for example, they occur at specific moments in time and at particular points in space (Goodwin 1986).

Pointing and referring gestures in space may be called as iconic gestures. In this article the working definition of these gestures is similar to Kendon's or Haviland's: *pointing gestures are representational gestures and they accompany speech to depict or represent entities in space, as well as the referential content of what is being conveyed by an utterance*. A gesture can simultaneously have more than one function. The data indicates (examples (4)–(6)) that one hand is doing two things simultaneously. Therefore I cannot strictly separate referring and pointing gestures. The goal of the paper is to represent how iconic gestures function in communication and in space relations.

4. Iconic gestures

In modern semiotics the sign – function relationship (or the sign – object relationship) has become a crucial issue. Many classifications of gestures "arise" from Charles Peirce's sign trichonomy. In semiotics, the term 'iconic', as a class

of signs, was first used by Peirce, who offered the following definition: An icon is a sign which refers to the object it denotes merely by virtue of characters of its own, and which it possesses, just the same, whether any such object actually exists or not (*CP* 1.247). The iconic sign is also said to represent its object mainly by similarity, no matter what its mode of being (*CP* 1.276). In Peirce's work, the index appears, together with the icon and the symbol, as a member of one of the numerous triads abundant in the world of our experience. Just as indexicality is conceivable, but is not a sign, until it enters the sign relation, iconicity has some kind of being, but does not exist, until a comparison takes place. In this sense, if indexicality is a potential sign, iconicity is only a potential ground. In sum, then, iconicity begins with the single object; indexicality starts out as a relation. The problem, therefore, consists in determining what kind of relation it is (Sonesson 1996:129).

P. Ekman and W. V. Friesen introduced a trichotomy in modes of coding: arbitrary (extrinsic), iconic (extrinsic), and intrinsic (Ekman, Friesen 1969:60). These are the principles of correspondence between the act and its meaning. The code that describes how meaning is contained in a nonverbal act, that is, the rule which characterizes the relationship between the act itself and that which it signifies, may be *extrinsic* or *intrinsic*. An extrinsic code is one in which the act signifies or stands for something else, and the coding may be *arbitrary or iconic*.[2]

Iconic gestures provide spatial representations of shapes, sizes, motions, etc., but these profiles are elaborated and become recognizable "as" representations by virtue of the adjacency of other gestural units since what an iconic gesture provides is "filled in" with the semantic profiles of the words spoken (Streeck and Knapp 1992). Iconic gestures are used to display objects, spatial relations, and actions. I agree with Hadar and Butterworth (1997) that the meaning of an iconic gesture is typically vague. Whilst iconic gestures often have recognizable physical features, their meaning can seldom be derived from their form with any degree of certainty. The shape and dynamics of an iconic gesture are not sufficient to supply a meaning, which requires also the identification of that part of the verbal message to which the gesture relates.

Any utterance is produced in some sort of social situation; it is produced under the guidance of some pragmatic aim; it plays a role in the interactional setting; it has a content that is being conveyed, etc. Some aspects of the content may be represented by a gesture. Gestures depicting a path of movement, a mode of action, relations in space between objects or entities are what McNeill (1992) has called "iconic" gestures. The content that is represented need not be descriptions of actual or possible actions, events, spatial relationships, but may be "as if" entities, actions, spatial relationships that serve as metaphors for concepts at any level of abstraction (cf. McNeill 1992, Calbris 1990, Kendon 1993).

---

[2]   Emphasis mine – S. Tenjes. Ekman and Friesen use the term 'iconic', which is taken from Morris (1946), who said "An iconic sign, it will be recalled, is any sign which is similar in some respect to what it denotes. Iconicity is thus a matter of degree…the strength of the iconic sign lies in its ability to present for inspection what it signifies…"

An iconic gesture is typically placed at the onset of or just prior to the speech unit to which it relates (Kendon 1983). It means, that the gesture "foreshadows" that unit and aids listeners in the operation of understanding the phrase or sentence. Iconic gestures "project" upcoming components of talk (Streeck 1988).

