Origins of Meaning: Must We ‘Go Gricean’?

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Abstract: The task of explaining language evolution is often presented by leading theorists in explicitly Gricean terms. After a critical evaluation, I present an alternative, non-Gricean conceptualization of the task. I argue that, while it may be true that nonhuman animals, in contrast to language users, lack the ‘motive to share information’ understood à la Grice, nonhuman animals nevertheless do express states of mind through complex nonlinguistic behavior. On a proper, non-Gricean construal of expressive communication, this means that they show to their designated audience (without intentionally telling)—and their designated audience recognizes (without rationally inferring)—both how things are in the world and how things are with them. Recognizing that our nonhuman predecessors were already proficient—though non-Gricean—sharehers of such information would free us to focus on the more tractable problem of explaining how linguistic expressive vehicles came to replace, augment, and transform the nonlinguistic expressive means to which nonhuman animals are consigned.

1. Introduction: Crossing the Language ‘Rubicon’?

According to a well-known dictum, due to one of Darwin’s most vehement opponents, language is the ‘Rubicon’ that ‘no brute will dare to cross’ (Müller, 1862, p. 360). The Rubicon metaphor is often mentioned, but it is not usually noted that Müller’s claim admits of a two different readings. On a synchronic reading, the claim is that natural languages possess essential features shared by no existing animal communication system. But the reading that is more directly relevant to the question of language evolution is one according to which there is a sharp diachronic discontinuity in evolutionary history between the stage at which only non-linguistic creatures existed and one at which linguistic communication emerged. Of course, synchronic discontinuity is perfectly consistent with diachronic continuity—and

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even with a thoroughly gradualist evolutionary view. Yet discussions of language evolution often seem to slide between the two readings of the Rubicon claim. On the one hand, the conviction that there must be some evolutionary explanation of the emergence of language encourages proponents of diachronic continuity to defend implausibly strong claims about the language-relevant capacities of existing nonhuman animals, or to underplay some of the evidently unique features of human linguistic communication. On the other hand, the skeptical opponents of continuity are sometimes led to portray animal behavior as all of a piece, missing behavioral nuances that could shed explanatory light on the origins of some of the features deemed distinctive of human language.

However, the more radically different extant nonhuman animals are from us in their language-relevant capacities, the less obvious it is what they can teach us about the language-relevant accomplishments of our extinct ancestors. Partly in response to this concern, several authors have recently recommended a ‘multi-component’ comparative approach that seeks potential precursors of different aspects of language (social/communicative, vocal/phonological, referential/conceptual, structural/combinatorial) in different regions of evolutionary space (see Hurford, 2007, pp. x-xii and Fitch, 2010, p. 18). When speculating on the origins of language, Darwin himself appealed to analogies between the capacities for vocal learning and imitation that humans share with birds to support the idea of an early stage of language evolution—a ‘musical protolanguage’—used by our ancestors to aid in courtship and ‘challenge to rivals’ as well as ‘the expression of emotions like love, jealousy, and triumph’ (Darwin, 1871, p. 57). Darwin then suggested that all it would take to effect a transition from the purely expressive sounds of musical protolanguage to meaningful speech is that ‘some unusually wise ape-like animal should have thought of imitating the growl of a beast of prey, so as to indicate to his fellow monkeys the nature of the expected danger; but this would have been a step in the formation of language’ (1871, p. 57). Decades later, Paul Grice, in a similar spirit, proposed to ground the meaningfulness of linguistic symbols (their so-called intentionality), as well as the specific meanings of linguistic utterances, in communicative intentions of the sort to which Darwin casually alludes.

In Section 2, I provide a brief critical review of recent attempts to illuminate the task facing theories of language evolution in explicitly Gricean terms—that is, in terms of the need for an evolutionary explanation of the emergence of special communicative intentions on the part of producers. In Section 3, I offer a re-evaluation of a domain of non-Gricean communicative behavior that we share

1 As an example, consider the gradual evolutionary transition from flightless reptiles to birds, which left no existing intermediaries between present-day terrestrial reptiles and birds. (See Fitch, 2010, pp. 175f.)

with nonhuman animals, which has long been dismissed by theorists of language evolution: namely, *expressive behavior*. The purpose of Section 4 will be to argue that expressive behavior, and the kind of communication it affords, exhibit features that foreshadow significant semantic and pragmatic aspects of linguistic communication, suggesting important and perhaps unexpected ways in which linguistic and non-linguistic animal communication lie on a natural continuum. I further argue that the re-evaluation of (non-Gricean) expressive communication offered here should help render the task for theories of the emergence of meaningful speech more tractable, by allowing them to exploit theoretical tools that have already proven beneficial in understanding the broader phenomenon of animal communication.

2. A Post-Gricean Approach to the Evolution of Language

2.1 Grice’s Intention-Communication View

The Gricean view of linguistic meaning has historical roots in John Locke’s attempt to explain the semantic features of words in terms of speakers intentionally investing signs with meanings in order to communicate to others their states of mind. To Grice we owe an analysis of the characteristics of linguistic meaning that set it apart from other sorts of meaning. Contrasting natural signs (such as clouds, deer tracks, or skin rashes), which possess only *natural* meaning, with linguistic signs, Grice proposed that a sentence such as ‘It’s going to rain’ possesses what he labeled *nonnatural meaning*, which is a product of intentional actions by rational agents, who use signs in order to achieve distinctively communicative purposes.

Grice, however, offered a more specific characterization of what he called *speaker meaning* in terms of *fully overt communicative intentions*. Thus, to use an example from Bennett, suppose that, during a performance, my friend catches my eyes and scrunches her face in an exaggerated manner, holding her nose. Presumably, she *means that* she hates the performance, something which I would normally expect to think. On the Gricean analysis, it is key to the communicative success of my friend’s gesture that I am led to think that she hates the performance through my recognizing that she is *intentionally*—but also *openly* and *without deceit*—letting me know how she feels (see Bennett, 1976, p. 13). This is the ‘special overtness characteristic of linguistic communication’ (see McDowell, 1983, pp. 40f).

Grice’s direct concern in ‘Meaning’ (1957) was to provide an *analysis* of nonnatural meaning by first specifying necessary and sufficient conditions for a *speaker meaning* something nonnaturally by an utterance (be it verbal or gestural). However, in ‘Meaning Revisited’ (1989), Grice ventured what he described as ‘a

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3 Conventional linguistic meaning, in turn, is to be understood as a consequence of repeated patterns of speaker meanings. See Grice, 1968; Bennett, 1976, ch. 9; Schiffer, 1972; and Blackburn, 1984, ch. 3.
myth’ designed to explain how nonnatural meaning could be seen ‘as descendant’ and ‘derivative from ... cases of natural meaning’ (1989, p. 292). Grice imagines a creature X who nonvoluntarily produces a certain piece of behavior—say, a yelp—that naturally indicates that X is in some state (pain). Grice then traces six stages that could allow X to move from the yelp, which only has natural meaning, to ‘something which is very much like nonnatural meaning’ (ibid.). Not surprisingly, Grice portrays the path X takes to what we may call ‘proto-speaker meaning’ as paved with communicative intentions. Already in the first stage, Grice imagines that X (much like Darwin’s ‘wise ape-like’ creature) is voluntarily producing a yelp that is openly ‘put on’, with the intention of getting his audience to believe that he, X, is in pain.

On the Gricean view, speaker meaning is a necessary step toward structured linguistic meaning. Yet speaker meaning, in turn, requires structured, propositional thoughts as well as communicative intentions directed at others’ mental states. A sign is only endowed with speaker meaning if it is produced with an intention that has the following highly complex (‘metarepresentational’) content: that her audience should come to have a certain belief in virtue of recognizing the very intention with which the sign was produced. At least on standard interpretations of such attributions, intentions of this sort are only possible for those with a sophisticated theory of mind (‘ToM’); for, they require full understanding that other individuals— as well as they themselves— have mental states such as beliefs and desires that motivate their behavior. Normal human children are said to reach such an elaborate understanding by the age of 4 or 5 (see Wimmer and Perner, 1983; Wellman, Cross and Watson, 2001). But current researchers disagree as to whether any nonhuman animals possess even the basic elements of such an understanding. And there is every reason to think that the complete battery of cognitive resources required for issuing and deciphering signs endowed with fully Gricean speaker meaning goes well beyond what is available to any extant species of nonhuman animals. (See, e.g., Gómez, 1998a; Seyfarth and Cheney, 2003b; Tomasello, 2008; and see discussion below.)

In any event, when it comes to applying the Gricean account to the study of the evolution of language, there is the following difficulty. If we accept that full-blown Gricean intentions are indeed required to explain the emergence of linguistic communication, we would be faced with the task of explaining how our languageless ancestors might have come to possess full-dress Gricean propositional thoughts, which themselves possess recursive, compositional structure. But that task would seem no less problematic than the task of explaining the evolution of language itself (see Bar-On, 1995, and below.)

