

Human Social Evolution: How Studies on Our Primate Relatives Reveal the Origins of Civilization

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Our society is perhaps our most unique characteristic, one that seemingly best distinguishes us from the animals. Our technology and civilization are simply by-products of our ability to live together and accumulate knowledge over generations. On the other hand, if we can't live together harmoniously then our civilization counts for nothing and we descend into chaos inspired by revolution. Thus, our social structure and behavior is the primary sieve which allows our intelligence and civilization to pass through and therefore, it would be pertinent for us to better understand the origin and development of this social structure. However, though our biological and morphological evolution from our ape-like ancestors is well documented, the evolution of our society, from a motley collection of wild beings into a coherent, structured group with rights, rules, and duties, is not. Fossils provide little concrete evidence about social behavior. Therefore, we can only talk about social evolution through hypothesis, educated guesses, and playful conjecture. However, we've probably had observable evidence all this time, and not even realized it until recently. The best evidence for our early social behavior comes from the study of primates. Primates mirror us, not only because their reasoning ability is applied to their now famous use of tools, but also to their society. Primate societies are in a constant state of eerily familiar debates on rights and reform. However, there are sociologists who believe that human beings are far removed from the animal world, and that we have been, even before we had a coherent social structure. Hence, the evidence derived from observing primates does not accurately model our early behavior. Therefore, there are two competing points of view on the debate between human beings as 'born civilized' versus 'made civilized.'

There is an influential school of thought that believes human beings repress their animalistic urges to be cultured and civilized [1,2]. It wasn't until an ape saved a member of our own species that there was a public awakening to the possibility of nonhuman humaneness. On August 16, 1996, an eight-year-old female gorilla named Binti Jua scooped up a three-year-old boy who had fallen eighteen feet into the primate exhibit at Chicago's Brookfield Zoo. Binti carried the boy to safety, cradled the boy in her lap, gave him a few gentle back pats before taking him to the waiting zoo staff. This simple act of sympathy, captured on video and shown around the world, touched many hearts and Binti was hailed as a heroine. It was the first time in U.S. history that an ape figured in the speeches of leading politicians, who held up Binti's act as a model of compassion, and posed the difficult question, "if an animal can help those in need, why can't we all?" [1,2].

In order to determine whether we express or repress our primitive mien, we must analyze human social behavior,

both past and present. However, while our contemporary social behavior is well documented, its origins and by extension, its evolution are debatable. Though paleontologists have accumulated vast amounts of physical evidence, from fossils and artifacts, which indicate what our past may have looked like, none of these remains allow us to effectively deduce our early behavior. The reason that psychologists cannot extrapolate much from these past remains is because the most accurate behavior studies are conducted by live observation and experimentation, not from inference of the past [1].

Many paleontologists and primatologists have argued that in order to trace early human society we should look at the last common ancestor we shared with the other extant great apes [1,5].

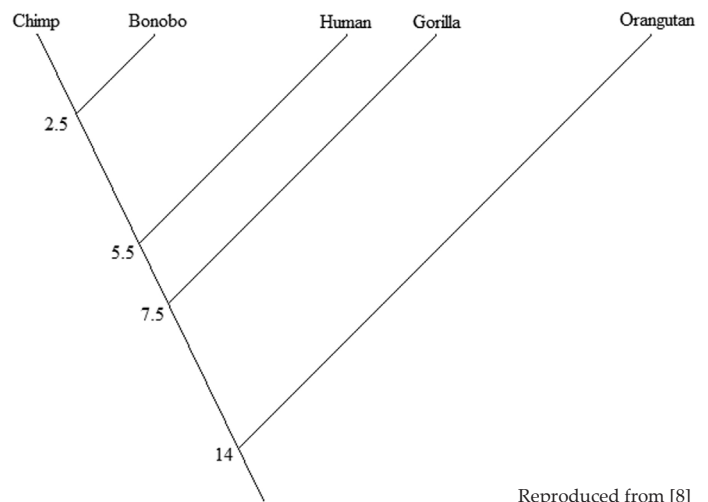


Figure 1: Tree of origin of the five extant great apes based on DNA comparisons. Data points indicate how many millions of years ago species diverged. (De Waal 2006)

Scientists have argued that an amalgamation of key behaviors common to all great apes along with environmental context may be sufficient to extrapolate early human behavior [1,5]. Because chimpanzee and human lineages evolved in drier, more open environments than Bonobos and Gorillas, chimpanzee behavior is believed to best match human behavior in terms of environmental context alone [1]. Therefore, chimpanzee groups may effectively model early human societies.

