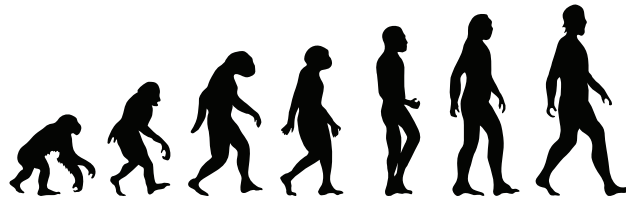


In Our Nature?



Julia Caci

Writing 101: *Primate Play and Growing Up*

Instructor: Kerry Ossi-Lupo

Sometimes science isn't the solution. That might sound strange in a year where knowledge of the evolution of disease allowed scientists to develop multiple vaccines against a deadly pandemic in record time. This year has taught us the immense power of science to get us out of public health crises. When applied to humans, however, this same evolutionary science can be used (or misused) to do harm. The pandemic taught us that, too, as some factions invoked [Social Darwinism](#)—a dark, pseudoscientific application of Darwin's theory of evolution by natural selection—to justify the abandonment of restrictive public health measures. Because COVID's devastation mainly affected the old and immunocompromised, they [argued](#) that it was best to “let nature take its course.”

How were the same scientific principles that allowed for rapid vaccine development used to justify the death of hundreds of thousands of people? In a word: framing. According to a [panel](#) of science communication experts, framing “simplif[ies] complex issues by lending greater weight to certain considerations and arguments over others.” Communicators use framing as a tool to better engage a public audience in important scientific discourse, like the effectiveness of masks or the dangers of smoking cigarettes. However, when we frame scientific principles—like “survival of the fittest”—as universal laws that justify all of our decisions, we risk losing our humanity.

As our response to the COVID-19 pandemic demonstrates, science is a powerful tool in understanding human health and behavior, and even informing social policy. That said, clear and accurate science *communication* is an equally powerful tool for a society that wants to have an informed public basing its decisions on the best available evidence. Poorly thought-out framing can backfire when it prioritizes a catchy headline at the expense of communicating complexity. This is especially true for evolutionary science that speaks to our own human behavior because that same science can be weaponized.

As humans, it's enticing to look for explanations for our behavior in our “evolutionary roots.” After all, we're just animals, right? In some cases, this exploration can be helpful. For example, long-term research on our primate relatives, like the savanna baboons of Amboseli, can help untangle complex influences on human health. A recent [study](#) conducted by researchers from Duke University found that



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Growing up, I saw science as a panacea. I marveled at the way that it gave us lightbulbs, antibiotics, and FaceTime. As an aspiring physician, I couldn't wait to harness this science to help people. At college, I imagined I'd prepare for this with classes in organic chemistry and biology classes, not writing.

But then COVID hit, and our society buckled under the weight of the pandemic. I was struck by the way that, in a world with satellites on Mars and laparoscopic surgery, science alone was not enough to solve our problems. I was frustrated with those who seemed unphased with this failure—and viewed COVID death as some sort of unavoidable inconvenience rather than a preventable tragedy.

In Dr Ossi-Lupo's Writing 101 class, *Primate Play and Growing Up*, I learned about not only the importance of primatology, but also the limits of science. We examined the value of doing good science as well as how to communicate that science to the public. I learned that science itself is just a tool—and that it alone can't shape society. The way that science is *applied*, however, makes all the difference. I realized that our failure to tame COVID-19 wasn't a failure of science, but rather a failure to optimize and report its findings.

I'd like to thank Dr. Ossi-Lupo for challenging us to look critically at the scientific process and for making every class so engaging. I'm grateful for her endless support and advice as I pieced my thoughts together in this essay. I'd also like to thank the Deliberations editorial board for their wonderful feedback, and Sheryl for her thoughtful edits and the opportunity to share my work with a broader audience.

Ambosele baboons who faced social and ecological adversity early in life were more likely to have shorter lifespans. Tung and colleagues suggest their results provide “powerful evidence for the developmental origins of health and disease and indicate that close ties between early adversity and survival arise even in the absence of health habits and health care-related explanations.”