5. Points as foreshadowed gestures

Gesture-types similarly placed (i.e. pre-positioned) are "points". These are brief motions of the hand with the thumb extended, often in a direction away from or to the back of the speaker, and foreshadowing "they", "there", or "then" (Sreeck, Knapp 1992:13). They pre-indicate the distance location in time or space of an entity about to be referred to in speech. "Points" may also distinct from acts of pointing to locations in the real environment of the interaction, but not necessarily. There are some examples of "points" as *pre-positions* in this paper. Both of these gestures – "points" and pointing gestures – are under closer investigation in the article.

Iconic gestures ("points") foreshadow types of activities the speaker is about to be engaged in – for instance, types of speech acts – or to project features of the upcoming utterance such as a list. The gesture may precede as a small movement (Streek's and Knapp's "point"), a phrase or utterance of the concept of space relations or a description of the path. The article discuss the iconic gestures that have two roles: they previously refer to the concept that follows, and they refer in space relations in a way that pointing precedes the concept or the phrase or utterance of the description of path. What makes these gestures difficult for the analyst to understand is the fact that they often seem to stand in a loosely metaphorical relationship to the actions they project. In other words, while they project features of "linguistic" action, their imagery draws upon other action domains. As I said above, a gesture can simultaneously have more than one function. This also makes points as foreshadowing gestures difficult investigate.

The following are some examples about iconic gestures as points or foreshadowed gestures used in an interview. The material is recorded in a Tartu TV studio, Estonia. The interviewer (marked by initials PU) talks to well-known people in Estonian society from the Soviet period, the so-called stagnation period. Here I have used one of the interviews where the interviewer PU and the respondent KK are talking in a theatre's backstage room in 1994. The interview has been transcribed in detail: speech together with all accompanying hand gestures. The underlined part of the utterance indicates at what moment (parallel to) the words the gesture was performed. In all cases the question and answer contain more than one utterance.

Examples (1)–(3):

(1) PU and the Professor of the Department of Drama (henceforth KK) talk
about the KGB (State Security Committee) during the Soviet period.

1.1. PU: Aga   tul-i   seda   ette?
           but   come-PST   that+PRT   up+ADVERB OF PLACE

'But did it happen?'

1.2. KK: [---] Aga   kui   palju   ol-i   ne-i-d
               but   how   many   be-PST-3PL   these-PL-PRT

asj-u,   kus   järgmine (1) hommik   kell
things-PL-PRT   where   next   morning+SG+NOM clock+SG+NOM

(2) üheksa   juba   julgeoleku-st   helista-t-i,   et   mis
    nine   already   security-SG-ELA call up-IMPERS-PST   that what

su   poisi-d   eile   teg-i-d?
your+GEN's SHORT FORM boy-PL-NOM   yesterday   do-PST-3PL

Vaat   nii.
look+IMPERATIVE's SHORT FORM   so

 'But how many times it happened that next (1) morning already (2) at nine
there was a call from the KGB asking what your guys were up to yesterday?
There you are.'

 (1), (2) – raises his right hand briefly and points forward.

   These brief gestures point to the following and important part of the utterance:
a call from the KGB. The gestures convey a sense of ambiguity: they visualize
time and a forthcoming object; they foreshadow the importance of this object. As
iconic gestures, they "project" upcoming components of talk.

(2)
2.1. PU: Vaada-tes   nüüd   pilgu-ga
          look-DECLINABLE FORM OF VERB   now   glance-SG-COMIT

tagasi, siis   kes ol-i   lavakunstikateedri
back   then   who be-PST-3SG   Drama+Department+SG+GEN

juhataja   enne, kui   teie sinna   jõud-si-te?
head+SG+NOM   before when   you   to that place   reach-PST-2PL

 'Looking back now, who was the head of the Drama Department before you
arrived?'

2.2. [---] KK: Ja (1) *siis* ol-i   Eedu Tinn. Ja (2) *tema* siis
                and   then be-PST-3SG Eedu Tinn and   he   then

läks   mine-ma   ja   (3) *see*   koht   jä-i
go+PST+3SG go-INFINIT and   this   place+SG+NOM stay-PST-3SG

vakantse-ks.
vacant-SG-TER

'And (1) <u>*then*</u> <u>there was Eedu Tinn</u>. And (2) <u>*he*</u> then <u>went away and (3)</u> <u>*this*</u> <u>position</u> was left vacant.'

