

Meaning and ostension in great ape gestural communication

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Abstract It is sometimes argued that while human gestures are produced ostensively and intentionally, great ape gestures are produced only intentionally. If true, this would make the psychological mechanisms underlying the different species' communication fundamentally different, and ascriptions of meaning to chimpanzee gestures would be inappropriate. While the existence of different underlying mechanisms cannot be ruled out, in fact claims about difference are driven less by empirical data than by contested assumptions about the nature of ostensive communication. On some accounts, there are no reasons to doubt that great ape gestural communication is ostensive. If these accounts are correct, attributions of meaning to chimpanzee gestures would be justified.

Keywords Communication · Great apes · Intentionality · Language · Meaning · Ostension

Introduction

According to a widely held view, human communication has an ostensive-inferential structure (Sperber and Wilson 1995; building on Grice 1957). On this view, speakers communicate by ostensively producing utterances for one another, as a way of articulating their communicative intentions. From the ostensive performance of these utterances (usually but not necessarily in the form of gestures or

speech), hearers endeavour to infer speakers' communicative goals. For example, if I intend for you to pour me a drink, I might ostensively draw your attention to my empty glass, as a way of getting you to infer that I would like you to refill it.

If human communication has an ostensive-inferential structure, it is pertinent to ask whether the same structure is present in animal communication. In a recent essay, Scott-Phillips (2015b) has argued that it is not. His argument turns on a distinction between gestures that are produced intentionally, and gestures that are produced both ostensively and intentionally. In the latter case, but not the former, gestures are produced with the intentional structure first described by Grice (1957) in the context of human communication. Because meaning is first and foremost a property of Gricean acts, only where gestures are produced with Gricean intentions are they genuinely, and not just seemingly, meaningful. Since great ape gestures are not ostensive, Scott-Phillips argues that recent attributions of meaning to chimpanzee gestures (Hobaiter and Byrne 2014) are misguided.

The distinction between intentional production and ostensive-inferential communication is an important one. However, claims about the meaningfulness of primate gestures need not be motivated by ignorance of it. Rather, they can stem from interpretational disputes about the nature of ostensive communication; and, in particular, about how Grice's account of the nature of communication should best be understood. On some readings of Grice, it would be wholly appropriate to claim that primate gestures have meanings, and that they do so in the same ways as acts of human communication.

I defend such an approach here. I do this by first elaborating behavioural and psychological criteria for a communicative act's being ostensive, and secondly by arguing

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that ape gestures are consistent with the fulfilment of such criteria. Additionally, I suggest a study that would help to settle the matter, by providing further evidence that apes understand the different aspects of ostensive communicative acts. I then argue that, although some have suggested otherwise, questions about whether or not ape gestures are ostensive are independent of both the acquisition histories of gestures, and ape performance on pointing comprehension studies. I conclude by arguing that, while ape gestures may turn out not to have a Gricean intentional structure, it is currently reasonable to hypothesise that they do; and so attributing meanings to them is not inappropriate.

In what follows, I discuss the question of whether ape gestures are ostensive, given existing behavioural and psychological criteria for ostension. Numerous objections have previously been used to reject the possibility that ape gestures share an intentional structure with human ones. These include the questions of whether Gricean communication requires mental state concepts (Scott-Phillips 2014, 2015a), whether it requires high orders of meta-representation (Tomasello 2006, 2008; Scott-Phillips 2014, 2015a), and whether it requires difficult inferences about others' communicative goals (Bar-On 2013). Since I have addressed these questions elsewhere (Moore 2013, 2014, 2015: see also R. Moore, 'Gricean communication and cognitive development', unpublished manuscript), I discuss them only in passing here. While I will mostly use examples drawn from the chimpanzee gestural communication literature, the conclusions I draw would generalise to other species of great ape. Although I will not attempt to show it here, they may also generalise to intentionally produced forms of vocal communication in apes and to acts of communication in other animal species.

What is it for an action to be meaningful?

