Building Meaning in Interaction: Rethinking Gesture Classifications

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In this paper I explore some issues that emerge when using current gesture typologies to understand gestures as they occur in natural interactive settings. I use data collected during ethnographic fieldwork at an architecture firm, and place my argument within a growing body of literature that examines the communicative usefulness of gestures in interaction. I present a critique of received gesture classification systems based on their lack of explanatory power when dealing with gestures in real world settings. The purpose is to show that what matters for understanding gestures is often far broader than existing systems can account for. I offer a new way to think about gesture classification based on a gesture’s communicative function. I then examine examples from two phenomena not covered by existing gesture classification systems to illustrate that interpreting a gesture is often contingent upon examining the gesture’s position within a much broader and dialogic context.

Art historian cum cognitive psychologist Rudolph Arnheim (1969, p. 117) encapsulates one particular attitude in the study of gesture when he writes, “the gesture limits itself intelligently to emphasizing what matters.” Context, he explains, serves to flesh out what it is that the gesture actually means. In this perspective, which has dominated the field of gesture research in recent decades, gestures convey specific meanings (abstract concepts like “bigness” or concrete pictorial representations, what McNeill, 1992, characterizes as the “global and synthetic” aspect of gestures), context generally takes the form of the talk that co-occurs with the gestures, and talk becomes the primary means for interpreting exactly what it is that “matters.” Gestures and talk in combination, then, are able to publicly express some heretofore hidden mental representation, spreading meaning-bearing capacity between two modalities so as to, in a sense, cover all of our semiotic bases. We use talk to interpret gesture and gesture to interpret talk and what emerges is a relatively neat reflection of something residing in the brain.

Arnheim’s (1969) phrasing, however, points to a particular problem in this way of thinking about gestures. “What matters” is far too often taken for granted by the analyst.

Indeed, relying on talk alone and its relation to the pictorial representations some gestures offer has, in my view, severely limited the usefulness of existing systems for classifying gestures and has kept research on a particular path dependent course that extends from Efron (1972) to McNeill and beyond. While Arnheim (1969) is to a certain extent correct in emphasizing the unique role gesture plays in
cognition, and of course gesture and talk are intimately connected and most likely share a common psychological origin, he and many cognitive scientists have not fully explored what it means to say that something “matters” in a given situation. By focusing only on the gesture (or the talk) itself, this standpoint too hastily separates gestures from their wider contexts of use. Examining gestures as communicative tools that people use in interaction, rather than as overly simplified “windows” affording a glimpse inside the brain, we can see that “what matters” is always dependent on the context of a gesture’s occurrence, that is to say, “what matters” depends not only on a gesture’s placement in the stream of talk, but also on who performs it, who is around to see it, where they are, what types of activities they are involved in, what sorts of things are around to help shape the gesture, and an infinite number of other possible contingencies. “What matters” is often not bound up in the semiotic give-and-take between talk and gesture but exists, in plain sight, in the space in which activities take place. Pointing gestures make this abundantly clear; for “what matters” with gestural deixis often lies at the far end of a line originating at an extended finger. Yet other types of gestures are equally as situated in material interactive settings and rely on visual attunement and co-participation among interlocutors for their interpretation.

In this paper I will explore some issues that emerge when using current gesture typologies to understand gestures as they occur in natural interactive settings. I use data collected during six months of ethnographic fieldwork at an architecture firm in Los Angeles, and place my argument within a growing body of literature that examines the communicative functions of gestures in interaction. Indeed, to describe “what matters” is not as simple as it once seemed. I will present a critique of received gesture classification systems based on their lack of explanatory power when dealing with gestures in real world settings in order to show that “what matters” is often far broader than such systems can account for. I offer a new way to think about gesture classification based on a gesture’s communicative function, for while I believe that current typologies are faulty, suggesting abandoning typologies altogether would neglect their analytical usefulness. I then examine examples from two different phenomena that are not covered by existing gesture classification systems to illustrate that while gestures do, in fact, emphasize “what matters,” it is not a monologic and inherent part of the gesture itself, or its relation to talk, but rather the gesture’s position within a much broader and dialogic context. Indeed, what gestures do, rather than what they look like, provides us with a clearer understanding of “what matters” in interaction.