4 For discussion of the myth, see Bar-On, 1995; Bar-On and Green, 2010; and Wharton, 2009, pp. 184ff.
5 See, e.g., Whiten, 1996; Heyes, 1998; Povinelli and Vonk, 2003; Penn and Povinelli, 2007; Call and Tomasello, 2008; Carruthers, 2008; Bermúdez, 2009; and Lurz, 2011.

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2.2 The Post-Gricean View: Codes versus Ostensive-Inferential Communication

A more ‘evolution-friendly’ philosophical view of meaning can be found in Ruth Millikan’s work (e.g. Millikan, 1984, 1996, 2004). Millikan accepts that representational devices used throughout the human and nonhuman animal kingdom are, in some sense, communicative devices: for they are devices whose biological ‘proper function’ (as she refers to it) is to transmit information, as well as to transfer or convey beliefs and desires from producers to designated consumers.6 Echoing Grice, Millikan also distinguishes between ‘natural signs’, which ‘are not designed to be used as signs, hence are not conventional . . . and not voluntary’ (2004, p. 15) and ‘intentional signs’ which (in keeping with the prevalent usage of ‘intentionality’, due to Brentano) she describes as signs ‘that can be false or that may sometimes signify nothing real’ (2004, p. 15). But Millikan characterizes intentional signs without any reference to intentions, as signs that ‘have been “designed,”’ in accordance with human or animal purposes, or by learning mechanisms, or by natural selection, to be interpreted according to predetermined (semantic) rules to which targeted interpreters are cooperatively adjusted’ (2004, pp. 15–16).

Indeed, Millikan goes as far as denying that even successful linguistic communication systematically involves the detection by a hearer (or consumer) of a speaker’s (or producer’s) intention or meaning. Just as a gosling’s imprinting mechanism has the proper function of allowing it to fix on images of its mother so it can follow her, and bee dances have the proper function of sending fellow bees to nectar, so utterances in the indicative mood have the proper function of producing beliefs in hearers. Millikan, however, insists that this doesn’t require that speakers intend their hearers to form beliefs (1984, p. 58). And the same holds for imperatives. (On her view, the relevant grammatical moods have been designed to produce the relevant states in hearers through the purposes they serve or through learning, but not through individual intention.) Indeed, indicatives and imperatives are to be seen as elaborations on certain animal signals that have hybrid functions: what Millikan dubs ‘pushmi-pullyu representations’. For example, a hen’s food call at once indicates the presence of food and tells chicks to come get it (Millikan, 1996); and the ‘inner representation’ acquired by a ‘comprehending bee . . . tells in one breath both what is the case’ (where the nectar is) ‘and what to do about it’ (which direction to fly) (Millikan, 2004, p. 18). Crucially, the consumers of such representations do not engage in acts of Gricean interpretation. But neither do language hearers, on Millikan’s view: ‘Interpreting speech does not require making any inference or having any beliefs . . . about speakers’ intentions’ (1984, p. 62).

6 See Millikan, 1984. Roughly, an item A’s proper function \( F \) is a matter of A’s having originated as a ‘reproduction’ of prior items that performed \( F \) and A’s existing because of this. This broadening of the notion of function allows application to both biological devices (such as a heart, or the chameleon’s pigment-arranging device) and cultural items such as handshakes or check writings, as well as linguistic items (words, syntactic forms, tonal inflection, etc.).
Origgi and Sperber (2000) charge Millikan with assimilating human languages too closely to nonhuman communication systems by treating them as codes used for ‘belief and desire transfer: cognition by proxy—or to use Millikan’s phrase “natural teleperception”—made possible by pairing of stimuli and responses’ (2000, p. 8). Millikan’s ‘code model’, they suggest, ignores the essential richness and flexibility of linguistic communication, and is thus ill-suited to enhance our understanding of the emergence of meaningful speech. Embracing the Relevance Theory expounded in Sperber and Wilson, 1986/1995, Origgi and Sperber take it that linguistic signs are essentially produced by speakers with the purpose of providing hearers with evidence from which their intentions are to be inferred; and linguistic ‘[c]omprehension ... crucially involves the recognition by the hearer of a specific ... “speaker’s meaning”’ (2000, p. 18, and compare Wilson and Sperber, 2004, p. 249). Linguistic communication necessarily ‘involves a form of mindreading where, by speaking, the speaker helps the hearer read her mind’ (Origgi and Sperber, 2000, p. 18). This is part of the overtness characteristic of human linguistic communication, which they think the code model disregards (see below).

Origgi and Sperber advocate a ‘post-Gricean’ view, which shies away from the psychological complexities required by the original Gricean view; specifically—indefinitely ‘nested’ communicative speaker intentions and ‘sophisticated reasoning about the speaker’s mental states’ on the part of hearers (2000, p. 156). Still, the view preserves the idea that linguistic communication is essentially ‘ostensive-inferential communication’. Speakers are said to have two intentions, which together comprise the ostensive aspect: ‘the informative intention to make it manifest to the hearer that a certain state of affairs is actual or is desirable’ and ‘the communicative intention to achieve this informative intention by making it mutually manifest to the hearer and herself that she has this informative intention’ (2000, p. 157). And hearers, in turn, must figure out these intentions, on the evidential basis provided by speakers’ utterances and contextual clues, which comprises the inferential aspect. By simplifying the character of the requisite intentions and inferences, the ‘post-Gricean’ account aims to be less psychologically demanding and more realistic than the Gricean account. Nevertheless, it retains the core Gricean idea (see Section 2.1) that the openness or overtness distinctive of linguistic communication is to be captured in terms of the deliberate manifestation and inferential attribution of communicative intentions.

Now, as regards the evolution of language, Origgi and Sperber maintain that, since human verbal communication as we know it ‘is never a matter of mere decoding’, this ‘implies that language as we know it developed as an adaptation in a species already involved in inferential communication, and therefore already capable of some serious degree of mindreading’. They claim that ‘from a relevance theory point of view, the existence of mindreading in our ancestors was a precondition for the emergence and evolution of language’ (2000, p. 20) (and compare Sperber and Origgi, 2010). Presumably, this ancestral ‘mindreading’ is to be construed in terms of speakers forming fully propositional communicative intentions and hearers drawing inferences about those intentions. But then a post-Gricean account of the
emergence of linguistic communication would still have to rely on the availability of an evolutionary explanation of some of the very same capacities whose emergence it seeks to explain—viz., the capacities to form and interpret compositional, recursive (thought-)contents.\(^7\)

Beyond this persistent explanatory difficulty, note that Origgi and Sperber are here reasoning from an observation about what is synchronically distinctive of all human linguistic exchanges—what they believe sets such exchanges apart from existing forms of animal communication—to a claim about what is necessary for the diachronic emergence of meaningful linguistic communication. Even if we refrain from challenging the observation,\(^8\) the form of reasoning should give us pause. For, in general, we cannot rule out behaviors that do not (yet) exhibit a particular feature as potential precursors of an existing behavioral phenomenon that exhibits distinctive—and even unique—features. Suppose it were true that linguistic communication as we now know it indeed fulfills the (post-)Gricean requirements, in virtue of speakers and hearers always engaging in ostensive-inferential communication. It doesn’t follow—neither logically nor as a matter of evolutionary theorizing—that when projecting backward, we must suppose our ancestors to have been able to engage in (nonlinguistic) ostensive-inferential communication before language could have possibly emerged. For all that the post-Gricean has said, it seems perfectly possible both that a ‘serious degree of mindreading’ is what sets apart meaningful language use from existing animal communication and that our ancestors were able to get on their way to linguistic communication as we know it, without first becoming proficient mind-readers. To anticipate, perhaps our ancestors were capable of communicative behaviors that satisfied ‘proto’ Gricean requirements, thereby exemplifying a significant intermediate stage between mere code-like signaling and full (post-)Gricean linguistic communication (on analogy with feathered dinosaurs, representing an intermediate stage between flightless Triassic reptiles and today’s birds).

2.3 The Post-Gricean View and Language Evolution

The conception of human linguistic communication Origgi and Sperber adopt, and the main implications they take it to have for the evolution of language, are widely shared among leading theorists of language evolution. For

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\(^7\) Sperber (2000), Sperber and Wilson (2002) and Wilson (2005) consider empirical evidence suggesting that hearers do not go through a ‘complex discursive reasoning process’ to derive meanings in ordinary discourse. But instead of taking it to show that the inferential account is ill-suited for psychological or evolutionary theorizing, they postulate a ‘dedicated inferential module’ of mind-reading that makes conversational inferences for us (cf. Wilson, 2005, pp. 1130f.).

