Universals and diversity in gesture: Toward a new framework

Kensy Cooperrider

Abstract: From classical times until the dawn of anthropology, gesture was widely considered a “universal language.” Early in the 20th century, however, this framing fell out of favor as anthropologists rejected universalism in favor of relativism. These polemical positions were largely fueled by high-flying rhetoric and second-hand anecdotes; researchers had neither the data nor the analytic framework to stake out substantive positions on gestural universals and diversity. We now have much more data, but our analytic framework is still underdeveloped. My aim here is to help bolster this framework. I begin by reviewing historical observations about gestural negation and affirmation, a contested and illuminating case. Next, I outline three key distinctions that can help us make sense of universality and diversity, not only in gestures of negation and affirmation, but also in pointing, palm-ups, size gestures, time gestures, and more. I close by offering some final recommendations for research in the coming decades. All told, this brief review shows that gesture is unmistakably similar around the world while also being broadly diverse. Our task is to put polemics aside and explore this duality systematically—and soon, before human gestural diversity dwindles further.

keywords: gesture, human diversity, human universals, anthropology, communication, culture
1. Introduction

Is gesture universal? Is it part of our built-in bodily know-how, the birthright of our species? Or is it variable, learned through exposure to the quirks and conventions of our community? To grapple with this question is to grapple with some of the most contentious ideas in the Western tradition—about what is innate and what is learned, about what is biological and what is cultural, about what is natural and what is conventional. It is perhaps unsurprising, then, that scholars have circled questions about universals and diversity in gesture for centuries; a cynical observer might guess we are destined to circle them for centuries more. I take a rosier view. I think we are poised to learn a lot about how gesture does and does not vary around the world—perhaps more in the next three decades than we have in the last three centuries.

But before turning to the future of the field, it is worth taking stock of the past. Prior to the 20th century, questions about gestural diversity often took the form of the question: Is gesture a universal language? For centuries, the consensus answer was a barely qualified yes (Carayon, 2016; Cooperrider, 2018; Kendon, 1984; Kendon, 2004; Knowlson, 1965; Knox, 1990). One of the earliest universalist pronouncements was made by Quintilian, the Roman rhetorician, who wrote that “though the peoples and nations of the earth speak a multitude of tongues, they share in common the universal language of the hands” (Quintilian, 1922, Book XI, III, 87). Perhaps the fullest—and most florid—endorsement of the “gesture as universal language” came centuries later, in the work of John Bulwer, an English physician. In a 1644 treatise, he wrote that gesture is the “tongue and general language of human nature which, without teaching, men in all regions of the habitable world do at first sight most easily understand” (Bulwer, 1644, p. 16). Gestures,
he continued, “had the happiness to escape the confusion at Babel” (p. 16) (see Kendon, 1984 for discussion).

The universalist stance toward gesture held sway into the early days of anthropology in the 19th century, blending in with a general universalist bent of the times. In one proto-anthropological treatment, Joseph Marie Degérando (1969/1800) described gestures as “the signs that were closest to nature” (p. 71), and he urged travelers to document them. Half a century later, Edward B. Tylor, a founding figure in the field, took a keen interest in gestural communication and other visual forms of expression. He wrote that gestures could be understood “without the aid of history, as direct products of the human mind” (Tylor 1878, p. 3). Around the same time, Garrick Mallery, known for his work on the sign language systems of native North America, also struck a universalist chord. He argued that the bodily communication systems of Native Americans, of the deaf, and, indeed, of all peoples “together constitute one language—the gesture speech of mankind—of which each system is a dialect” (Mallery, 1882, p. 76). To the extent that such universalist positions were based on evidence, they were often based on two observations. The first was that, during “first contacts” between European explorers and indigenous peoples, gestural communication was often successful in a way that verbal communication was not (Hewes, 1974; see also Bonvillian, Ingram, & McCleary, 2009; Vandenabeele, 2002). The second observation was that deaf people were able to create sophisticated communication systems with their hands, as if the gestural medium came to them naturally. Both observations are accurate enough; whether they show that gesture is universal is another matter.
In the early 20th century, the universalist stance of early anthropology began to retreat, and a reflexive relativism took hold (Engelke, 2018). Gesture largely seems to have fallen out of favor as a topic of inquiry during this time (Kendon, 2004), but commentators still found occasion to remark on it. Sapir famously wrote of a “secret code” of gesture, which he considered “artificial” and “as definitely a creation of social tradition, as language or religion or industrial technology” (Sapir, 1927, p. 556). In a highly influential paper, Marcel Mauss made the case that much mundane bodily behavior—walking, running, swimming, descending stairs—is culturally inflected (Mauss, 1935/1973). He did not discuss communicative gestures per se, but his treatment showed how the emerging relativism of the times could be extended to bodily behavior.

In another triumph for relativism, David Efron showed that one’s gestural style, including both the quantity and quality of one’s gestures, was not determined by “racial descent,” as had been preposterously claimed in the Nazi era, but by one’s socio-cultural environment (Efron, 1941). In short, gesture was malleable, not fixed.

