
Are Social Classes a Consequence of Primate Cognitive Evolution?

International Big History Association Conference
"Humanity on a Finite Planet: a big history perspective",
July 7-9, 2023

Daniel Barreiros
Institute of Economics
International Political Economy Program (PEPI-UFRJ)
Comparative History Program (PPGHC-UFRJ)
Federal University of Rio de Janeiro, Brazil

Cite as: Barreiros, D. (2023). *Are Social Classes a Consequence of Primate Cognitive Evolution?* [Presentation paper]. International Big History Association Conference "Humanity on a Finite Planet: a big history perspective", July 7-9, 2023.

Abstract

This study investigates the intricate interplay between innate cognitive processes and cultural institutions in shaping contemporary social realities. Using the lens of Big History, it bridges the gap between sociobiological approaches and socio-constructivist perspectives. The analysis departs from the Marxist concept of social classes to elucidate the evolutionary and cognitive dimensions that shape individuals' political behaviors within a capitalist society. It distinctly delves into inquiries regarding class consciousness and the dynamics of collective action. Examining how humans, like chimpanzees, navigate social hierarchies and exhibit prosocial or antisocial behaviors based on in-group and out-group categorizations, the study emphasizes the role of cultural information in activating and modifying innate cognitive algorithms. It highlights the unique transdominal mind of *Homo sapiens*, contending that class consciousness and the formation of a class for itself are outcomes of human social cognition intricately connected to cultural and economic backgrounds. The analysis underscores the role of prosocial algorithms in regulating interactions within in-groups and explores the implications of out-group categorizations, shedding light on the dynamics of contemporary class struggle.

This study aims to understand the extent to which innate contents, present in human cognition and fixed by natural selection, interact with cultural institutions, thereby shaping the social reality as we know it. Our primary goal is to provide a robust solution to the dilemma between a sociobiological approach, which emphasizes ethology as the primary driver of human behavior, even in complex societies, and conventional social history, heavily influenced by socio-constructivist and relativist ideas. We believe that Big History, through its consideration of historical scales, offers an elegant solution to this dilemma by allowing us to simultaneously account for human ethology and human culture. Creating and testing hypotheses about the dialectical interaction between nature and nurture can enhance our understanding of social reality.

We can utilize various research objects and theoretical concepts to formulate hypotheses about the interaction between ethology and culture. I have chosen the concept of social classes within the Marxist tradition as an illustrative example of this approach. The notion of social classes stands as a cornerstone in social thought, and while its meanings have evolved across the history of social sciences, Marx undoubtedly ranks among the foremost thinkers who have treated the idea with great seriousness.

In more specific terms, the question posed in this study is as follows: What is the relationship between a class "for itself," and how do individuals conceive the idea of belonging to that social class? Put differently, is there an evolutionary and cognitive aspect to acting politically as a member of a social class? To use Marxist terminology, do capitalists and proletarians employ their social cognitive algorithms, shaped by natural selection over six million years in the distant past, to comprehend their belonging to a social class in a market-based capitalist society? How are collective action, class consciousness, and class solidarity produced?

It's essential to note that we are not inquiring about the actual production relations responsible for creating classes "in themselves" in a capitalist society. Instead, we are exploring the mental processes involved when individuals seek to understand and derive meaning from their class condition, acting politically in alignment with this understanding. In simpler terms, we're questioning whether the last six million years of primate social cognition evolution and the history of capitalist economic institutions in the last three centuries are interconnected.

According to Marx, social classes are defined by the relationship individuals have to the means of production, which refers to the resources and tools necessary for producing goods

and services in a society. In Marxist theory, there are two primary classes: the capitalist class and the proletariat. The capitalists are the owners of the means of production, such as factories, land, and capital. They control and accumulate wealth through the exploitation of labor. The proletariat, on the other hand, is the working class who do not own the means of production and are forced to sell their labor power to the capitalist class in exchange for a wage. Marx argued that the relationship between the capitalist class and the proletariat is inherently exploitative. The capitalist system, he believed, relies on the extraction of surplus value from the labor of the proletariat.

In the works of Marx, the concepts of "class in itself" and "class for itself" are employed to delineate different stages of class consciousness and organization within capitalist societies. "Class in itself" refers to the objective economic and social position of individuals within the capitalist mode of production. It is determined by a person's relationship to the means of production, specifically whether they own the means of production (capitalist class) or sell their labor power (proletariat). In this sense, a class in itself exists independently of individuals' awareness or participation in organized action.

A "class for itself" represents a higher stage of class consciousness and organization. It occurs when members of a particular class recognize their shared interests, unite, and actively strive for the transformation of society for the benefit of their class. A class for itself emerges when individuals become aware of their collective power and act in solidarity to promote their class interests.

