

Cooperrider, Kensy (*to appear*). Foreground gesture, background gesture. *Gesture*.

**Abstract:** Do speakers intend their gestures to communicate? Central as this question is to the study of gesture, researchers cannot seem to agree on the answer. According to one common framing, gestures are an “unwitting” window into the mind (McNeill, 1992); but, according to another common framing, they are designed along with speech to form “composite utterances” (Enfield, 2009). These two framings correspond to two cultures within gesture studies—the first cognitive and the second interactive in orientation—and they appear to make incompatible claims. In this article I attempt to bridge the cultures by developing a distinction between foreground gestures and background gestures.

*Foreground gestures* are designed in their particulars to communicate a critical part of the speaker’s message; *background gestures* are not designed in this way. These are two fundamentally different kinds of gesture, not two different ways of framing the same monolithic behavior. Foreground gestures can often be identified by one or more of the following hallmarks: they are produced along with demonstratives; they are produced in the absence of speech; they are co-organized with speaker gaze; and they are produced with conspicuous effort. The distinction between foreground and background gestures helps dissolve the apparent tension between the two cultures: interactional researchers have focused on foreground gestures and elevated them to the status of a prototype, whereas cognitive researchers have done the same with background gestures. The distinction also generates a number of testable predictions about gesture production and understanding, and it opens up new lines of inquiry into gesture across child development and across cultures.

**Keywords:** gesture; communication; language; demonstratives; gaze; effort

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## 1. Introduction

His hand movements are quick, crisp, and silent. But soon the sound comes: the grating of metal on rock, the squeak and groan of forces in tension. Massive slabs of marble fall away, into the quarry below. The conductor of this marble extracting operation is known as *Il Capo* (The Chief); he is the ostensible subject of a 2012 short documentary film by the same name, directed by Yuri Ancarini<sup>1</sup>. The real subject of the film, however, is Il Capo's hands. Zoomed-in shots show that some of his fingers have been reduced to stubs, but this does not hinder his gesturing in the slightest. As two bulldozers lumber around the quarry below, he directs them from a perch above. In one scene he coordinates both bulldozers at once, one with each hand, as they act in concert to free a large slab (see Fig. 1). His hands form vigorous commands: *Stop. This way. Gently. Down.*

For the gesture researcher, the film has obvious charms. It is rare for gesture to take the foreground, as it does in several sequences. More importantly, Ancarini's film offers a visually stunning proof that gestures communicate—indeed, that they are intended to communicate, that they sometimes bear the full burden of communication, and that they can be, in certain contexts, earth-moving. But in what sense is this surprising? Of course gestures communicate—this is their core, isn't it? The issue is more fraught than it first appears, at least for gesture researchers. That Il Capo's gestures are communicative to their core is—we can agree—clear as day. But what does this say about gesture more broadly, about the diverse universe of movements that fall under that label? Indeed, the field of gesture studies harbors two different—and incompatible—answers to the question of

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<sup>1</sup> An excerpt of the film is viewable at (accessed April 15, 2016): <https://vimeo.com/108898457>



**Figure 1.** A still from *Il Capo* (2012), directed by Yuri Ancarini.

whether gesture is fundamentally communicative, and these two answers correspond to two different “cultures” within the field<sup>2</sup>.

The first culture of gesture studies is broadly cognitive in orientation and has its roots in the work of David McNeill (1985; 1992; 2005). A rich tradition of work since has shared this orientation and its guiding framings. For members of this culture, the central interest of gesture is that it can tell us things about a speaker’s thoughts that we cannot learn from speech alone. Work in this vein assumes or explicitly claims that gesture is not monitored in the same way as speech, and, relatedly, that it is not designed with the same communicative care. This claim about the unmonitored nature of gesture is captured in McNeill’s (1992) memorable phrase that gestures are “unwitting accompaniments” (pg. 12) of speech. The idea that gestures are below the level of conscious awareness makes them

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<sup>2</sup> With a nod to C. P. Snow (1959), who, in his influential attempt to cleave the intellectual world in two, conceded that “[a]ttempts to divide anything in two ought to be regarded with much suspicion” (pg. 10).

immediately interesting to researchers across the cognitive sciences who might otherwise find them quite dull. Seen in this way, gestures become a “window into the mind,” neuroimaging as nature intended it. Gesturing may be driven by an impulse to communicate, on this view, but individual gestures themselves are not the products of design. Rather, they are *byproducts* of the design of spoken messages (see Hostetter & Alibali, 2008 for recent elaboration of this idea), and they may be produced largely “for the speaker” rather than “for the listener.” Evidence consistent with this view is wide-ranging and steadily piling up, from the fact that speakers continue to gesture even when no one can see them (Bavelas et al., 2008; Chu & Kita, 2008; 2011), to the fact that even blind people gesture for other blind people (Iverson & Goldin-Meadow, 1998).

The second culture of gesture studies is broadly interactive in orientation. Early exponents include Charles Goodwin (1986; 1994) and Herb Clark (1996). In a recent book, Enfield (2009) provides an empirically and theoretically rich statement of this orientation. For members of this second culture, the central interest of gesture is that it is—like words, gaze, and other semiotic resources—a basic tool for carrying out social action. That is, gesture is interesting, not for what it tells us about invisible cognitive processes, but for what it *does* in interaction (Goodwin, 1986). This idea, too, has proved a powerful one, and has captured the interest of scholars in anthropology, conversation analysis, and beyond who might otherwise look past gesture (or not bother to record it in the first place) (e.g. Brookes, 2004; Sidnell, 2005). If the guiding slogan of the first culture is that gesture is a “window into the mind,” the guiding slogan of the second culture is the idea that gestures are part of “composite signals” (Clark, 1996; Engle, 2000) or “composite utterances” (Enfield, 2009). As implied by the use of the word “signal,” this culture views

gestures as communicative to their core. Like the shooting up of a flare, the waving of a white flag, or the blaring of a car horn, a gesture has a designer, a message, and an intended audience. As implied by the use of the word “composite,” such signals are made up of different parts—words, gesture, prosody, and so on. But all the parts are critical and all contribute to the message at hand. On this view, gestures are not merely *byproducts* of the design of spoken messages, they are themselves the *products* of design. The evidence consistent with this view is equally wide-ranging and also steadily accumulating, from the fact that speakers tailor their gestures to the communicative situation (Bangerter, 2004; Bavelas, et al. 2008), to the fact that listeners sometimes visually inspect gesture (Gullberg & Kita, 2010; Streeck, 2009), to the fact that, in some contexts, a gesture can free a slab of marble in a single deft stroke.

