
Commentary:

The Nature and Evolution of Human Language

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In "The Possibility of an Evolutionary Semantics" Maxine Sheets-Johnstone levels two criticisms at current philosophical and scientific practice. First, it assumes or leads to ahistorical models of human language. And second, it fails to acknowledge the prevalence of iconic bodily representation in human and nonhuman communication systems. My aim here is to evaluate the legitimacy of these charges.

1. The origins of human language

According to Sheets-Johnstone, some scientists and philosophers employ ahistorical models of human communication, models that do not explain how or why human language developed, but assume it "arose full-blown from the mouths of hominids like the goddess Athena arose full-blown from the head of Zeus." Sheets-Johnstone believes that Charles Hockett is an exponent of this "Athena-like paradigm" and that he gives himself away when he defines language as something which only humans can have: "it is because the beginning of language is fixed at the start by definition that the paradigm prevails. Only humans have language; therefore language arose (and can only have arisen) 'with their kind.'"

Hockett, however, does not define "language" as something which only humans can have. Hockett (1960) adduces thirteen "design features" that a communication system might possess and claims, "There is solid

empirical justification for the belief that all the languages of the world share every one of them" (p. 90). It is not clear in what sense we should understand Hockett's account to be a definition of "language." But even if we assume that Hockett is claiming that it is an analytic truth that language has the thirteen design features, it is surely contingent that humans are the only beings that use language. If a chimp or a nonhuman alien were to employ a communication system that exhibited all thirteen design features, Hockett could claim, without conceptual confusion, that the chimp or alien spoke language. Hockett's view neither asserts nor implies that language is by definition the exclusive province of humans.

Contrary to Sheets-Johnstone's view, I think Hockett (1960) does provide an historical account of the origin of human language: he describes the order in which the "design features" of human language may have evolved and sketches some potential reasons for their evolution without straying noticeably from the strictures of evolutionary theory. Hockett's model may lack rigor and detail; it may be speculative and *passé*; it may make bad assumptions, and it may be false. I'm willing to be convinced that it's all this and more. But it doesn't imply that language issued magically from the mouths of our ancestors.

Sheets-Johnstone's attack against Hockett's model seems particularly harsh, given the difficulties involved in constructing an account of the origins of human language. Consider that the language of our early ancestors left no explicit fossil records and written language arose long after spoken language was well on its way. Given the paucity of evidence at our disposal, how can we hope to develop an account of the origin of human language that is something other than a fairy tale? Here is Hockett's plausible method: We assume that the communication systems of our ancestors were similar to those of certain extant nonhuman animals. We then compare their communication systems with our own in order to determine what sorts of changes had to have occurred in order for human language to develop. Finally, on the basis of the available evidence about our ancestors, we try to piece together a coherent account of how these changes might have occurred (Hockett, pp. 89-90).

The importance of the comparative method for the construction of a textured, historical model of the evolution of language is not news to Sheets-Johnstone. In her paper "Taking Evolution Seriously" she



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compliments evolutionary scientists for employing it to understand our ancestors' behavior. Yet Hockett explicitly states that this is what he is doing: "With this sort of comparative method it may be possible to reconstruct the communicative habits of the remote ancestors of the hominoid line" (p. 89). Once again, Hockett's model may be inadequate, but it's not ahistorical.

2. Iconic bodily representation

Sheets-Johnstone argues that current philosophical and scientific practice fails to acknowledge the prevalence of iconic bodily representation in human and nonhuman communication systems. In human language, this sort of representation (or something akin to it) makes a number of appearances. I will focus on its putative appearance in speech perception.

Sheets-Johnstone embraces the motor theory of speech perception. This is a *phonetic* theory, i.e., a theory that is supposed to tell us how we manage to recognize a speech sound as being of one type rather than another (such as a voiceless bilabial stop [the /p/ sound] or a glottal glide [the /h/ sound]). One might suppose that we perceive (and categorize) speech sounds straightforwardly in terms of their acoustic properties (the physical properties of sound waves).¹ Proponents of the motor theory deny this. They maintain that the categories we employ to identify types of speech sound are defined in terms of types of articulation.