(1)–(2) – points briefly forward with the forefinger
(3) – turns the hand and points briefly forward with the thumb

There are three *points*, gestures that refer briefly to *then*, *he* and *this*, respectively. The gesture appears just before the word. The first *point* stresses the time ("then") and at the same time foreshadows the object (Eedu Tinn). The second *point* refers to the same object ("he") in the second utterance. And the third one refers to the distance location in time ("... and this was a vacant place"). J. Cassell et al have a viewpoint that the demonstrative "this" may be seen as a placeholder for the syntactic role of the accompanying gesture (Cassell, McNeill, McCullough 1999).

   (3) PU has wondered how KK took over the position of the head of department.

   3.1. KK: [---] Ja,   ja, ja siis,   noh ... <u>(1) veelkord   ütle-n,   (2) et</u>
                   yes yes yes then well   again+once say-PRES-1SG   that

Venno Laul teg-i   ettepaneku.
Venno Laul   make-PST-3SG   proposal+SG+GEN

'Yea, yes, and then, well ... <u>(1) I repeat again (2) that *Venno Laul*</u> made the proposal.'

(1) – a slight flick forward with the right hand's forefinger
(2) – once more a slight flick forward with the right hand's forefinger

The speaker explains that there were no other circumstances than Venno Laul (*he*) who made him proposal. The gesture of KK expresses firmly the speaker's position: all that he says is true ('I repeat again'). At the same time the gesture introduces the following utterance: the gesture refers briefly to *Venno Laul* (*him*). The speaker repeats the point once again ('that Venno Laul'). Thus, this gesture projects features of the follow-up utterance.

Each gesture is constructed differently. Generally, all gestures are initiated far before the speech-unit to which they "belong". They *preface* speech units and *prefigure* the concepts communicated by them (Streeck 1995). In the examples (1)–(3) the speaker is pointing forward with the palm of the hand, both the index finger and the thumb are extended ("pistol-shape"). These gestures point briefly but

recurrently forward (the example 3.1.); therefore they may co-occur together with a phrase, an utterance, or the concept that follows. They thus enable recipients to *anticipate* conceptual profiles of subsequent talk. The semantic relationship between the profiles supplied by the gesture and those encoded in lexical units are manifold.

6. Pointing gestures as pre-points in space

Many gestures have a pointing component, and many seem to be "pure" points (examples (1)–(3)). These gestures are also under closer investigation in this paper. What is pointed can be actual objects in the world that surrounds the participants (actual object pointing), objects that can have a physical location, and do, but are not immediately present (removed object pointing), objects that can have real locations in space, but which are not present – which are given locations for the purposes of current discourse (virtual object pointing), but also things that cannot in fact have any sort of object status at all and can have no location (metaphorical object pointing).

Pointing gestures – or rather, gestures which have a clear pointing component – represent a relatively simple kind of gestural action where, by examining the combinations of movement, body part and handshape types employed, we might easily gather data that can bear on the issue of "compositionality" in gesture. For example, two people are standing looking at a mountain panorama. One is explaining the names of the mountains to the other. By extending his arm full length, with an index finger, he directs his recipient's attention to the various peaks. But as he does so, within the frame of each successive pointing gesture, he moves his hand in a way that suggests now a curved contour, now a more jagged one. He thus combines depictive movement with pointing (Kendon 1998).

The data of an experiment indicate that the depicting gesture immediately follows by the gesture that points to the objects, the entities or the shape of the path in space. The next examples come from an experiment where the subjects had to go on an imaginary journey and describe it to another person, the "guest". En route the "guest" was shown some historic and cultural sights. The subjects did not know that the goal of the experiment was to investigate the gestures. They worried about their knowledge of history. All of them knew the region of the town well enough to image the journey and to describe it. Each "guide" "went" from the starting point to the destination in 10 minutes (narrative time). 11 subjects were videotaped. The aim of this experiment, which involved face-to-face interaction, was to understand space-relation gestures and coverbal speech in face-to-face interaction. (For more about the results see also Tenjes in press, and Tenjes 2001.)