\(^8\) For brief reviews of challenges based on the linguistic abilities of very young children and individuals with certain forms of autism, see Hurford, 2007, ch. 9; Wharton, 2009, ch. 7; and Wilson, 2005.
example, Michael Tomasello agrees with proponents of Relevance Theory that the intentional-inferential and cooperative character of human communication is its unique and essential hallmark (2008, p. 6). He speculates that language could only arise ‘within the context of collaborative activities in which participants share intentions and attention’ (2008, p. 7), and that ‘things simply could not move’ in the direction of human language, until communicators became able flexibly to produce gestures intending to influence recipients’ psychological states (2008, pp. 9ff.). More specifically, on Tomasello’s Cooperative Communication approach, for a form of communication to be a legitimate precursor to human linguistic communication it must be fully intentional, and informed by the ‘communicator’s proximate goal’ of sharing information with the recipient (2008, p. 15). So the problem of crossing Müller’s Rubicon becomes ‘to explain the origin of the underlying psychological infrastructure of human cooperative communication’ (2008, p. 10).

Like Tomasello, Hurford insists that the ‘intended effect on the hearer is a core ingredient of modern human communication’, and takes it to be ‘an evolutionary foundation’ (2007, p. 172), embracing the ‘concept of shared intentionality’ (introduced in Tomasello, 2005) as a ‘key ingredient’ that captures the distinctive overtness of linguistic communication. It is this ingredient that is at best marginally present in the behavior of even ‘our ape cousins’ (2007, p. 333). So the key ‘riddle’ of language evolution becomes this:

Apes have rich mental lives, but keep their pictures of the world to themselves, like all other animals besides humans. Only humans tell each other in detail about events and scenes in the world. And this is something of an evolutionary puzzle, because giving information away would seem prima facie to be against the individual interests of the information-giver (Hurford, 2007, p. 332).9

What evolutionary theory must explain is, then, ‘the unique human characteristic of freely giving information in such structurally complex ways as we do every day with language’ (2007, p. 333).

Fitch, too, notes that our ‘ape cousins’ and other animals ‘have rich mental lives, but surprisingly limited abilities to express them in signals’ (2010, p. 148). In addition to animals’ rich psychological life, Fitch cites evidence for precursors of linguistic phonological structure and even of syntactic recursion in the present behaviors and latent capacities of animals that are much more distant from us phylogenetically (some relevant examples come from birdsongs and the caching behavior of corvids; see Fitch, 2010, pp. 182–184). But when it comes to understanding the evolutionary emergence of meaningful speech, Fitch too casts the problem in explicitly Gricean terms of cooperative communication:

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9 And compare Jackendoff, 2011.
Animal communication, before language, largely involved signalers who generate signals either automatically (e.g. innate calls) or selfishly ('manipulations'), and thus obeyed no Gricean maxims. Listeners, on the other hand, have been processing signals inferentially, fulfilling their half of the Gricean equation ... The component of [the] Gricean model that demands special evolutionary explanation is ... the speaker's contribution to this cooperative endeavor. 'Going Gricean,' then, required a fundamental change ... on the part of signalers, and this step is a logical necessity before language could get off the ground (2010, p. 135).

Thus, Hurford, Tomasello, and Fitch (among others) share a (post-)Gricean conceptualization of the task facing theories of language evolution. Given this conceptualization, it is easy to see why debates among theorists of language evolution so often revolve around whether or not, or to what extent, any extant species of nonhuman animals have—at least latently—the communicative-interpretive capacities required for 'going Gricean' (including relevant elements of theory of mind, so-called 'declarative', as opposed to merely 'imperative' pointing, etc.; see Hurford, 2007, pp. 209ff., and 307ff.). Taking for granted that our nonhuman ancestors must have had sufficient representational and cognitive, and even inferential-pragmatic sophistication, these theorists see their task as providing a broadly evolutionary explanation of how our ancestors could achieve the intentional-communicative sophistication and openness required before 'language could get off the ground'.

Fitch (2010, §4.11 and passim) and others (e.g. Seyfarth and Cheney, 2003a; Tomasello, 2008, pp. 16ff.; and Scott-Phillips, 2010) maintain that there is a psychological/communicative asymmetry in animals that manifests itself in a fundamental asymmetry between signalers and receivers. The asymmetry claim is often defended by appeal to the fact that animal receivers are capable of contextually deriving information that signalers do not intend to provide. It is often supposed that such derivation requires contextual inference on the part of receivers. But note that this relies on a rather liberal notion of 'inference', which is different from the notion invoked by Grice and his followers to characterize linguistic communication.  

While it may be allowed that, in this liberal sense, 'listeners have been processing signals inferentially', it's far from clear that (as Fitch misleadingly claims) this constitutes their 'fulfilling their half of the Gricean equation'. What is at issue here is not simply animals' capacity to make inferences, but rather their capacity to make

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Footnote: For the relevant distinctions and a persuasive argument that, even in the case of linguistic communication, not all pragmatic, context-dependent recovery of content should be construed as inferential, see Recanati, 2002. Moreover, if the same liberal standards are applied to signalers, it's not clear why their audience sensitivity (see below, Section 4) shouldn't qualify them as fulfilling their half of the Gricean equation. For a critical evaluation of the asymmetry claim, see Bar-On and Green, 'Signaler-Receiver Asymmetries Revisited' (in progress).
inferences concerning others’ intentions. Even proponents of the asymmetry claim (such as Fitch and Hurford) question whether any animals engage in inferences involving steps that concern signalers’ communicative intentions.11 (Indeed, according to the asymmetry claim, signalers have no such intentions!)

Note that the signaler-receiver asymmetry claim is not part of the evolutionary picture presented by Origgi and Sperber, who take existing animal communication systems to be fully captured by the (non-Gricean) code model that they find in Millikan. But even if they were to grant that animal receivers do recover information inferentially from signals produced by other animals, they would insist that the relevant communicative interactions lack the ostensive-communicative character distinctive of human communication. This character is typified by the following: ‘Instead of covertly leaving my glass in your line of vision, I might touch your arm and point to my empty glass, wave it at you, ostentatiously put it down in front of you, stare at it meaningfully, . . . ’ (Wilson and Sperber, 2004, p. 611). Such uses of an ‘ostensive stimulus’ appear to be motivated by a cooperative desire on the speaker’s part: to let the audience in on what she (the speaker) wants the audience to do, or attend to, or know, or believe, etc., by intentionally engaging in an ‘ostensive’ act designed to achieve the speaker’s cooperative goal.

Now, we may agree that what happens in communicative interactions of this sort is indeed sufficient to mark them as distinctively overt. But the Cooperative Communication approach maintains that for an evolutionary stage to qualify as a legitimate precursor of meaningful linguistic communication, it is necessary for producers to possess cooperative intentions and to take direct account of others’ states of mind. This implies that there is a substantial hurdle standing in the way of building a bridge across Müller’s Rubicon even before attempting to explain the emergence of stubbornly unique features of human language, such as syntactic recursion and semantic compositionality. This is the hurdle of explaining the emergence of sophisticated cooperative-ostensive communicative intentions on the part of signal producers.12 Were we to jettison this conception of the explanatory task facing theories of language evolution, we would no longer be obliged to figure out what selection pressures might have led our ancestors, who were already proficient Gricean receivers, to become deliberate and rational Gricean signalers. Instead, we would be looking to understand how non-Gricean communication between equally endowed signalers and receivers could gradually evolve so as to take on linguistic character. In the remainder of this article, I argue that we can be

11 See e.g. Fitch, 2010, 4.11.4. Lurz, 2011 reviews systematic difficulties with attempts to establish that animals attribute any mental states to others. For skepticism regarding the theoretical usefulness of invoking ‘theory of mind’ to explain communication and other intersubjective interactions, see Leudar and Costall, 2009.

12 Robert Seyfarth has suggested (in correspondence) that recent experimental results with wild chimpanzees (see Crockford et al., 2012; and see below, fn 32) provide evidence for at least precursors of such intentions.
helped in this task by attending to a specific type of non-Gricean communication that occurs in many species of nonhuman animals (not just other great apes): expressive communication.

3. Expressive Communication as Foreshadowing Linguistic Communication

3.1 Codes versus Ostensive-Inferential Communication—A False Choice?

Origgi and Sperber are right to note that not just any behavior that enables the transmission of information from one creature to another could put nonhuman animals on the path to linguistic communication. The more rigid, innately programmed code-like forms of animal signaling may lie too far from linguistic communication to provide a credible breeding ground for it. We can also agree that Millikan’s ‘proper function’ account fails to engage a core Gricean insight, namely, that linguistic communication is not only minded and intersubjective; it is also overt. Insofar as Millikan’s view does not offer resources for capturing the significance of the mode or means employed in some types of animal communication but not others, we may agree that it is not fit to illuminate, specifically, the emergence of language.13 On the other hand, proponents of the post-Gricean view—and the Cooperative Communication approach inspired by it—insist that the relevant kind of intersubjective overtness requires ostensive-communicative intentions (on the producer’s part), contextual-inferential interpretation (on the audience’s part), and cooperative motivation (on both sides). Consequently, they render utterly mysterious how the language Rubicon could have been crossed.

