

CHAPTER 37

SOCIAL CONDITIONS FOR THE EVOLUTIONARY EMERGENCE OF LANGUAGE

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It might be imagined that social conditions are irrelevant to how language evolved, since humans everywhere use language independently of social complexity or political system. Yet despite cultural differences, all human societies have certain underlying features in common. Below a certain threshold level of cooperation and trust, not even the simplest form of language could evolve.

Language has emerged in no other species than humans, suggesting a profound obstacle to its evolution. What could this be? If we view language as an aspect of cognition, we might expect limitations in terms of computational capacity. If we see it as essentially for communication, we would anticipate problems in terms of social relationships.

To determine whether the constraints are fundamentally computational or social, let's begin with the simple activity of pointing. From a human standpoint, it seems surprising that wild-living apes don't use intentional gestures to point things out to one another. Why not? Possibly they lack the necessary mental machinery. Yet it turns out that an ape is quite capable of using a gesture analogous to pointing—the so-called 'directed scratch'—to indicate where it wishes to be groomed (Pika and Mitani 2009). If an ape can point for its own benefit, what stops it from doing so for others? The explanation is clearly social. Apes are not motivated to coordinate their purposes in pursuit of a shared future goal (Tomasello 2006). And if this obstructs so simple an activity as pointing, the chances of language evolving are slim to say the least.

The term 'mindreading' refers to the ability to infer others' mental states on the basis of direction of gaze, facial expression, and so forth. While all primates have significant abilities of this kind, in humans they have undergone extraordinary development. The differences can be attributed to contrasting levels of cooperation. Take two individuals, each seeking to reconstruct the other's thoughts. Either they compete or they cooperate. If they compete, each will seek to block the other's mindreading efforts while promoting its own. Only where both sides cooperate simultaneously will Darwinian selection favour what psychologists term 'intersubjectivity'—the mutual interpenetration of minds.

Apes cooperate, but only up to a point. They are eager to obtain information about one another's intentions, but much less willing to divulge comparable information about themselves. When a mindreading ape obstructs a companion from reading its own mind, or when it displays no intention of helping in this respect, it unavoidably deprives itself of a potential source of information about its own thinking—namely its companion's mental representation of that thinking. Neither simple pointing nor more complex referential signing can evolve under such circumstances. Language evolution will not get off the ground because such individuals cannot 'see' their own thoughts and intentions as if from another's perspective (Tomasello 1999).

The more primates rely on physical dominance to gain reproductive success, the less likely they are to assist one another's mind-reading efforts or to develop capacities for empathy or role reversal. Conversely, wherever individuals need coalitions to resist being dominated, we might expect them to encourage one another to participate in their feelings and plans.

Human psychology evolved in adaptation to a particular way of life, based on hunting and gathering. Evolving humans compensated for vulnerability to dangerous predators by developing unprecedented forms of social cooperation, material culture, and strategies for remembering, transmitting, and exchanging accumulated knowledge. One view—known as 'deep social mind' (Whiten 1999)—holds that distinctively human forms of cultural transmission necessarily co-evolved with cooperative mindreading together with increasing egalitarianism.

Unlike chimpanzee societies, which are hierarchical, hunter-gatherers living in societies most similar to those in which we evolved are committed egalitarians. Humans everywhere may share dispositions toward dominance as part of the inherited psychological package. But equally, humans have corresponding tendencies to resist being dominated—‘counterdominance’. At a certain point in human evolution, the benefits of deploying Machiavellian intelligence to impose dominance over others became matched by the costs of overcoming the Machiavellian resistance of others (Erdal and Whiten 1994). The continual effort to prevent violence from paying produced broad and enduring structures of social collaboration. Strategies of collective counterdominance culminated eventually in what has been termed the ‘reverse dominance’ characteristic of extant hunter-gatherers, among whom the only approved form of violence is that of the ritually organized community enforcing its own egalitarian law (Boehm 2001). It was while this transition was being accomplished that selection fostered intersubjectivity—a willingness to share what I am thinking with you, and seek to know what you are thinking of my thoughts. Selection pressures for language were not a separate development but part of the same process.

But what concretely tipped the balance in favour of egalitarianism? Detailed evolutionary scenarios are always risky, but unless scientists are prepared to offer bold speculations, the hypotheses in circulation will remain abstract and untestable. One concrete scenario—the female strategic alliance model—goes beyond unisex accounts, factoring strategies of evolving human females into the story of modern human origins (Power and Aiello 1997; Knight 2008).

As human group sizes increased, this placed a premium on enhanced social intelligence—the ability to negotiate alliances—in turn driving selection pressures for neocortical expansion (Dunbar 1996). As offspring became more highly encephalized, they took longer to mature and became more energetically demanding, intensifying the costs to mothers of pregnancy, nursing, and childcare. Responding to these challenges, mothers could enhance their fitness by sharing childcare burdens and extracting greater energetic investment from males. Human hypersociality and intersubjectivity emerged initially under such selection pressures, with mothers increasingly willing to trust allocarers with their babies (Hrdy 2009; Zuberbühler, this volume). The most trustworthy helpers in this respect were women’s own female kin: sisters, aunts, older daughters, and, above all, their own mothers (cf. O’Connell et al. 1999).

But what of males? Where females in a primate species can provision themselves and their babies, they may only require good genes. A single male may then suffice for a harem. Where, by contrast, a group of alloparenting females need time, energy, and food, they enhance their fitness by attracting into their extended family as many cooperative males as they can. But this implies strategies to prevent violence from determining the outcome of sexual competition. Extant human hunter-gatherers illustrate how such outcomes can be achieved, with males

‘showing off’ not through violence but by displaying prowess and generosity in hunting and sharing the meat (Hawkes 1990).

This brings us to the possible relationship between sexual signals, reproductive strategies, and conditions for the evolution of language. In primates, sexual displays such as chimpanzee oestrus, while not in themselves violent, regularly trigger violence (Goodall 1986). In the human case, ovulation has become effectively concealed, compelling males to spend more time with their partners to increase their chances of producing offspring. While we would expect this to reduce intermale reproductive differentials and associated conflicts, one distinctively human problem remains. The phasing out of external signs of ovulation leaves menstruation salient as the one remaining external cue of a human female’s imminent fertility.

In any primate social system, the most damaging forms of violence are likely to reflect conflicts over sex. In marking out certain females as imminently fertile, menstruation might incite males to pick and choose between partners on that biological basis, abandoning former partners and struggling for additional mates in a sexual ‘free-for-all’. In practice, in any functioning human social system, no such behaviour is likely to be tolerated. Hunter-gatherers in particular respond decisively to the threat before any damage can be done. By the time any male gets to know that a woman has begun menstruating, the female community will already have taken decisive countermeasures. Cultural anthropologists tend to explain the ensuing performances in terms of menstrual phobias or taboos, often with implications of irrational superstition. From a Darwinian perspective, the concerns and associated responses have a rational explanation.

We propose this specific context as the one triggering reverse dominance and the full transition to language and symbolic culture. Whenever a local female starts to menstruate, she is perceived as a threat. The danger is that some dominant male will take advantage of her condition, abandon his current partner, bond with his new one and—once she is pregnant—abandon her in turn. Those threatened by any such prospect (mothers and potential mothers, their male and female kin, subdominant males) need to take decisive action. They can do this by placing any female who has begun menstruating under strict supervision from the start, isolating her from male company. Through their physical solidarity, females, cycling and non-cycling, convey the message to males: ‘violence will not pay’. Using blood-red cosmetics they present a united front. This is the crucial step into the ‘rule of law’ (Knight 2009), in turn establishing the conditions necessary for language to evolve.

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