The tension between these two cultures is palpable. Yes, there are differences of method and discipline: research in the cognitive culture is most often experimental, quantitative, and carried out by psychologists and cognitive scientists; research in the interactive culture tends to be observational, qualitative, and carried out by conversation analysts and anthropologists. But beneath these methodological differences lies a key point of theoretical difference. Gesture cannot be both a product and a byproduct of design, both part of a “composite signal” that includes speech and an “unwitting accompaniment” to speech. At least on this particular issue, the two views cannot both be right. The central claim of this essay is that, in a sense, the two cultures are both wrong and both right. These are not two different views of some monolithic phenomenon called “gesture”—though there is still an unfortunate tendency to treat gesture as a monolith. Rather, these are

treatments of two different phenomena: one I will call *foreground gesture* and another I will call *background gesture*.

Foreground gestures are those gestures, like Il Capo's, that are designed in their particulars to communicate critical parts of messages. These are the gestures that have caught the attention of scholars with an interactive orientation, and within this culture they have been elevated to the status of a prototype of gesture more generally (for informal evidence of their prototypical status, see gesture examples used in the first chapter of Enfield, 2009). Background gestures are those that, while guided by an inchoate communicative urge, are simply not designed in the same way. These are the gestures that have fired the zeal of those scholars with a cognitive orientation, and within this culture they have been elevated to the status of a prototype of gesture generally (for informal evidence of their prototypical status, see gesture examples used in the first chapter of McNeill, 1992). This simple distinction between foreground and background gestures is one that can usually be made on the basis of observable properties of the gestures themselves and it is implicitly acknowledged by many gesture researchers<sup>3</sup>. I suggest that ordinary speakers and listeners, too, are intuitively aware of the difference. But, at the same

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<sup>3</sup> Tracing the antecedents of the foreground-background distinction would take an entire article in itself. Whiffs of it can be caught in almost every in-depth discussion of the communicative nature of gesture. Such discussions include, but are hardly limited to: Goodwin, 1986; Tuite, 1993; Clark, 1996; Kendon, 2004; Haviland, 2004; de Ruiter, 2007; Bavelas et al., 2008; Streeck, 2009; Enfield, 2009; de Ruiter, Bangerter, & Dings, 2012; Slonimska, Özyürek, & Campisi, 2015. Rimé & Schiaratura (1991) discuss a figure-ground model for understanding how listeners attend to verbal and gestural streams. Enfield et al. (2007) introduced the idea that certain gestures carry "foregrounded" information while others carry "backgrounded" information, but do not relate this to different degrees of design, awareness, or intent. Wharton (2009) discusses gradients of deliberateness and design in nonverbal behaviors, an idea that has shaped what I say here. He also noted the unevenness with which the notion of intention has been used in gesture studies (Wharton, 2009, pg. 151-2).

time, the distinction demands careful explication, not least of all because it cuts across the most familiar typologies of gesture. As will become clear, iconic gestures come in both foreground and background guises; so, too, do pointing gestures and emblems. Moreover, what McNeill called “gesticulation”—the idiosyncratic gestures that spontaneously accompany speaking—often remain in the background but also sometimes take the foreground. Next I elaborate the underpinnings of the foreground-gesture framework and then go on to outline the observable hallmarks of foreground gestures that set them apart from background gestures.

## 2. The foreground-background framework

The key idea of the foreground-background framework is that not all gestures are intended for communication in the same way. Many gestures are produced half-heartedly and, as it were, half-mindedly. It may be a stretch to assume that speakers are completely unaware of such gestures<sup>4</sup>, but speakers are not concerned with their fine-grained details and these details may fade from memory quickly. These are *background gestures*: they are in the background of the speaker’s awareness, in the background of the listener’s awareness, and in the background of the interaction. At other times, in the course of formulating an utterance, a speaker realizes that gesture would be helpful in communicating some critical aspect of the message. In such moments gesture breaks through the crust of awareness. The speaker harnesses it and designs it—carefully, in its

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<sup>4</sup> Many authors seem to have such a claim in mind (e.g. McNeill, 1992; 2005), but I am not aware of clear evidence one way or another. Researchers sometimes report cases in which participants will apologize for non-compliance upon learning that a study was about gesture, when in fact they had gestured prodigiously. Even if this turns out to be a common phenomenon, the fact that people cannot remember having gestured some time later on is not direct evidence that they were unaware of gesturing at the time.

particulars, and in relation to speech—to communicate critical aspects of meaning. These are *foreground gestures*: they are in the foreground of the speaker’s awareness, in the foreground of the listener’s awareness, and in the foreground of the interaction.

At root, the central distinction of the foreground-background framework is a fuzzily mentalistic one. The idea is that the invisible qualities of intention, awareness, and design are immanent in some gestures but not others. Without a doubt, basic questions still haunt these murky constructs, within the realm of human communication and beyond. Do intentions actually exist? If so, where do they come from and where do they reside? Is having an intention more like being pregnant (categorical) or more like being tired (gradient)? For present purposes, I ignore these problems, assuming a naïve stance with just a few features. First, the constructs of intention, awareness, and design are different birds but they tend to flock together. If a behavior exhibits one, it tends to exhibit the others. Second, behaviors can have more or less of these qualities. I remain agnostic about whether this “more or less” suggests two categories or a continuum. Third, these invisible qualities manifest in visible behavior. This last point is crucial. It means that researchers—and ordinary listeners—can infer whether such behaviors exhibit more or less intention, awareness, and design. In what follows I describe how these fuzzy, private qualities are manifest in the public properties of communicative behavior.

There are four public properties that signal heightened communicative intent in gesture. I will refer to these as “hallmarks.” The first two concern the relationship between gesture and speech: 1) concurrent use of spoken demonstratives; and 2) the absence of speech. The second two concern properties of the gesture’s production: 3) co-organization of gesture and speaker gaze; and 4) conspicuous effort in the movement itself. Before



reviewing these, a couple points of clarification are in order. A first is that these different hallmarks of foreground status often coincide, and there is no contradiction in this redundancy. In fact, one of the claims of the framework is that these hallmarks tend to go hand in hand. A second point is that, while it may be tempting to view these as communicative “strategies” that a speaker deliberately employs to signal the heightened communicative status of certain gestures, I favor the more agnostic framing of them as “hallmarks.” For each of the four classes of hallmarks I will survey any existing evidence that: (a) the hallmark is associated with communicative intent; (b) the hallmark goes hand in hand with the other hallmarks; and (c) listeners attend to gestures exhibiting this hallmark.