We seem to be presented with the following choice. On the one hand, there is the overly reductionist view that portrays human languages as simply more elaborate media for encoding and transmitting information and for transferring psychological states. On the other hand, there is the overly intentionalist view that portrays linguistic communication as a unique phenomenon whose emergence could only be understood by ‘retrojecting’ the existence of non-linguistic Gricean interpreters, who like us possessed sophisticated thoughts and other cognitive states, and who needed somehow to become motivated to share those thoughts with their fellows. But this choice is a false one. In what follows, I articulate an Expressive Communication (EC) approach to the question of the origins of meaning that can serve as an alternative to both the reductionist code view and the post-Gricean Cooperative Communication view.14

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13 Whether Millikan’s view is indeed open to this objection requires further investigation, one that goes beyond the scope of this article.

3.2 Expressive Behavior and Expressive Communication

Both Grice’s Myth of X and Darwin’s phylogenetic scenario reserve a pivotal role for expressive vocalizations. Grice’s creature X begins his journey to nonnatural speaker meaning with a nonvoluntary yelp of pain. And Darwin’s scenario features the spontaneous vocal expression of emotions. Both Darwin and Grice, however, thought that only individual insight could turn a sound that simply serves to express a producer’s state of mind into a meaningful communicative sign that could eventually be replaced by a linguistic sign proper. Followers of Darwin and Grice have been quick to cite the ‘merely expressive’ character of the alarm calls found in animal communication systems as comparative synchronic evidence for the difficulty of crossing the diachronic language Rubicon. For example, Burling (2005) remarks:

Primate calls have much less in common with human language than with human screams, sighs, sobs, and laughter ... along with our visible scowls, smiles, and stares ... [which] form the primate communication of the human primate ... [But] language ... is organized in such utterly different ways from primate or mammalian calls and it conveys such utterly different kinds of meanings, that I find it impossible to imagine a realistic sequence by which natural or sexual selection could have converted a call system into a language ... (Burling, 2005, p. 16, my emphasis).

Fitch concurs. A dog’s bark, in sharp distinction from the word ‘dog’, is not learned. Both nonhuman animals and humans have ‘species-specific, innate sets of vocalizations, biologically associated with particular emotional and referential states’ (2010, p. 177). Like Burling, Fitch sees ‘a core distinction between language and most signals, which are more like the laughs and cries of our own species than like speech’ (2010, p. 177).

What is typically described as expressive behavior forms a broad and diverse category, whose instances can be found across a wide range of species. It includes alarm, distress and food calls, but also other vocalizations, such as yelps and growls, screams, pant hoots, barks, and grooming and reconciliation grunts. Furthermore, it encompasses non-vocal behaviors such as teeth-barings, tail-waggings, head tilts, flipper flaps, lip smacks, ground slaps, food-begging gestures, ‘play faces’ and play bows, grimaces, threat gestures, eyebrow flashes, and so on.15 In the philosophical literature, such behaviors are regularly portrayed as mere reliable indicators of the internal states that regularly cause them—as signs with natural meaning.16 Tomasello describes such expressive behaviors as mere ‘communicative

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16 See, for example, Grice, 1957; Alston, 1965; Bennett, 1976.
displays’, which he characterizes as ‘prototypically physical characteristics that in some way affect the behavior of others’, comparing them to ‘large horns which deter competitors or bright colors which attract mates’ (2008, p. 14). And it is standard practice among theorists of animal communication and language evolution to assimilate expressive behaviors to physiological symptoms, such as red spots on the skin, sneezes, galvanic skin responses, or else to signals that convey information about an animal’s biologically significant features such as size, sexual readiness, fitness, or individual identity (examples include sexual swellings, spider web vibrations, peacocks’ tail displays, birdsongs, dolphins’ ‘signature whistles’, and so on).17

In recent years, considerable progress has been made accounting for these sorts of signals using the theoretical apparatus of Evolutionary Game Theory (EGT) (see Maynard Smith and Harper, 2003, and Skyrms, 2010). On one recent construal, EGT defines a signal as ‘any act or structure that (i) affects the behavior of other organisms; (ii) evolved because of those effects; and (iii) which is effective because the effect (the response) has evolved to be affected by the act or structure’ (Scott-Phillips, 2008). Note, that like Millikan’s definition of ‘intentional signs’ (see above, Section 2.1), this definition makes no mention of communicative intentions (or interpretation, for that matter), and it includes an element of intersubjective reciprocity, as well as an element of design. However, in what follows, I provide some reasons for thinking that expressive behavior, and the kind of communication it affords, has special characteristics that are not adequately captured by either definition. Failure to probe some of these characteristics has led theorists to underestimate their potential relevance for our understanding of the evolution of language.

Expressive communication, I will argue, exhibits features that foreshadow significant aspects of linguistic communication. In its domain, we can identify legitimate natural precursors of meaningful linguistic communication. (For present purposes, by ‘legitimate natural precursors’, I mean behavioral interactions that at least: a. can be found in the natural world; b. go beyond Tomasello’s mere ‘communicative displays’; c. do not depend on crediting the relevant creatures with language-like propositional thought or post-Gricean communicative intentions, and; d. exhibit features that foreshadow important semantic and pragmatic features of linguistic communication—so in that sense are proto-semantic and proto-pragmatic.) Two preliminary remarks are in order. First, my discussion below will draw attention to some important features of expressive communication that foreshadow linguistic communication, without yet attempting to provide a theoretical definition.18

18 It is, I believe, premature to attempt to give necessary and sufficient conditions of what constitutes expressive communication. However, for some necessary conditions on expression, see Bar-On, 2004 (especially chs 5–8), and Green, 2007, on which the discussion below draws.
I will, however, offer a hypothesis that provides a substantive characterization of this familiar phenomenon. Secondly, as will emerge, on that characterization, though expressive communication has special features that set it apart from other types of animal communication, it is by no means limited to animal species belonging to the primate lineage, for it is prevalent among mammals generally, as well as various bird species. This means that, on the approach advocated here, we should look for precursors of linguistic communication not only among primates. But this is in keeping with the multi-component approach to language evolution (mentioned earlier on) in its application to semantic and pragmatic aspects of language.19

Consider first expressive behavior in our own species. On various occasions, upon being presented with a new fluffy teddy bear, little Jenny’s face may light up; or she may let out an excited gasp, reaching for the toy; or she may emit a distinctive sound (‘Uh!’), or call out: ‘Teddy!’ as she eagerly stretches her hand toward the toy. Later she may exclaim ‘I want Teddy!’ (preceded by a holophrastic ‘I-Won-Teddy’, roughly synonymous with ‘GimmeTeddy!’), perhaps with no reaching. Jenny’s facial expression and her sigh are what philosophers sometimes call ‘natural expressions’; whereas her eager hand-stretching and subsequent utterances are things she does voluntarily, perhaps even intentionally, as she gives expression to her desire. Note that among the utterances used to give expression are English sentences, which have nonnatural linguistic meaning. Nevertheless, barring deliberate deception, they can be genuine instances of expressive behavior. What renders them so has to do with similarities among the performances or acts (whether voluntary or not), which equally serve to give vent to Jenny’s desire. These similarities obtain despite significant differences among the expressive vehicles used. One can express joy at seeing a friend through a beaming facial expression or a spontaneous hug (neither of which stands in a semantic representational relation to the joy), or by uttering a sentence such as ‘It’s so great to see you!’ (which does have a conventional nonnatural meaning). Similar expressive performances, different vehicles of expression. Whereas the sentence expresses in the semantic sense a proposition—in virtue of having a compositional nonnatural meaning—the individual who utters it may be spontaneously expressing an occurrent mental state—her joy at seeing her addressee, which state she could also express by giving a spontaneous hug.20

The expressive performances of nonhuman animals obviously do not employ expressive vehicles that have articulate nonnatural meaning. A yelp or a tail wag—unlike the English sentence ‘This hurts!’ or ‘So good to see you’—does not semantically express a proposition. And it does not have discrete components that

19 It is already widely recognized that precursors of, e.g., vocal imitation and learning, combinatorial structure, and shared attention mechanisms, can be found in a wide range of non-primate species (and, in fact, not all are found in our closest living primate relatives).

20 For the relevant distinctions, and a defense of a ‘neo-expressivist’ view of avowals such as ‘I’m so glad to see you!’ see Bar-On, 2004 (especially chs 6–8).
express separate concepts and can be productively recombined to generate different propositions. The relation between an act of expressive behavior and the state of mind it expresses is obviously not symbolic. Rather, expressive behaviors (and individuals engaging in them) show states of mind to suitably attuned observers; they don’t tell of those states. And correlative, a suitably attuned observer will directly recognize the expressed state, rather than figure out inferentially the expresser’s communicative intentions (see Bar-On, 2010).