Over this history, universalist and relativist positions were rarely unalloyed. Commentators often recognized both the universal and variable dimensions of gesture, even while trumpeting one or the other side of this duality. A common rhetorical move was—and remains—to deny the purity of the opposing side rather than assert the purity of one’s own. The universalist would acknowledge the existence of conventions in gesture, but quickly assert that gesture was no “mere” product of culture; the relativist might concede the importance of biology in shaping communicative behavior, but then quickly deny that gesture was entirely “determined” by biology. Sapir (1927/1949), for instance, characterized gesture as “by no means referable to simply organic responses”
These positions had something else in common: a lack of evidence. With a few exceptions—notably Efron—the tools of argument were soaring rhetoric, second-hand report, appeal to intuition, and sweeping pronouncement. Gesture was treated with a broad, totalizing brush; claims about gestural communication as a whole were often made on the basis of thin descriptions of particular phenomena.

How to proceed? In my view, to make real progress—to build a subfield devoted to the systematic study of universals and diversity in gesture—we need two things. First, we need better data. We can’t afford to overgeneralize on the basis of thin, scattershot descriptions. We need data from culturally and geographically disparate communities, and we need such data to be systematically collected for comparative purposes. And yet data on its own—even of the highest quality—is not enough to keep partisan polarizing at bay. The second thing we need is a better analytic framework. We need intellectual tools to help us make sense of the data we already have, as well as to guide the collection of more data. A major goal of the present paper is to bolster such a toolkit.

A brief case study will help to illustrate this need for better data and better analytic tools. A phenomenon of particular fascination in the early days of anthropology of gesture was bodily signals for negation and affirmation. This interest makes sense: it is hard to get far into any social interaction until you understand what your interlocutors are affirming and what they are denying. Such signals are, naturally, among the first that travelers will notice. By looking more closely at how this class of gestures has been treated, we can begin to see some weak points in the analytic apparatus we’ve been using.
2. A case study: Negation and affirmation

An early, insightful treatment of signals for negation and affirmation can be found in Darwin’s *Expression of emotions in man and the animals* (1872). Much of Darwin’s discussion is based on observations he solicited from acquaintances in distant lands. He set out to demonstrate the universality of the head shakes and nods familiar to his British readers, but he ended up concluding that such signals were “not so universally employed as I should have expected” (Darwin, 1872, p. 274). He lists unrelated cultural groups in which these same signals are indeed used but also details “considerable diversity” (p. 277). He notes, for instance, examples where negation is reportedly done with the hands rather than the head. According to one correspondent, in the Torres Strait, negation is done by raising a hand and “shak[ing] it by turning it round and back two or three times” (p. 275). Darwin also hastens to note that, balancing such diversity, there is also “much uniformity” (p. 277) in these signals, and he concludes that “they seem too general to be ranked as altogether conventional or artificial” (Darwin, 1872, p. 274). He accounts for this uniformity by describing how several of the most prominent negation signals—the head shake and the backward jerk, for instance—may be rooted in the act of refusing food¹.

Other scholars were less balanced. In a paper titled ‘The cultural basis of emotions and gestures,’ Weston LaBarre (1947), working within the anti-universalist lather of 20th century anthropology, used very similar observations to emphasize the non-universality of signals for negation and affirmation. He writes that “a rocking of the skull forward and backward upon its condyles, which rest on the atlas vertebra, as an indication

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¹ Darwin also makes the intriguing—and still-to-be-tested—observation that signals of affirmation exhibit more diversity across cultures than do signals of negation.
of affirmation and a rotation on the axis vertebra for negation… [are] by no means widespread ethnologically” (p. 49-50). He supports this contention with examples of other signals. The Ainu, for instance, negate by passing the hand “from right to left and back in front of the chest” (p. 50); people in Calcutta affirm by drawing the head “rapidly in an arc from shoulder to shoulder, usually four times” (p. 50). LaBarre’s relativist position rests on a dubious slippage between the claim that head shakes and nods are not universal—which is inarguable—and the claim that they are “by no means widespread”—which is questionable, as Darwin showed.

A more balanced treatment is found in Roman Jakobson’s squib, ‘Motor signs for yes and no’ (1972). He sketches three different systems that illustrate the diversity of head signals for negation and affirmation found within Europe. A first, prevailing in Western Europe (and North America), involves a side-to-side shake for ‘no’ and a up-and-down nod for ‘yes.’ A second, found in Greece, Turkey, and other parts of the Mediterranean, involves a backward jerk for ‘no’ and an up-and-down nod for ‘yes.’ A third, found in Bulgaria, involves a side-to-side movement for affirmation and an up-and-down movement for negation. Jakobson, like Darwin, resists the possibility that such signals are “purely arbitrary convention” (p. 92); and, like Darwin, he sees the topic as rich ground for further inquiry. He closes by urging a systematic investigation of how signals for negation and affirmation exhibit an “interplay of naturalness and conventionality” (p. 95).

