# THE ROLE OF TRUST IN LANGUAGE EMERGENCE

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Over the past 25 years Chris Knight, Jerome Lewis, James Hurford, and others have proposed community-wide trust and social egalitarianism as the critical conditions for the innovation and enculturation of spoken language (gender political balance is tied into egalitarianism). This paper evaluates the underpinnings and predispositions for these developments. We contend that inter-subjective trust heightens the *efficacy* of cognition in semiotic inference. Human trust has particularly deep evolutionary antecedents in the entanglement of social and personal domains within cultural and biological factors. Millions of years of primate and hominin *mind-reading* (ToM) laid down tracks for an eventual transition to human speech using the same inferential *socio-cognitive* channels (at very different levels).

## 1. Introduction.

The cultural achievement of social trust ultimately leverages bio-genetic evolution preceding and underpinning it but, as *cultural*, it has a complex set of dependencies in which the primary factor seems to be a socio-political egalitarianism (Knight & Lewis, 2017; Boehm, 2009). Moreover, this egalitarian thread has dependencies that beg for explanation. At some point, *H. sapiens* launched into a "culture only" evolutionary phase (Welsch, 2016). There is debate about when this happened. Evidence suggests that it happened slowly but was in place *before* the migration out of Africa (~60 kya; Domínguez-Andrés & Netea, 2019).
The history and field work forming the stimulus for this paper primarily have studied sub-Saharan and south African immediate-return hunter-gatherers.

## 2. A Protracted Process on the way to Trust: Preconditions

The hypothesis of a combination of community-wide trust, social egalitarianism, and gender political balance has been developing a growing appeal. *H. sapiens* shows in early traces the capacity to accumulate culture over generations. Trust eased and supported the *innovation* of shared spoken language. But these times of trust were the last act in a play with a hundred acts: key underpinnings and precursors were needed. As Deacon asserts (2017), no new brain structures evolved to support language or its correlates (Christiansen, 2013). So, from an evolutionary point of view, a *culture-only* evolutionary history was called for to achieve these outcomes but this evolutionary process was highly complex: "a very

wide spectrum of entangled conditions is required" (Dor, Knight, & Lewis 2014). This *spectrum* includes social, political, cognitive, emotional as well as cultural factors and there are implicit sub-dependencies between those factors. This paper aims to expose these underpinnings.

### 3. Subcortical & Autonomic Predispositions to Sociality and Proximity

Critical to the later emergence of Trust is a multifaceted set of evolutionary developments, some in primate development and some later in the hominin tree that relate to the toleration of closeness and then an expansion of cooperative closeness into inter-subjectivity.

**3.1. Social engagement's *autonomic* capacities**: an autonomic social-engagement system (Porges & Carter, 2013) developed in the primate line over millions of years. This system developed long after the much earlier parasympathetic and sympathetic autonomic systems. Among primates, bonobos outperform chimps in social intelligence showing this emergent set of capacities. (Krupenye et al, 2017; Gruber et al, 2016). In a provocative example of this, bonobo sexual beckoning gestures combine *deixis* and *iconicity* (Clay & Genty, 2017). Porges summarizes this autonomic system in this passage [key is the *visceral sensing of safety* - required for trust]:

> *This synergism of neural mechanisms in mammals down-regulated defensive systems and promoted proximity by providing social cues (e.g., intonation of vocalization, facial expressivity, posture, and head gesture) that the organism was not in a physiological state that promoted aggressive and dangerous behaviors. Detection of these social cues allowed for symbiotic regulation of behavior and the elaboration of reciprocal care-giving.* (Porges & Carter, 2013)

The role of social hormones (e.g. oxytocin) in this area has often been pushed to center stage. But reducing anxiety about social proximity cannot by itself claim so much of the credit for such a broad and creative spectrum of behavioral and communicative social invention. Human neuroplasticity arising in a social setting *without* a straight-jacket of "fixed behaviors" builds these forms of trust. (a relevant discussion is in Hurford, 2007)

**3.2. Interaction engine** (Levinson, 2006): The main thrust of Levinson's "interaction engine" is that humans engaged in enhanced communication exercises *before* formal language emerged. *H. sapiens* developed this semiotic interactivity on top of the autonomic social engagement capacities mentioned above. Attention to the Other occurred as an early precursor to verbal exchanges (Hrdy, 2011). Elementary mind-reading (ToM) developed in the primate line

reinforcing this. (Vogeley, 2017; de Waal, 2022). As an example, Brinck stresses that, from a very early age, infants are poised to respond to communicative engagements, shifting attention and gaze vis-à-vis objects in terms of the caregiver (Brinck et al, 2017). Also, interactive play is a critical modality with deep roots and is linked to prosocial intelligence (Kuczaj et al, 2008).