Grice set out to identify the conditions under which an action could be said to be meaningful (in his words, 'non-naturally meaningful') (Grice 1957). He identified meaningful actions as the subspecies of intentional acts that we have in mind when we use quotation marks to indicate what a speaker seeks to communicate—for example: *By beckoning like that, she meant "Come here!"*—and argued that what distinguishes acts of non-natural meaning from acts that are intentional but not communicative is the distinctive set of psychological states with which they are produced.

Unlike non-communicative acts, communicative acts are performed ostensively. This means that speakers not only intend to elicit certain responses from their intended audience; they also intend that their audience recognise that they have such intentions. While the best formulation of Grice's analysis of meaning has been debated, the

following has been widely accepted (Neale 1992; Sperber and Wilson 1995; Moore 2014).

A speaker (or gesturer) *S* non-naturally means something by an utterance *x* if and only if, for some hearer (or audience) *H*, *S* utters *x* intending:

1. *H* to produce a particular response *r*, and
2. *H* to recognise that *S* intends (1).

In addition to acting with intentions (1) and (2), it's also necessary that the speaker should not act with any further intention:

3. that *H* should be deceived about intentions (1) and (2).

On this account, what the speaker means to communicate can be specified in terms of the *r* in the first clause and can be recovered by discerning the intentions with which she acted. The second clause (at least when supported by the third) captures the sense in which communicative acts aim at recognition. I could exercise a first clause intention to make you refill my drink, just by leaving my empty glass somewhere you might see it, and relying on your desire to be a solicitous host. In this case, I need not intend that you recognise my intention that you refill my glass. However, I could not communicate that you should pour me another drink without also intending that you recognise that this is what I want you to do.

In the recent literature (e.g. Csibra 2010; Moore 2014; Scott-Phillips 2014, 2015a), the first and second clauses of the Gricean analysis have also been claimed to support a difference between *what S* wants to communicate, and the fact *that* she intends to communicate. The first clause specifies *what* a communicator seeks to communicate. The second characterises the way in which a speaker addresses herself to her intended audience, in order to show *that* she has a communicative intention. Even if a hearer fails to grasp the content of *S*'s message [namely the *r* in (1)], he may grasp *that* she intends to communicate something by grasping (2). This in turn might help him to figure out the content of *S*'s message—by motivating him to devote cognitive resources to inferring the speaker's communicative goal (Csibra 2010).

Scott-Phillips agrees that both intentions (1) and (2) are necessary if a behaviour is to be counted as communicative in the sense described by Grice.¹ The contention about whether chimpanzee gestures are meaningful occurs

¹ Scott-Phillips' analysis of meaning appeals to a clause (3) different from the one adopted here. It is now widely accepted that Grice's original third clause, which Scott-Phillips adopts, would rule out cases intuitively described as meaningful (Neale 1992; Sperber and Wilson 1995). This clause is therefore dropped, and replaced with a different clause to protect Grice's analysis from objections raised by philosophers including Strawson (1964) and Schiffer (1972).

because while it is evident from the empirical data that chimpanzees produce gestures to solicit responses from others (thereby fulfilling clause (1)), Scott-Phillips holds that there is insufficient evidence to conclude that they act in ways that would also satisfy clause (2).

For a signal to be meaningful in the Gricean sense, it must be overtly intentional, and we do not have good evidence of overt intentionality in any non-human species (Scott-Phillips 2015b, p. 804).

He argues that even where human and ape gestures are outwardly similar, the psychological states underlying their performance are likely to be fundamentally different—because while human communicative acts are performed with both (1) and (2), ape gestural acts are performed only with intention (1). This raises the question of how one could fulfil the second clause of the analysis; and of what it means to produce an utterance ostensively.

Ostensively performing gestures

While Scott-Phillips does not offer an account of what it is to perform a gesture ostensively, he does suggest one promising criterion:

One way might be via a distinction between behaviours where the intentionality is overt, and those where the intentionality is partially covert (Scott-Phillips, 2015b, p. 804).

