

Extension of the Syntelic Ape Hypothesis Based on the Free Energy Principle: A Two-Stage Model of Evolution and the Sublimation from War and Lethal Intergroup Conflict to Cultural and Social Activities

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Summary

Modern humans (*Homo sapiens*) appear to possess seemingly contradictory traits: a high degree of "altruism" (cooperation) and a "proactive aggression" (warfare and lethal intergroup conflict) that stands out among great apes. This paper carefully examines how the "syntelic" (challenging cooperation) behavior, which serves as the fundamental driving force separating the human lineage, has transformed its target throughout the course of evolution.

In early humans, the immense energy generated by the "constitutive reactivity" of varicose projection astrocytes (VPAs) was directed toward lethal survival competition with other groups. It is suggested that this served as the selective pressure that forcibly activated cooperative behavior. However, it is inferred that humanity acquired non-zero-sum prosperity by sublimating the target of this intense energy from "other groups (warfare and lethal conflict)" into highly cultural and social activities. These include "business," which continuously undertakes the pioneering of natural environments and the resolution of social issues; "education," which passes knowledge to the next generation; as well as "science," "sports," "art," and "games." This paper proposes this two-stage evolutionary model—the sublimation from war and lethal conflict to cultural and social activities—and discusses the adaptive strategy of humans from the perspective of VPA energy dissipation and the pursuit of the "flow state."

1. Introduction: The Paradox of Syntelic Behavior

What drives humans toward "challenging cooperation" (syntelic behavior)? In the active inference framework proposed by Karl Friston, organisms engage in exploratory behavior to minimize "expected free energy" [Friston 15]. However, exploration in a complex environment demands enormous computational load and metabolic costs from the brain.

The evolutionary history of humans seems to be filled with the paradox of a strong love for the in-group (altruism) and wars or lethal intergroup conflicts based on a gruesome hatred toward out-groups. Based on the high-metabolic infrastructure of "constitutive reactivity" of VPAs acquired by humans, this paper attempts to explore how this challenging energy was sublimated from violent struggle into peaceful cultural and social activities such as business and education throughout evolutionary history.

2. Stage 1: The Bloody Cradle — Forced Activation of Cooperation through War and Lethal Conflict

In early humans, the immense energy generated by VPAs and the "tendency to challenge the unknown" were likely directed toward the most immediate target of survival competition: "neighboring out-groups."

Wrangham points out that human aggression can be divided into two types; while "reactive aggression" (lashing out impulsively) is extremely low, "proactive aggression" (cold-bloodedly eliminating others) is outstandingly high among great apes [Wrangham 18]. In order to suppress this sudden anger and conspire with peers to conduct planned raids and lethal conflicts, a high level of reasoning and inhibitory function by the prefrontal cortex, supported by continuous and immense energy supply (constitutive reactivity from VPAs), must have been indispensable.

Using mathematical models, Bowles et al. suggest that in environments where such lethal intergroup conflicts were normalized, a "multi-level selection" may have operated, in which only groups containing altruistic individuals willing to

sacrifice themselves could survive [Bowles 09]. Through this process, "parochial altruism," where love for the in-group and hostility toward the out-group are two sides of the same coin, was neurochemically hardcoded [Choi 07]. Ironically, it can be inferred that the robust default setting of human cooperation was forcibly activated by "war and lethal intergroup conflict."

3. Turning Point: "Abstraction of the Enemy" by VPAs and Self-Domestication

However, groups that continue a zero-sum game of human-to-human lethal conflict run the risk of mutual destruction in the long term. Here, the morphological characteristics of VPAs may have been the factor that significantly altered the evolutionary trajectory.

The cross-laminar global synchronization capability of VPAs is thought to have enabled humans to share abstract narratives even with strangers whose physical faces are unseen, thereby expanding networks through religion and beliefs. As Norenzayan points out, sharing a belief in a supernatural monitoring presence ("Big Gods") or dogmas may have served as an extremely powerful foundation for maintaining large-scale cooperative societies among strangers beyond kinship [Norenzayan 13]. Consequently, humans discovered the rationality of the "non-zero-sum game" (cooperative relationships where everyone can be a winner) [Wright 00], and presumably began to gradually abstract the target of their struggles.

It is pointed out that surviving modern humans walked the path of "self-domestication," further lowering reactive aggression toward nearby others and sharing knowledge across broader networks [Hare 17].

4. Stage 2: Sublimation from War and Lethal Conflict to Science, Art, Sports, Games, Business, and Education

The true evolutionary winners may have been those groups that succeeded in redirecting the arguably violent, challenging energy of VPAs toward "unknown domains other than humans" or "virtual rule spaces."