**3.3. Intersubjectivity**: (de Waal, 2019) The claim of Trust in a theory of language-emergence is congruent with accounts of early ToM and forms of communication that leverage inferential sharing of intent-signals (non-verbal). The cognitive substrates for these faculties are critical. Deep in the primate line are forms of proto-inter-subjectivity in genus *Pan* (Krupenye et al, 2017; Kano et al, 2017). Interpreting the intent of the Other exercises faculties of domain-general cognitive inference that work well within a wide spectrum of communicativeness. What evolved was not *discretely coded* signals "one at a time". What evolved was a multi-purpose meta-representational *capacity* that could work with any signal system because it evolved cognitive strengths that grew increasingly adept at "getting" what the Other intended across multiple modalities. Only humans use *ostensive* communication while nonhuman primates are mainly *intentional* (Scott-Phillips, 2015). With trust, humans cooperate in sharing an inferential *common ground* that can draw on a vast data store. Trust endows human participants with a critical measure of *efficiency* in both innovation and early usage phases of this communications adventure (Knight, 2018).

**3.4. Attachment theory** (Hrdy, 2009) reveals the relational/cognitive strengths of human children that support their ability to securely attach in *alloparental* settings (Kramer et al, 2018; Gopnik, 2016a). The *child's* autonomous contribution to this hugely advantageous evolutionary pathway is often overlooked. In their summary of this subject, the authors assert "These observations clearly support Hrdy's emphasis on the extensiveness and importance of alloparental behavior among hunter-gatherer groups…" (Hewlett & Lamb, 2005). The ToM strengths of the young child (<6 yrs.) (Nonnenmacher et al, 2021**)** presage the same capacities emerging in adults (Dörrenberg et al, 2018). The child can appraise the safety and emotional signals of the caregiver towards herself. Infant attachment styles later become a psychological advantage for the adult (Fraley, 2019). Trust between adults is affected here as well. Children achieve security with non-maternal caregivers using perceptive faculties that assess the Other's emotional intent.

**3.5. Spoken Language** (evolving later) grew to leverage a semiotic-semantic-metaphoric common ground which scaffolded an early ritual and multi-modal

expressiveness – dance/song, oro-facial and body gesture (Lewis, 2014: §7.5; Prieur et al, 2019). This semiotic scaffolding was embedded in the cultural practices that sought to protect egalitarianism and its roots in the economy, reproductive politics, the hunt, and the spirits of the forest. For ages, preverbal inter-subjectivity (ToM) used domain-general inferential faculties (multi-sensory) to grasp communicative intent: taking in contextual cues from multiple channels. Cultural life was already rich in semiotic/semantic meanings.

> *…no new brain structures evolved to support the distinctive cognitive capacities of the human species such as language. Instead, language functions have effectively recruited older neural systems, previously adapted to serve other functions.* (Deacon, 2017)

As *H. sapiens* evolved along a culture-only path, social communication increasingly enjoyed a plasticity – a semiotic continuum (Lewis in Arbib, 2013; Malafouris, 2016: §4). Modalities other than verbal speech can be ostensive and have communicative intent. The pre-verbal inferential faculty is congruent with and segues into the later verbal ostensive-inferential faculty (Scott-Phillips, 2015). The sound-stream of words becomes yet another modality to blend with available (usual or new) cues and scaffolding. The "digital" aspects of verbal speech don't deny what is called the "invariance problem". The interpretation of this sound-stream relies on the cues and contexts that disambiguate the stimulus – to leverage this scaffolding is essential.