One clear lesson that can be drawn from these early observations is that we need better data—in a few senses of “better.” A first sense is that we simply need better characterizations of the behaviors of interest. Brief verbal descriptions of the type found
in many earlier sources are rarely adequate for the task of systematic comparison. Is the Ainu pattern noted by LaBarre a manual echo of a side-to-side head shake? It’s hard to tell. (The prevalence of manual signals for negation that echo head signals was noted already by Darwin.) Is the Bulgarian system described by Jakobson really a “striking diametrical opposition” of the shake-for-no, nod-for-yes pattern (Jakobson, 1972, p. 91)? It’s unclear. A second sense of better is that, for many types of claims, we need systematically sampled data. One way to do this is to use a systematic procedure for eliciting the behavior of interest, such as a referential communication task; another approach is to use a systematic procedure for selecting examples from naturalistic data, as is currently done to good effect in corpora-based studies of conversation (e.g., Dingemanse et al., 2015; San Roque et al., 2015). Systematic sampling across cultures is another matter, with many attendant challenges—especially the thorny issue of non-independence—but for now, any comparative studies in which the gestures are carefully elicited or selected are a welcome start.

Another lesson is that we need observations, not just about isolated gestures like the head shake, but about broader gestural repertoires. For basic communicative functions like negation, a community will often have a rich set of conventional signals. Anglophone and European speakers, for instance, negate with head shakes, certainly, but also with a suite of manual gestures (e.g., Harrison, 2014). Indeed, the few thorough studies of gestural negation to date suggest that many—perhaps most—communities have similarly rich repertoires (e.g., Inbar & Shor, 2019; Mesh & Hou, 2019). Once we recognize such repertorial richness as the norm, we quickly realize that value of reporting a single signal for negation or affirmation is limited. The negation gesture that Darwin
asures to the Torres Strait (or one similar to it) is also used by the Yupno of Papua New Guinea—but the Yupno also shake their heads or pout their lips to negate. The side-to-side assent gesture used in Calcutta and mentioned by LaBarre (1947) is still in use across India, as far as can be gleaned from YouTube videos—but, critically, it is used alongside head shakes and nods.

Another major issue concerns generalizability. What is the value of observations about specific classes of gesture, such as negation, when our goal is to draw conclusions about gestural universals and diversity generally? After all, some gestural phenomena may exhibit more diversity than others. Interestingly, universalist treatments of gesture for the most part barely grazed over negation (see e.g., Tylor, 1878). Wiggle room in what phenomena we focus on—and generalize from—means that universalists and relativists can easily talk past each other. Those committed to demonstrating universality can focus on broader gestural techniques like pointing and depiction (e.g., Mallery, 1882); those committed to demonstrating diversity can focus on gestures with clear conventional aspects (e.g., Archer, 1997). And yet both parties can claim that their positions are grounded in fact.

These are just a few of the issues we need to contend with if we are to make progress in our thinking about gestural diversity and universals. In the next section, I introduce three key distinctions—analytic tools that can help us address some of these issues. These tools shed light on gestural signals for negation and affirmation; and, as I’ll

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2 Sadly, I am not aware of any scholarly discussions of this gesture, sometimes called the “head bobble.” However, YouTube features several light-hearted treatments (e.g., https://www.youtube.com/watch?v=Uj56IPOqWE; accessed March 18, 2019).
attempt to show in the following section, these tools can shed light on other gestural phenomena as well.

3. Assembling a toolkit

Here I sketch three key distinctions that deserve a more prominent place in our analytic toolkit for thinking about gestural universals and diversity. These are merely a modest start; a number of other analytic tools could be proposed and will need to be as more data comes in and our questions get sharper.

3.1. Gestures and gestural phenomena

If one were asked whether language is universal, a natural response would be ‘What aspects of language?’ And so it should be with gesture. On the one hand, the capacity to gesture—perhaps the urge to do so—is by all accounts universal (McNeill, 1992; Kendon, 2004; Kita, 2009). On the other hand, there are many particular gestures—that is, specific mappings between gesture form and meaning—that are far from universal (Archer, 1997; Morris, Collett, Marsh, & O’Schaughnessy, 1979). As already noted, relativists can thus to point to kaleidoscopic variation in specific form-meaning pairings as evidence for striking diversity; universalists can reasonably counter by emphasizing broadly shared general techniques as evidence for overwhelming uniformity (Kendon, 1984). To break this dynamic, we need more finely differentiated vocabulary for talking about gestures and gestural phenomena.

The key is to recognize that gesture can be characterized at different levels of abstraction. At a low level of abstraction, we have relatively constrained mappings
between specific meanings and specific forms; at a higher level, we have relatively unconstrained mappings between broad classes of meanings and broad classes of forms. For simplicity, I’ll refer to the lower level as *gestures* and the higher level as *gestural phenomena*. By “gestures” I mean the everyday sense of a conventional pairing of form and meaning—as in a “gesture for negation,” a “gesture for crazy,” and so on. The gestures that fit this description are often called emblems or quotable gestures (see, e.g., Brookes, 2004; Johnson, Ekman, & Friesen, 1975; McNeill, 1992; Kendon, 2004). In addition to familiar examples of emblems—the thumbs up, the shhh-gesture, the peace sign—this class includes forms used in greeting, beckoning, conveying numbers, and so on. Also in the lower level of gestures, I would include “gesture families” (Kendon, 2004; Müller, 2004) and “recurrent gestures” (Müller, 2017; Ladewig, 2014). Both are broader in scope than emblems—that is, they comprise a wider range of forms and a wider range of meanings.