In fact, this distinction captures Grice's aims well. As described above, he introduced the second clause to distinguish between cases in which an agent sought to manipulate another's behaviour (if not deceptively, then at least not openly), and cases where the agent was open about her attempts to solicit some response.

Although Scott-Phillips does not acknowledge it, a widely adopted marker of ostensive performance in human communication is the presence of eye contact. By intentionally initiating eye contact with an interlocutor either during or shortly before speaking or gesturing for them, speakers can use their eye contact as a mechanism for addressing their words or gestures to the attention of their audience (Gomez 1994, 2007; Moore 2014: R. Moore, 'Gricean communication and cognitive development', unpublished manuscript). Such overt behaviour contrasts with the covert case, because when we use eye contact to engage others' attention, we typically (and so long as we do not conceal other aspects of our behaviour) make any actions that we perform common ground between us. Thus, speakers satisfy Grice's intention (2).

Reflecting the intuition that such forms of eye contact play an important role in addressing others, in

developmental research investigating the effects of ostensive communication in children, the dependent variable of ostension is characteristically operationalised by comparing situations in which agents use eye contact to address their communicative acts to interlocutors with situations in which their gaze is covered or intentionally averted (Behne et al. 2005; Senju and Csibra 2008; Leekam et al. 2010; Moore et al. 2013, 2015). While other measures (like directed speech) are also used, consensus is that—at least in humans—where eye contact is used to address an utterance to its intended audience, this suffices to make communicative behaviours ostensive. Furthermore, it is accepted that it does this because it shows that speakers are acting with Grice's second clause intention (Csibra 2010).

Given this characterisation of ostensive behaviour in child development studies, one way of determining whether ape gestures are ostensive would be to ask whether apes also use eye contact to address their gestures to their intended interlocutors. If ape and human behaviours are outwardly similar, this is evidence that their underlying cognitive processes may also be the same.

Are chimpanzee gestures ostensive?

Behavioural criteria for ostension

It is sometimes reported that while human children look often into the eyes of those with whom they interact, great apes engage in eye contact comparatively rarely. For example, in a comparative imitation task, Carpenter et al. (1995) found that chimpanzees looked less often to the face of a human experimenter, and for shorter periods of time, than did human children of 18 months. This may be because when chimpanzees do engage in extended eye contact, it is often—although not always—as part of a threat display (Goodall 1986; Gómez 1996). Nonetheless, it would be mistaken to think that chimpanzees do not look towards the faces of their peers before gesturing. Indeed, it is so widely acknowledged that this is a feature of their interactions that since the very first observational studies of chimpanzee gestures, eye contact has been used as a prerequisite for behaviours to be coded as cases of intentional communication (Tomasello et al. 1985, 1989, 1994, 1997; Hobaiter and Byrne 2011, 2014; Roberts et al. 2012, 2013). The same behaviour has also been demonstrated experimentally (Leavens et al. 1996; Leavens and Hopkins 1998). In a recent analysis of chimpanzee gestural behaviours, Roberts et al. found that signallers 'were visually oriented towards the recipient prior to the production of almost all gestures' (Roberts et al. 2014, p. 330).

If we accept that eye contact alone is sufficient for human gestures to be ostensive, then by parity of reasoning

it should also suffice to make ape gestures ostensive. This would make Scott-Phillips's claim that 'we do not have good evidence of overt intentionality in any non-human species' false. The evidence of relevant behaviour in chimpanzees is overwhelming.

Psychological criteria for ostension

Perhaps here Scott-Phillips would argue that eye contact alone cannot be sufficient for ostensive communication. That's because ostensive communication requires the presence of particular sorts of intention—namely Grice's (2)—and not just particular sorts of behaviour. In human interaction, the presence of eye contact is regularly interpreted as evidence of such intentions. However, it is imperfect evidence. In principle, even if the outward behaviours in ape and human communication were indistinguishable in naturalistic observations, the underlying mental states might nonetheless differ (Scott-Phillips 2014, 2015a, b; this view is also implicit in Tomasello 2008). In apes, this would presumably be because the eye contact that accompanies their gestural acts is not produced with Grice's intention (2), but with some other relevantly different goal, or with no goal at all.