Historian Johan Huizinga argued that culture itself originated from "play" (*Homo Ludens*) [Huizinga 38]. The excessive energy and challenging tendencies generated by VPAs no longer required actual killing or war, but are thought to have been sublimated into "science" to unravel the laws of nature, "art" to pursue expression, "sports" to challenge physical limits, and "games" to compete under rules in virtual spaces.

In addition, the continuous challenge of pioneering the natural environment and solving social issues is systematized today in the form of "business." As Steven Pinker points out,

global interdependence through commerce has functioned as a powerful non-zero-sum network that suppresses war and lethal conflict [Pinker 11].

Furthermore, "education," which passes these bodies of knowledge to the next generation, is also considered a uniquely vital human syntelic activity. As seen in "natural pedagogy" proposed by Csibra and Gergely, it is suggested that humans have instinctively undergone a unique adaptation to teach and learn from others [Csibra 09].

These can all be interpreted as sophisticated niche constructions designed to safely resolve the "optimal uncertainty" (surprise) sought by the brain, without incurring lethal risks [Laland 17].

5. Conclusion: Energy Dissipation of VPAs and the Pursuit of the Flow State

Psychologist Mihaly Csikszentmihalyi named the state of deep immersion that occurs when human capabilities perfectly match the difficulty of a task "Flow" [Csikszentmihalyi 90]. From the perspective of active inference, the flow state might be rephrased as "the optimal metabolic state in which prediction errors are continuously and most efficiently resolved."

The immense brain energy pre-secured by the constitutive reactivity of VPAs is presumably destined to be constantly dissipated toward some target. The reason we experience deep flow in science, art, sports, games, business, and education may be that the excessive energy of VPAs is optimally burned toward solving constructive and joint challenges, rather than being directed toward destructive wars and lethal conflicts.

"The Moral Equivalent of War" proposed by William James [James 10]—that is, redirecting the appeal of struggle and solidarity toward peaceful challenges—can be considered the very cultural and social activities we engage in daily: science, art, sports, games, business, and education. It is strongly suggested that the adaptive strategy for humans, who are equipped with the ultra-high-output engine known as VPAs, to avoid self-destruction and continue to prosper is to continuously pursue the flow state together with others in these "non-lethal challenge spaces."

◇ References ◇

- [Bowles 09] Bowles, S.: Did Warfare Among Ancestral Hunter-Gatherers Affect the Evolution of Human Social Behaviors?, *Science*, Vol. 324, No. 5932, pp. 1293-1298 (2009).
- [Choi 07] Choi, J. K., & Bowles, S.: The coevolution of parochial altruism and war, *Science*, Vol. 318, No. 5850, pp. 636-640 (2007).

- [Csibra 09] Csibra, G., & Gergely, G.: Natural pedagogy, *Trends in Cognitive Sciences*, Vol. 13, No. 4, pp. 148-153 (2009).
- [Csikszentmihalyi 90] Csikszentmihalyi, M.: *Flow: The Psychology of Optimal Experience*, Harper & Row (1990).
- [Friston 15] Friston, K., et al.: Active inference and epistemic value, *Neural Computation*, Vol. 27, No. 5, pp. 987-1032 (2015).
- [Hare 17] Hare, B.: Survival of the Friendliest: Homo sapiens Evolved via Selection for Prosociality, *Annual Review of Psychology*, Vol. 68, pp. 155-186 (2017).
- [Huizinga 38] Huizinga, J.: *Homo Ludens: A Study of the Play-Element in Culture*, Routledge & Kegan Paul (1949/1938).
- [James 10] James, W.: The Moral Equivalent of War, *McClure's Magazine*, Vol. 35, pp. 463-468 (1910).
- [Laland 17] Laland, K. N.: *Darwin's Unfinished Symphony: How Culture Made the Human Mind*, Princeton University Press (2017).
- [Norenzayan 13] Norenzayan, A.: *Big Gods: How Religion Transformed Cooperation and Conflict*, Princeton University Press (2013).
- [Pinker 11] Pinker, S.: *The Better Angels of Our Nature: Why Violence Has Declined*, Viking Books (2011).
- [Wrangham 18] Wrangham, R. W.: Two types of aggression in human evolution, *Proceedings of the National Academy of Sciences*, Vol. 115, No. 2, pp. 245-253 (2018).
- [Wright 00] Wright, R.: *Nonzero: The Logic of Human Destiny*, Pantheon Books (2000).