Still within this lower-level category of “gestures” there is another class, largely ignored to date, of gestural practices. In practices, as I intend the term, what is conventionalized is a gradable parameter of form that maps onto a gradable parameter of meaning. Examples include the practice of pointing with exaggerated height to refer to distant entities, as found in Mesoamerica and elsewhere (Mesh, 2017); the use of so-called “measuring gestures,” best attested in Africa (Nyst, 2016); and the convention of pointing to the sun’s east-west arc to indicate the time of day (Floyd, 2016; Le Guen & Pool Balam, 2012).

The higher level comprises *gestural phenomena*. I refer to this as a higher level of abstraction because, whereas gestures refer to specific form-meaning pairings (as in
emblems) or clusters of form-meaning pairs (as in gesture families, recurrent gestures, and gesture practices), gestural phenomena cover dispersed swathes of form and meaning. Gestural phenomena include, for instance, the members of McNeill’s (1992) typology—beats, iconics, metaphors, deictics, and emblems—or of Clark’s (1996; 2016) typology of methods of communication—indicating, symbolizing, and depicting. (Both typologies, of course, are rooted in Peircean semiotics). These we might call general semiotic techniques (Kendon, 1984). Within these broad umbrellas, we also have sub-techniques, such as enacting, tracing, and other types of iconicity (e.g., Kendon, 2004; Mandel, 1977). The general technique of indicating also includes several sub-techniques, including pointing, touching, and brandishing.

How does the distinction between gestures and gestural phenomena help with questions about universals and diversity? For starters, gestural phenomena are all presumed to be universal. This an empirical question, but it would be truly shocking if a community were discovered in which gestures were never used to depict; or in which some part of the body was not used to direct attention; or in which emblematic gestures were altogether absent. This would be shocking because these phenomena seem to spring from fundamental cognitive biases, from basic hunches that humans all share about how to use the body meaningfully. Of course, there is still much variability in precisely how people depict, indicate, and symbolize, and so on. This variability stems from differences in underlying cognitive models, different communicative ideologies, different linguistic structures, and perhaps different communicative ecologies, as discussed later (Kita, 2009). But the phenomena themselves are universal.
Gestures—the lower level—are another matter, and this is where many of the most interesting questions about gestural diversity reside. The most narrowly scoped gestures—emblems—appear to vary widely. The most celebrated cases of such variation are those in which the same form is used for radically different meanings—e.g. the thumbs up in the US versus in Brazil (Archer, 1997). But as soon as we move to more broadly scoped gestures—gesture families, recurrent gestures, and gestural practices—already we begin to see striking similarities across cultures. For example, several prominent “recurrent gestures” recur across groups (e.g., Bressem, Stein, & Wegener, 2017); the palm-up epistemic—whether considered a gesture family or recurrent gesture—is a broadly shared pairing of form and meaning (Cooperrider, Abner, & Goldin-Meadow, 2018); and many conventional negation gestures are strikingly widespread (see, e.g., Inbar & Shor, 2019; Mesh & Hou, 2019). As Darwin put it, these gestures “seem too general to be ranked as altogether conventional or artificial” (Darwin, 1872, p. 274).

3.2. Presence and privilege

A second important analytical tool concerns what type of distributional questions we are interested in. Most basically, we might be interested in which gestures are attested in which communities—that is, we might be interested in questions about presence or absence. This is what many have in mind when they think about gestural universals and diversity. But for some of our most basic gestures, there is more than one form that serves the same function: there is more than one way to point, more than one way negate, more
than one way to depict an event. Thus, we might also be interested in questions, not just about which gestures are present, but about which are favored or privileged.

There are at least three different types of privilege that we can distinguish. A first is preference—that is, in terms of sheer frequency, which gesture forms are used most often from a set of options. If three different forms of pointing are used within a community, which form is favored? A second form of privilege is prototypicality—that is, which of the available forms do people most strongly associate with the function. A third is developmental priority—that is, which form is the one that children use first. It seems likely that whichever form is used most often is also regarded as prototypical and is also the first that children master. But this is an empirical question.

Questions about gesture presence are much easier to answer than questions about privilege. To claim that something is present you just have to spot it once (or preferably a handful of times). To claim that something is privileged, you will need a systematic elicitation or sampling procedure (for questions about preference), a meaningful way of eliciting meta-communicative judgments (for questions about prototypicality), or a way of sampling the behavior in young children (for questions about priority). Of course, researchers often make claims about privilege based on impressions. As a first approximation, this is fine, but to make real progress on these kinds of distributional questions a more systematic approach is needed.

The distinction between presence and privilege helps shed light on the case of negation and affirmation. Darwin, for all his insightfulness, did not seem attuned to the fact that cultures often have rich repertoires of negation gestures. Thus, he reports examples of manual negation gestures as though they straightforwardly contradict his
idea that head shakes and nods might be universal. But the presence of a manual form of negation does not really do this, unless we know more about the larger repertoire of forms available. If we fine-tune Darwin’s hoped-for generalization—that head shakes for negation are universal—to say that head gestures for negation are universally privileged, it may yet prove correct.

