

densely written for the nonspecialist), a worthy successor to the pioneering book by Semitic specialist I. J. Gelb (5).

References

1. B. B. Powell, *Homer and the Origin of the Greek Alphabet* (Cambridge Univ. Press, Cambridge, 1991).
2. D. Schmandt-Besserat, *Before Writing* (Univ. Texas Press, Austin, 1992).
3. M. Pope, *The Story of Decipherment: From Egyptian Hieroglyphs to Maya Script* (Thames and Hudson, New York, ed. 2, 1999).
4. J. DeFrancis, *Visible Speech: The Diverse Oneness of Writing Systems* (Univ. Hawaii Press, Honolulu, 1989).
5. I. J. Gelb, *A Study of Writing: The Foundations of Grammatology* (Univ. Chicago Press, Chicago, ed. 2, 1963).

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LANGUAGE

Social Motives for Syntax

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As surprising as it may sound, most cognitive-science research on language has been avowedly disinterested in communication. One dominant philosophy, grounded in the work of linguist Noam Chomsky, sees language as primarily an instrument of thought, not action. On this view, the key event in the evolution of language was a mutation resulting in an organlike faculty in the human mind, with selective advantage in the realm of reasoning. This faculty happened also to be useful for generating complex communicative behavior, though perhaps in the same way that a foot happens to be good for playing soccer: it did not evolve under the selective pressure of that function.

Michael Tomasello (a developmental psychologist at the Max Planck Institute for Evolutionary Anthropology) offers a distinctly contrasting perspective in *Origins of Human Communication*. Following ordinary-language philosophers from Ludwig Wittgenstein through J. L. Austin, Paul Grice, and John Searle, Tomasello sees language as a means for doing things, not a device for processing or merely externalizing thoughts. Here, to communicate is to act on others in the social realm (1, 2). For language to have this function presumes not only a conspecific with a comprehending mind but also a willingness to cooperate. Take the simple example of a

request: I say, "Please pass the salt." If all goes well, this utterance has an effect on your mind that in turn causes a compliant pattern of behavior: you pass me the salt.

Requests form one of three classes of social action on which Tomasello builds his account of human communication. The others are informing-helping (e.g., when one person points to keys that another just dropped) and sharing (e.g., when two people's attitudes toward a third person align in the course of a gossip session). He summarizes research showing that all three social motives are fully evident in the communicative behavior of prelinguistic infants and all but absent among our closest relatives, the great apes. Humans have a special combination of cooperative instincts, prosocial motives, high-level intention attribution, and moral propensities (3). Tomasello contends that without this unique psychological wherewithal in the domain of social cognition, language as we know it could never have evolved.

Tomasello's work represents a long-standing and now rapidly growing view that language is not restricted to abstract structures of gram-

matical patterning but includes gestures and other bodily movements of the kinds that typically accompany speech (4, 5). In this book, Tomasello does more than merely include gestures: he gives them pride of place. Gestures, he argues, are necessary for the development of language in both phylogeny and ontogeny. What is new here is not the idea itself but the fascinating battery of experiments by Tomasello and colleagues garnered in support of it. The research settles some long-standing controversies in developmental psychology by showing that 9-month-olds use gestures for multiple, often sophisticated social functions, including the three basic social motives. These favorable conclusions on the social cognitive sophistication of human infants contrast with the findings on primates Tomasello summarizes. The research he discusses defines limits of chimpanzees' capacities in experimental settings (to the certain chagrin of many field-working primatologists). Lacking humanlike prosocial motives, chimps show only rudimentary strategies for making requests and little or no evidence of the helping and sharing behavior that comes so naturally to human infants.

Many traditional linguists find a focus on gesture in accounting for the origin of language unsatisfying. The problem is that while gesture provides a key link in the chain of events, other critical links remain missing. Gestures lack the highly structured complexity

of grammar: How to get from one to the other? [Such statements of incredulity are of course the enemy of gradualist evolutionary accounts (6).] Linguists in the 1990s expressed a similar worry in response to Robin Dunbar's socially grounded theory of language evolution (7). When Dunbar proposed that language evolved in response to the pressure of maintaining social relations in ever-larger groups—functionally analogous to (but much more efficacious than) what primates do with grooming—linguists complained that they could not see how to get from "mere grooming" to the dazzling complexities of syntax. As a linguist, Tomasello is qualified to address this concern and advance Dunbar's cause significantly (although surprisingly he makes no reference to Dunbar's work).

Tomasello's solution is an ingenious linking of requesting, informing, and sharing with three distinct levels of complexity in the grammatical possibilities that any language will furnish. He dubs these "simple syntax" (strongly dependent on immediate context), "serious syntax" (for making unambiguous reference across contexts), and "fancy syntax" (for organizing long and complex narratives). But this is essentially as far as his links to grammar go, promissory notes notwithstanding. Precisely because the author is a linguist, this omission is a missed opportunity to complete the argument, to connect the dots that lead from basic social actions ultimately to the radically varying, historically developed complex linguistic systems that are found around the world. I fear that without the story being told through to the end, many linguists will remain incredulous.

With this book, Tomasello makes a powerful and highly readable case for the social foundations of human communication (in line with a fundamental shift in current thinking on the nature of language) and of the underlying cognition that makes language possible. In this naturalistic account, language is an adaptation that gradually emerged, in step with the evolution of a special kind of social mind.

References

1. J. R. Krebs, R. Dawkins, in *Behavioural Ecology: An Evolutionary Approach*, J. R. Krebs, N. B. Davies, Eds. (Blackwell, London, ed. 2, 1984), pp. 380–405.
2. J. M. Atkinson, J. Heritage, Eds., *Structures of Social Action* (Cambridge Univ. Press, Cambridge, 1984).
3. N. J. Enfield, S. C. Levinson, Eds., *Roots of Human Sociality: Culture, Cognition, and Interaction* (Berg, London, 2006).
4. D. McNeill, *Psychol. Rev.* **92**, 350 (1985).
5. A. Kendon, *Gesture: Visible Action as Utterance* (Cambridge Univ. Press, Cambridge, 2004).
6. R. Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design* (Norton, New York, 1986).
7. R. Dunbar, *Behav. Brain Sci.* **16**, 681 (1993).

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