GESTURES

The study of gesture can roughly be divided into two mutually interdependent fields of inquiry: the ontological nature of gestures on the one hand, and the communicative function of gestures on the other, a division largely based on the disciplinary backgrounds from which different researchers approach the topic.2 While modern academic investigations can arguably be said to stem from anthropologist David Efron’s (1972) book Gesture, Race, and Culture, originally published in 1941,3 it was psychologists interested in the cognitive structures that underlie gesture production who originally sparked the most recent trend in gesture studies4 from which Arnheim’s characterization of gesture stems. In 1985 David McNeill laid out the first clear argument against the longstanding belief that speech and gesture are two fundamentally separate (and indeed, hierarchically valued) modes of relaying information, submitting the now famous claim that “gestures share with speech a computational stage; they are, accordingly, parts of the same psychological structure” (McNeill, 1985, p. 350). This claim was challenged in favor of the older “separate systems” model (Feyereisen, 1987) and defended with new evidence (McNeill, 1987), but over time a steady stream of research (McNeill, 1986, 1992; Levy & McNeill, 1992; Tuite, 1993) has strongly suggested that indeed speech and gesture share a single psychological origin, a view that has become widely accepted by cognitive psychologists.

Following on the heels of McNeill and his colleagues, much of the early research on gesture (and, to be sure, much current research) has looked at gesture production through a psychological lens. Using the methodologies common to that discipline psychologists have favored laboratory experimentation to explore the role gesture plays in people’s linguistic activities, such as in the telling of narratives (Alibali, Heath, & Myers, 2001; Chawla & Krauss, 1994) and the organization of conversations (Cassell & McNeill, 1991; McNeill, 1992). Yet most of this research is not so much concerned with how gesture is involved in social, communicative activity but rather it is treated as a way of accessing information inside people’s heads, as “a channel of observation onto the speaker’s mental representations during speech” (McNeill, 1986, p. 108). Presuming the existence of some mental representation prior to the linguistic act, gesture is treated as a unique modality with which to transfer thoughts into reality because it provides an ability for mimetic replication that is lacking in speech (Goldin-Meadow & McNeill, n.d.). As such, gesture in this tradition has been examined more from the outside looking in, that is, as a way to get at what people are “really” thinking in their heads, rather than from the inside out, as a resource for constructing social interactions and accomplishing communication.

Many psychological investigations of gesture do attempt to approximate verbal behavior that takes place in everyday situations. Subjects are sometimes asked to solve quantitative problems and explain the solutions as they go along within a sort of narrative framework (Alibali, Bassak, Olseth Solomon, Syc, & Goldin-Meadow, 1999; Evans, Alibali, & McNeill, 2001; Garber, Alibali, & Goldin-Meadow, 1998). One very common method is to have subjects watch a video, often a cartoon, and then relate the story presented in the video to another person who has never seen it. The ensuing narratives are videotaped and the gestures displayed by the subjects are coded.5 In this way dyadic interactions are simulated in the laboratory setting and are treated as analogous to the types of interactions

By focusing

...
that occur in more natural settings? Yet all of these kinds of studies are restricted by the parameters laid out in order to accomplish the experimental task. While they may reveal some part about the way we use gestures in interaction and should not all be completely discredited, many factors, such as the fact that the task is determined not by the participants but by the experimenter, and that the recipient of the narrative is often not known to the subject, drastically affect the results of these experiments with respect to their generalizable applicability to real world situations. In the furor to discover why we gesture and what in our brains makes us do it, most psychologists have overlooked external influences on, and interactional reasons for, gesture production.