3.3. Core and extensions

Much as the same function will be served by different gestural forms, the same form often serves different functions. In accounts of gestures with many meanings, there is implicitly or explicitly assumed to be a core meaning, which then becomes extended through processes akin to semantic/pragmatic extension in spoken language (e.g., see Jurafsky, 1996; Sweetser, 1990). The result is a meaning network with a core-and-extension structure. Interestingly, one of the first studies to highlight the fact that conventional gestures often have a number of inter-related meanings was Kendon’s (2002) examination of head shakes. He catalogued eight different uses, including the gesture’s use an accompaniment to a verbal ‘no’ and, less obviously, as an intensifier (see also McClave et al., 2007). More recently, meaning network approaches have been used to shed light on palm-up gestures (e.g., Cooperrider et al., 2018) and size gestures (e.g., Cooperrider & Núñez, 2012). This distinction between core and extensions highlights another sense in which prior observations were limited. That a gesture is sometimes used for negation does not imply that negation is the gesture’s core meaning. The shrug, for instance, is described as part of the negation repertoire in some reports (e.g., Inbar &

3 I am aware of one claim to the contrary—that Turkana speakers do not use head gestures at all for negation and affirmation (see Brookes & Nyst, 2014).
Shor, 2019), but in no communities does the shrug appear to have the core meaning of negation.

4. Further case studies

As we have seen, the three analytic tools just described can illuminate the case of negation and affirmation. In this section, I show that they are also more broadly useful by examining four additional case studies.

4.1. Pointing

Pointing in some form or another, is by all accounts, universal. It involves projecting an imaginary vector toward a referent by “moving toward” it with some part of the body (Eco, 1976; Enfield, Kita, & de Ruiter, 2007; Kendon, 2004); it is a sub-technique of indicating, the more general technique through which people attract attention to referents in the world (Clark, 2003). Pointing is thus a gestural phenomenon but also one put to use in particular gestures—for instance, in Anglo-European emblems (e.g., pointing to the wrist to refer to time) and in gestural practices (e.g., pointing to the sun’s arc to refer to time of day).

Across communities, pointing varies in a number of ways. First, there is variation in the repertoire of forms of pointing that are used within a community. Humans are opportunistic and flexible pointers; if the need arises, people will point with their fingers, their heads, their eyes, their umbrellas, or even their feet. But there are also conventional ways of pointing with more restricted distribution, such as lip-pointing—which involves projecting some part of the mouth while re-orienting gaze toward a referent (e.g., Enfield,
— or nose-pointing—which involves scrunching together the face and nose while re-orienting gaze (e.g., Cooperrider & Núñez, 2012).

Pointing differs not only in which forms are present within a community, but also in which forms are privileged. In most Anglo-European cultures, pointing with the extended index finger appears to be privileged over other types of manual or non-manual pointing. But this may not be the case everywhere. Wilkins (2003) claimed that index finger pointing is not the prototypical form of manual pointing in Arrente, an Australian Aboriginal language. More radically, several ethnographers have claimed that, in certain groups, non-manual pointing with the head and face is preferred over pointing with the hands (e.g., Everett, 2005). My collaborators and I recently tested this possibility in the Yupno, an indigenous group in Papua New Guinea. Using a referential communication task, we found that the Yupno use manual pointing (including index-finger extended and other handshapes) and non-manual pointing (head- and nose-pointing) in roughly equal measure (Cooperrider, Slotta, & Núñez, 2018). Building on this work, Li & Cao (2019) compared pointing preferences in two communities within rural China—farmers and herders—and found that farmers used more non-manual pointing (though participants in both groups favored manual pointing overall). Finally, one study has proposed that manual pointing universally precedes other forms of pointing in child development. Liszkowski et al. (2012) found that, across seven far-flung cultural communities, infants began by pointing with their whole hands and soon thereafter came to favor index-finger pointing. These findings suggest a possible universal developmental progression, though the strictest test of this possibility would be in a group like the Yupno where adults do not strongly favor manual pointing.
Another possible dimension of difference across groups is in the extended meanings of pointing. Several studies suggest there may be meaning networks surrounding pointing that have yet to be adequately characterized. For example, Sherzer (1973) describes uses of lip-pointing for interactive rather than referential functions—for instance, pointing to an interlocutor in the course of mocking. Extended functions for index-finger pointing are also attested in Anglo-European cultures, such as the use of pointing to show agreement (Healy, 2012).

### 4.2. Palm-ups

Another illuminating case study is the palm-up gesture (e.g., Kendon, 2004; Müller, 2004), a consummate “interactive” or “pragmatic” gesture. When we discuss universality and variation in pointing, we are zooming in on a particular *function* and asking how it is carried out across cultures. When we investigate palm-ups, we are zooming in on a particular gestural *form*—sometimes called the “palm-up open hand” (Müller, 2004) or “open hand supine” (Kendon, 2004)—and asking what functions it serves across communities.