Jerome Lewis in his study of the Mbendjele goes right to the heart of this semiotic plasticity and the prominence of their multi-faceted musicality:

> *"Mbendjele have developed specific styles of communication for different audiences and situations. They mix words with sung sounds, ideophones, expletives, whistles, signs, hand signals, gestures, vocabulary from other people's languages, animal sounds, and other environmental sounds, sometimes in a single speech act. In the context of forest hunting and gathering, the role of different language styles and communicative strategies suggests that diverse styles of communicating could have been crucial to the survival of early humans…"* (Lewis in Botha & Knight, 2009)
>
> *[For the Mbenjele] …it is not what people are singing but the polyphonic yodelling singing style, not which dances they dance or which spirits they call but the ritual structures they follow, not the language they speak but how it is spoken. The perception of what it means to be Yaka is based on an aesthetic quality and lifestyle as much as on genealogical accident, a distinctive sense of style in which music is more central to culture than language.* (Lewis, 2002)

## 4. Relaxed Selection and Self-Domestication

Important protracted developments resulted in less over-determination of *Homo* by hardwired genes and more by environmental responses coming from neuro-plasticity and epigenetics (Deacon, 2017). "Self-domestication" and neoteny (de Waal, 2022; Bednarik, 2011) form two major themes in this long term process (Hare, 2017). This evolutionary process goes back to forms of our genus roughly 2 mya. Deacon places "relaxed selection" in that time frame as well as growth-spurts in stone tool use and inter-continental migration (Deacon, 2016).

> *Although traditional assumptions about the role of genetic change in evolution have tended to focus on mutations that augment some function, evidence is growing that gene duplication and gene loss – including especially loss of non-coding regulatory sequences – has contributed to significant evolutionary change… Human-specific loss of over 500 otherwise highly conserved non-coding regulatory sequences has recently been reported (McLean et al 2011). This extensive loss of genetic regulation may be a signal of human-specific relaxation of selection and an increased sensitivity to epigenetic and environmental influences."* (Deacon, 2016)

The net effect of self-domestication is the release of the organism from pre-set genetic constraints or fixed behavioral plans (Gómez-Robles et al, 2015). There are connections between the license to innovate, pretend-play, and ritually sing & dance just as examples (Hare, 2017). The relaxation of genetic constraints means that Play can bridge to multiple cultural, political, and interpersonal domains in multi-modal ways. For instance, rather than have an aggressive single-minded rigidity about issues of sexual politics, humorful imagination can enter into the available responses and bring the female cohort together making reverse dominance an exhausting **and** exhilarating exercise.

## 5. Plasticity, Play, Egalitarianism, and Trust

Trust is tacitly built into play. Playmates "play along" honoring unspoken rules. If the rules get extended, playmates might pick up on this extension and accommodate the new "twist". Play draws on a prior and very long development of cooperation in the genus *Homo* (Tomasello, 2014) along with a reduction of both the proactive and reactive types of aggression in *H. sapiens* (Wrangham, 2018).

Particularly among immediate-return hunter-gatherers, the ethos of sharing and cooperating is very strong. There is an implicit element of trust in the cooperation in an immediate-return economy. The presence of trust in Play would be as

palpable. Baka children's play exhibits values like egalitarianism that are strongly embraced in the adult culture (Kamei, 2005).

Play in children and adults is an opportunity stemming from the loss of genetic regulation: invented vocalizations versus fixed calls, for instance. While the self-domestication and relaxed selection mentioned earlier took place significantly before the period of culture-only or proto-culture-only evolution (Welsch, 2016), play in child-development or adult ritual would need cultural supports to become stable or habitual parts of human life.

> *"... in the safe and well-provisioned context of play, characteristic of a species with an extended juvenile period, individuals place themselves into unconventional and often disorienting positions or orientations. These novel situations afford opportunities to experiment with a variety of behavioral and cognitive routines and generate novel, and possibly adaptive, responses, or modules."* (Pellegrini & Pellegrini, 2013)

Play draws on intuitive and creative cognitive and affective resources. It perpetuates an egalitarian setting and asserts it anew.