The capitalist class is already a class for itself in the sense that it is fully conscious of its position and interests in the existing economic system. It possesses economic resources, political influence, and control over the means of production, allowing it to exert power and shape society according to its interests.

On the other hand, the proletariat is expected to develop class consciousness and become a class for itself as more collective actions are promoted by proletarian organizations such as unions and parties. Despite the challenges posed by a technologically advanced and information-centric society, the potential for proletarian class consciousness, at least in its cognitive basis, persists.

So, let's delve into understanding what prompts individuals to identify themselves as members of a social class and to align their actions with certain social expectations. Shared

economic experiences related to social exclusion/inclusion, quality of life, political participation, and, of course, ownership or lack of ownership of the means of production, serve as the input information into a system of complex cognitive decisions within a capitalist society.

However, the type of information wielding the power to activate evolutionary social cognition changes at the frequency of cultural history. Throughout the history of *Homo sapiens* as a species, information of different natures has been culturally selected to convey and signal status positions. This fine-tuning variation is not observed among common chimpanzees, the most likely reference for the behavior of the last common ancestor of hominins.

To the best of our knowledge, chimpanzees' social cognition is programmed to comprehend a stereotyped set of social information as signals of status position. And the same applies to bonobos, their closest evolutionary relatives. While both bonobos and chimpanzees exhibit complex social cognitive domains and possess sophisticated theories of mind, the environmental conditions in which they evolved did not prompt the development of a cognitive apparatus that responds to a more flexible range of input information.

Enter the magic of the transdominial mind of *H. sapiens*, for better or worse. Not only can stereotyped cognitive algorithms be combined, temporarily suppressed, or overexpressed, but they also become responsive to cultural information. This cultural information is produced not over the extremely long duration of evolution but in the Braudelian *longue durée*, in the secular or millennial rhythm of cultural mentalities and institutions. Cultural selection becomes an evolutionary game-changer for *H. sapiens*, allowing for ultrafast environmental adaptation, mostly without genetic change. It harnesses innate, genetic, and programmed behavior in flexible and rapidly changing environments. It is a *faster-than-genes* mechanism of adaptation that does not eliminate innate and hardwired cognitive algorithms and biases but depends on them.

In general, it can be stated that natural selection has compelled chimpanzees (and most likely the last common ancestor of all hominins) to evolve a complex set of cognitive and behavioral mechanisms intended to regulate in-group interactions with conspecifics. Importantly, this does not imply the suppression of status struggles and inequalities in reproductive and energetic opportunities. On the contrary, the primary impetus for the

development of these behavioral regulation mechanisms is the highly dynamic and fluid social system in which chimpanzees reside.

This situation reflects the challenge faced by social species with highly individualized cognition. Unless functional mechanisms for preventing intra-group lethal aggression emerge, the formation of permanent societies becomes impossible. And permanent social groups serve as efficient solutions against the threats posed by predators, other conspecific groups, and the tasks associated with foraging, among other challenges.

Chimpanzees employ the memory of past interactions between the observer and a third party, or simply between third parties, to recognize group members. Kinship relations often play a role, especially as male chimpanzees tend to remain in their birth group, forming robust coalitions. In contrast, females typically migrate from one group to another upon reaching reproductive age but also engage in coalitions, particularly with their underage offspring. Although these female coalitions are less permanent than those among males, they are notably strong.

Chimpanzee societies lack stable status positions. While not all chimpanzees strive with the same dedication to ascend the status structure, the path is theoretically open to all. To paraphrase Norbert Elias in his discussion of court society in 17th-century Europe, those who do not rise will fall, reflecting a clear zero-sum game. Personality and other factors can influence success in social mobility, and as a result, some individuals may never ascend. Interestingly, some rare chimps appear indifferent to achieving high status.

Contrary to the notion that a high-status position is merely a selfish luxury, there exists a clear correlation between social status and evolutionary fitness among chimpanzees.

However, far from Hobbesian fantasies about a state of nature in which life is nasty, brutal, and short, chimpanzees do not seem to need a social contract or an ape-like leviathan: their minds are empowered by a sophisticated social cognition domain; this domain is not only responsible for their keen abilities in terms of understanding the intentions of others and constructing hypotheses about the best course of action to win the race for status; the social cognitive domain also imposes limits to the struggle for status, preventing a full-blown lethal escalation.

The competition between two opponents aiming to rise in status or preserve their current privileges is somewhat ritualized. A clear relationship exists between the ability to form coalitions and success rates; the more friends a chimp has, the more likely they are to ascend the social ladder. These friends are not mere spectators; they become indirectly involved in the "political campaign," providing emotional support (yes, emotional dynamics exist among chimpanzees) and taking action to prevent the opponent from disrupting socializing activities between their preferred "candidate" and other group members. The conflict tends to conclude when one of the competitors acknowledges defeat, especially when most group members rally around the opponent.