In a recent review article, my colleagues and I surveyed observations about how palm-ups are used across communities, focusing on a variant in which the hands are laterally spread out from the body (Cooperrider, Abner, & Goldin-Meadow, 2018; see also Kendon, 2004). We dubbed this gesture the “palm-up epistemic” because it is widely recruited to express a cluster of meanings built around a core meaning of “absence of knowledge.” Extensions from this core include: expressions of uncertainty, interrogatives, hypotheticals, expressions of obviousness, and exclamatives. Disparate as
they may seem, these uses of the palm-up epistemic crop up over and over across the world’s cultures; and, remarkably, the palm-up serves these same functions in sign languages. Not all these uses have been described in every community where the gesture is attested, but this could be due to unevenness in the descriptions of the phenomenon rather than variability in how the gesture is extended. It remains unclear whether the palm-up epistemic is universal, but one thing that is clear is that it does not have the same prototypical form everywhere. In Syuba, a language of Nepal, it involves a distinctive hand shape with the fingers partly curled in (Gawne, 2018).

Some studies of palm-ups have taken a form-centered approach (e.g., Müller, 2004); others have taken a function-centered tack, discussing the palm-up as one means of expressing obviousness (Jehoule, Brône, & Feyaerts, 2017) or uncertainty (Roseano, González, Borràs-Comes, & Pilar, 2014). The problem with a purely form-centered approach in this case is that the palm-up form is astoundingly widespread as a basic parameter of gesture form; it would thus be unrealistic to expect that all gestures involving this form would share some meaning in common. The problem with a purely function-driven approach is that palm-ups serve several superficially different functions, such as interrogatives and expressions of obviousness. Thus, if we only focus on one of the gesture’s several uses, we miss out on the broader meaning networks that make the gesture so interesting.

4.3. Size gestures

The case of size illustrates another way of uncovering universals and variation in gesture: by taking a domain-centered approach, in which one examines the gestural
resources used within a particular semantic domain. We can safely assume humans everywhere have occasion to characterize size in gesture. Size is ripe for gestural representation in part because, while all languages appear to have resources for expressing relative size (e.g. ‘big,’ ‘small,’ and so on), not all have handy lexical resources for expressing absolute size (e.g., ‘inches’ or ‘centimeters’; Hallowell, 1942). Indeed, size is apparently so ripe for gestural depiction that several languages have developed demonstratives that are designed specifically to accompany size gestures, such as ‘yay’ in English (Cooperrider, 2017; see also Yucatec; O. Le Guen, pers. comm.).

Size naturally lends itself to ad hoc depiction—for instance, by exhibiting an extent between two palms, a size between the thumb and forefinger, or a height between the hand and the ground. But, interestingly, many communities also have crystallized practices for gesturing about size. A well-known example are the height gestures used in Mesoamerica, which mark the class of entity being characterized with hand shape alternations (e.g., Fox Tree, 2009). Interestingly, similar “height gesture classifiers” have emerged elsewhere, such as among the Maori (Best, 1924, p. 439) and the Nuer (Huffman, 1931, p. 69-70). Other communities have developed conventional practices for characterizing the length of small objects or entities—tools, rodents, pieces of meat, and the like. Such “measure gestures” are attested in Africa (Nyst, 2016), in Sicily, and in the Zapotec languages of Mexico.

Another case of a gestural convention for expressing size is the diminutive facial gesture found in Yupno (Cooperrider & Núñez, 2012). To produce this gesture, the area around the face and nose is scrunched together (i.e., the same facial action used in nose-pointing; for possible links between the two gestures, see Cooperrider & Núñez, 2012, p.
Scrunching the face is a way of making it smaller, providing a likely iconic motivation; and, indeed, the same form-meaning pairing is attested elsewhere, suggesting it is not arbitrary (e.g., Warlpiri; Kendon, 1988). The gesture often piggy-backs on the morphological diminutive in spoken Yupno, but is also found more generally with expressions of small size and associated concepts. A first analysis suggests the gesture may participate in a core-and-extension meaning network, with the core meaning being literal size and possible extensions including expressions of exactness and pragmatic hedges (see Jurafsky, 1996 on extensions of diminutives cross-linguistically).

4.4. Time gestures

Time is another semantic domain often represented in gesture (for a review, see Cooperrider, Sweetser, & Núñez, 2014). People convey several aspects of time with their hands—the relative “location” of events in a sequence, the “length” of a time interval, the “speed” of time’s passing, and so on. But the particular spatial concepts used—whether, for example, the past is behind the speaker, to the left, above, or downhill—vary from one community to the next. Generally, people gesture about time using whatever spatial frameworks are most familiar within their community. These frameworks are often pervasive in everyday language or in aspects of visual culture, such as reading direction. English speakers, for instance, gesture about the past and future using either a left-right axis (past= left, future= right), which is apparently rooted in reading direction, or a front-back axis (past= back, future= front), which is rooted in linguistic expressions (e.g., Casasanto & Jasmin, 2012; Walker & Cooperrider, 2016). Mandarin speakers gesture in both of these ways but also use two additional mappings, one on the up-down axis
(past=above, future=below), which seems to be driven by the vertical orientation of some Chinese texts, and another on the front-back axis (past=front, future=right), which seems to be driven by certain linguistic expressions (Gu, Zheng, & Swerts, 2018). The past-in-front mapping, which strikes many Westerners as peculiar, is in fact attested more broadly, found also in Vietnamese (Sullivan & Bui, 2016) and, most famously, in Aymara (Núñez & Sweetser, 2006). At least a few links between time and space appear to be present universally (c.f., Sinha, Sinha, Zinken, & Sampaio, 2011), such as the conflation of ‘here’ and ‘now’ and the idea that time passing is motion in space, but some communities appear to gesture about time in less systematic ways than others (e.g., Le Guen & Pool Balam, 2012).