The product of an expressive act—a yelp or a growl, a facial expression, bodily demeanor—does, in a sense, signal the presence of certain state of mind of the expresser. So we may speak of such products as ‘expressive signals’. But we should recognize that expressive signals exhibit communicative complexity that surpasses that of other animal signals. Acts of expressive communication often involve an overt gaze direction, guiding the receiver’s attention not only to the expressive agent’s affective state but also to the object of that state—to the source or target of the relevant state. A meerkat sentry, upon spotting an approaching predator, will emit a warning call accompanied by a gaze fixated on the predator, which allows its hearers to see where the threat is coming from. A threatening growl not only represents its producer as possessing a certain resource (which would allow him to win a fight, for example), but also points to the anger’s target, and shows his readiness to defend himself. A bird’s screech may reveal a more or less severe pain. A dog’s cowering demeanor upon encountering another will show to a suitably endowed recipient the dog’s fear (kind of state), how afraid it is (quality/degree of state), of whom it is afraid (the state’s intentional object), and how it is disposed to act—slink away from the threat, or hide from it (the state’s dispositional ‘profile’). Similarly for the recently much-studied canine play bows (see Miklósi et al., 2004). A vervet monkey’s alarm call not only indicates the presence of an aerial predator, but also shows the caller’s fear of the predator, thereby moving others to hide from the danger. And a baboon’s ‘reconciliation grunt’ at the end of a fight signals a higher-ranking baboon’s appeasing attitude toward a specific lower-ranking victim (see Cheney and Seyfarth, 2007).

Expressive signals draw attention to the animal’s psychological state expressed, while at the same time drawing attention to some external object or event at which the state is directed. And they reveal the relevant behavior’s cause or motivation at the same time as they foretell the expresser’s impending behavior and move the designated audience to appropriate responses. Thus, expressive signals partake in the Janus-faced character of paradigmatic expressive performances.21

21 See Tormey, 1971, pp. 27f. and passim. The Janus-face character discussed here is different from the dual force ascribed by Millikan (2002, 2004) to ‘pushmi-pullyu’ representations, which pertains exclusively to the semantic content of the calls (‘Food here’ + ‘Come get it!’), and does not have to do with the specifically expressive dimension of the relevant acts.
3.3 Dimensions of Expressive Communication

We can discern several dimensions in the ‘texture’ of expressive communication: psychological, semantic, pragmatic. As suggested above, in contrast with physiological symptoms, biologically informative displays, and automatic or reflexive behavioral reactions, expressive signals can exhibit aboutness, insofar as they point to a relevant worldly object or state of affairs as perceived by the signaler. Early studies of alarm calls by ethologists presented them as merely affective displays: purely instinctive or reflexive reactions to environmental stimuli that reliably indicate animals’ states of mind, such as arousal or fear. To the extent that their production was reliably elicited by the presence of specific types of predators, and elicited predictable responses by receivers, alarm calls were sometimes acknowledged to be functionally (as opposed to intentionally) referential. Still, they were sharply contrasted with linguistic utterances, precisely because of their direct causal relation to affective states. More recently, however, ethologists have begun to recognize the need for a more nuanced understanding of alarm calls, transcending the emotional/referential dichotomy. For example, discussing birds’ alarm calls, the ethologist Peter Marler remarks: ‘if a bird couples a call with some kind of indexing behavior, such as head-pointing or gaze direction, a certain object or point in space or particular group member can be precisely specified: the combination adds significantly to the communicative potential of emotion-based signals’ (2004, p. 176). Similarly, Snowdon suggests that chickens’ food calls ‘can both be referential and communicate an affective state, perhaps of social invitation’ (2008, p. 75). And Seyfarth and Cheney (2003b) devote a full article to undermining the traditional view that communication systems must be ‘either affective or semantic’. They argue that the affective and referential properties of signals are ‘logically distinct’ since ‘the former depends on mechanisms of call production in the signaler, whereas the latter depends on the listener’s ability to extract information from events in its environment’; and ‘the mechanisms that cause a signaler to vocalize do not in any way constrain a listener’s ability to extract information from the call’ (2003b, p. 38, and compare Scarantino, 2010). However, in the spirit of the post-Gricean view, they insist that:

... animal vocalizations ... are also fundamentally different from language because ... animals ... do not call with the specific goal of informing others or in response to the perception of ignorance in another. Similarly, while listeners extract subtle information from vocalizations, this does not include information about the signaler’s knowledge. Listeners acquire information from signalers who do not, in the human sense, intend to provide it (Seyfarth and Cheney, 2003b, p. 51).\(^{22}\)

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\(^{22}\) Though see fns 12 and 32.
In addition to a referential dimension (and as Cheney and Seyfarth themselves observe [2007, p. 221]), animal alarm calls also exhibit a *predicative* dimension, for their acoustic intensity and other features are often closely correlated with the perceived level of predator danger. (A loud eagle alarm call is in this respect not unlike an utterance of *Eagle here!* produced by a language speaker in spontaneous response to the appearance of a threatening eagle, whereas a softer call is a bit like *Eagle nearby!* But we should agree with Millikan that the referential-predicative dimensions of intentional signs in general are not the upshot of producers’ intentions; and, in the case of expressive signals in particular, they are inherited from features of the states of mind signalers express. Inasmuch as alarm and food calls, as well as other expressive signals, express states that are themselves directed at objects and features of an animal’s environment as apprehended by the animal, a given alarm call can—and often does—fulfill its communicative role by showing not only the animal’s state (agitation, excitement, etc.) but also its intentional object. In this, they contrast with automatic physiological reactions and merely informative displays. Thus, even though expressive signals are produced with no intention to convey information or point to some object in the environment, they still partake in certain significant aspects of the *aboutness* of linguistic signs. But while Cheney and Seyfarth recognize this, they nevertheless take it that the absence of cooperative intentions on the part of signalers renders expressive signals (like all animal signals) ‘fundamentally different’ from language. This is in keeping with the Cooperative Communication approach, which requires the overtness characteristic of linguistic communication to be sustained by producers’ communicative intentions (and their intended recognition on the part of the audience). Before commenting directly on why I think that expressive behavior *is* in fact, in an important and relevant sense, overt, I’d like to highlight additional features of expressive communication that merit close attention by those interested in the evolution of language.

In contrast with purely perceptual and more passive representational states, which also exhibit aboutness, expressive signals have an *active* aspect. In particular, they embody a certain kind of *intersubjective agency*. A creature giving behavioral expression to a present state of mind often shows designated receivers how he is disposed to act, thereby moving the behavior’s ‘consumers’ to respond appropriately—showing them *how to act* or *what to do*. As a scared animal cowers away from a threat, or bows playfully, a like-minded witness will be moved to do likewise. Moreover, unlike rote, automatic, instinctive, or reflexive behaviors, expressive behaviors can be brought under voluntary control, modulated, intensified or toned down, and so on—an aspect that is crucial to the role of expressive communication as foreshadowing linguistic communication (and one that we’ll return to later).

Importantly, however, to say that a state of mind or behavioral signal exhibits complexity along several dimensions is not to say that it has *recombitable parts* or components that correspond to the dimensions or aspects of complexity. Instead,
at least some states of mind could be understood as non-propositional, yet still world-directed and the signals that express them can still be action-guiding. As suggested elsewhere, we should perhaps recognize a category of prepositional attitudes—fear of x, anger at y, attending to z—as precursors of full-on propositional attitudes. That is to say, creatures who are not yet (phylogenetically speaking) capable of having attitudes with complete propositional content may well be capable of having attitudes with intentional objects. Similarly, though a behavioral signal may lack composite structure, signals such as an alarm call, fixed gaze, or directed gesture, can express complex affective states with various pragmatic consequences.

As should be clear by now, the communicative complexity of expressive communication is not the result of complex communicative intentions and their decipherment. The production and uptake of naturally expressive behavior clearly place weaker demands on the cognitive capacities of both producers and consumers than does full-blown intentional linguistic communication. On the expresser’s side there’s no need for any active desire to cooperate or to share information, or any belief about what it would take to fulfill it. Even where the production of the behavior or some of its aspects are under the voluntary control of the producer, the behavior is not produced with the intention of affecting others’ states of mind. So less demand is put on the psychological makeup and rational-communicative capacities of producers. At the same time, appropriate, active responses to producers’ expressive performances can be entirely spontaneous, and grounded in simple contagion or other forms of ‘resonance’; they needn’t be calculated or dependent upon rational assessment of available evidence or inference involving attributions of mental states to others. So, less demand is put on the rational-interpretive capacities of receivers, since there’s no need for sophisticated theory of mind or metarepresentational inferences on their part. All in all, then, naturally expressive communication in no way requires ‘going Gricean’.

3.4 Expressive Communication: the EC Hypothesis
The Cooperative Communication (CC) approach discussed earlier highlights sharp contrasts between the following two endpoints. At one end, we have full-blown human communication, which relies on reflective, abstract representations of the world, including the mental states of others or oneself (i.e. ‘metarepresentations’), and requires deliberate, intentional actions, and sophisticated communicative intentions that meet with intelligent decipherment and inferential understanding. At the other end, there are animals’ innately programmed, reflexive reactions to environmental stimuli and merely discriminative behaviors, as well as various forms of

23 See Bar-On and Green, 2010; Bar-On and Priselac, 2011; and Bar-On, forthcoming.
24 See Gómez, 1996, and 1998a. This goes against the grain of Fitch’s postulated ‘inherent asymmetry’ between animal signalers and receivers (see above Section 2.3).
animal signals that are designed to transmit information about biologically significant attributes of the producer’s—the broad category of signals as characterized by EGT. On the non-Gricean Expressive Communication (EC) approach advocated here, expressive behavior (given the kind of communication it affords) form a theoretically significant category of behavior that lies somewhere between these two endpoints. (And there may, of course, be additional significant ‘joints’ in between.) This meshes well with the commonsense idea that a wide range of animals—by no means only those closest to us phylogenetically, yet by no means all animals capable of conveying information through behavioral signals—have certain communicative capacities that (for all appearances) overlap with ours. This, despite their lacking some of the more sophisticated cognitive-communicative resources that underlie language, or that depend on its possession.