## **2.1. The hallmarks of foreground status**

### **2.1.1. Concurrent use of demonstratives**

The most overt hallmark of the foreground status of a gesture is a speaker’s concurrent use of a spoken demonstrative, such as the English words *this* and *there*. Gestures that indicate entities are commonly accompanied by so-called “entity-referring demonstratives” (in English, *this*, *that*, *these*, and *those*); gestures that indicate places are commonly accompanied by so-called “place-referring demonstratives” (in English *here* and *there*). When indicating gestures and demonstrative are joined together, this is a special kind of communicative strategy, and there is evidence that in such cases the speaker is more fully aware of the gesture and its capacity to communicate. For example, Bangerter (2004) found that, in a task in which participants had to identify faces at different distances, speakers used more demonstrative-pointing combinations for near faces than for

far faces. This finding, which was conceptually replicated by Cooperrider (2011), suggests that speakers are sensitive to the ambiguity of their pointing gestures. When targets are near and pointing is unambiguous, speakers call attention to their gestures with demonstratives, but when targets are far and pointing is more ambiguous, speakers do not use demonstratives in this way and instead describe what the targets look like and where they are located. One would also expect listeners to be highly sensitive to the use of demonstratives. For example, they may be more likely to orient to the targets of pointing gestures co-produced with demonstratives than to the targets of other pointing gestures. However, I am not aware of any evidence of this.

In addition to entity-referring and place-referring demonstratives, many— if not all — human languages also have demonstratives that refer to the *actions* that accompany speech. For gesture researchers, these should be of obvious interest. This class is sometimes called “manner demonstratives,” on the idea that they draw attention to the manner in which something is done. To better highlight their relevance, I will call them *action-referring demonstratives*. Unfortunately, this class has been “largely ignored in the literature on deixis” (Diessel, 1999, pg. 74) and cross-linguistic data on their forms and precise functions remain somewhat fragmentary (for some fragments, see Dixon, 2003; for a recent review, see Guérin, 2015). In English the action-referring demonstratives include the phrases *like this*, *like that*, and *like so*, as well as the relatively rare *yay*<sup>5</sup> and the obsolescing *thus*. Whereas entity- and place-referring demonstratives draw attention to the entity or the place that a concurrent gesture is indicating—such as by pointing, holding,

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<sup>5</sup> Despite having the ring of a short, old word of long-standing service (perhaps like *yon* and *yonder*), *yay* is merely short. The Oxford English Dictionary dates its first attested use to 1960 and describes it as belonging to American slang.

presenting, touching, and so on—action-referring demonstratives draw attention to the characteristics of the action or gesture itself. A speaker may use *like this*, for example, to highlight a gesture that depicts the shape, size, or characteristic motion of some object or action.

Consider the following sequence involving three gestures, each highlighted by an action-referring demonstrative (Fig. 2). The speaker is describing a novel creature, from an array of similar looking creatures, for a listener (example from a study described in Cooperrider, 2011). To distinguish it from the others, she focuses first on the target creature's spiky appendages and then on its peculiar body shape:

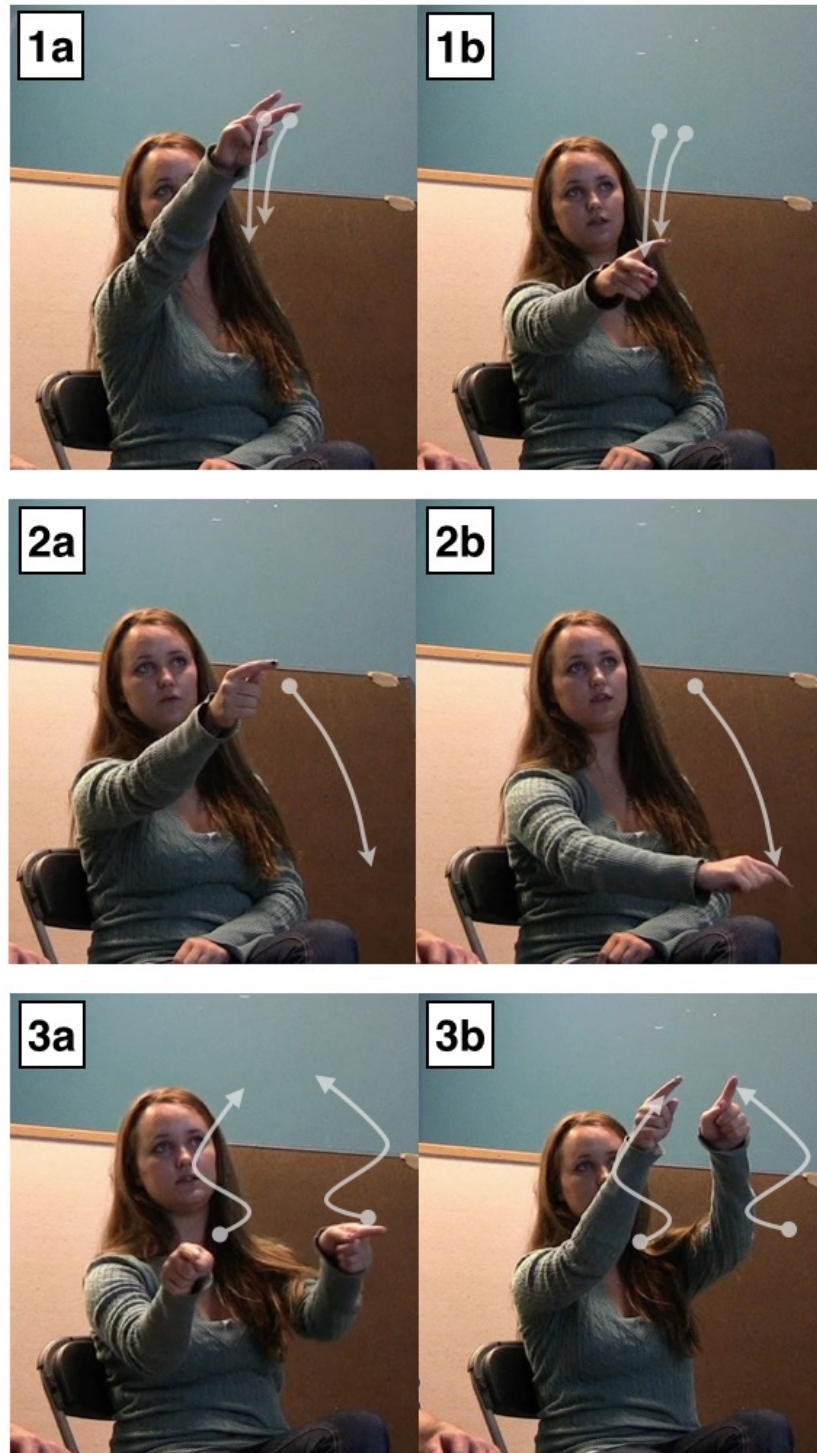
**Speaker:**

The one [like this]