Haviland (1996) distinguishes between four different "gesture spaces": local space, narrated space, interactional space, and narrated interactional space (and the laminations and transpositions connecting them). This set of distinctions replaces an obviously insufficient two-fold dichotomy between "real space" (and "real point-ing", which Haviland calls "relatively presupposing" pointing gestures) on the one hand, and "symbolic space" (and "symbolic pointing" that Quintillianus called

gestural "pronouns" and Haviland calls "entailing") on the other: according to this older view, we either point to a location to direct our interlocutor's attention to it, or we point to a location between us to set it up as a symbolic entity for further reference. Haviland, however, shows that we use both local and interactional space – their concrete, physical features – as "props upon which cognition may be externalized". Although local space and interactional space are both physical, real, and concrete, they differ drastically in their use as cognitive and communicative props: local space is the specific place where we are and that we know about; interactional space is constituted through the use of abstract, generic practices (of orienting our bodies, looking at one another or away, and so on) that we carry around with us. Cognition and communication are distributed across both, and the symbolic potential that we gain from them – for example, for the construction of narrated spaces – is dependent upon their joint use and interaction (Streeck 1996).

During the experiment the gesture indicating "this over there", "this over here", etc. appeared very often *before* the most important concept of the sentence. The concept mostly denoted an object or the shape of a path. According to Kendon, the depictive movement combines with pointing. So the hand starts to point the direction, and moves simultaneously to denote the shape of the crucial concept ("from here" + imagine the street below or "look down" + shape of the bridge or "here" + shape of the statue).

Examples (4)–(6)[3]:

(4)

palm rises slightly   *palm down*   *post-stroke*
                    ⌐

Kui te   nüüd siit   <u>mäe-st</u>   alla vaata-te,
when you now from here hill-SG-ELA down look-PRES-2PL

hold   *shape of arc movement*
                   back-and-forward
                     ⌐⌐

vaat   <u>sealt</u>   <u>paista-b</u>
look+IMPERATIVE's SHORT FORM from there be seen-PRES-3SG

shape of arc movement
back-and-forward (lower)
  ⌐⌐
Kuradisild.
devil+bridge+SG+NOM

 'When you look down from this hill now, look, you can see the Devil's Bridge over there.'

Hand refers to "look down" and at the same time starts to image the shape of the bridge. (See Figure 1.)

(5)
forefinger is referring; holding   *curved contour*
                                                      moving downwards
                                                           ⟨

Vene   aja-l   seis-i-s   <u>siin … selle</u>   ees
russian+GEN   time-SG-ADE   stand-PST-3SG   here   this+SG+GEN   in front

curved contour
moving downwards (lower)

muidugi   suur Lenin.
of course big Lenin

'During the Russian time… a big Lenin of course stood in front of this.'

Hand (forefinger) points "here" and at the same time imagines the shape of the statue. (See Figure 2)

(6)
palm is rising   *palm down*
                              ↙

Ja   sealt   <u>saa-b   alla</u>   las-ta.
and   from there   can-PRES-3SG   down   fire-INFINIT

'And one can fire down from there.'

Hand points "from there" and at the same time starts to imagine the path of the shooting. (See Figure 3)

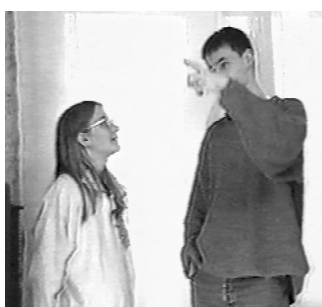Figure 1   Figure 2   Figure 3

This study indicates that referring gestures have *two simultaneous roles*: (a) to point to spatial relations and (b) to imagine (to denote) *the most important* concept in the sentence that *follows*. Some investigators have found that there is a clear semantic link between the gesture and the single underlined word in the accompanying speech (Hadar and Butterworth 1997:152). The data indicate that there may be a semantic link between the gesture and a phrase, an utterance, or the concept, not just the single word. It means that the gesture and the language have a common base. But is it an underlying idea unit (McNeill 1999:2)? According to overall human cognition, the underlying connection between the gesture and the word may be a *process* or a certain type of *information*.