Wary of this bias in the psychological literature, a separate stream of research devoted to examining gestures in natural settings has shed new light on the complicated nature of gestures in interaction. Haviland (1993, 1996, 2000) has demonstrated that the spaces in which social interactions take place dramatically influence the ways in which individuals produce particular kinds of gestures. Speakers of the Australian language Guugu Yimithirr, a language rich with verbal descriptors for cardinal directions, orient their pointing gestures according to those cardinal directions (Haviland, 1993), as do Tzotzil-speaking Maya whose language provides scant material for talking about such things (Haviland, 2000). Haviland (1993, 2000), expanding McNeill's (1986) initial observations, goes on to describe a wide-ranging typology of spaces that affect all social interaction, ranging from the space described in narration to the immediate space surrounding the interlocutors, demonstrating that the relationships between gesture and thought involve much more complicated elements than psychologists test for in their experiments. Moreover, gestures have been demonstrated to be in many ways pivotal for the creation of interactional context (Heath, 1992) as, for example, instrumental to the maintenance of visual contact between interactors (Streeck, 1993; cf. C. Goodwin, 1981), the establishment of visual attention within an activity (C. Goodwin, 1986, 1994; Streeck, 1994), and the making of particular bits of information revealed on graphic representations relevant to the interactive purpose at hand (Ochs, Gonzales, & Jacoby, 1996; Ochs, Jacoby, & Gonzales, 1994; Goodwin & Goodwin, 1997; C. Goodwin, 2000). Thus while gestures may on some level reveal the inner workings of the mind and provide analysts with a better understanding of internal cognitive processes, it is clear that gestures also are crucial components of many interactional strategies that in subtler ways reveal the socially and culturally structured means by which communication is accomplished, not only to analysts but to the actors themselves.

Gesture typologies

In the attempt to describe and analyze gestures over the years, several different typologies have emerged (e.g. Eckman & Friesen, 1969; Kendon, 1980; Levy & McNeill, 1992; McNeill, 1985, 1992), most of which stem from Efron's (1972) initial classification system (see Rime & Schiarratura, 1991, for a summary). While none is entirely satisfactory (hence the proliferation of various typologies), one or another is almost always employed in arguments about gesture, and they are similar enough that I can choose one, McNeill's, as exemplary of them all. McNeill (1992) divides gestures into four distinct types:

- **iconics**, which pictorially represent particular concepts: Example, “I was driving to the store...” accompanied by a mimetic enactment of hands on a steering wheel.
- **metaphors**, which formally represent abstract concepts: Example, “You need to make a decision” while moving outstretched hands up and down like a scale.
- **deictics**, or pointing gestures, which indicate objects in the world that are being talked about: Example, “That’s my dog” while pointing index finger to the dog; or which indicate particular people, places, or things that are not immediately present: Example, “I’m home now but I just got back from New York,” pointing down with “home” and over the shoulder with “New York”.
- **beats**, which mark and emphasize particular elements of the discourse: Example, “Well, Jon was there and Suzy, and Tom, and Cindy,” moving your fist up and down for each person on the list.

Often iconic and metaphoric gestures are grouped under the term “representational” because both types on some level “represent” ideas, which the other two types do not. McNeill’s position as a psychologist leads him to maintain the strict division between the mind and the world, the internal and the external. As such, representational gestures are unique because they most clearly transmit whole units of cognition, “thoughts” or “ideas” that reside in the brain, into the real world. Deictics and beats, on the other hand, do not, but instead help to structure the discourse, a much less salient level of cognition, yet one that still, nonetheless, occurs in the brain.

The main problem with McNeill’s typology of gestures, which he describes as “semiotic classification – a method that takes into account the relation of gesture forms to meaning and function” (Cassell & McNeill, 1991, p. 381), is that it suffers from a fundamental category-error that ends up complicating the nature of gesture rather than explaining it. The category-error arises when we examine the criteria on the basis of which McNeill arrives at his classification system, which assumes that all four classes have equal status in the typology and are all of the same category-type. Simply put, the four main types of gestures are being categorized based on entirely disparate criteria.