Scott-Phillips defends this discontinuity claim on the grounds that ostensive communication involves 'metapsychological' processes of reason and interpretation that non-humans great apes lack (2014, 2015a). If chimpanzees lack the cognitive abilities required for ostensive communication, then the presence of eye contact in their gestural communication cannot indicate the same sorts of intentions that we attribute in the human case.

It may be that chimpanzee gestures are not Gricean, despite looking much like our own. For example, it may be that chimpanzees fail to differentiate between the first and second clause intentions of Grice's analysis, in ways that make the intentional structure of their gestures relevantly different from our own. Future experimental studies might show this to be true. In the meantime, however, it should be emphasised that Scott-Phillips's claim about the non-ostensive nature of chimpanzee communication is driven not by known behavioural differences between apes and humans but by contested theoretical assumptions about what Gricean communication requires, and correlated intuitions about what animal communicators are likely or unlikely to be able to do. For example, it is often argued that Gricean communication involves reasoning about others' mental states, and in particular the production and comprehension of high orders of mental state representation—and that these abilities are uniquely human (Sperber 2000; Sperber and Wilson 2002; Tomasello 2008; Corballis 2011; Scott-Phillips 2014, 2015a). Making explicit a claim already that is already implicit in the work of Tomasello,

Corballis, and others, Scott-Phillips (2014) argues that human infants acquire language because they are capable of fourth-order representations of others' beliefs and intentions; and that apes do not, because they are incapable of such representations. However, while such claims are widely accepted, the readings of Grice that posit such cognition as necessary have been challenged (Gomez 1994, 2007; Moore 2014, 2015; R. Moore, 'Gricean communication and cognitive development', unpublished manuscript).

There are good explanatory grounds for resisting assumptions that Gricean communication is as cognitively difficult as others have contended. For example, the claim that preverbal infants grasp the fourth-order meta-representations considered necessary for Gricean communication is not supported by any empirical data—and it is intuitively far from plausible. Scott-Phillips (2014) argues that it is reasonable to suppose that preverbal infants can entertain such representations because they pass non-verbal first-order false belief tests (e.g. Onishi and Baillargeon 2005), and because human adults pass up to seventh-order false belief tests (O'Grady et al. 2015). However, neither of these findings is adequate to support the claim that preverbal children can entertain fourth-order meta-representations of others' mental states. Moreover, since language may be a prerequisite of high-order meta-representation, using adult performance to make a prediction about the meta-representational abilities of preverbal children is spurious. Since the claim that children acquire language because they understand fourth-order meta-representations is both theoretically controversial and empirically unsupported, we should be open to the possibility that they can understand communicative intentions in spite of lacking these abilities. If such abilities are not necessary for Gricean communication, then apes might also be Gricean communicators.

The meta-representational burden of Gricean communication

Worries about the meta-representational demands of Gricean communication have led some to argue that such communication is possible with less complex forms of social cognition than Scott-Phillips and others suggest. Proponents of this view argue that it is sufficient for acting with communicative intent that one produce (sincerely, and in conjunction with one another) a *sign*, in order to elicit some behavioural response or action *r* from an interlocutor, and an *act of address*, with which one directs one's performance of that sign to the attention of one's interlocutor (Gomez 1994, 2007; Moore 2014; R. Moore, 'Gricean communication and cognitive development', unpublished

manuscript). The argument underlying such claims is straightforward: where one performs some action *A* as a means of addressing a second action *X* to an audience, then it will be true to say of *S* that she intended the audience to recognise that she was performing *X*. If she was additionally performing *X* to solicit from her interlocutor *H* some further response *r*, then it will also be true of *S* that she intended *H* to recognise her intention that they *r*. In these cases, so long as an individual acted with no further deceptive intention, her performance would satisfy the criteria for Gricean communication identified at the outset (Moore 2014; R. Moore, 'Gricean communication and cognitive development', unpublished manuscript). It follows that if chimpanzees were shown to deliberately solicit the attention of others before gesturing, they would be acting with Gricean intent—even if the messages they produced were only ever very simple ones, and even if they struggled to interpret many human forms of communication.