Time, like space, is often depicted ad hoc, but communities also develop conventional time gestures. For example, in parts of Europe, gestures conveying “in the past” or “the day after tomorrow” are done in consistent, emblem-like ways (Calbris, 1990), as are gestures conveying cyclic patterns (Ladewig, 2011). In Yupno, the diminutive gesture described earlier is also used to characterize small time intervals or to add a shading of precision to a temporal reference—e.g., ‘right now’ instead of ‘now’ (Cooperrider & Núñez, 2012). Another notion sometimes gestured about in highly conventional ways is time of day (e.g., Floyd, 2016; Le Guen & Pool Balam, 2012). The practice involves pointing to locations on the sun’s east-to-west arc to communicate landmarks in time (e.g., noon), or by sweeping the hand across segments of this arc to communicate intervals (e.g., noon to night). It appears that before the globalization of time-keeping practices and technologies, humans often used similar gestural practices for this purpose (e.g., Nilsson, 1920).
5. Venturing forth: The next 30 years

I have now introduced a set of analytic distinctions and have shown how they can illuminate different aspects of gesture. In particular, they can sharpen our understanding, refocus our inquiry, and raise new questions. What next? Here, I make few more suggestions for the near future of inquiry into universals and diversity in gesture.

5.1. Complementary approaches

As we have seen, there are several fruitful approaches to uncovering unity and diversity in gesture (with inspiration from Lucy, 1997). These four approaches reveal different things, and each is indispensable. A first approach is centered on form: you take a particular form of interest and examine the variety of ways it is used. This is crucial for getting a sense of the range of meanings that a given form has, and ultimately for uncovering the structure of meaning networks—that is, which meanings occupy the core and which are extensions. A second approach is centered on function: you take a communicative function and ask what gestural forms serve that function. Function can be more or less granular, of course. One could consider the wide umbrella of negation, for example, or the narrower umbrellas of refusal, absence, denial, and so on (see, e.g., Beaupoil-Hourdel, Morgenstern, & Boutet, 2016). Function-centered approaches are crucial for getting a sense of the repertoires used within a community—and, eventually, for judging questions about which forms are privileged. A third approach, closely related to the function-centered approach, is centered on particular semantic domains. Domains that are ripe for this type of inquiry include space (and subdomains such as size, motion,
shape, and relative location), time (and subdomains such as deictic time, sequential time, time of day), and social structure (including subdomains of kinship and hierarchy). A fourth approach—not discussed here but well-attested in the gesture literature to date—is centered on linguistic structures. The idea is to look at a particular phenomenon in language and see what gestural regularities, if any, attend it (e.g., Defina, 2016; Dingemanse, 2013; Gullberg & Narasimhan, 2010; Kita & Özyürek, 2003). Across the world’s languages, there are a number of linguistic phenomena that may be bound up with gesture in interesting ways—examples include, switch reference, evidentials, birth order terms, double tense, and many more.

5.2. Seeking explanations

As we venture forth, we’ll be busy with the messy descriptive business of simply characterizing gesture across cultures. But there is another part of our task that is more important and even messier: proposing and evaluating explanations for the patterns we find (for discussion of related issues in linguistic typology, see, e.g., Haspelmath, 1997). Kendon (1984) put it well when he wrote that: “From the point of view of the cross-cultural comparison of gesture… the mere description of differences is of little interest. What is needed is a way of inquiring into the reasons for these differences” (p. 108).

Good explanations will be multifaceted, reckoning with a range of factors that shape gestural behaviors (see Kita, 2009 for discussion). Some factors push gestures and gestural phenomena in the direction of uniformity. For instance, humans are all subject to the same biomechanical constraints—arms that move naturally in some ways but not others, fingers we have fine-grained control over and fingers we don’t, and so on. Very
basic principles are at play, too, such as the fact that, all things being equal, humans will favor less effortful movements (e.g. Sanders & Napoli, 2016). Commonalities can also arise through common cognitive capacities or interactive constraints. The convention of pointing to the sun’s arc to refer to time is widespread, but it does not fall simply out of biomechanics. Rather, it is best seen as a recurring “solution” to a communicative problem, one that leverages a universal cognitive capacity for conceptual mappings. And, finally, commonalities can also arise through cultural contact. Gestures are readily borrowable, and are thus often found regionally (e.g., Morris et al., 1979).

Other factors push gestures in the direction of diversity. As Kita (2009) discusses, since gesture so often piggybacks on linguistic structure, linguistic diversity drives gestural diversity; and, since gestures so often reflect deep cognitive models, cognitive diversity also drives gestural diversity. In particular, differences in favored spatial models—whether we prefer to parse space in terms of cardinal directions, bodily axes, or environmental features—lead to broad gestural differences, since such models are used for communicating about both concrete events (e.g., a car crash) and utterly abstract notions (e.g., a “collision” of worldviews). The fact that gestures reflect favored spatial models does not imply that they are passive and inert. In fact, gesture may be a key vehicle through which such models are maintained and transmitted in a community (e.g., Le Guen, 2011). Still other aspects of gestural variation are due to differing communicative ideologies—ideologies that govern whether you should be assertive or meek, whom to respect or avoid, and which uses of the body are untoward. Kendon (1984; 2004) has suggested another candidate factor driving gestural diversity: differences in communicative ecology. He has proposed that this construct might explain
why some communities have richer repertoires of conventional gestures (Kendon, 2004).