7. Lexical affiliate and onset of iconic gesture

According to Schegloff (1984) the word to which the gesture is presumed to be related is its "lexical affiliate". By general consent, some temporal proximity is required to determine verbal-gestural coordination: words occurring a few sentences away from a gesture would not be considered as lexically affiliated with the gesture. The underlying assumption here, accepted by most researchers in the field, is that if there is cognitive coordination between the verbal and gestural channels, the related processes must temporally overlap. In the examples (1)–(6), there is a clear meaning link between the gesture and an utterance, a phrase, or the concept in the accompanying speech. On the other hand, Kendon (1985) gives examples of gestures related to whole ideas but there is no space for a broader discussion about these examples. Most iconic gestures have a preparatory phase during which the arm moves to a starting position at a relatively low speed. This is followed by the iconic part of the gesture (its "stroke" according to Kendon 1980) and it is this part of gesture that will henceforth be referred to as iconic gesture. Following this definition the iconic *part* of gesture is the iconic gesture. However, many researchers have found that iconic gestures usually start before the related speech event (Butterworth and Bettie 1978, Kendon 1980, McNeill 1985, Morrel-Samuels and Krauss 1992).

McNeill (1992) holds a very different view of speech production. In his view, linguistic processing evolves from generic units, "growth points", containing the meaning of the whole idea-to-be-expressed in an embryonic form. In this view, the eventual size of the verbal unit is irrelevant to understanding the gesture, but only the analysis of temporal, pragmatic, and semantic relations. According to McNeill, gesture and speech arise together from an underlying propositional representation that has both visual and linguistic aspects; the relationship between gesture and speech is essential to production of meaning and to its comprehension (Cassell, McNeill, McCullough 1999).

Conceptualization, in various terminological guises, has been favored as an origin of gestures by many researchers on both theoretical and empirical grounds. For example, McNeill (1985:368) presented a case where the phrase "he found a

knife" was accompanied by a gesture pantomiming the *grasping* of the knife. The most parsimonious explanation here is that the gesture originated at a stage prior to linguistic processing, where related, yet different, concepts were considered for articulation. Speech then articulated one concept, and the gesture the other. McNeill (1985, 1999) has a somewhat different story, whereby the gesture originated at a stage of processing where "grasp" and "find" joined in a single unit of meaning (the "growth point") having both linguistic and imagistic components. As Hadar and Butterworth (1997) suggested, the origin of gesture may be even further down from prelinguistic message construction: the speaker may have chosen "grasp" for articulation, but then failed to retrieve the word. Instead, "find" was retrieved, while the gesture expressed the originally selected concept.

Now, in the majority of cases, the onset of iconic gesture is known to precede the onset of the related speech unit (Butterworth and Beattie 1978; Morrel-Samuels and Krauss 1992). Hadar and Butterworth have presented a model to explain the relation between iconic gesture generation and speech production (Hadar and Butterworth 1997:161–162). The first fundamental assumption of the model is that conceptual processing activates visual imagery, presumably automatically and presumably to the extent that the features involved in the conceptual processing are imaginable. Some support for this can be found in evidence showing iconic gesture and pantomime as early forms of communication. Gestures may occur in the course of preverbal computations just as lip movement may occur in the course of reading: it is not the result of a fully intentional process, although it is given, within limits, to voluntary suppression (Hadar and Butterworth 1997:162). The second fundamental assumption is that a visual image mediates between conceptual processing and the generation of iconic gestures. The model (see also Hadar and Butterworth 1997:163) proposes that the visual image facilitates word-finding in three distinct ways: by focusing on conceptual processing, by holding core features during semantic reselection, and by directly activating word forms in the phonological lexicon. Word-finding failures themselves tend to elicit imagery and the associated gestures. Conceptual ("message level") processing constructs or selects a set of semantic features to be realized linguistically. The processing may also activate a visual image via the preverbal route. The visual image may, in turn, feed into the conceptualization process, and hence into subsequent processes of word-finding. The idea here is that the visual image will be translated back into semantic features that can then engage in conceptual processing. This influential model proposes that there is a "direct route" from a visual image to the phonological form, which can facilitate the activation of the form. The accessibility of lexical processing to visual images has only indirect empirical support.