First I will examine in more detail the distinction between iconic and metaphoric gestures, the so-called “representational” gestures. Iconic gestures are classified in a clearly Peircean way as those that bear some sort of pictorial resemblance to the thing being represented: a steering wheel, as mentioned above, or pressing one’s palms together and opening them like a book. The meaning of these gestures is generally derived by examining the form of the gesture and relat-
ing it to its co-occurring utterance. If one mentions a book when making the book gesture the meaning of the gesture is taken for granted as being a book. There is a clear one-to-one correspondence between the utterance and the gesture, and the analysis proceeds from that point.

Metaphoric gestures, on the other hand, are representational gestures that depict abstract concepts that have no real world form. Cassell and McNeill (1991) provide the example of two hands representing the scales of justice when saying "decide." Thus "deciding" is metaphorically represented by a gesturally produced scale. What McNeill and his colleagues neglect in this typology is that the gesture itself is iconic: it represents a scale, a real world object just like a steering wheel or book. The interpretation of that gesture as metaphorical comes about because the co-occurring speech lacks any reference to that object. The metaphorical nature of the gesture is not inherent in the gesture itself but only arises out of its use in context. The gesture's form is indeed exactly the same as an iconic gesture except that it has no counterpart referent in the speech-text. Thus the distinction between iconics and metaphorics is not a difference in gesture types but a difference in the ways in which the gestures are used in relation to speech. Because this typology only examines the relationship between gesture and speech without recourse to a broader context of occurrence, the interpretation of a particular representational gesture is left to examining whether the co-occurring speech does or does not contain a referent that matches the thing that is being represented by the gesture. Where the gesture falls in relation to this criterion then determines its type.

The situation gets more complicated when we take into account deictics and beats. With the representational gestures, the primary characteristic of the gesture on which its categorization is based is its form, that is, what it looks like or what it is supposed to stand in for. Deictics and beats, on the other hand, are not analyzed in terms of their forms. Indeed, beats can take nearly any form and deictics are relatively restricted to a small set of possible forms. Instead, these types of gestures are analyzed in terms of their discursive function: deictics either point out referents that are immediately perceptible to interlocutors or point out parts of the interactional space that can temporarily stand in for perceptible referents (called "abstract deixis"; see McNeil, Cassell, & Levy, 1993), and beats mark particular parts of the spoken discourse as having some sort of significance that other parts do not have. Thus these types of gestures are classified according to their functions rather than their forms.

What we are presented with, then, is a typology of four seemingly equal elements all subsumed under the category "gesture." Yet we can see that these elements are all being classified according to a hodge-podge of ad hoc characteristics that suffice for the analytic purpose at hand (some according to form, some according to function, some to what is in the co-occurring speech, some to what is not), but tend to break down upon close examination of how people use gestures in interaction. The structure this typology has taken is mostly due to the fact that the data from which it arose were collected in experimental, often non-dyadic situa-

tions that neglected to examine the give and take flow of conversations and the construction of discursive content by many elements in an interaction. While the data were often spontaneous and unrehearsed and in some cases "conversational," they rarely reflected the ways in which naturally occurring linguistic activity manifests itself in people's everyday lives. And while this typology has been useful for stimulating our understanding about gestures and their role in communication, it is time for a new gesture typology.

I propose to use some of what is already built into McNeill's typology but extend it and shift it to a certain degree in order to make it more useful for examining the use of gestures in mundane social situations. I propose a thoroughly functional classification of gestures, that is, a classification based on the particular use a gesture serves in an interaction. In this way deictics and beats can remain as particular functional aspects of gestures (to point out, or to mark parts of the discourse). Representational gestures, on the other hand, would be shifted to, in the first instance, not an examination of what is being represented but only to the act of representing itself. In other words, I am attempting to make a distinction between basing the analysis of the gesture on the representation versus basing it on the fact that a representation is being made. There is a difference between making a representation and the representation itself. This shift collapses the arbitrary distinction between iconics and metaphorics and leaves the interpretation of the representation, like the interpretation of all gestures, to an examination of the context of occurrence instead of making it somehow inherent to the gesture itself. In this way these functions (and of course others to be determined) can be combined to analyze the gesture's role at any given moment in an interaction. This requires attention not just to the speech context, but to the larger context of occurrence, indeed, an ethnoanalysis of gesture.