Certainly, this process doesn't unfold in a single event but in a sequence of interactions that can extend over months. Throughout this period, chimpanzees leverage their social skills to outwit opponents, forming new alliances, engaging with children and their mothers, and displaying both brute force and irreverence in response to demands for submission rituals from those currently holding high-status positions. This dynamic unfolds amid sporadic incidents of lethal aggression; occasionally, the timing of pulling punches may be amiss, and, as we know, accidents can happen. Surprisingly, there seems to be no inherent reason why chimpanzees cannot escalate conflicts into all-out warfare, turning in-group opponents into enemies. The fact that they don't engage in such extreme behavior points to ethological triggers that effectively defuse lethal aggression before it spirals out of control.

But note that these ethological safety mechanisms are activated only when interactions occur between members of an in-group. And how do chimpanzees know this? How do they know that they are interacting with individuals who are members of their own group? Remember that their neocortical development allows for a very powerful social mind, capable not only of producing complex social behaviors but also of recording past interactions and current status positions. If you are "registered" in a chimpanzee's social mind as someone in the social pyramid, regardless of your actual status position, then you are an in-group member. If you are an in-group member, whether of low or high status, all the behavioral mechanisms for avoiding lethality will be called into effect.

As a consequence, interactions with individuals whose identity, history, and current status position are not registered in the "memory buffer" of the social mind do not trigger lethality prevention mechanisms. Although there is an ongoing debate on this topic, there appears to be a relationship between population pressure and cognitive processing capacity. When

chimpanzee groups become too densely populated, each member's social cognition is under unbearable pressure to process all the information regarding the current status structure and past interactions with and between group members. A suitable metaphor would be that, like computer processors, social minds undergo an unsafe overclock. Before overheating melts the processors, a group of chimpanzees splits in two, with a no-man's (or chimp's) land between them. The split "flushes" the social memory and causes social cognition to return to homeostasis.

Afterward, as days and months go by, interactions between members of the two groups do not trigger the lethality prevention mechanisms. What we observe is the disturbing phenomenon first documented by Jane Goodall and confirmed by many other primatologists thereafter: chimpanzee groups start engaging in violent intersocietal and coalitional interactions. Without the lethality-prevention ethology activated, their minds give them a weapons-free order, and they kill their enemies on sight. How do their minds tag a conspecific as an enemy? 1) They identify the other chimpanzee as a conspecific using sensorial information (passing baboons are ignored, for example); 2) They cannot find any information regarding the current rank and past interactions of the identified individual (because social memory was partially "flushed"); 3) Once the information cannot be retrieved, the individual does not belong to the observer's social pyramid and therefore can (and will) be lethally engaged.

Let's turn our attention to *H. sapiens* and try to understand how the chimpanzee social mind can serve as a proxy for the last common ancestor of all hominins. We'll explore how the human mind grapples with these evolutionary archetypes that still linger in its collective unconscious. Only after this exploration can we delve into the relationship between social classes and social cognition.

Considering there are six million years between modern humans and their last common ancestor with chimpanzees, and about two million years between the first species of the genus *Homo* and *H. sapiens*, there's a substantial span of (big) history to consider. This timeframe provides ample opportunity for evolutionary changes. While it's essential to note that chimpanzees might not be a perfect proxy for the first hominin species, always approach discussions about human evolution with a grain of salt. Nevertheless, throughout hominin evolution, encompassing the evolutionary history of all primates derived from the last common ancestor between humans and chimpanzees, *H. sapiens* stands out as the more derived species in terms of both morphology and cognitive complexity.

When we refer to *Australopithecus afarensis* as an "ape-like" primate, we don't imply that humans are not apes; instead, we mean that individuals like Lucy resemble chimpanzees more than humans, despite being bipedal. Given that Lucy's morphology leans more toward the chimp-like than human-like, and there's no evidence of complex cognitive behavior similar to the observed in *H. sapiens*, it's plausible that *A. afarensis* possessed chimpanzee-like cognitive complexity. In the social realm, this insight carries significant weight. It suggests a six-million-year history in the development of theory of mind among hominins, implying that australopithecines, like chimpanzees, bonobos, and all species of the genus *Homo*, share a set of behavioral algorithms, shaping their social lives in similar ways.

All these species, including humans, lived in fusion-fission societies with intricate dominance hierarchies and engaged in violent interactions with neighbors (although bonobos tend to be more tolerant of strangers than common chimpanzees). They all exhibit empathy and prosocial behavior toward in-group members, engaging in intense struggles for status without constantly letting things escalate out of control. This description aligns with both long-term human social history and chimpanzee societies. While it remains uncertain whether this adequately characterizes the behavior of human ancestors, it necessitates an explanation for the striking similarity in social behavior between humans and chimpanzees. This similarity implies the existence of a shared set of behavioral algorithms dating back six million years. It is a guess, but an educated one, and the alternative is challenging to prove.