All the available data show that the onset of a gesture precedes its lexical affiliate. McNeill (1992, 1999) accounts for this by assuming that gesture production starts before lexicalization is achieved; in Hadar and Butterworth's model gestures start before the lexical affiliate is produced, irrespective of their processing origin. Some questions still remain. It is not clear why some gestures

should have sentence-initial onsets, i.e. the gestures start before the selection of the affiliate has become relevant in the production of the utterance.

Kendon has already said in 1986 that "Gesture Phrases are not, thus, by-products of the speech production process. They are directly produced, as are Tone Units, from the same underlying unit of meaning." "Thus, it is found that Gesture Phrases are often begun in advance of the Tone Unit to which they are related and they are often completed before the Tone Unit's completion" (1986b: 34).

Gestures are fully organized at the outset of speech units that also express the representational of content. Meanings are obviously not transformed into gestural form by way of spoken language formats. They are transformed directly, and independently. This means that meanings, in whatever way they are stored, are stored quite separately from the formats of spoken language, however abstractly these may be conceived. The evidence from gestures thus provides that knowledge is stored in complex configurational structures (Kendon 1986a). Gesture and speech must be considered separate representational modes which may nevertheless be coordinated and closely associated in utterance because they may be employed together in the service of the same enterprise (Kendon 1986b). Butterworth and Hadar have claimed that iconic gestures in speech are largely attributable to aspects of lexical search and such gestures play an important functional role in lexical retrieval.

8. Conclusion

The goal of the paper was first and foremost to focus on precedence - i.e. the gesture may *precede* as a small movement (point), a phrase or utterance of the concept of space relations or a description of the path. So, the conclusion was drawn from the material itself. If the person started to say "This over there is the observatory" or "This is the Devil Bridge" etc., the gesture started to point in advance in the direction and at the same time to draw the shape of the object or direction of the path. Thus one might say that it happened before the language entered the scene.

Iconic gestures are designed to communicate; they provide imagery and kinesthetic profiles. Gestures may become components of conceptual understanding but it needs closer investigations. Gestures are functionally adapted to the requirements of understanding in human communication. Therefore, one has to examine how these structures aid listeners in the processing of speech.

It is appreciated when speakers have the ability to make themselves understood because of the unconscious intelligence of their bodies, that is, their hands' competence is surrounding speech with subtle, intricate, and "telling" spatial imagery. This is possible because listeners, too, have the capacity to process abstract spatial imagery. As Bouissac has said, gestures can be construed as embodiments of information between intending and understanding minds (Bouissac 2000).

Like language-units, gestures are symbols, i.e. pairs of meaning and form, but exactly what types of meaning are conveyed by gestures remains an unresolved question. In a broader perspective one can see that gesture is a critical link between the evolution of perception, conceptualization, and language.

Address:
     Silvi Tenjes
     Chair of General Linguistics
     University of Tartu
     Ülikooli 18
Phone + 375 224/ + 375 941
E-mail: stenjes@ut.ee

References

Bavelas, Janet Beavi, Nicole Chovil, Douglas A. Lawrie, and Allan Wade (1992) "Interactive Gestures". *Discourse Processes* 15, 469–489.

Birdwhistell, Ray L. (1970) *Kinesic and Context: Essays on Body Motion Communication.* Philadelphia: University of Pennsylvania Press.

Bouissac, Paul (2000) "Information, Imitation, Communication: An Evolutionary Perspective on The Semiotics of Gestures". Based on a plenary lecture of the same title given at the conference *Gestures: Meaning and Use*. 1.–4. April. Oporto, Portugal.

Butterworth, Brian and Geoffrey Bettie (1978) "Gesture and silence as indicators of planning in speech". In *Recent Advances in the Psychology of Language: Formal and Experimental Approaches*. R. Campbell and P. T. Smith, eds. 347–360, London: Plenum.