This functional view releases gestures from the messy combinations researchers have come upon with gestures that are points but also beats and even have some iconicity in them. There are no limits to what functions a gesture can serve, all of which must be arrived at by close examination of the interaction. Once we determine that a gesture is pointing out something, and representing something else as it does so, we can take a closer look at what's being pointed out and what's being represented and ask the questions borrowed from conversation analysis, "why this?", "why now?".

THE DATA

I will now attempt to illustrate how a functional treatment of gestures is more useful for understanding "what matters" in interaction, using data collected from conversations among a team of architects discussing a large laboratory building they are designing.

When gestures are examined in this light, their nature as distinctly identifiable units begins to fade, and what are generally conceived of (and perceived) as hand motions become components of broader courses of embodied action of which
gestures are only a small part.

There are three architects on the team, George, Julie, and Mark (Figure 1). During the interaction from which the following examples are taken the team is discussing the service yard section of the laboratory building, in which a loading dock and some storage areas will be housed. Much of the problem-solving that goes into designing buildings centers on the tension between three major facets of the process: building materials, amount of space, and cost. In the following examples the team is working within those parameters to figure out the best layout and functionality of the service yard area and its smaller components. They focus on a computer-printed plan, a scaled down birds-eye representation of the building as it exists at that moment. Most of the references, suggestions, comments, and criticisms they make during this interaction concerning the building’s design are anchored by and filtered through this architectural drawing. It serves not only as an “externalized retina” (Lynch, 1990) through which their professionally trained eyes can, in a sense, “see” the object of their creative efforts, in other words, the building, but also as the stimulant for the interaction and what keeps the interaction alive as it unfolds. Their talk, gestures, and object manipulations all circulate around and above the plan, and it thus provides a relatively clear example for extending “what matters” beyond talk and gestures and into the material world.

**Tracing gestures**

One very common type of gesture performed not just by the architects but by most people in their daily lives is the *tracing gesture*, with which individuals highlight the outline of a particular feature in the environment by pointing a finger (or some object, like a pencil) at it and dragging it along or near the feature’s
surface (see C. Goodwin, 1994, in press). Just prior to Example 1, George suggests to the team that they add a ramp onto the loading dock. Mark responds with the following:

While uttering, “we’ve already got a ramp” Mark shows George the already existing ramp by tracing it with his pencil (Figures 2-3). George responds with “it’s true,” signaling understanding of, and attunement to, George’s prior talk and gesture. This type of gesture, as pointed out by Goodwin (in press), which is directly connected to and indeed entirely reliant on its position in the lived world, is not accounted for as such in any existing gesture typologies, including McNeill’s. Certainly this type of gesture contains several elements present in McNeill’s classification: the gesture is *deictic*, in that it points to the ramp on the plan, it specifically calls out a particular feature of the environment and Mark’s interlocutor George treats it in that way; it is also *iconic*, because it conveys the length of the ramp. Moreover, the representationality of the gesture is not purely iconic, because when Mark’s trace arrives at the end of the ramp, at the top of the loading dock on the plan, he continues to move his pencil in a different direction from that which he just traced, only this time he is not tracing anything in particular. This part of the gesture is not iconic in that it is not tracing a specific entity on the plan, yet it is representational, signaling that there is continuity between the ramp and the loading dock. One would move up the ramp, like his gesture, and would continue onto the wide-open loading dock, also like his gesture. Thus tracing gestures not only trace out things that are visible in the world for highlighting purposes, but also serve as proxies, in a sense, for actions being done on those things. To clarify this, I will present another, much more complex example of a tracing gesture.

Prior to the following fragment, Example 2, the team was stuck on figuring out how people would move from the loading dock into the main part of the building given the structures they had already drawn on the plan.

In line 2.1 Julie finishes explaining to George that a door they once had drawn on the plan would have hindered movement on the loading dock. She then, during a pause in line 2.3, traces the new path that people would make into the building (Figures 4-5). George immediately follows suit, mirroring Julie’s trace in line 2.4 while uttering, “so everybody comes around that way.” Then, after George continues to offer tokens of understanding (line 2.5), Mark also copies Julie’s trace, starting from the entrance to the service yard and moving it all the way onto the loading dock and into the building, uttering in lines 2.8-2.10, “you can (panel) trucks that pull in, most of their stuff will just be carted right in there.”