But, of course, changes have occurred, and it's evident that human behavior is far more complex than chimpanzee behavior. While this complexity hasn't always existed, today, many of us live in multilevel societies with various membership groups, each asserting its own identity claims. Individuals identify as citizens of a nation-state, members of a religious congregation, and as part of a larger ethnic group. They gather in professional associations, neighborhood councils, and interest groups. There are fan clubs and armed militias, each with its symbols, habits, and cultural expectations. Additionally, social classes emerge wherever the rights over the means of production are concentrated.

How do individuals mentally conceive the groups they belong to as in-groups? *H. sapiens* possesses a cognitive architecture that allows these beings to creatively employ their ethological algorithms to attribute meaning to different objects and relationships. This implies that for every identity role a human assumes, the transdominial mind will enlist the same

ethological algorithms. In this process, every object, including people, marked with certain cultural identifiers, is tagged as a member of the status pyramid. This activation then triggers prosocial algorithms to mediate social relationships. This cognitive process stands in stark contrast to how the chimpanzee's mind operates.

While in most primates, behavioral and cognitive algorithms are typically activated by sensory exposure to a more or less stereotyped set of input information, in *H. sapiens*, the transdominial mind can use a virtually unlimited range of information types and sources to activate ethological algorithms. Although there are primitive cognitive modules in the human mind that respond to stereotyped information, they tend to produce simple behaviors (an example being yawning contagion). Following the emergence of modern human cognition, the most complex algorithms are highly susceptible to cultural activation. If this were not the case, discussing behavioral modernity would lack meaning. It's crucial to remember that culture is a faster-than-genes mechanism of adaptation, but it does not replace human ethology; rather, it depends on it.

Both class consciousness and the idea of a class for itself should be interpreted as outcomes of human social cognition. In class societies, individuals can be taught, through socialization and political indoctrination, to activate their prosocial algorithms when they recognize the appropriate class signals. Narratives and myths serve as essential structures in the process of class inculcation, fostering trust, identity, and a sense of belonging. Within a recognized class, a hierarchy of status is expected to emerge based on factors such as prestige, charisma, political power (demonstrated through one's coalitions and alliances with other influential individuals), and/or wealth. The mind of a class-conscious human being is guided by the social cognitive domain to suppress the expression of antisocial behavior toward group members while treating out-group members as adversaries.

It's crucial to remember that when social cognition algorithms designate an individual or a group as enemies, the suppression of lethal aggressive interactions is no longer in effect. The escalation of lethal violence in revolutionary and counterrevolutionary processes relies not only on the actions of institutional agents but also on a greater tolerance for lethality against members of an out-group demonstrated by individuals not directly involved in the political struggle. In highly institutionalized environments, such as modern, functioning democracies, legal systems and social control mechanisms may discourage the open expression of tolerance for lethal violence. However, human ethology still finds its way. It's essential to

recall that lethal aggression is not a product of some "killer instinct," as certain anthropological ideas in the West claimed in the 19th century. Lethal aggression is just one potential outcome of social interactions not governed by prosocial algorithms. For instance, most encounters between chimpanzees of different groups often result in nothing more than threats followed by flight.

This leads us to question whether a given interaction between cognitive agents induces prosocial behavior or not. This determination is contingent on the categorization of an agent as an in-group or out-group individual. Prosociality involves reciprocity, fairness, and aggression control, and interactions not managed by prosocial algorithms are unlikely to adhere to these rules. Therefore, when contemplating class struggle in highly institutionalized settings, one might expect the voluntary suppression of lethal aggression in response to law enforcement and social control. However, the suppression of legally sanctioned antisocial behavior, such as the adoption of double standards in judging the morality of actions committed by members of an opposing social class compared to the judgment applied to actions promoted by members of one's own class, may persist.

To sum up, we can say that

1. A class for itself emerges as a product of social cognition.
 2. Input information used to recognize the in-group is drawn from cultural and economic backgrounds.
 3. The cognitive image of an in-group requires maintenance, but it can also be dismantled, allowing for competing in-group images (nations, religions, etc.) to take its place.
 4. Once inculcation reaches a critical point, a class-conscious *H. sapiens* tends to engage in prosocial interactions with in-group peers and antisocial interactions with out-group individuals, within the limits set by institutional means of control.
 5. In-group cognition leads individuals to perceive the values that define their own group as prosocial (just, fair, necessary) and to view values identifying all out-groups as antisocial.
-