Calbris, Geneviève (1990) *Semiotics of French Gesture*. Bloomington: Indiana University Press.

Cassell, Justine, David McNeill, Karl-Erik McCullough (1999) "Speech-gesture mismatches: Evidence for one underlying representation of linguistic and nonlinguistic information". *Pragmatics and Cognition* 7(1), 1–33.

Dittmann, Allen T. (1974) "The body movement-speech rhythm relationship as a cue to speech encoding". In *Nonverbal Communication*. S. Weitz, ed. 169–181, New York, London, Toronto: Oxford University Press.

Efron, David (1972) *Gesture, Race and Culture*. Paris and Hague: Mouton (Originally published in 1941 as *Gesture and Environment*. New York: King's Crown Press)

Eisenberg, A. M., R. R. Smith (1971) *Nonverbal Communication.* Indianapolis: Bobs-Merril.

Ekman, Paul, Wallace V. Friesen (1969) "The Repertoire of Nonverbal Behavior: Categories, Origins, Usage, and Coding". *Semiotica* 1, 49–97.

Feyereisen, Pierre, Jacques-Dominique de Lannoy (1991). *Gestures and Speech: Psychological Investigations.* Cambridge, Paris: Cambridge University Press, Editions de la Maison des Sciences de l'Homme.

Goodwin, Charles (1986) "Gestures as a resource for the organization of mutual orientation". *Semiotica* 62, 1/2, 29–49.

Hadar, Uri and Brian Butterworth (1997) "Iconic gestures, imagery, and word retrieval in speech". *Semiotica* 115, 1/2, 147–172.

Haviland, John B. (1996) "Pointing, Gesture Spaces, and Mental Maps". *Language and Culture: Symposium* 3.

http://www.language-culture.org/archives/subs/haviland-john/1.html

Kendon, Adam (1980) "Gesticulation and speech: two aspects of the process of utterance". In *The Relationship of Verbal and Nonverbal Communication*. M. R. Key, ed. 207–227, The Hague: Mouton and Co.

Kendon, Adam (1983) "Gesture and Speech: How they Interact". In *Nonverbal Interaction.* J. M. Wiemann and R. P. Harrison, eds. 13–43, Beverley Hills: Sage.

Kendon, Adam (1985) "Some uses of gestures". In *Perspectives on Silence.* D. Tannen and M. Saville-Troike, eds. 215–234, Norwood, NJ: Ablex.

Kendon, Adam (1986a) "Some reasons for studying gesture". *Semiotica* 62, 1/2, 3–28.

Kendon, Adam (1986b) "Current Issues in the Study of Gesture" In *The Biological Foundations of Gestures.* J.-L. Nespoulous, P. Perron, A. R. Lecours, eds. 23–48, New York, Hillsdale: Lawrence Erlbaum Associates.

Kendon, Adam (1993) "Human gesture". In *Tools, Language and Cognition in Human Evolution.* K. R. Gibson and T. Ingold, eds. 43–62, Cambridge: Cambridge University Press.

Kendon, Adam (1995) "Gestures as illocutionary and discourse structure markers in Southern Italian conversation". *Journal of Pragmatics* 23 (3), 247–279.

Kendon, Adam (1998) "An agenda for gesture studies". *The Semiotic Review of Books* 7, 3, 9–12.

Langacker, Ronald W. (1988) "An Overview of Cognitive Grammar". In *Topics in Linguistics.* B. Rudzka-Ostyn, ed. 3–48, Amsterdam/Philadelphia: John Benjamins Publishing Co.

Langacker, Ronald W. (1990) "Cognitive Grammar: The Symbolic Alternative". *Studies in the Linguistic Sciences* 20, 2, 3–28.

McNeill, David (1985) "So you think gestures are nonverbal?" *Psychological Review* 92, 350–371.

McNeill, David (1992) *Hand and Mind: What Gestures Reveal About Thought.* Chicago: University of Chicago Press.

McNeill, David (1999) "One ontogenetic universal and several cross-linguistic differences in thinking for speaking". Based on a plenary lecture of the same title given at the 6th International Cognitive Linguistics Conference, Stockholm, Sweden, 13 July.