And then one [like this]

[It's like- the body] shape is like that

The action-referring demonstratives are underlined, and brackets indicate the start and end of the gesture associated with each one. Each of the three gestures traces the shape of a different feature of the creature's body. Note, also, that the listener (not pictured) turns to look at the speaker at one point, suggesting he appreciates the communicative relevance of the sequence. As there is for gestures accompanied by other kinds of demonstratives, there is evidence that gestures occurring with action-referring demonstratives have a special communicative status. Several studies have shown that combinations of depicting gestures and action-referring demonstratives become vanishingly rare when participants cannot see



**Figure 2.** Three gestures in a sequence, each co-produced with an action-referring demonstrative. The arrows indicate the approximate trajectories of the hands from the start of the gesture ('a' panels) to the end ('b' panels).

each other. This has been found in paradigms involving puzzle assembly (Emmorey & Casey, 2001), image description (Bavelas, et al. 2008), and object identification (de Ruyter, et al. 2012). It would seem a safe prediction that such gestures are more likely to draw the gaze of the listener—and qualitative research supports the proposal (see, e.g., Streeck, 2009)—but I am not aware of quantitative evidence for this.

When co-produced with gestures, demonstratives of all three types—entity-referring, place-referring, and action-referring—offer overt evidence that the speaker intends the gesture as central to the message. In some sense, the very existence of such linguistic resources across human languages provides a kind of support for the foreground-background framework. If gestures were always already considered an integral part of speaker’s message, why would we need dedicated verbal resources for highlighting them? Interestingly, Diessel (1999; 2006) has shown that demonstrative words are universal across human languages and are apparently ancient. It is often possible to trace closed-class words like definite articles and pronouns back to demonstratives, whereas demonstratives are “so old that they cannot be traced back to other types of expressions” (Diessel, 2006, pg. 475). Not only are demonstratives a clear hallmark of the foreground status of gesture, one that is available to speakers around the world, but they are also part of the oldest bedrock of language.

### **2.1.2. Absence of speech**

Another hallmark of the foreground status of a gesture is that is produced without speech. First, if speech is entirely absent from a communicative turn, it is clear that the gesture is intended to bear the full message. This is seen clearly in *Il Capo*’s gestures; no

words are spoken for long stretches, but there can be little doubt that each gesture carries a specific, tailored message. Gestures in the absence of speech have been reported in other work settings where speech is difficult (e.g. Meissner & Philpott, 1975). Gestures of greeting (Kendon, 1990) and of beckoning are also often produced without words. Everyday conversations often consist of turns that are entirely gestural, as when a headshake, palm-up gesture, or point may suffice as a response to a question. Emblems, both manual (e.g. the middle finger) and facial (e.g. the wink), are frequently produced without speech (Ekman & Friesen, 1969). The gestures in all these examples exhibit some degree of conventionalization, but, importantly, it is also common enough for gestures without speech to be designed on the spot.

One site where idiosyncratic gestures-without-speech occur is in exchanges carried out entirely in gesture so as not to disrupt ongoing conversation<sup>6</sup>. Such a sequence is illustrated in the three panels of Figure 3. It comes from an interview recorded in the Yupno valley of Papua New Guinea. As my collaborator and I start to formulate a question for one of the men (on the right), he initiates a gestural side exchange with the other (on the left). First, he gently taps the man's leg to draw his attention (panel A); then he produces an iconic gesture, with his right hand "cutting" against his left (panel B). Note that both of these actions are performed without breaking gaze with the interviewers. In context, the man's meaning is clear: he would like to borrow a knife so he can split a betel nut. The message is readily interpreted and the knife passed (panel C). Here and elsewhere, the

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<sup>6</sup> Generally, the foreground-background framework predicts that gestures produced without speech will be big and precise (see 2.1.4). But this does not hold for this example, likely because side exchanges are a special case. If a gesture is to avoid being disruptive, it is not enough for it to be silent—it must also be *discreet*. We thus might expect gestures in such side exchanges to take on properties akin to "whispered" sign language (see Emmorey, 2001, pg. 153-4).



**Figure 3.** A sequence of silent actions carried out in the midst of a conversation. In (A) the man on the right gets the attention of the man on the left; in (B) he produces a gesture depicting the act of cutting with his hand; in (C) the man on the left responds by passing his knife.

absence of speech altogether seems a clear tip-off that such gestures are intended to be communicative. To my knowledge, however, there is not yet systematically gathered evidence supporting the heightened communicative status of such gestures.

A related way that the timing of speech serves as a hallmark of foreground status is when the two are produced in sequence rather than simultaneously—a phenomenon that has been called “mixed syntax” (Slama-Cazacu, 1976). For example, a speaker may say “Now you have to...” and trail off in speech while completing the idea by illustrating it in gesture. These kinds of speech-then-gesture sequences occur frequently in the context of quotations or demonstrations. For example, a speaker might say “And then the man goes [*gesture depicting punch*],” or might achieve a similar effect with an action-referring demonstrative: “And then the man goes like this [*gesture depicting a punch*]”. Again, to my knowledge, no evidence has yet been gathered to support the idea that gestures occurring in such sequences have heightened communicative status. But the prediction is clear: Cases where speech trails off and gesture takes over should be vanishingly rare when interlocutors cannot see each other, and, moreover, listeners should be especially likely to orient to such gestures.