Why are these theoretical views better than non-Gricean alternatives?

An appealing feature of these reappraisals of Grice's insights is that they provide us with an account of what it is to act with and understand communicative intentions that makes relatively modest demands on the socio-cognitive abilities of communicators. This could, potentially, ground an account of communication sufficient to explain the communicative interactions of subjects like chimpanzees, very young children, and other animals too. Appropriately supplemented, this account might also be able to support an empirically plausible story about language acquisition, to which we could then appeal to explain further cognitive developments in children—like their ability to entertain high orders of meta-representation. Such an account is attractive, because many philosophers have argued that the some aspects of the human ability to think about others' minds are likely a consequence of, and not a precursor to, our acquisition of language (Davidson 1984; Dennett 1996).

Some cognitive scientists have argued that rather than try to provide an account of Gricean communication that makes fewer demands on social cognition, we should simply give up on the idea that intentional communication has a Gricean structure. They argue that communicative interaction does not require acting with complex intentions and reasoning about the communicative intentions underlying others' behaviour. On the contrary, they argue, we can know others' communicative intentions non-inferentially, through their behaviour (Leudar and Costall 2004). Such views therefore argue that the Gricean model

intellectualises our communicative interactions, and should be abandoned. These views face insurmountable objections. For while proponents of the Gricean view can happily concede that there are many cases in which communicative intentions are very easy to interpret, not least by the presence of expressive states of interlocutors' behaviour (Green 2007; Bar-On 2013; Moore 2013, 2014), it is uncontroversial that there are also cases in which others' communicative goals are less salient. Pointing is one such example—since the same point could be produced with any number of different motivations (Tomasello 2006, 2008; Moore 2013). In such cases of ambiguity, overt behaviours are consistent with a number of different communicative goals, and what a speaker intends to communicate must be inferred. Anti-cognitivist accounts that reject the role of inference in communication lack the resources to explain the possibility of successful communicative interaction in such cases. For this reason, a de-intellectualised account of Gricean communication is inherently more promising than a non-Gricean alternative. (Recent evidence suggests that in some cases, chimpanzees are capable of making impressive inferences about the communicative goals likely to underlie their conspecifics' ambiguous gestures (Yamamoto et al. 2012); but I will not discuss this point further here).

Do apes produce their gestures with Gricean second clause intentions?

If Gricean communication is less demanding than others have supposed—and if acting with Grice's second clause intentions requires just deliberately addressing gestures to the attention of an interlocutor, as a means of indicating to that audience one's communicative goals—then we should ask whether chimpanzees intentionally address their gestures in Gricean ways. If they do, then they would satisfy not only behavioural but also psychological criteria for ostensive communication.

In a series of early studies, Tomasello et al. (1985, 1989, 1994, 1997) identified two different types of gestures in chimpanzees. The first class of 'attention-getters'—including acts like claps and ground slaps—was performed to elicit the attention of others. Chimpanzees used a second class of 'intention-movement signals'—including wrist offers and begging gestures—to indicate that they had specific desires. In an observational study of the spontaneous production of sequences of gestures among a group of captive chimpanzees, Liebal et al. (2004) found that chimpanzees did not produce combinations of attention-getters and intention-movement signals. Given this, the authors concluded that the emergence of gesture sequences in chimpanzees was not explained by their understanding

of the need to address their gestures to the audience's attention. A natural interpretation of this finding is that chimpanzees do not intend to solicit peers' attention before gesturing. This would support the hypothesis that they do not gesture ostensively, as Scott-Phillips (2015a) predicts. Such a conclusion would be too quick, though.