At the heart of EC lies the following Hypothesis concerning expressive communication:25

Expressive communication is a form of social, intersubjective, world-directed and overt communicative behavior that is naturally designed to enable expressers to show their intentional states of mind to suitably endowed observers, so as to move them to act in certain ways (toward the expresser or the object of her expressed state), in part by foretelling the expresser’s impending behavior.

On this Hypothesis, it’s not the kind of information conveyed through expressive signals, or their complexity qua signaling vehicles, that render expressive communication special; rather, it’s the special character of the acts that issue in expressive signals, as well as the character of their uptake by receivers. EC maintains that expressive behavior is naturally designed to convey information by openly revealing states of mind of expressers and eliciting appropriate, active responses on the part of receivers who directly recognize those states—their presence, intentional object, degree, behavioral profile, etc. Yet the minded, intersubjective, and overt character of expressive communication is not due to the other-directed intentions and interpretations of those who engage in it. For, according to the Hypothesis, natural design—achieved through ‘natural selection’, ‘animal purposes’, or natural ‘learning mechanisms’, to borrow from Millikan—takes the place of individual ostensive intentions and inferential interpretations in securing the communicative effectiveness and openness of expressive communication.

While animal signaling is ubiquitous, not all animals that signal engage in expressive communication. The EC Hypothesis advances beyond Millikan’s characterization of ‘intentional signs’, as well as the characterization of signals proposed by EGT, by focusing on the special character of expressive signals. According to the Hypothesis, the open displays (vocal, facial, gestural, postural, etc.) that comprise

25 See Bar-On 2004; Green, 2007; Bar-On and Green, 2010; Bar-On and Priselac, 2011; and Bar-On, forthcoming.
the repertoires of creatures capable of expressive communication are designed—by nature, and not through individual intentions—to convey information and move to action by, specifically, drawing attention to the expressive performances themselves. The communicative work of expressive communication is done through the spontaneous production of expressive signals that reveal expressers’ complex states of mind and the corresponding non-inferential recognition by, typically, conspecific (or else co-evolved) recipients. In general, animal expressers do not intentionally express their states of mind, and their observers do not rationally infer what they are supposed to be informed about. Thus, neither half of the expressive communicative equation is Gricean. If EC is right, expressive communication is intersubjective and minded, as well as overt, though its overtness is not earned through the labor of mutual rational-inferential ‘mindreading’. Despite not requiring individuals’ intentions to communicate, and although expressive repertoires are often innately fixed, expressive behavior itself is not automatic or reflexive, but is subject to voluntary control, relatively flexible, context-sensitive, individually variable, and can be modified via learning (see Section 4.3).

According to CC, recall, the tendency to share thoughts and feelings with others typifies humans exclusively: ‘only humans tell each other in detail about events and scenes in the world’ (Hurford, 2007, p. 331; and compare Tomasello, 2008, passim, and Fitch, 2010, chs 3 and 4). But, from the perspective of EC, expressive behavior already manifests a natural tendency that nonhuman animals have openly to share states of mind with others, which tendency is not to be theorized in terms of individually rational efforts. But, while expressive communication is in this sense overt, it is neither cooperative nor manipulative—at least not in the sense of being produced by individuals who aim to cooperate or manipulate (though, no doubt, it serves certain biological purposes/needs). If this is on the right track, then the alleged evolutionary puzzle about language—due to the fact that ‘giving information away would seem prima facie to be against the individual interests of the information-giver’ (Hurford, 2007, p. 331)—was already solved by evolution before the emergence of language, with the emergence of expressive communication. It may be true that ‘only humans tell each other in detail about events and scenes in the world’ (and we might add: only humans talk about what goes on in their ‘rich mental lives’); for, only humans articulate these things in language. But nonhuman animals do express—and thus share with each other—states of mind they are in, through complex nonlinguistic behavior. On the non-Gricean construal, this means that they show to their designated audience without intentionally telling—and their

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26 Expressive signals thus contrast with the signaling behaviors of bees and other eusocial insects. This supports the commonsense intuition that the latter belong in a different biological category, despite their impressive complexity. Further vindication of this intuition, however, would require an investigation into the natural design of bee dances and mental life of arthropods more generally. For relevant discussion, see Carruthers, 2004, 2009, and Camp, 2009.
designated audience recognizes without rationally inferring—both how things are in the world and how things are with them.

Thus, we should recognize that our nonhuman predecessors, being social, minded, and expressive creatures, were already proficient—though non-Gricean—communicators who overtly shared information about their current states of mind and impending behavior as well as about the world around them. This may relieve language evolution theorists of the need to offer specifically evolutionary explanations for why our immediate predecessors should have become motivated to share information with each other about various matters. It could free them to focus on a more tractable (even if still very difficult) problem. This is the problem of explaining how linguistic expressive vehicles could come to replace, augment, and transform the nonlinguistic expressive means to which nonhuman animals are consigned.

4. On the Alleged Inadequacy of Expressive Theories: Must We ‘Go Gricean’?

In the course of a lengthy defense of his Rubicon claim, Müller says:

If ... the ultimate elements in our analysis of language turn out to be the cries of animals, ... or something like the sounds which men utter themselves when suffering from pain or joy or any other powerful emotion, this would prove a ... strong support of the opinion of certain followers of Darwin (1887, p. 180).

But, although he acknowledges that alarm calls, like dog barks, cats’ purrs, and mothers’ murmurs, exhibit the ‘power of showing by outward signs what we feel’, he thinks that, at best, this allows them to be the source of merely ‘emotional

To reiterate, expressive communication only occurs among creatures that engage in overt acts of showing their states of mind to suitable others through behavioral performances. Such communication is likely to have emerged in response to selection pressures connected, specifically, with the advantages of intraspecific sharing of states of mind. Reptiles (we may assume) have states of mind but aren’t social enough to have much use for such sharing. As pointed out by an anonymous referee, bacteria engage in collective behavior (‘quorum sensing’), and schools of fish coordinate their movements; but even if these behaviors are deemed social in the relevant sense (which is questionable), they don’t rely on sharing of states of mind through behavioral performances, which is what we find among so many mammalian species. (Neither do displays that reveal biologically significant features, such as fitness, strength, or readiness to mate.)

Is EC at risk of digging another Rubicon-sized gap—between non-expressive and expressive creatures? Explaining how that gap is to be bridged would require answering questions that face theories of the evolution of communication quite independently, concerning the biological advantages of animals’ advertising (and recognizing) states of mind. (See previous footnote.)
language’—a far cry from ‘real’ language, which is ‘rational’ language’ (1887, p. 198). Interestingly, for Müller, the rational/emotional divide is not a matter of the presence/absence of communicative intentions and their decipherment. Rather, he takes rational language to consist of discrete elements that ‘are expressive of concepts, and concepts are the work of reason’ (1887, p. 200). Indeed, Müller claims that ‘real’ language is only possible for creatures possessing concepts, which, in turn, require language. Thus, like some contemporary philosophers, Müller holds that language and concepts are interdependent, so there is no hope for a philosophical or evolutionary understanding of the emergence of language.29

Müller’s interdependence claim is not widely accepted by contemporary theorists. And his reasoning—from what he believes sets human language apart from all existing forms of animal communication to a claim about what is necessary for the emergence of language—is faulty.30 Nevertheless, many join Müller in dismissing expressive accounts of the origins of words as failing to heed ‘a central distinction between language and most mammal calls: the sounds of the former are learned, while those of the latter innately given’ (Fitch, 2010, p. 392), with the former possessing an essentially ‘arbitrary symbolic’ and ‘reciprocal’ character (Hurford, 2007, pp. 184, 200), and the latter ultimately forming part of a ‘genetically fixed adaptive specialization’ (Tomasello, 2008, p. 17).31 There is an unstated assumption here: that the meaningfulness, overttness, and reciprocity of speech performances, understood in post-Gricean terms, are inextricably linked with the learnability and arbitrariness of linguistic vehicles. This assumption may rest on a certain empirically ill-founded rationalist conviction that language must ultimately (and necessarily) be grounded in our capacities for planning, deliberation, control, design, intentional manipulation/cooperation, abstract conceptualization, rational inferences, and non-associative learning. This conviction, in turn, implicitly rests on Müller’s own emotional/rational divide—which he took to be the real obstacle to crossing his Rubicon. And attempting to explain how Müller’s Rubicon could be crossed, I submit, should encourage us to give up this conviction. Giving up the conviction does not leave us without resources for explaining how our ‘merely expressive’ predecessors might have been able to move closer to linguistic communication—on the contrary. By way of conclusion, I’d like to highlight some of these resources.