As mentioned above, a secondary claim of the foreground-background framework is that the different hallmarks of foreground status often go hand in hand. In other words, a gesture that shows one of the hallmarks is likely to show additional hallmarks as well. Are sequential relations between speech and gesture especially likely in the case of demonstratives? Based on my informal observations, gestures co-produced with demonstratives often involve a looser—if not pristinely sequential—relation with speech. Sometimes the gesture precedes the demonstrative (as in the third gesture of Fig. 2),



sometimes it follows a demonstrative (e.g. “No, it’s over here [*turns and performs indicating gesture*]”), sometimes a single pointing gesture is held through a long referential sequence that includes one or more demonstratives, and so on. In fact, de Ruiter & Wilkins (1998) provide some intriguing evidence consistent with these informal impressions. They report that, in both Dutch and Arrernte, gestures produced with demonstrative words are more loosely co-timed with speech than are other gestures. This somewhat counterintuitive finding warrants further research. It may turn out that prior observations about the lockstep timing of gesture and speech hold for background gestures but not always for foreground gestures. A possible reason for this is that awareness of gesture may disrupt its automatic, fluid co-production with speech.

### **2.1.3. Co-organization with speaker gaze**

The third hallmark of foreground status is the organization of gaze in relation to gesture. There are two possibilities here, the first concerning iconic gestures and the second indicating gestures. First, if speakers fixate their gaze on an iconic gesture, this is a hallmark of the gesture’s foreground status. As noted by a number of researchers, by looking at one’s own gesture, a speaker establishes that gesture as an object worthy of shared attention (see also Goodwin, 1986; Streeck, 1993; Enfield, 2009). In line with this idea, recent studies have presented eye-tracking evidence that listeners are more likely to fixate those gestures that speakers themselves fixate (Gullberg & Holmqvist, 2006; Gullberg & Kita, 2009)<sup>7</sup>. Interestingly, there is also evidence for an analogous pattern in sign

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<sup>7</sup> As the authors note (Gullberg & Kita, 2009, pg. 262), caution is in order here because the tendency for speakers to fixate their own gestures in naturally occurring examples is possibly confounded with other properties of the gesture and its relation to speech. Indeed, such a “confound” is explicitly posited by the foreground-background framework.

language (Emmorey, et al., 2009). The foreground-background framework generates a number of further predictions about gaze and communicative status. One is that speakers will be less likely to fixate their gestures when their listeners cannot see them. Further, on the idea that hallmarks of foreground status often go hand in hand, it generates the prediction that speakers should be more likely to fixate gestures that are accompanied by action-referring demonstratives. Speakers should also be more likely to fixate gestures that occur in the absence of speech or in sequence with speech.

The co-organization of gesture and gaze can also serve as a hallmark of communicative status in indicating gestures. Specifically, this is seen in cases where speakers look toward whatever their gestures are indicating. The prediction here must be formulated carefully. Listeners may take a speaker's gaze to be informative on its own; and they also probably take an indicating gesture to be informative on its own. The claim here, however, is that when these two are aligned, the effect is super-additive, a clear hallmark that the gesture is intended as communicative<sup>8</sup>. I am not aware of any studies that directly compare the effects of a speaker's gaze alone, indicating alone, or both together on listener attention, but such a comparison would be informative. Another testable prediction, following the idea that the hallmarks of foreground status often coincide, is that pointing gestures involving co-directed gaze to a referent are more likely to be associated with a spoken demonstrative than those pointing gestures that do not involve co-directed gaze.

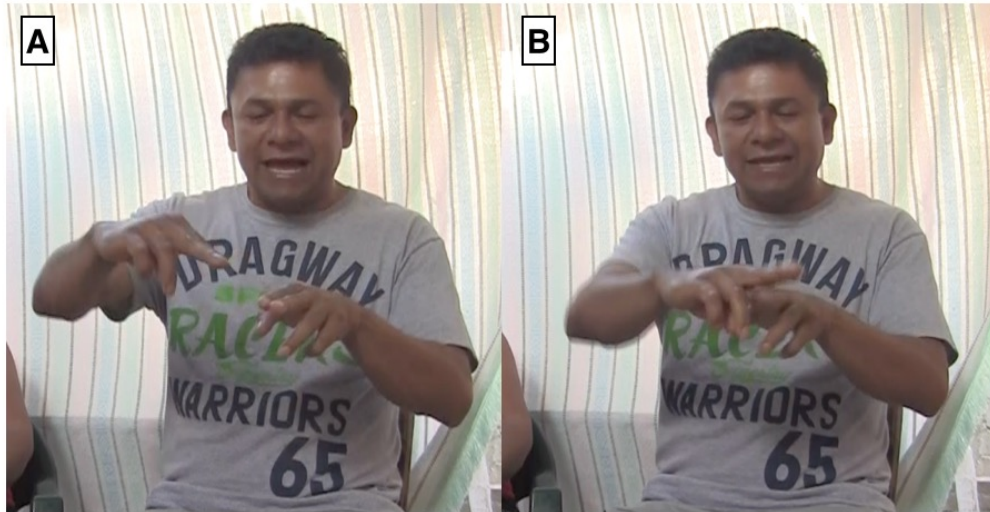
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<sup>8</sup> Several studies have examined the co-direction of gaze and pointing (Enfield, et al. 2007) and the effect this has on listeners (Butterworth & Ikatura, 2000). However, these studies were not designed to test the specific "super-additive" prediction discussed here.

#### 2.1.4. Speaker effort

The fourth and final hallmark of the foreground status of a gesture is found in the movement qualities of the gesture—and, specifically, those qualities that mark it as *effortful*. Gestures, like all actions, vary in how much effort speakers expend to produce them (Kendon, 2004). The idea here is that when speakers expend manifest effort, this serves to mark the gesture's communicative importance. This hallmark is the thorniest, for two reasons. One is that effort is gradient, whereas the other three hallmarks are categorical. A second is that effort may not be a property that can be judged with an absolute metric—a person's baseline needs to be taken into account, and such baselines may vary widely.

The degree of effort involved in a gesture is reflected in at least two ways: the size of the movement (bigger gestures involve more effort) and the precision of the movement (more precise gestures involve more effort). Bigger gestures should thus be associated with heightened communicative status, as should more precise gestures. At least two prior studies have found such evidence, at least for size. Bavelas et al. (2008) found, in a picture description task, that speakers produce bigger gestures when their interlocutors can see them than when they cannot. The gestures in this picture description task were presumably mostly iconic gestures, but similar effects have also been reported for pointing. Bangerter & Chevally (2007) found that points that involve full arm extension are only used when people are visible to each other, but that points involving only partial extension are used at the same rate regardless of visibility. There are also some hints in the literature about relations between gesture size and other hallmarks of foreground status. Focusing on pointing gestures to locations, Enfield et al. (2007) observed that bigger pointing gestures



**Figure 4.** Two frames from a gesture depicting a motion event, produced by a speaker of Juchitán Zapotec. The man holds his gaze on the gesture throughout, a first hallmark of its foreground status. The use of two independently acting hands and precise handshapes are suggestive of a high degree of effort, a second marker of the gesture’s foreground status.

are more likely to be co-organized with gaze than are smaller pointing gestures. One challenge for future work investigating gesture size as a cue to communicative status is to develop a way of measuring gesture size that applies well to different gesture types and to different discourse contexts (see Chu et al., 2013, for a recent and promising possibility).