As Liebal et al. (2004) note, and as has been noted by others, chimpanzees are sensitive to the attentional states of others. Furthermore, numerous studies show that they modify their communicative behaviours in the light of the attentional states of would-be interlocutors. For example, Hostetter et al. (2001) found that captive chimpanzees produced communicative gestures and facial expressions significantly more often when an experimenter was facing them than when not. Povinelli et al. (2003) also found that chimpanzees alter the location of their gestures to match others' orientation—producing their gestures where others can see them. Finally, Liebal et al. (2004) found that while non-human species of great ape (*Pan*, *Gorilla* and *Pongo*) do not use tactile or auditory signals to elicit the attention of a potential (human) donor of food before producing requestive gestures, they do move into the donor's line of sight, so that their gestures can be seen. So apes do at least understand that for gestures to work, they must be performed within an interlocutor's line of sight. Since the act of moving intentionally into the line of sight of an interlocutor can justifiably be described as a form of attention solicitation, it may be that chimpanzees do address their gestures to interlocutors in ways that would justify attributions of Gricean intent.

Together these studies support the idea that chimpanzees address their gestures with Gricean second clause intentions. Nonetheless, further support for this conclusion could be gained from with the use of new experimental paradigms.

Given that Gricean communication is a two-part process (Csibra 2010; Moore 2014; R. Moore, 'Gricean communication and cognitive development', unpublished manuscript; Scott-Phillips 2014, 2015a), experimental paradigms could be designed to tease these features apart. Scott-Phillips (2014, 2015) argues that this could be done using studies of 'hidden authorship' (Grosse et al. 2013) that test subjects' ability to inhibit the second clause of their Gricean intentions. Arguably, such paradigms set the bar too high (Moore 2015). Moreover, since there is no evidence that preverbal children are capable of hidden authorship, such studies currently tell us little about the developmental constraints on Gricean communication. Therefore, I suggest a simpler paradigm for determining whether apes are capable of Gricean communication.

Recall that the first clause of Grice's analysis specifies what response a communicator seeks to solicit from her interlocutor, and that the second characterises the way in

which a speaker addresses herself to her audience. If chimpanzees understand this distinction, then it follows that their behavioural responses to communication breakdowns should differ when gestures are not understood, and when they have not been appropriately addressed to their audience. For example, if a gesture has been misaddressed, a subject might endeavour (or re-attempt) to solicit her interlocutor's attention, before re-producing the same gesture. If, by contrast, a gesture has been properly addressed but misunderstood, then apes should produce a different gesture to elaborate their goal, without necessarily doing more to solicit their interlocutor's attention. Differential performance in a paradigm that tested this distinction would constitute compelling evidence that chimpanzees are sensitive to the different layers of intentionality characterised by Grice.

Before returning to the question of the meanings of ape gestures, I discuss two further objections to the idea that great ape gestural communication is ostensive.

Acquisition history and the Gricean characterisation of meaning

It is often suggested that if ape gestures are ontogenetically ritualised, then they are not produced with Gricean intent (Tomasello 2008; Scott-Phillips 2015a). As a result, recent debates about whether ape gestures are part of an innate repertoire (Genty et al. 2009), or acquired through a process of ritualisation (Halina et al. 2013; see also Bard et al. 2014), might seem to bear on the question of whether or not they are meaningful. In fact, this conclusion is wrong. The claim that ontogenetically ritualised gestures could not be Gricean is false—because it confounds the acquisition history of gestures with the psychological processes employed in their production.

What the Gricean analysis of meaning provides is an account of the psychological states a speaker must be into act communicatively on a given occasion. For any gesture produced, it is meaningful if and only if it is produced in accordance with the analysis offered at the outset. From this it follows that, however, a gesture enters into an individual's repertoire, if it is performed in accordance with the intentions specified by Grice, then it is meaningful. As a result, whether or not ape gestures are Gricean is simply independent of any story about their acquisition history. This should be intuitive if we think that what Grice's second clause captures is the way in which gestures should be addressed to their audience's attention to ensure successful communication. Indeed, if we think that gestures work in part because they are addressed to their audience, then—contra Scott-Phillips—we should expect ostensive behaviours to be widespread across animal

species (even if the relevant intentions are not always made manifest through the use of eye contact).