Given the motor theory of speech perception, Sheets-Johnstone argues that iconic bodily representation is prevalent in both human and nonhuman communication. Consider some paradigms of iconic bodily representation. One is the honeybee's waggle dance, in which a bee communicates the direction and distance of a food source by engaging in a dance that is in part "a miniaturized version of the flight from the hive to the target" (Wilson, p. 53). Another is the sexual display of a female howler monkey in estrus who invites copulation by mirroring sexual intercourse with mouth and tongue. Sheets-Johnstone claims that in these cases and in cases of human speech perception "the body is iconically representing its own experiences and is thereby communicating either its bodily dispositions of the moment, or information about something in the world."

I think this is a misleading characterization of the relationship that holds between human language and Sheets-Johnstone's memorable examples of iconic

bodily representation. The issue is not whether humans and nonhumans sometimes communicate in ways that involve iconic bodily representations. They do. The issue is whether the motor theory of speech perception implies that iconic bodily representation is prevalent in human language. I am skeptical because the paradigm examples of iconic bodily representation involve three core features, none of which are shared by human language (or by many other forms of nonhuman communication²).

- (1) In the case of the honeybee and the howler monkey, the *content of the message* includes some kind of physical activity, such as finding food or having sex. In the case of human language, if I succeed in recognizing speech sounds you make, then I have (in some sense) acquired information about your articulations (a physical activity). But information about articulations is not part of the *content of your message* (unless you are talking about your articulations). For example, when you say, "John hops," the content of your message does not involve anything about your nasal cavity, teeth, lips, tongue, palate, jaws or throat.
- (2) In the case of iconic bodily representation, the channel employed by the sender of a message is the sender's own body. But in the relevant cases of human language (those in which the perception of speech is involved), speech is the channel of communication.
- (3) A third important feature of iconic bodily representation is that the content of the message is represented iconically; i.e., the sender's body represents an activity by engaging in actions which (in some way) resemble it. But when I say, "John hops," the fact that makes this a representation of John hopping is not that the former in any way resembles the latter.

These are important asymmetries. There are others.³ Even so, isn't there something right about what Sheets-Johnstone says? Isn't there some sense in which she has identified iconic bodily representation in human language? Perhaps. If the motor theory is true, when you hear me speak, part of your cognitive system is busy employing information that somehow involves my articulatory gestures. The relationship between the

sender's body and information employed by the receiver that is not part of the content of the sender's message may be analogous to iconic bodily representation, or even a case of it. The problem is that we cannot confidently draw any such conclusions without a clearer understanding of the nature of iconic bodily representation and the various roles it can play in a communication system.

As a final note, I would like to express some cautionary counsel about how we should view the relationship between human and nonhuman communication that I think all parties to this debate can embrace. Because human and nonhuman communication is immensely variegated, general declarations of similarity or dissimilarity are inherently suspect. So once we recognize some specific similarities between certain human and nonhuman communication systems, we should avoid the temptation to force them into uncomfortable conceptual categories that exaggerate their affinities. And once we acknowledge some of the differences between individual human and nonhuman communication systems, we can and should avoid any temptation to imagine that our linguistic abilities elevate us above our evolutionary history or that the communicative capacities of nonhumans inevitably relegate them to their current moral status in society.⁴

Notes

¹ Proponents of the motor theory point out that due to differences in context, we can perceive acoustically identical signals to be phonetically distinct, and we often perceive two sounds to be phonetically identical even though they are acoustically distinct (Liberman and Mattingly, pp. 14-6). They conclude that we don't recognize speech sounds in terms of the acoustic properties of those sounds.

² There are many forms of nonhuman communication which do not fit this model. To take just one example, individual Atlantic bottlenosed dolphins have their own signature whistles which allow other dolphins to identify them. It appears that variations in the speed, loudness, and duration of an individual dolphin's signature whistle inform (to some degree) other dolphins about its state of excitement (Caldwell & Caldwell, p. 796). The dolphins' communication is neither bodily nor iconic nor does it (in any obvious sense) involve the representation of physical activity.

³ In the case of human language, if the motor theory is true, then the knowledge about the sender's body that is employed by the receiver in categorizing speech sounds is

tacit knowledge. It is not consciously accessible. (If it were, evidence for the motor theory would be considerably easier to acquire.) But when the female howler monkey invites a potential mate to have sex by employing tongue and mouth as sexual analogues, the male's knowledge of the female's bodily dispositions is altogether explicit. This is another important asymmetry between the cases.

⁴ I would like to thank Richard Combes, Susan Daniel, Joe Mendola, and William Robinson for helpful comments on earlier drafts of this paper.

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