"Social play – play involving two or more playmates – is necessarily egalitarian. It always requires a suspension of aggression and dominance and heightened sensitivity to the needs and desires of the other individual involved." (Gray, 2013)

Closely related to the suspension of aggression is the matter of self-control. "[The] same cultures that allowed their children the greatest freedom to play also produced people who seemed to have the greatest capacity for self-control. … [The] … amounts of play engaged in by hunter-gatherer children helped to promote their extraordinary capacities to regulate their emotions in ways that were adaptive to their conditions of life." (Gray, 2013)

### 5.1. Play Liberates Ritual Content

Rituals still practiced in extant groups (Congo basin) are created with an imagination driven by Play. Shared aesthetic rules allow autonomy and humorful coordination. Play allows the moral themes of reverse dominance and female solidarity to be explicitly danced and sung, together with impersonations that bring on wild laughter. Play allows performance to be a virtual space where creativity is free and enthusiastic. Even an *origins* story is playful and whimsical yet evocative of "real life". Named rituals (e.g. for the Mbendjele: "Ngoku" and their origins story) are embodied metaphorical figures (without prescribed lyrics) that evoke the moral and spiritual narratives lived by the band.

## 6. Female Strength and Role in the Hunt

Women are not excluded. They are often active in the hunt and then they are the "arms" of the nets when they are thrown to catch game. They have a spiritual-telepathic channel to the creatures. This channel is why the very antipathy between menstrual blood and the blood of the hunted represents the potency of their communicative relationship with those creatures (Finnegan, 2016). *"it is overwhelmingly women who locate forest animals. It is through a privileged relationship with spirits that women participate in the hunt."* (Finnegan, 2016)

When women perform the *bobanda* ritual to recover the men's hunting luck or reset social homeostasis in the community, they are revered for their strength. Their role in these works is a positive and assertive one.

Cooperative childcare combined with women's rightful claim to a share of the meat forms the sexual core of the egalitarianism kept alive by ritual vigilance. Evidence shows that in early kinship systems, childbearing women mostly raised their young collectively in a matrilocal setting (Knight, 2011; Hawkes et al, 1998) and were better poised there to obtain services from interested males. Climatic adversity and population pressures often increased the incentive to "go home" (Kim et al, 2014). Vigilance of the female cohort began with an early campaign by women to get control over sexual matters. The history and timeline of bodypainting is catalogued and analyzed thoroughly in Watts' "The Red Thread" (2014). The sex-strike boldly dissimulating the sexual status quo is a "moral strategy" (Finnegan, 2016).

The species of trust that is possible at this level of political counterpoint does not emerge from sentimentalism. It emerges from women's playful confidence and self-esteem as well as their sense of reproductive potency in the community. They know well the virulent danger of the alternative: they're always on the lookout.

Pretend-play is an alternative to alpha-male power with its competition and fear. Importantly, Play in the Ngoku ritual dance-song shows an affirmation of plasticity, possible when personal autonomy is embraced along with its culture (Lewis, 2013). Given the female cohort's continual vigilance coupled with its cooperative bonds (Finnegan, 2016), the resulting egalitarianism yields an ecology of safety producing the "good sounds" that keep the people and the forest in peace. (Lewis, 2014; Pellegrini & Pellegrini, 2013). This safety is needed for language innovation.

**7. Overview**

The several threads discussed above are mutually tied up in the emergence of a functioning human trust. Certain long term overarching developments were essential: relaxed selection, self-domestication, neoteny, autonomic support for social engagement (hormonal and neurological), plasticity and epigenetics (vs.

genetically "hardwired"). The growth and inheritance of cultural forms became a follow-on protracted "evolution" with its own genetic consequences. Ultimately an evolving *culture-only* social process took center stage. Socio-cultural legacies underpinning trust included gender balance and egalitarianism, play, attachment, forms of inter-subjectivity as well as cooperation in multiple domains. Trust opens up human cognitive pores to a broad range of commonly held realities and fantasies. Inferential grasp of the Other's *gist* is emboldened by trust (Gweon, 2021). Proto-language (and beyond "proto") draws on an intimate and patient sharing of ostensive behaviors and resulting inferences – all having deep roots in the history of ToM in our genus. "In an evolving hominin species, language will not even begin to evolve unless and until intensified levels of community-wide trust and a shared virtual domain have been put in place." (Knight & Lewis, 2017)

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