In terms of “what matters” for this interaction, Example 2 is interesting for several reasons. First, these tracing gestures are slightly different from the one presented in Example 1. Instead of tracing the shape of a given entity on the plan, these gestures are highlighting an imagined path one would take to carry materials into the building. The gestures display, and serve as proxies for, imagined activities that might take place in a building that currently only exists in paper and ink form, indeed, for the purpose at hand, only on the plan in front of them. Just as the
real paths through buildings are not material things but only exist because the material structures of the walls, floors, and doors prescribe and proscribe certain movements, the paths traced by the architects on the plan are constrained by what is shown on the drawing, the lines and numbers that represent those walls, doors, and floors. These gestures are deictic, pointing out a path one might take through the building. Unlike the gesture in Example 1, however, which points to and traces a ramp that is actually drawn on the map, these gestures only indirectly index the material structures that constrain a possible path through the area, a path not predetermined like the ramp. And again, these gestures are representational, serving to show imagined activities on the plan.

The second thing to note about the gestures in Example 2 is how they relate to one another and how they relate to the talk. Both Julie and George’s gestures trace the path one would take from the loading dock, the section of the plan they are discussing, into the building. Mark, however, contrasts his utterance with theirs, extending the scenario to include trucks that “pull in” and proceed to the loading dock. His gesture exactly corresponds to his verbal utterance. He begins his gesture (Figure 7) closer to the service yard entrance, where a truck would enter, and continues it up to and through the path previously traced by Julie and George. To be sure, these gestures must be interpreted in relation to their co-occurring talk. This is only part of the picture, however, because “what matters” with Mark’s gesture is not just the gesture itself and the co-occurring talk, but how it stands in relation to the two gestures performed by his teammates immediately prior to his. Not only is he copying the form and path of their gestures, but he adds to them to include aspects that Julie and George had not accounted for, namely the path that would be taken to the loading dock itself before entering the main building. This gesture, in isolation, seems simple enough, but viewed within a broader context it is rendered only one action embedded in a complex stream of actions that can only be interpreted in relation to one another.

These gestures would fall between the cracks of McNeill’s classification system. To reformulate them in terms of what they are doing can perhaps help us understand them better in relation to the rest of the unfolding activities of which they are a part. These types of gestures are deictic and representational in that on the most basic level they point out something and represent something. Undoubtedly these gestures are doing much more. But to claim them as iconic gestures that gesture, in isolation, seems simple enough, but viewed within a broader context it also point, or deictic gestures that also represent, unnecessarily places them in their own body. This gesture alone seems to contradict Arnheim’s (1969, p. 117) claim that a gesture “singles out one feature relevant to the discourse.” Indeed, this gesture contains a tremendous amount of semiotic information, information that importantly does not exist, cannot exist, on the plan. At this point, the idea of a track is a new one so it would not have been drawn on the plan. However, the movement, shape, and orientation of the track are difficult to graphically represent. George’s gesture then quite parsimoniously creates in real space, for both of his teammates to see, an imaginary, complex, three-dimensional track.

**Relational gestures**

Some gestures are smaller units of larger meaningful actions. What are generally thought of as iconic gestures are in fact segmented parts of larger embodied actions that need to be understood not only in relation to each other but also in relation to the material surround in which they take place. A class of gestures, tentatively titled “relational” gestures, exists in which two seemingly distinct gestures are performed in immediate proximity to each other, but seem to be, in a sense, variations on the same theme. In Example 3 George proposes that a door, which Mark has just suggested be placed in the service yard, slides from an overhanging track.