In contrast to most ape societies (humans excluded), alpha males in chimp societies are not determined solely on the basis of their physical strength. Hierarchy is determined by the support of the collective or the support of influential members within the group. In chimp society, a ruling coalition of males is the norm, with each coalition member having a different hierarchical position. Supporters align

themselves to factions which give the best rewards (i.e. the highest social status) [1-4]. This pattern of behavior indicates that chimpanzees do not act or think as a collective or out of fear, but as individuals, because an individual tries to evaluate social situations and decides on a course of action that best suits him or her. Such individual reasoning ability is often displayed by humans during elections or even in more routine tasks like applying for a new job.

“ If chimps on the lower end of the social scale collectively draw a line in the sand, threatening serious consequences if those at the upper end step over it, we have the beginnings of what in legal terms is called a constitution ”

The ability to think critically is not a common gift in the animal kingdom. Zoologists have recorded thousands of situations in which a third party intervenes in a fight to support one party or the other with both monkeys and apes. According to the analysis, monkeys overwhelmingly tend to support winners (presently dominant individuals). Chimps on the other hand were found to support losers as often as

winners [1-4]. The higher levels of discontent observed in ape societies may reflect the ability of apes to better analyze the possible outcomes of each ‘battle’ and support a favorable outcome. In other words, apes have the unique ability to contemplate the future and the consequences of their actions. In one long-term study on a group of chimpanzees conducted at Arnhem Zoo in the Netherlands, an alpha male named Luit was overthrown by two males Nikkie and Yeoren. Nikkie was a young male, while Yeoren was the elder ex-alpha. Yeoren apparently decided to support Nikkie on the basis that Luit was unlikely to hand out too many privileges to Yeoren, as Luit was already strong and popular enough to rule. On the other hand, by supporting Nikkie and helping keep Luit at bay, Yeoren effectively played the role of kingmaker and now had the sufficient leverage to demand privileges disproportionate to his ability. Indeed, after Luit died and the coalition between Nikkie and Yeoren broke down over various disputes, Yeoren began to cultivate a tie with another young upstart named Dandy. The two eventually supplanted Nikkie’s rule with Yeoren once again playing the role of kingmaker [1]. This behavior seems eerily familiar to political rivals courting influential groups. Indeed, after parliamentary elections in Britain, two large political factions often find themselves just short of holding a majority and seek the support of smaller parties in coalition governments. As a result these smaller groups have influence disproportionate to their standing in the elections. Psychologists often refer to such a scenario as the ‘weakness is strength’ paradox [1,2]. Such behavior is commonly observed in great ape power struggles [3,16].



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There is enormous variation, both between and within all ape groups, however. Certain groups tend to be more egalitarian than others [1,16].

However, even within the most egalitarian societies, a hierarchy does exist. Egalitarians often permit certain individuals to act as a first among equals or at least an arbitrator, with the group as a whole guarding against abuses [18,20].

In all great ape societies, there is always an arbitrator of disputes, a position which may be unrelated to the alpha male [1,16,18]. The key here is impartiality - if an arbitrator shows preferential treatment to his friends or relatives, then the group quickly overthrows the arbitrator even if he is the alpha male [1,2,16,11]. It is not uncommon for an alpha male to be ostracized from his group's territorial boundaries entirely if he is found to be totalitarian. For example, a bullying chimp alpha male named Goblin in the Congo was assaulted by a large coalition and needed veterinary treatment to survive. In fact, he later tried returning to his group only to meet the same treatment and, later still, the same vet [1].

Apparently, if an arbitrator is biased towards his closest kin, he is more likely to be removed from his position. Indeed, observations of long-term arbitrators indicate that there is little correlation between the times spent grooming a friend and supporting him in a dispute. In the initial weeks of Nikkie's rule, he saw himself as the prime arbitrator of disputes. However, he was partial towards his closest supporters and sure enough he was soon attacked by the group

every time he tried to intervene in a dispute. Soon, Yeoren took over arbitrator duties from Nikkie, who eventually did not even bother to glance over at ongoing disputes [1]. Similarly, arbitrators in modern human societies are penalized most heavily if they show partiality and are soon removed.