Just as it takes effort to produce big gestures, it takes effort to produce gestures involving precise movements. An illustration of what I have in mind is shown in Figure 4. The example comes from a study on how speakers of Juchitán Zapotec, an indigenous language of southern Mexico, describe recently seen motion events (McComsey, Cooperrider, & Marghetis, 2016). The motion event in question involves a collision between two long wooden blocks. The speaker uses both hands for the gesture, each with a distinctive handshape and each acting independently. His right hand depicts the moving block and his left the stationary block. He does not use a demonstrative while depicting the event but, interestingly, he does look at his hands.

Gesture precision is less well studied than gesture size, but there is already suggestive evidence from several studies that gesture size and gesture precision go hand in hand (Gerwing & Bavelas, 2004; Galati & Brennan, 2014). This is consistent with the idea that both spring from, and thus index, speaker effort. Again, a challenge for future work is to develop a way of measuring gesture precision that applies to different gesture types and to different discourse contexts. All else being equal, two-handed gestures in which the hands perform different roles—as in Figure 4—might be considered more precise than either one-handed gestures or two-handed gestures in which the hands mirror each other (see Enfield, 2004 for examples of gestures that are precise in this sense). Further, gestures that involve more complex handshapes (for example, as the notion is used in sign language research; see Brentari, et al. 2012) may also be considered more precise. A number of untested predictions remain about the effort-based hallmarks of foreground status. In particular, the framework predicts that gestures co-produced with demonstratives, gestures produced without speech or in sequence with speech, and gestures that are co-designed with speaker gaze, should all tend to be produced with greater effort than other gestures.

## **2.2. Summary of hallmarks and predictions.**

The previous sections have described the public properties, or hallmarks, that distinguish foreground gestures from background gestures. In the present framework, we can generate at least three kinds of predictions about these hallmarks. First, because these hallmarks are associated with communicative intent, they should be less frequent when speakers and listeners cannot see each other. Second, these different hallmarks should tend

to go hand in hand, to jointly mark that a gesture is communicatively intended. Third, listeners should be more likely to attend to gestures that bear these hallmarks than to gestures that do not. Evidence bearing on each kind of prediction is cited in a separate column in Table 1.

**Table 1.** Hallmarks of foreground status and associated predictions

<b>Hallmark</b>	<b>Evidence for effect of visibility</b>	<b>Evidence for association w/ other hallmarks</b>	<b>Evidence for listener attention</b>
<b>1. Demonstratives</b>			
<b>a. entity- and place-referring</b>	Bangerter (2004)	—	—
<b>b. action-referring</b>	Emmorey & Casey (2001); Bavelas et al. (2008); de Ruitter et al. (2012)	—	—
<b>2. Timing with speech</b>			
<b>a. speech absent altogether</b>	—	—	—
<b>b. in sequence with speech</b>	—	—	—
<b>3. Co-organization with gaze</b>			
<b>a. gaze to gesture</b>	—	—	Gullberg & Kita (2009)
<b>b. gaze to indicated location</b>	—	associated w/ size: Enfield et al. (2007)	—
<b>4. Effort</b>			
<b>a. size</b>	Bavelas et al. (2008); Bangerter & Chevally (2007)	associated w/ gaze to indicated location: Enfield et al. (2007)  associated w/ precision: Gerwing & Bavelas (2004); Galati & Brennan (2014)	—

<b>b. precision</b>	—	associated w/ size: Gerwing & Bavelas (2004); Galati & Brennan (2014)	—
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As is abundantly clear from the table, a number of the predictions made in the current framework have not yet been investigated. Indeed, the purpose of the table is not only to collate the current evidence, but also to pinpoint gaps in current knowledge so that they may be more easily addressed by future researchers. Note, too, that this table only lays a barebones base. Many other predictions, not covered here, may be generated within the foreground-background framework. For instance, we might predict that gestures exhibiting the hallmarks of foreground status would be more likely to be integrated or remembered by listeners (see Gullberg & Kita, 2009 and Oben & Brône, 2015 for early, mixed evidence).

### 2.3. Background gestures

We have now considered in depth the hallmarks of foreground gestures. What then are *background* gestures? In the current framework, background gestures are a kind of unmarked default against which foreground gestures stand out. Importantly, this does not imply that background gestures are more common or, for that matter, less interesting than foreground gestures. The relative frequency of these two types is a matter of considerable variation across settings, across individuals, and perhaps across speech communities (see 4.2 below); the relative interestingness of these two types is determined by one's theoretical concerns. In terms of their features, background gestures are the foil of foreground gestures: they are not co-produced with demonstratives, tend to occur in tight co-timing with speech, are not co-designed with gaze, and are reduced in both size and



precision. Note, again, that a single one of the hallmarks is sufficient to establish a gesture's foreground status. What this means is that background gestures are those that are completely devoid of such hallmarks. This does not mean that they are completely devoid of intention, awareness, and design, but rather that they have markedly less of these qualities. If foreground gestures are whole-hearted, background gestures are half-hearted. But when do people ever gesture in such a half-hearted way and, moreover, *why*?

The literature on these questions—again, much of it carried out by those with a cognitive orientation—is wide, diverse, and rapidly expanding. Background gestures are seen in abundance when people recall imagery-rich narratives. (It is no accident that such narratives, especially the now-classic 'Canary Row' cartoon, have been a mainstay of cognitively oriented work on gesture from its beginnings.) We also find them in spades when people struggle to articulate concepts that have motoric or visuospatial dimensions (Garber & Goldin-Meadow, 2002; Goldin-Meadow, 2003; Alibali, 2005; Melinger & Kita, 2007; Hostetter, 2014). Why do people gesture under such circumstances? The phenomenon of background gestures invites a number of explanations, ranging from proximate to ultimate. A proximate answer is that people gesture in such circumstances—not out of an abundance of communicative intent—but for the simple reason that doing so is automatic. Background gestures bubble up as we talk, exhibiting an “unbreakable bond” (McNeill, 2005) with speech that requires little conscious effort on the part of the speaker, and little in the way of intent, awareness, or design.