Mehrabian, Albert (1971) *Silent messages.* Belmont: Wadsworth.

Morrel-Samuels, Palmer and Robert M. Krauss (1992) "Word familiarity predicts temporal asynchrony of hand gestures and speech". *Journal of Experimental Psychology: Learning, Memory and Cognition* 18, 615–623.

Morris, C. W. (1946) *Signs, Language and Behavior.* New York, Braziller.

Peirce, Charles Sanders (1931–1958) "Collected Papers of Charles Sanders Peirce". C. Hartshorne, P. Weiss, and A. W. Burks, eds., vols. 1–8. Cambridge, MA: Harvard University Press. [Reference to Peirce's papers will be designated CP.]

Poyatos, Fernando (1980) "Interactive Functions and Limitations of Verbal and Nonverbal Behaviors in Natural Conversation". *Semiotica* 30, 3/4, 211–244.

Scheflen, Albert E. (1973) *Communicational Structure.* Bloomington: Indiana University Press.

Schegloff, Emanuel A. (1984) "On Some Gestures' Relation to Talk". In *Structures of Social Action: Studies in Conversational Analysis.* J. M. Atkinson and J. Heritage, eds. 266–296, Cambridge: Cambridge University Press.

Schneller, Raphael (1992) "Many Gestures, Many Meanings: Nonverbal Diversity in Israel". In *Advances in Nonverbal Communication: Sociocultural, Clinical, Esthetic and Literary Perspectives.* F. Poyatos, ed. 213–233, Amsterdam/Philadelphia: John Benjamins Publishing Co.

Shannon, Claude Elwood, Warren Weaver (1959) *The Mathematical Theory of Communication.* Urbana: The University of Illinois Press.

Sonesson, Göran (1996) "Indexicality as Perceptual Mediation". In *Indexicality. Papers from the symposium "Indexikala tecken".* C. Pankow, ed. 127–137, November 1995, University of Göteborg.

http://www.sskkii.gu.se/Publications/Documents/html/Indexikality/

Streeck, Jürgen (1988) "The Significance of Gesture: How it is Established". *Papers in Pragmatics* 2 (1), 25–59.

Streeck, Jürgen (1995) "On projection". In *Social intelligence and interaction.* E. N. Goody, ed. 87–110, Cambridge: Cambridge University Press.

Streeck, Jürgen (1996) "Review of "Pointing, Gesture Spaces, and Mental Maps"".

http://www.language-culture.org/archives/mailing-lists/l-c/199604/msg00004.html

Streeck, Jürgen, Mark L. Knapp (1992) "The Interaction of Visual and Verbal Features in Human Communication". In *Advances in Nonverbal Communication.* F. Poyatos, ed. 3–24, Amsterdam/Philadelphia: John Benjamins Publishing Co.

Tenjes, Silvi (1996) "Gestures in Dialogue". In *Estonian in the Changing World.* H. Õim, ed. 163–192, Tartu: University of Tartu.

Tenjes, Silvi (in press) "Gestures and spatial relationships in Estonian." *Proceedings of the Conference "Gestures: Meaning and Use" in Oporto, Portugal, 31 March – 5 April 2000.* Portugal, Oporto: Universidade Fernando Pessoa, University of North Carolina, Technische Universität Berlin.

Tenjes, Silvi (2001) "Gestures in communication and their use for pointing and referring in space: Estonian examples". In *Papers in Estonian Cognitive Linguistics.* I. Tragel, ed. 216–248, Tartu: University of Tartu.

Varela, Francisco J., Evan Thompson, Eleanor Rosch (1991) *The embodied mind: cognitive science and human experience.* Cambridge, Mass: MIT Press.

Abbreviations

1, 2, 3	–	person
ADE	–	adessive
COMIT	–	comitative
ELA	–	elative
GEN	–	genitive
IMPERS	–	impersonal
INFINIT	–	infinite
NOM	–	nominative
PART	–	participle
PL	–	plural
PRES	–	present tense
PRT	–	partitive
PST	–	past tense
SG	–	singular
TER	–	terminative