29 For a critical discussion of the interdependence claim as advocated by, e.g. Sellars, Davidson, Brandom and McDowell; see Bar-On and Green, 2010; Bar-On and Priselac, 2011; and Bar-On, forthcoming. And see Bermúdez, 2003.

30 As mentioned earlier (and see Bar-On, forthcoming), accepting a claim about what sets apart extant animal communication systems is consistent with proposing that language evolved from such systems through intermediate stages that would not themselves have qualified as language. In addition to intermediate stages between flightless reptiles and birds, think of earlier stages of the vertebrate eye.

31 Müller, like many contemporary theorists, uses neurological evidence about the dissociation of expressive verbal behavior from speech to argue against expressive theories. (See Müller, 1887, pp. 200f. See also Fitch, 2010, p. 392.)
4.1 Expressive Communication Goes Well Beyond the Paradigm of Mere Affective Displays

Consider again the use of language in our own species. We regularly use structured linguistic vehicles to give vent to present states of mind. This is true not only for holophrastic interjections, expletives, greetings, and other vestiges of Müller’s ‘emotional language’ (see Hurford, 2007, p. 171). It is also true for articulate sentences. Recall Jenny’s utterance of ‘I want Teddy!’ used to express her desire for Teddy, or ‘so good to see you!’ which is often used to express one’s joy at seeing a friend, or even ‘It’s getting late’ used to express a thought that pops into one’s head. We regularly use articulate language to express present states of mind, from anxiety and anger to disappointment and occurrent thoughts (see Bar-On, 2004, especially chs 6 and 7). Among these are also cognitive states such as judgments and intentions.

But it seems to be an unwarranted presumption that only linguistic creatures are capable of expressing cognitive states, or that nonverbal behavior allows animals and prelinguistic children (or human adults, for that matter) only to express affective states. An animal’s shifting gaze, turn of the head, bodily orientation, and so on, may show a variety of attentional states—the animal’s noticing something specific, its piqued interest in some object or event, or its surprise, as well as current desires for specific types of interaction (to groom, to copulate, to play). An animal stalking prey can show suitably attuned observers not only its current excitement but also what it’s thinking of doing. (Perhaps, more plausibly, it shows a hybrid state that is neither purely affective nor purely cognitive, and neither purely internal/subjective, nor purely other-directed.) Among expressive signals are also various so-called ‘intention movements’, pointing gestures, and a variety of ritualized behaviors. These are relatively deliberate forms of communicative behavior that exemplify expressive behavior, but they do not fit the stereotype of affective ‘eruptions’.

4.2 Even if Expressive Performances are Thought to Be on the ‘Natural’ or ‘Non-Arbitrary’ End of the Natural/Nonnatural Divide, the Products of Those Acts Share Some Features of Linguistic Symbols

Going back to alarm calls, although the expressive vehicle used in, say, a leopard alarm call—i.e. a certain vocal pattern—differs from an English sentence in lacking syntactic structure and compositional meaning, the vocal pattern, like the sentence, doesn’t resemble leopard noises. Animal alarm, food, distress and other calls are not in general onomatopoeic. Moreover, different animal species give different alarm calls for the same type of predator (see Fitch, 2010, ch. 4 and passim, and Hurford, 2007, ch. 7, for review and references). So there is some arbitrariness here. In addition, calls, somewhat like sentences (understood as vocal patterns), can in principle be separated from the states that are expressed in acts of producing them—a fact that ethologists exploit when conducting playback experiments (see, e.g., Cheney and Seyfarth, 2007 and Zuberbühler, 2000). Indeed, the familiar characterization
of alarm calls as ‘functionally referential’ already reflects the recognition that, understood as products (or expressive vehicles), such calls do have a proto-semantic life of their own and may qualify as at least proto-one-word sentences, if not proto-words (see Font and Carazo, 2010 for a recent discussion of functional reference).

4.3 Expressive Signals Differ From Natural Signs, in that Expressive Performances or Acts Exhibit Considerable Voluntary Control

Some authors who see a sharp contrast between animal calls and linguistic utterances do note in passing that what is innately fixed and not learned is the call repertoire—i.e. the set of expressive vehicles (see e.g. Fitch, 2010, p. 180, and Hurford, 2007, pp. 230f.). Individual acts of producing the alarm call are not innately determined. Recent evidence regarding the production of calls of alarm, food, aggression, courtship, etc. of a wider variety of animal species reveals animals’ capacities for considerable voluntary control, a variety of audience effects, and at least some semblance of deception, giving the lie to the received idea that such calls are purely reflexive, innately fixed reaction patterns (see Fitch, 2010, §4.9.3 and ch. 9, and Snowdon, 2008). The correct application of alarm calls in vervet monkeys, for example—in contrast to bee dances—is learned by novices (see Cheney and Seyfarth, 2007, pp. 190, 257). So the production of an alarm call already goes beyond the production of, say, a reflexive gasp of fear that is nonvoluntarily ‘pressed from within’ at the sight of a frightful predator. Noting that ‘there are learned components to the vervet calls in both production and reception’, Hurford congenially remarks that the ‘common dismissal of vervet-like calls as irrelevant to the origins of human symbolic behavior is too hasty’. And he goes on to cite Wilkins and Wakefield (1995, p. 197) ‘who envisage a transition from largely innate calls to the beginnings of a learned vocabulary as early as Homo Habilis’ (2007, p. 237). Fitch, too, concludes his critique of expressive theories with the remark that at least in ‘a species already possessed of imitative skills . . . innate cries could provide fodder for . . . words for emotions, for reactions to events, and for individuals (e.g. by imitating their laughs)’, conceding that, ‘once imitation was present’ even innate calls ‘could form models for certain words’ (2010, p. 393).

Indeed, current research undermines the picture of animal expressive signaling as reflexive, or even merely reactive. (See e.g. Zubebührer, 2000; Seyfarth and Cheney 2010.) Tomasello presents evidence regarding monkeys who refrain from giving alarm calls ‘when alone or without kin’ (2008, p. 17), but dismisses the relevance of this evidence because ‘other animal species also refrain from alarm calling in these situations as well’ which suggests that ‘this is part of the genetically fixed adaptive specialization’ (2008, p. 17). But it is not clear why, absent prior commitment to the post-Gricean picture, this evidence of audience-sensitivity, which appears to foreshadow an important aspect of linguistic communication, should be dismissed out of hand. Note, too, that we may agree with Tomasello’s observation of an important (synchronic) difference between alarm calling and
4.4 The Production of Gestural Expressive Signals, Specifically, Exhibits Features that Foreshadow Intentional Communication

Gómez, 1998a argues that crucial precursors of linguistic communication are to be found in the gestural communication of apes (more than in ‘semantic alarm calls’ 1998a, p. 81). He describes hand-reared gorillas who ‘when they wanted people to move to a particular place, they would take their hands and gently lead them in the appropriate direction’ systematically using ‘glances at the eyes of the human as part of their requesting procedure’ apparently recognizing that ‘for their gestures to be effective they have to make them ostensive by establishing joint attention’ (1998a, p. 83). Importantly, on Gómez’ view, this recognition relies only on ‘first-order representations of attentional and expressive behaviours’ (1998a, p. 85). It requires the capacity for so-called Shared Attention (SAM), which is independent of theory of mind (TOM). Drawing on current psychological work on ‘intersubjectivity’ in young children and individuals with autism, Gómez maintains that ostensive communication in both apes and infants involves an attempt ‘to affect how the other relates to an object’ that is singled out ostensively, ‘not how the other thinks about the object’ (1998b, p. 256).

Fitch and Hurford also note the potential significance of animals’ gestural communication for language evolution and regard it as more relevant than alarm calls. Fitch notes that ape gestures not only exhibit ‘manual control and attention to the other’s attentional state’ but are also ‘flexibly mapped to communicative needs’ (2010, p. 441), insofar as multiple types of gestures can be used to achieve the same purpose, with sensitivity to ‘the intended receiver’s orientation or response’, and a single gesture can be used in different contexts (op. cit.). Moreover, Fitch cites new research showing that, unlike the universal ‘begging’ gesture, gestures such as the ‘arm up grooming’ gesture arise through ‘ontogenetic ritualization’, whereby young apes ‘seem to independently discover the communicative gestures that eventually compose their adult repertoires’ (op. cit.). Ape gestural communication is ‘thus both individually idiosyncratic and highly variable from group to group’ and

32 Crockford et al. (2012) report recent experiments with chimpanzees in the wild who emit snake calls highly selectively, exhibiting fine-tuned sensitivity to whether or not the call receivers have themselves seen the snake, whether they have been within earshot of the call, how far away they are relative to the caller, and how affiliated they are with the caller. While it may be debatable whether the callers ‘assess the state of knowledge’ of the receivers (as the authors suggest), it seems undeniable that the callers are attuned to and monitor, specifically, other subjects’ attention to—and impending behavior toward—a salient object of potential mutual interest or significance, as witnessed by the intricate pattern of their call production. And the call receivers are moved to take specific actions, to avoid the threat of which the call informs them, skirting the path to avoid the location of the threat (which is invisible to them).
‘fulfills a crucial pragmatic prerequisite of word learning and language acquisition’ (and, moreover, it fulfills ‘the desideratum that posited protolinguistic capacities should remain evident in modern humans’) (2010, pp. 441f.). Hurford, too, notes the significance of the fact that this sort of learning exhibits ‘the social feature of interaction with another person,’ citing experimental replication of this effect in cats and other non-primates (2007, pp. 198f.). Nevertheless, Fitch concludes: ‘Gestures . . . appear to provide a good way into a meaningful protolanguage—the problem is how to get out of such a system and into the arbitrary, spoken signs that are the foundation of virtually all modern languages’ (Fitch, 2010, p. 457).