According to leading primatologist Dr. Frans de Waal, "if chimps on the lower end of the social scale collectively draw a line in the sand, threatening serious consequences if those at the upper end step over it, we have the beginnings of what in legal terms is called a "constitution" [1,2]. Such cohesive and democratic order is not observed outside great ape societies in the animal kingdom.

Furthermore, all great apes are able to contemplate the future, evaluate the consequences of their decisions, and recognize individuals presented on a screen [1,2,19]. In one study, Dandy was shown the photograph of the expired ex-alpha, Nikkie, on a screen. He yelped and ran to Yeoren for comfort as if in apparent astonishment of Nikkie's miraculous 'resurrection.' Furthermore, all apes, chimps, and in particular humans are capable of extreme changes in behavior and personality depending on social events. When Luit wrested power from Yeoren, Yeoren's personality changed overnight. He would refuse food, stare into the distance for hours and, like a child, go to the alpha female for consolation. Indeed, Yeoren's paradigm shift reflects the behavior of 'losers' of a human power struggle; whether that struggle is on an international, national, academic, or corporate scale, the tell-tale signs of defeat are the same

[1,2,3]. The ability of apes to console one another and to agree and disagree collectively or individually indicates the very human quality of empathy [3].

But if hierarchies create such huge disputes between group members, then why have hierarchies in the first place? The best reason seems to be stability [3]. Observations of groups in power struggles or power transitions indicate high levels of stress. Play and grooming are the first activities to be suspended as every member of the community is on edge. When an alpha male is chosen or a disputed hierarchy is defined, the group relaxes and becomes more productive [1,3]. If every member of the group had an equal rank then a never-ending dominance struggle would ensue, resulting in chaos and community breakdown. Studies indicate that human societies are known to switch to more hierarchical modes depending on the circumstances because clarification of hierarchy is essential for effective collaboration. That is why the most cooperative human enterprises, such as large corporations and military units, have the best-defined hierarchies. A chain of command works better than egalitarianism and democracy any time decisive action is needed [1-3].

A closer look at hierarchy in human society reveals some subtle clues. Imagine the misunderstandings we would face if the people around us did not have the slightest clue about their position relative to us [1,3,4]. Such a breakdown of the chain of command may be benign in some cases, but more deleterious in others, such as during an emergency.

Extrapolating ape hierarchies to human society requires some inner reflection. For instance, upon meeting for the first time, men gauge each other by picking something, pretty much anything, to fight over, often getting riled up over a topic they normally wouldn't care about. They adopt threatening body postures - legs apart and chests pushed out - make expansive gestures, speak with booming voices, utter veiled insults, make risqué jokes, and so on [3,4,7]. According to Dr. De Waal, "men desperately want to find out where they stand relative to one another. They hope to impress the other sufficiently that the outcome will be in their favor [3,4].

What chimpanzees do with angry and savage charging displays, the human male does in the more civilized manner of making mincemeat of someone else's arguments or,

more primitively, by giving others no time to open their mouths. For a group of human males, clarification of the hierarchy is a top priority during the first meeting. Invariably, the next encounter among the same men tends to be calmer, indicating that something has been settled, though the people involved may find it hard to know what exactly changed [1-3].

Perhaps, the most debated facet of social interaction is the concept of war. Are humans the only beings who use uncalled-for excesses of lethal force? Chimp groups declare wars with neighboring groups on the basis of territory, food, and females [1]. Moreover, chimpanzees selectively kill members of rival groups [2,15,16]. There are numerous observations of chimps killing and eating wounded and retreating rival group members. Victorious chimps are known to carry around remains of their rivals, such as bones, for several days as symbols of victory. The extent of brutality of one attack has a strong negative correlation with the extent and frequency of future retaliation or resistance by the rival group [2,3,18,10]. Dr. De Waal theorizes that humans, as well as chimps, are capable of such deliberate savagery precisely because of our ability to imagine what others feel. On the other hand, when the same ability is combined with a positive attitude, it prompts us to send food to starving people, make valiant efforts to rescue complete strangers, help the weak and injured, or cry when someone tells a sad story [2].

Perhaps humans do not repress their so-called primitive urges at all. Perhaps the longing for equality and justice, hallmarks of human progress from our 'savage' past to our 'civilized' present, were born from violence and discontent. After looking at our closest relatives and then at human history, it is hardly surprising that freedoms have rarely, if ever, been obtained without struggle. They have always been wrested from the powerful and the dominant. As Dr. De Waal so eloquently put it, "we would rather blame nature for what we don't like in ourselves than credit it for what we do like [4,5]. ■

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