causal link between the sensory-motor system and the language faculty. However, the studies do support the theory that language did not evolve as a separate module but rather within a more domain-general action-perception network. The findings establish a close link between the prosody and the motor system. Furthermore, we suggest that today's language may have evolved from a prelinguistic protospeech including prosodic contours, a competence that is shared with nonhuman primates. Only the last step in the evolution with production of linguistically complex speech seems to be uniquely human.

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Did australopithecines (or early *Homo*) sling?

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Abstract: Two arguments are critiqued here. The first is that hominin mothers "parked" their offspring; the evidence does not support that position. The second is that motherese developed to control the behavior of nonambulatory infants. However, Falk's case is stronger if we apply it to children who are already walking and more likely to be influenced by verbal information.

Falk raises the intriguing, if untestable, hypothesis that about 2 million years ago our bipedal ancestors, whose babies were becoming increasingly helpless with the evolution of secondary altriciality, put their babies down while they foraged and then communicated with them in the form of prosodic vocalizations to provide reassurance and keep them content. She proposes that these vocalizations were the precursor to language. Although we appreciate Falk's attention to the early stages of infant development and to the mother-infant relationship, two important aspects of human life history that are often ignored in models of human evolution, we are uncomfortable with several aspects of her argument.

Although infant parking or caching ("putting the baby down") occurs among many other mammals, it is very rare not only among primates as a group, as Falk acknowledges, but also among humans in particular. Western cultures today provide a wide range of devices in which to place a small infant (cribs, swings, playpens, infant walkers, bouncy seats), but such behavior is rare cross-culturally. The norm is that mothers (or other members of the family) carry their infants in their arms or on their bodies most of the time for the first year, in a sling, inside the clothing (especially in cold climates), or tied to their trunk with a piece of cloth or net. Tracer (2002) has argued that crawling, which is often viewed as an inevitable stage in children's development in western cultures, is not in fact universal because children in many other cultures are not put down long enough to crawl until they are old enough to walk. It seems unlikely to us that hominin mothers 2 million years ago routinely would have set their children down, and it seems more probable that they would have carried them in their arms or, more likely, in a sling while they foraged. In fact, it has long been proposed that one of the simplest and probably earliest pieces of human technology was a carrying device (such as a net bag or sling) that could accommodate either infants or food to be shared with other members of the group (Isaac 1978; Lovejoy 1981). Furthermore, if hominin children 2 million years ago were indeed hairless, they would have had the same problems with thermoregulation as modern children have, an additional reason for their parents to keep them close to their bodies.

If, in fact, hominin mothers did put their babies down, there certainly would have been a selective premium on being extra vigilant, as Falk suggests. Because such infants would be immobile and not able to follow maternal directions, hominin mothers' vocal communication would simply have had the purpose of comforting fretting infants, not of warning them of dangers that they were incapable of responding to on their own. These reassuring vocalizations would not have to be conveyed with language per se. That is, modern primates and many other mammals vocalize to their infants in ways that apparently provide reassurance. Although it might be desirable for mothers to be able to offer reassurance and comfort to fretting babies with whom they are not in physical contact, it seems to us that a much higher selective premium would have been on linguistic communication *in the other direction.* That is, there would have been a real advantage to babies who could communicate specific information to their mothers ("I'm hungry," "there's a leopard," "the sun is too bright," etc.). We suggest that if selection favored information exchange between mothers and infants, it would have been much more valuable for babies who were not yet ambulatory to provide specific information to their mothers than for mothers to provide information and reassurance to their babies. Indeed, recent research has observed the birth of a language – a sign language – in Nicaragua among its deaf citizens (Senghas & Coppola 2002). Children have been responsible for adding grammatical nuances to the burgeoning language; their elders have not. Perhaps, turning the argument around, selection favored those children who were capable of turning inchoate vocalizations into structured linguistic elements.

In addition, there is the question of whether motherese is universal. Schieffelin and Ochs (1983) describe two cultures (the Kaluli of Papua, New Guinea, and the Samoans) in which motherese is apparently not employed. Moreover, in some cultures, motherese has a different complexion than the more frequent type of motherese that Falk describes. Among the Kiche Mayan, it takes the form of whispering (Pye 1986). The usefulness of whispering to a baby who is not in close physical proximity to its mother is questionable.

In sum, Falk's argument that language emerged out of motherese because infants were parked can be criticized on two counts. First, there is little evidence for parking infants among humans and probably among prehistoric hominins, and, second, even if there is a form of motherese in all societies (and that in itself is a controversial position), it may be that some forms of motherese could not serve the function that Falk specifies of keeping distant babies safe.

Although we question Falk's model as she applies it to nonmobile, dependent infants, it may be more appropriately applied to later stages of child development. That is, perhaps the origin of language can be found in maternal communication to their offspring in the years immediately after they begin to walk, when children are larger and more independent in their mobility and may more often be out of physical contact with their mothers. At that point they might benefit from their mothers' vocalized warnings and instructions ("stay away from the cliff," "don't eat that berry," etc.). The selective advantage of providing such instructions at this age may be less obvious, however, given the propensity of human 2-year-olds to ignore such verbal input and pursue their own agendas. In any event, it would certainly be in a mother's reproductive interests to have a more distal way of controlling her offspring's behavior. Perhaps motherese emerged to increase the likelihood that mothers' directions would be understood. After all, mothers know best.

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