In addition, Hurford rejects ontogenetic ritualization as a potential precursor of the human ability to acquire vocabulary, because the type of learning involved in ritualized behavior as well as in emulation is of the wrong sort, failing to be suitably ‘arbitrary’ and ‘reciprocal’ (2007, p. 200).

Thus, despite noting the communicative potential of ritualized behavior, the above-mentioned authors deny that ritualization is a legitimate precursor of language-like communication, because: a. it’s (often?) not bi-directional (the mother doesn’t poke the infant to get nursed); b. it involves dyadic, not triadic interactions; c. it’s (typically?) imperatival, not declarative. Ritualized communicative behaviors are said at best to mimic Gricean communication; for they lack the overt reciprocity and ostensive-inferential character needed to qualify as precursors of linguistic communication (see e.g. Scott-Philips, 2010). But the sorts of processes that underlie ritualization, I would argue, could enable expressive behaviors to evolve into standard signals with recognizably semantic and pragmatic features (see Section 4.5). Many expressive behaviors are interchangeable or bi-directional. Moreover, expressive communication paradigmatically involves behaviors that (unlike, e.g. nursing pokes) are not purely dyadic, since they show the object toward which the expresser’s state of mind is directed; and among these are ones whose purpose is not exclusively imperatival.33

4.5 Divides such as Innate Versus Learned, or Natural Versus Arbitrary are Straddled, even Synchronously, by Expressive-Communicative Animal Behaviors

The variety of cases we have considered so far—alarm (and other) calls, ontogenetic ritualization, ostensive communication—suggest that ‘non-arbitrary’ is not a univocal term in its application to animal communicative behavior. Moreover, as the case of human ostensive communication itself illustrates, there is no essential connection between instances of rudimentary communicative intentions and what is arbitrary. The gorillas’ behavior described above is ostensively communicative, but the expressive vehicles used (gently taking the hand of the human, gaze interchanging) are hardly arbitrary. Insofar as theorists deem such communication to be

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33 Thanks to an anonymous referee for prompting this clarification.
closer to linguistic communication, it’s important to see that it does not require grounding in what is invented or contrived. (In fact, this can already be seen in Grice’s Myth and Darwin’s scenario: a natural sign can be produced with the relevant communicative intentions. And see Wharton, 2009, pp. 13f., 30ff. and passim.) Relatedly, just as ‘innate versus learned’ can apply either to the repertoire or to its use, so can ‘arbitrary versus natural’. And communicative intentions, it seems, can accompany behaviors on either side of each divide. At the very least, it’s far from clear how these contrasts can be used to support CC as against EC.

The above cases also illustrate that what begins its life as an expressive gesture produced without an intention to communicate (or affect another’s state of mind)—an urgent poking expressing the infant’s desire to be fed, or a gesture indicating an object of interest—can achieve (through various forms of ritualization, for example) distinctively intersubjective communicative purposes without the intrusion of communicative intentions or rational inferences. Moreover, such a gesture can get routinized so as to become part of a stable communicative repertoire. The transition is effected through a series of spontaneous, uncalculated, interactions in which a signaler makes manifest his state of mind and its target, in ways open to indeterminate degrees of modulation, and the receiver directly recognizes it and responds appropriately. Expressive acts of this sort can take on a proto-pragmatic life of their own qua communicative acts that are not underwritten by Gricean intentions.

So, finally:

4.6 The Contribution of the Capacity for Expressive Behavior must be Understood in the Context of Other, Non-Gricean Capacities that Non-Linguistic Animals Have, and that Our Ancestors Could be Presumed to Have Had

We have now canvassed several additional capacities that can facilitate a gradual transition from mere expressive emissions to stable vocal repertoires, namely: vocal learning, vocal imitation, ritualization, and ostensive communication. In creatures capable of vocal control, in addition to vocal imitation, what begins life as, e.g. a merely reflexive gasp of fear prompted by some danger (as opposed to an already distinct, innately fixed call), could gradually become, through modulation and refinement, detached from a producer’s states of mind, while retaining its aboutness. Even without the wisdom of Darwin’s ape-like creature, who intends to use the vocalization ‘as a sign or symbol for’ the relevant source of danger, a vocal pattern produced in the course of ostensive communication could be transmitted from one individual to another, and propagated throughout a social group as a standard way of communicating about an object or aspect of a shared surrounding. Such processes of ‘cultural transmission’ could culminate in the formation of distinct, repeatable, acoustic patterns gaining currency within a social group as labels for the different intentional objects of the states characteristically expressed when producing them (that is, different sources of threat—e.g. leopards versus
eagles). They can form part of a standing (if limited) repertoire of *shared expressive vehicles* that serve referential functions, and begin to resemble symbolic one-word sentences that represent relatively specific worldly conditions, even independently of the mental states originally expressed in producing them. With the advent of a capacity for learning of the sort deployed in ontogenetic ritualization, the ability to use, imitate, and control the production of expressive vehicles, can be exploited in overt communicative interactions that exhibit early (semantic and pragmatic) trappings of linguistic communication.34

4.7 Some Concluding Remarks

In the earlier parts of this article, I brought out the Gricean underpinnings of a major current of thought about the evolution of language. My aim in the second half of the article was to indicate how much of Müller’s Rubicon can be sailed across without ‘going Gricean’. The re-evaluation of expressive communication offered here shows that we can get farther than is assumed by many theorists of language evolution. Going back to Darwin’s scenario, we can see how the evolutionary emergence of the non-Gricean capacity for Janus-faced expressive behavior could mark a significant improvement on other forms of animal communication. The capacity to produce expressive signals—through which producers openly (even if not intentionally) show specific aspects of their states of mind, of the worldly causes or targets of those states, as well as of impending behavior—together with the complementary capacity to respond to such signals appropriately, and to be moved to action, enable animals to engage in a form of communication that is world-directed, minded, intersubjective, and overt. In this way, *synchronously* speaking, expressive communication is poised half-way between the more ‘biologically-driven’ animal signaling systems, on the one hand, and intentional-conventional linguistic communication, on the other. Given the structure and ‘subject-matter’ of expressive communication, however, *diachronically* speaking, it emerges as especially suitable to prefigure linguistic communication. Contrary to current dogma, its study is apt to shed light on the emergence of linguistic communication.

Summing up, animal expressive communication is like animal signaling more generally in (at least) the following respects:

- The products of expressive behavior (vocal/gestural/bodily patterns) are not symbolic, and they do not exhibit recursive or compositional structure.
- Like animal signals that indicate e.g. size, fitness, or readiness to mate, expressive signals are not produced with Gricean communicative intentions;
- The use of expressive signals does not manifest theory of mind or individual rationality.

34 For a very congenial characterization of a similar trajectory in ontogeny (and implications for phylogeny), see Vihman and DePaolis, 2000.
Expressive signals are naturally designed. However, in (at least) the following respects, expressive communication resembles linguistic communication:

- Expressive communication goes beyond the indication and apprehension of signalers’ biologically significant features; expressive behavior shows signalers’ world-directed states of mind, as well as showing signalers’ impending behavior and moving receivers to respond appropriately.
- Expressive signals inherit the complexity of expressed states of mind, showing the intentional objects of these states (as well as their type and degree).
- The states shown through expressive behavior can be both affective and cognitive.
- Expressive behavior is subject to voluntary suppression, modulation, and control.
- The use of expressive signals exhibits various sorts of flexibility (e.g. audience-effects and context-sensitivity).
- Gestural communication, specifically, exhibits individual idiosyncrasy and group variability.
- Expressive communication is subject to some intersubjective learning and dyadic modification.
- Expressive communication is at times triadic, relying on shared attention mechanisms that allow signalers and receivers to attend together to objects or events of mutual concern.

Given these features, the capacity for expressive communication—coupled with other non-Gricean capacities that can be plausibly attributed to our ancestors—could be precisely what would have been needed to take the place of the inventive insight of Darwin’s ‘unusually wise ape-like animal’. If so, then perhaps the road from Darwin’s purely expressive musical protolanguage to meaningful speech need not, after all, be paved with Gricean intentions.

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