My colleagues and I recently proposed that communicative ecology could be part of why some groups use more non-manual pointing than others (see Cooperrider et al., 2018).

The trickiest gestures to explain, perhaps, are those for which we simultaneously see both rich diversity and widespread patterns—for example, the case of negation and affirmation. With a nod to Jakobson’s phrase about the “interrelation of naturalness and conventionality,” I propose that most recurrent gestures and gestural practices are “natural conventions.” By this phrase I mean that they are culturally selected (i.e., “conventionalized”) from a menu of motivated (i.e., “natural”) options (c.f. the notion “limited possibilities” in anthropology; Goldenweiser, 1913). For basic communicative functions like negation or pointing, there may be more than one motivated possibility, but groups tend to select one or a few. This proposal has two corollaries. First, there will be very few absolute universals—specific recurrent gestures or gestural practices that are found the world over. But, second, there will be very few one-off gestures that are found in one place and only one place. Of course, in many cases explaining why a community selects one motivated form over another will be difficult, but the issue may become tractable as we broaden our base of observations.

5.3. Venturing candidate generalizations

My last recommendation is to propose candidate generalizations (see, e.g., Greenberg, 1978). In the past, gesture researchers have been reluctant to do this. Many papers simply do not comment on whether the phenomena described are proposed to be universal or culture-specific. Such reluctance is perhaps understandable: to venture a
generalization is to pin a target to one’s chest. But that is precisely the point. Proposing generalizations propels inquiry by formulating clear, precise, tempting landmarks for future research to aim at; it is galvanizing in the way that, in many scientific fields, formulating a specific hypothesis can be galvanizing. To illustrate what I have in mind, I offer a first list of candidate generalizations about the five gestural classes discussed here (Table 1). Of course, many more could be formulated about these and other aspects of gesture. In my utopic vision for the future of research on gestural universals and diversity, there would be an online resource where all such generalizations are listed and updated.

Table 1. Candidate generalizations about gesture

**Negation and affirmation**
1. All cultures have a repertoire of conventional bodily signals for negation
2. All cultures have non-manual signals for negation
3. In all cultures, non-manual signals for negation are used before manual signals in child development

**Pointing**
1. Manual and non-manual pointing are used in all cultures
2. Manual pointing is not privileged over non-manual pointing in all cultures
3. Among manual pointing forms, index finger pointing is privileged in all cultures

**Palm-up gestures**
1. Not all cultures use the same prototypical form of the palm-up epistemic
2. All cultures that use the palm-up epistemic use it to express absence of knowledge
3. All cultures that use the palm-up epistemic also use the shrug

**Size gestures**
1. All cultures use gesture to create ad hoc depictions of size
2. All conventional size gestures are iconically motivated
3. Some cultures have conventional gestures for diminutives
Time gestures
1. All cultures use gestures to create ad hoc depictions of time
2. All cultures use gestures that associate ‘now’ with the speaker’s current location
3. Some cultures have emblems for specific temporal concepts (e.g., yesterday)

6. Conclusion

Paraphrasing what the poet Mark Van Doren once observed about human beings in general, there are two statements about gesture that are true: gesture in all communities is alike and gesture in all communities is different (qtd. in Norenzayan & Heine, 2005, p. 763). Uncontroversial as both statements are, they are also at the root of much partisanship and polarization. This dynamic is hardly unique to the study of gesture, of course. Many of the most contentious debates in the human sciences in recent decades have concerned diversity and universals. Examples include dust-ups about facial expressions of emotion, color terminology, spatial frames of reference, and linguistic universals. In order to make substantive progress on any of these debates, researchers need both better data and better analytic frameworks. With out these, the debates can circle on for decades, generating much heat and little light. Yet I take the optimistic view that—at least where gesture is concerned—we are poised to move beyond vacuous polarizing. In the next three decades or so, we can make real progress.

And it won’t be a moment too soon. Gestural diversity—like so many other aspects of human diversity—is rapidly dwindling. On this point, I am decidedly more pessimistic. What gestural diversity there is today is no doubt a small fraction of the gestural diversity there once was; and, within 30 years, much of what is left will be gone. The reasons for this rapid loss are several, and they reinforce each other: we are shedding languages and cultures faster than we can mourn them; Western ways of conceptualizing
the world are ascendant; and people are connected like never before—more than half of humanity reportedly watched some portion of the 2018 World Cup\(^4\). With this new connectedness comes, too, a common visual and gestural culture. A number of conventional gestures—pointing, the palm-up, the thumbs-up, the high five, and more—are now enshrined in Emoji. The idea that gesture is a “universal language” was dubious when Quintillian first articulated it and it remains dubious today, but it may not be dubious for much longer.

\(^{4}\) This viewership was reported by FIFA (https://www.fifa.com/worldcup/news/more-than-half-the-world-watched-record-breaking-2018-world-cup; accessed March 19, 2019).
References