In lines 3.1 and 3.2, George suggests that the door be “suspended from a track.” As he does so he extends his hand in the air and moves his cupped hand back and forth, miming the shape and length of the track (Figure 9). With this gesture he is able to convey not only the track’s length and shape, but also the motion that the door would make and the track’s orientation in relation to a human actor who might encounter it by placing his hand high in the air in relation to his own body. This gesture alone seems to contradict Arnheim’s (1969, p. 117) claim that a gesture “singles out one feature relevant to the discourse.” Indeed, this gesture contains a tremendous amount of semiotic information, information that importantly does not exist, cannot exist, on the plan. At this point, the idea of a track is a new one so it would not have been drawn on the plan. However, the movement, shape, and orientation of the track are difficult to graphically represent. George’s gesture then quite parsimoniously creates in real space, for both of his teammates to see, an imaginary, complex, three-dimensional track.

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**Example 3**

<table>
<thead>
<tr>
<th>Line</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>George raises hand near head, moves back and forth</td>
</tr>
<tr>
<td>3.2</td>
<td>&gt;uh suspended from a track&lt;</td>
</tr>
<tr>
<td>3.3</td>
<td>that just comes back</td>
</tr>
<tr>
<td>3.4</td>
<td>and goes out of the way.</td>
</tr>
</tbody>
</table>

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**Figure 9**

- Moves finger over the door space

**Figure 10**

- Moves finger over the door space

**Figure 11**

- Moves finger over the door space
This is not an isolated gesture, though. Immediately upon finishing the track gesture George brings his hand down and slides his index finger in a tracing gesture over the spot on the plan over which the track would be placed (Figures 10-11). In this way he is able to connect the track, which he performed “off stage” by gesturing out of the interactive space provided by the plan, with the drawing that serves as the focus and anchor of the talk. The tracing gesture “relates” the previous track gesture to the plan by taking the length of the track enacted by George and replicating it as it is relevant to the plan. What we have then is a division of labor between two seemingly distinct gestures, a division absent in the tracing gestures examined above. Whereas the length of the ramp and how it relates to the rest of the plan were encoded in one tracing gesture in Example 1, George moves away from the plan to create the track, but uses a new pointing gesture to make it relevant to the plan. One explanation for this would be that George’s track gesture was a complicated one, involving much more information than a simple tracing gesture could handle. Because the plan constrains the type of gestures one performs, he was “forced” to step away to entail a new feature with his gesture. Having done so, he was still required to make it relevant, so he picked one of the most salient features of the track (viz. the plan), its length, and translated it into a new tracing gesture relevant to the drawing.

Clearly these gestures should be seen as a unit, and again as a unit they cannot be accounted for by current gesture typologies. They can, however, be described according to what they are doing in the interaction: The first gesture

Example 4

4.1 Mark: there could also be like a-a bell out here.
4.2 If somebody’s got a delivery
4.3 and they’re closed during the day, they can.
4.4 just like, a security system for an
4.5 apartment building (.) they can ring it and

4.6 Extends thumb and moves it back and forth as if pushing something

Example 5

5.1 Julie: And they come out

5.2 George: They (yell).
5.3 They look to see who’s in there.
5.4 George: Actually yeah for security it’s not bad.
gesture he is about to perform. Again, like George's gestures, these gestures are part of a single semiotic unit, and "what matters" is how they relate to each other and to the material surround.\footnote{11}

With Example 5, I hope to show that "gesture" is itself a limited term. Indeed, these "relational" units are not only composed of gestures and the things they may indicate, but also of other embodied actions and, in this example, the talk of co-participants. Just prior to this example Julie and Mark tell George that one of the lines drawn on the plan indicates a chainlink fence. George seems hesitant about that material, he remains silent for one full second and stares at the plan (a plan of the lines drawn on the plan indicates a chainlink fence. George seems hesitant of co-participants. Just prior to this example Julie and Mark tell George that one
gins to describe why chainlink is a good idea.