This automaticity accounts for why we produce background gestures when we talk, and, crucially, why we *continue* to produce them when their communicative value is compromised. It accounts for why people produce gestures when on the telephone, a

robust finding of a number of studies manipulating visibility (e.g. Bavelas et al., 2008); why blind people gesture, even when they are talking to other blind people (Iverson & Goldin-Meadow, 1998); why people continue to gesture despite taboos (Kita & Essegbey, 2001); and perhaps even why signers gesture imagistically with their mouths while signing with their hands (Fontana, 2008; Sandler, 2009). But, of course, we also need a deeper, more ultimate explanation. Where might this putative automaticity come from?

A possible clue lies in the fact that actions of the hand and mouth are inextricably—perhaps even primordially—coupled. Linkages can be observed between hand and mouth from earliest infancy, starting with the Babkin reflex, continuing through babbling stage, and on to the child’s first words (Iverson & Thelen, 1999). This coupling is not limited to communicative contexts. Young children stick out their tongues when performing challenging manual tasks (Forrester & Rodriguez, 2015), a behavior also readily observable in adults<sup>9</sup>. More subtle hand-mouth resonances have also been demonstrated. In a series of experiments, Gentilluci et al. (2001) showed, for instance, that grasping differently sized objects with the hand leads to changes in people’s concurrent mouth movements, and “grasping” differently sized objects with the mouth leads to changes in concurrent hand movements. To explain such curious synergies—as well as observations about the automatic and unbreakable bond of gesture and speech—several researchers have proposed that hand and mouth actions may be controlled by common neural systems (McNeill, 1992; Iverson & Thelen, 1999; Hostetter & Alibali, 2008; Forrester & Rodriguez,

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<sup>9</sup> To my knowledge, there is not yet good evidence that non-communicative tongue protrusions and co-speech gestures share a common source. One way to assess this would be to see whether these behaviors co-vary on an individual level. That is, do people that produce tongue protrusions at high rates also gesture at high rates?

2015). The nature and origins of this possible hand-mouth co-control is ripe for further study.

Background gestures spring forth more or less automatically as we speak, as part of our general drive to communicate. At least for many people, it takes more effort to suppress such gestures than it does to produce them. Foreground gestures, on the other hand, are not deployed automatically, they are deployed because they are communicatively *useful*. There are times when the unique affordances of gesture suggest it as the right communicative tool for the job. Much as, according to the cliché, a picture is worth a thousand words, a gesture can sometimes communicate with a precision, an economy, or a feeling that speech simply cannot match. It is in such moments that a speaker intuits the utility of gesture and propels it to the foreground.

### **3. Further issues**

#### **3.1. Foreground-background status and existing gesture typologies**

Many researchers, I have suggested, are at least implicitly aware of the foreground-background distinction. Gesture studies as a field has a hunch, we might say, that not all gestures have the same communicative status. But this hunch has remained uncrystallized and undertheorized. Why? Part of the answer, I suggest, lies in the deep grooves defined by current gesture typologies, which may pre-empt new distinctions that cut across them.

Two gesture typologies have been particularly influential in the field. A first is the grouping of gestures into types such as iconics, metaphoric, deictics, emblems, and beats (a typology that persists despite widespread unease; see Kendon, 2004; McNeill, 2005; Enfield, 2009). The foreground-background distinction crisscrosses these categories. Iconic

gestures can clearly take the foreground, as seen in Figs. 2, 3, and 4; but the canonical background gesture is also iconic (for examples, see McNeill, 1992, esp. Ch. 1). Deictic gestures, too, can take either the foreground or background. Many pointing gestures to present targets are foreground gestures (Bangerter, 2004; Enfield, et al. 2007), but background pointing gestures to present targets also occur (Bangerter & Chevally, 2007). Many points to the self may be best considered background gestures (Cooperrider, 2014), and some points that have been described as “abstract” may also belong in this category (McNeill, et al. 1993); but other “abstract” pointing gestures are clearly foregrounded (Bavelas et al., 2011)<sup>10</sup>. Emblems may be prototypically foregrounded, but they may also occur in background variants. Backgrounded emblems may be especially common in cultures where they are so high frequency (e.g. Kendon, 1995) that the forms become automatically activated when speaking. The only one of the received gesture types that aligns tidily with the foreground-background distinction is beats, which would seem to be canonical background gestures. Consistent with this idea, it has been reported that rates of beat gestures are unaffected by visibility manipulations (e.g. Alibali et al., 2001).

Another influential gesture typology is the continuum originally sketched by Kendon (1988) and later enshrined as “Kendon’s continuum” by McNeill (1992; 2000). The central idea of the continuum is that some hand movements are more language-like than others: at one end are those that are idiosyncratic and lack linguistic properties altogether; at the other end are the signs of sign language, which are conventionalized and functionally

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<sup>10</sup> What does the foreground-background framework have to say about “co-thought” gestures, which we find when people are alone and engaging in tasks like counting (Carlson et al., 2007), mental rotation (Chu & Kita, 2008; Chu & Kita, 2011), or mental abacus (Brooks et al., *under review*)? One possibility is that at least some are actually foreground gestures—designed in their particulars with communicative intent—in which the intended audience is the *self*.

equivalent to spoken words. McNeill frames his research as concerned with the former, idiosyncratic end of the continuum, which he calls “gesticulation.” But the foreground-background distinction crosscuts this typology as well. McNeill certainly seems to have in mind background gestures—and iconic gestures specifically—when he gives examples of “gesticulation,” but there is nothing in his definition that would exclude certain types of foreground gestures. For instance, gestures produced with manner demonstratives, gestures that are fixated by the speaker, and gestures that are big and precise may all be idiosyncratic—and thus examples of gesticulation—while at the same time being consummate foreground gestures.