Pointing comprehension and Gricean communication

Another argument for thinking that ape gestures are Gricean has been motivated by their performance in pointing comprehension paradigms. An influential body of empirical data makes the case that while preverbal children excel at understanding pointing, chimpanzees are comparatively poor at doing so (Tomasello et al. 1997; Hare and Tomasello 2004; Herrmann and Tomasello 2006). It is sometimes argued that this difference arises because points are produced with Gricean intentions, and because chimpanzees do not understand Gricean intentions (Tomasello et al. 2003; Tomasello 2006, 2008).

The claim that apes do not understand pointing has been rejected on the grounds that these results may be due to differences in the ontogeny of the ape and human subjects and not fundamental cognitive differences (Leavens et al. 2005; Bard and Leavens 2014)—a claim that gains support from enculturated apes' superior performance in a similar (but easier) pointing paradigm (Lyn et al. 2010). However, even if chimpanzees are poor at pointing comprehension, this finding does not entail that they are not capable of Gricean communication. It is possible that apes produce their gestures with Gricean intentions, and nonetheless fail to understand certain sorts of gesture. This is particularly true of points, which are fundamentally ambiguous, and so difficult to interpret (Moore 2013).

Do chimpanzee gestures have meanings?

Only if ape gestures meet Gricean criteria for intentional communication could they be said to have meanings *in the human sense*. If they do not, then saying that one gesture means “Come over here!”, or that another means “Give that to me!” will be metaphorical at best, and potentially misleading. If the gestures are meaningful, though, it will be legitimate to describe them as having meanings. That's because Grice held that for a word or gesture to mean something, is just for it to be used consistently—by a speaker acting with a Gricean intention—to indicate that a speaker has a particular communicative goal (Grice 1969).

Since the meanings of words and gestures are just specified in terms of what (in general) speakers typically intend to communicate by uttering those combinations of words/sentences/gestures, then to whatever extent there are patterns of regular usage in chimpanzee gestures, assigning

meanings to them is unproblematic. This remains true even where gestures are not used wholly systematically (that is, for example, with one and only one goal in mind). That's because human language contains many terms that are used with a range of goals—like the word ‘bank’, which is sometimes used to refer to financial institutions, and at other times to riverbanks. Even if it were used to refer to a riverbank in only a tiny proportion of total uses, it would not follow that this is not one of the meanings of the word ‘bank’.

Given these considerations, there are currently no strong grounds to deny that chimpanzee gestures have meanings. The behaviours used to identify ostension in human communication are already present in chimpanzee gestural communication. Furthermore, consistent with Grice's first and second clauses, chimpanzee gestures are used in both goal directed ways, and—so far as we can tell—they are intentionally and sensitively addressed to the attention of their intended recipients. Further studies may show that apes' understanding of the ostensive nature of communication is limited in comparison with humans. In this case, it may be necessary to uphold Scott-Phillips's suggestion that their gestures are not meaningful. In the meantime, though, attributions of meaning to chimpanzee gestures can be justified on both empirical and theoretical grounds.

Acknowledging that ape gestures are meaningful is consistent with recognising that there may be a number of reasons why human children but not apes acquired language. One possibility is just that what our ancestors acquired that non-human great apes lack is some insight into the untapped coordinative potential of a form of communication that they already possessed. In such cases, what our ancestors acquired may not have been a whole new system of communication powered by vastly superior social cognition, so much as incremental improvements in a structurally similar system of communication. These improvements may have enabled further forms of communication (including language) that themselves enabled the development of the metapsychology that is often thought to be a prerequisite of Gricean communication.

Future empirical findings will shed new light on the likely origins of human language. Since empirical data will always need to be interpreted, though, progress will depend not only on empirical research, but on philosophical reappraisals of the theoretical paradigms used to evaluate these findings. While this may make science messier than some would like, it should provide an incentive for collaborations between researchers across our disciplines.

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Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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