In line 5.1 Julie utters, "and they come out" and performs another tracing gesture, marking the path that a service yard worker would take out onto the loading dock from inside the building. Then, in line 5.2, she utters "and then they" while bending over to mimic the act of peering through the chainlink. This action, not described in her words but with her body, is directly related to the path she has while bending over to mimic the act of peering through the chainlink. This action, "and" plus her embodied action. Moreover, George, having clearly turned his gaze towards Julie (Figure 16), also completes her utterance "and they-", but instead of completing it with an embodied action like Julie's, he provides a description of the action she performs, "they look to see who's in there." This relational unit, then, is not merely made up of gestures and the plan, but also of other embodied actions, and it is jointly produced by two interlocutors. Julie bends over and George verbally constructs that action as "looking to see who's in there." In this segment, "what matters" has very little to do with the meanings of individual constituents of the activity but rather pertains to the constituents relate to each other and what their intersections produce as meaningful for the participants.

CONCLUSION

Looking for "what matters" as if it resides in gestures is, in my estimation, a flawed approach. I have attempted to present a critique of current gesture typologies which suggests that (a) there is a flaw in the ways in which the typologies are constructed and (b) these typologies, when employed to understand gestures as they occur in social interactions, tend to leave out a tremendous number of actions that hands and bodies do. I have used McNeill's classification system as an example because it is the most widely known and used. With data from interactions among a team of three architects in Los Angeles, I have suggested a new way to look at gestures from a functional point of view, that is, by examining what particular body movements are doing in an interaction, rather than what they look like. I have focused on two general phenomena, tracing gestures, and what I am calling "relational" gestures. While thinking about these issues is at a very early stage and not particularly nuanced, I hope that this research provides a useful point of departure for future work on gestures and embodied action.

NOTES

1 For a more detailed analysis of the concept of "context" in interaction, see Duranti and Goodwin (1992).
2 In the introduction to his newest book McNeill (2000, p. 9) distinguishes four separate streams of research. It is the first two, studies of social interaction and cognitive psychology, that I am thinking of here as relevant to the current project.
3 The more anachronistic title of Efron (1972) was a somewhat puzzling change from the earlier title of Gesture and Environment.
4 There is also another related stream of research that investigates gestures from an evolutionary perspective and its possible role as a communicative precursor to grammatical spoken language (see Armstrong, Stokoe & Wilcox, 1995; Fisher, 1989; Lock, 1978).
5 The idea exemplified by the subtitle to McNeill's (1992) book, Hand and mind: What gestures reveal about thought, has served as a sort of anthem to this movement in psychology. The guiding metaphors characterize gesture as a "window" into the mind (Alibali, Bassok, Olseth Solomon, Syc, & Goldin-Meadow, 1999; McNeill 1992) or "binoculars" (along with verbal language) looking into the mind (Cassell & McNeill, 1991).
6 Most of McNeill's work and that of his colleagues relies on this method.
7 Duncan and Fiske (1977) initiated a study that paired previously unacquainted graduate students who were placed in front of a video camera and told to start talking. Several analyses of the gestures produced in these arguably more "natural" interactions are available (Cassell & McNeill, 1991; McNeill, 1992; Murphy, in preparation).
8 I do not wish to seem as if I am setting up McNeill as a straw man. Indeed, I choose his typology because it is the most widely used in the literature, and he has spent more time developing it than any other scholar.
9 By "thing" and by the one example I have given I do not mean to imply that all so-called metaphorics represent only objects. Indeed, one can think of many examples of these types of gestures that do not represent material things but other sorts of worldly phenomena. One example from my own data is of a man who is talking about his work piling up over the course of the academic quarter, itself a "metaphorical" expression, and he signifies this by waving his hand in a circular motion in front of his face. What should be noted is that this gesture is itself mimicking an action that does occur in the real world (like a broken assembly line) and therefore its form derives from experience in the world and iconically represents some aspect of that world (see LeBaron & Streeck, 2000).
10 The most common form is the typical "pointing gesture" or extended index finger. Others include the lip-point common among some Native American groups as well as pointing things out with feet, heads, and even objects held in the hand. While this range seems to be somewhat extensive, it is restricted to extensional appendages of the body, like fingers and heads, and objects held by those appendages (like a pencil in the mouth) that can serve as pointing proxies.
11 Gestures which for the sake of brevity and clarity were left out of the transcript are also part of this unit.

REFERENCES


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