### **3.2. Cross-cultural variation**

The foreground-background distinction is proposed to be universal across human cultures. However, there is also likely to be variation from one speech community to the next in the prominence of foreground gesturing and in the hallmarks of foreground status. It may turn out that what we mean when we say that gesture plays a prominent role in a given culture is, at least in part, that *foreground* gesture plays a prominent role. In terms of the hallmarks of foreground status, it would be surprising if any of the hallmarks described above were missing from a speech community altogether, but it would also be *unsurprising* if particular cultures developed other conventional hallmarks of their own. I see no reason why a speech community could not develop, for instance, a distinctive prosodic contour or facial signal meant to draw attention to gesture. An especially promising candidate locus of cross-cultural variation is the forms and functions of action-referring demonstratives. A sense of what such variation may look like can be glimpsed already in English. *Like this* and

*like that* can be used for highlighting gestures of all kinds, whereas *yay* is restricted to gestures about size. Across languages we may well find action-referring demonstratives that are specialized for gestures that highlight certain kinds of information, not only about size but also about orientation, shape, manner of motion, and so on.

More generally, we may find that action-referring demonstratives play a more prominent role in some speech communities than they do in others. In fact, there is already strong evidence that this is the case. In a corpus of spoken Yucatec Maya reported in Le Guen (2011), the action-referring demonstrative *be(e)y* (glossed as *thus*) is used 811 times. By comparison, in the same corpus, place-referring deictics (glossed as *here* and *there*) are used a combined 187 times, and spatial words glossed as *front*, *back*, *right*, *left*, *north*, *south*, *east*, and *west* are used a only a total of 46 times. This reliance on action-referring demonstratives in Yucatec is striking. The fact that action-referring demonstratives have been marginalized to date may not be because they are a marginal category in all human languages but, rather, because they are a marginal category in the best-studied languages.

Another reason that foreground gesture may be more prominent in some cultures is that it is incorporated into commonplace, conventional communicative practices. Part of the reason that action-referring demonstratives are so common in Yucatec is that they are incorporated into what appears to be an entrenched communicative practice for specifying spatial location. The examples of Yucatec Maya spatial gestures described in Le Guen (2011), in which speakers are relating two static landmarks to each other, are overwhelmingly combined with action-referring demonstratives. Interestingly, these same gestures also bear other hallmarks of foreground status, especially large size and co-organization with gaze. Another example of foreground gesture being incorporated into a

conventional practice comes from Floyd's (2016) study of time-of-day reference in Nheengatú, a language of the Brazilian Amazon. Speakers of Nheengatú refer to particular times of day by pointing to positions on the sun's east-to-west arc. To refer to mid-morning, for instance, a speaker would point to where the sun would be in the sky at mid-morning. Interestingly, many of the gestures Floyd illustrates bear clear hallmarks of foreground status: they are produced with some combination of demonstratives, co-directed gaze, and manifest effort.

### **4.3. Foreground gestures and background gestures in child development**

If there are foreground gestures and background gestures, this raises a tantalizing question about how the two emerge over the course of child development. Does one precede the other, or are both present from the start? Current evidence strongly suggests that a child's first gestures are foreground gestures. These include pointing gestures, gestural "names," and emblems, all of which emerge in the first two years of life (for a review, see Goldin-Meadow & Alibali, 2013). As Enfield et al. (2007) discuss, there appears to be an interesting developmental trajectory by which children start out using big pointing gestures (which, in their terms, carry foregrounded information) and only later add smaller points to their repertoire. In these early forms, there is no speech along with gesture or only a loose synchrony between the two. It is only much later that children's gestures begin to exhibit the "unbreakable bond" with speech that is characteristic of background gestures (McNeill, 2005; McNeill, 2014). Exactly when and why this bond emerges remains unclear. In a recent paper, McNeill (2014) discusses changes in gesture-speech relations over developmental time, and argues that understanding these changes might suggest

hypotheses for how gesture-speech relations changed over *evolutionary* time. In particular, he suggests that “gestures of silence” (i.e. those produced in the absence of speech) precede “gesture-speech unity” on both time scales. This is an interesting proposal. It must be emphasized, however, that the emergence of gesture-speech unity, as evident in background gestures, in no way eclipses the use of gesture as deliberate communicative tool in many circumstances, as seen in foreground gestures. Questions for future research include when children come to exhibit each of the hallmarks of foreground gesture and when they become sensitive to the presence of these hallmarks in the gestures of others.

## **5. Conclusion**

My aims in this paper have been both theoretical and diplomatic. On the theoretical side, I have developed a distinction between two types of gestures—foreground gestures and background gestures. These two types of gesture differ in a key respect: the degree to which they are designed in their particulars to communicate critical aspects of messages. Foreground gestures bear the observable hallmarks of intention, awareness, and design and are used for their communicative utility; background gestures do not bear these hallmarks and arise more or less automatically as we speak. On the diplomatic side, I argue that recognizing this theoretical distinction can dissolve the apparent tension between the two dominant cultures of gestures studies. Each of these cultures—despite sometimes making broad claims about “gesture” as though it were a monolithic behavior—has largely focused on only one of these two types of gesture and marginalized the other. Cognitive researchers have trained their focus on background gestures, whereas interactive researchers have trained their focus on foreground gestures. There is no particular harm in this division of



labor, and the point here is not to get interactionally oriented researchers to start analyzing background gestures, or to get cognitively oriented researchers to start analyzing foreground gestures. However, members of each culture would do well to recognize the importance of *both* types of gesture in human communicative behavior and could stand to be more circumspect in their claims. The idea that gestures are part of “composite signals” is too totalizing; rather, *one common use* of gesture is as part of composite signals. The idea that gestures are “unwitting accompaniments” of speech is too sweeping; rather, *some gestures* are unwitting accompaniments of speech. Gesture is sometimes a signal and sometimes an unwitting accompaniment, but it is not both at the same time.

Many researchers in the field are, I suspect, implicitly aware of the distinction I have drawn in this article. They intuitively notice when a gesture has the hallmarks of design—indeed, so do ordinary listeners. Moreover, most of the observations I have made here have already been made elsewhere. What I have tried to do is systematize these observations, combining them into a framework that spans the wide and variegated world of gesture. Many of the particulars of the framework remain provisional. But, as a first step, crystallizing the distinction between foreground gestures and background gestures—or, if you prefer, recognizing the foreground-background continuum—is an important one. It allows us to more easily delimit our claims. It allows us to reinterpret old results with a new lens. It allows us to relate far-flung findings that would otherwise be mutually isolated. It suggests predictions we might not otherwise make. The distinction also opens up new lines of inquiry. In particular, it generates questions about how these different varieties of gesture develop in children and about the universal and culture-specific ways that speakers propel their gestures to the fore.

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