Similarly, a [2015 study](#) published in “Hormones and Behavior” uses data on allocare—or shared infant care—in callitrichid monkeys to draw links to the

evolutionary importance of social support for human mothers raising children; like humans, callitrichids tend to practice cooperative care of offspring, relying on non-parental helpers. Again, this science has the opportunity to inspire social reform, but only if communicated carefully. The study explores evidence for maternal rejection of offspring in these species, and primatologist Sarah Hrdy hypothesizes that mothers who kill or otherwise neglect their own offspring do so because of a lack of support. In other words, mothers may terminate an energetic investment in offspring if they don’t have the resources necessary to raise that infant. If explained with the appropriate nuance, the results of this study could highlight the importance of cooperative infant care and make a powerful argument for increased social support for human mothers. However, if oversimplified, the results of this study could be weaponized against single mothers, arguing that they are less “fit” to be mothers than



those who are married. This sort of biased spin on primate behavior can be just as problematic as ignoring our evolutionary roots altogether. Framing that reduces a mother’s fitness to her phylogenetic relationship with callitrichids—while ignoring the social and cultural factors at play—is dangerous.

So, what do we do? How can we effectively communicate and apply evolutionary science without falling into the “survival of the fittest” trap? Primarily, it’s important to dispel a myth about evolutionary anthropology: the [naturalistic fallacy](#). This fallacy mistakenly claims that “what is natural is inherently good or right, and that what is unnatural is bad or wrong.” As communicators, it makes sense to look at our “evolutionary roots” to explore the natural history of our behavior, but it doesn’t make sense to imply that natural selection inherently favors traits that are good, just, or moral. Evolutionary fitness depends on the environment; what is “fit” in one context can be maladaptive in another. And yet, this [misconception](#) of evolutionary fitness gets miscommunicated in our science stories, thus perpetuating the naturalistic fallacy. At his Nobel Peace Prize acceptance, for example, former president Barack Obama [declared](#) that “war, in one form or another, appeared with the first man” as if recognizing warfare as “natural” served as justification for deploying 30,000 troops to Afghanistan.

Because the naturalistic fallacy conflates “natural” with “good,” it has the potential to cause great societal harm. For example, the [“sexual selection theory”](#), which suggests that males tend to be bigger and stronger than females because of male competition for access to mates, has often been invoked to explain sexual dimorphism in both baboons and humans. This theory alone is innocuous, but problems can arise when stories like [“Roots of Aggression”](#) oversimplify sex differences in behavior and invoke evolutionary explanations to justify cases of male aggression, like higher incidences of male bullies. This narrative suggests that contemporary males are more aggressive (and meaner) than their female counterparts because it makes them more evolutionarily fit; in other words, it is “in

their nature.” Without more nuanced interpretations of these complex behaviors, readers might take this as evidence that male aggression is right, adaptive, or even acceptable in our current environment. This harmful rhetoric perpetuates dated male stereotypes, which have substantial consequences: men who more strongly believe in patriarchal gender roles are more than [five times as likely](#) to engage in bullying or sexual harassment, and [twice as likely](#) to experience depression or suicidal ideation. Without careful communication, therefore, complex evolutionary data can be twisted to make us believe that biology is intrinsically tied to morality—that greed is justified because it’s [“evolutionary advantageous”](#), or it’s okay to be selfish because it’s [“natural”](#).

It might be easier to explain away our social problems by comparing ourselves to primates. We don’t really have to take accountability for our egregious immorality—our aggression, greed, racism—if it’s “in our nature,” right? But to explain away society’s greatest problems by relating ourselves to baboons and ancient humans is to ignore half of the story. As Princeton University primatologist Agustín Fuentes [argues](#) in *Sapiens*, “racism and global climate change are not explained by our shared history with chimpanzees.” As scientists, it can be helpful to look at our evolutionary roots, but as communicators, it’s crucial that we don’t use that evolutionary history to suggest that certain human behavior is biologically inevitable. Otherwise, we risk those evolutionary stories being misused by those wishing to leave behind individuals they deem less fit.

Here, it’s important to distinguish between primate behavior and contemporary human societies. It’s important to recognize that, though we share [almost 99%](#) of our DNA with chimpanzees, we are not chimpanzees; we have complex social structures and decision-making processes that separate us from our primate relatives. Therefore, it is essential that we exercise caution when looking at the tendencies of primates to rationalize contemporary social issues. A strict evolutionary explanation for our complex behaviors is an oversimplification that ignores the inherent uniqueness of modern human society.

To bring this back to the COVID example, it’s true that before modern medicine those with a weaker immune system would die. We might eventually develop herd immunity in a “survival of the fittest” scenario—but at the cost of countless lives. This argument isn’t valid, however, because we aren’t living in a hunter-gatherer society anymore; we now understand how diseases spread and kill, and therefore how best to avoid such death. Thus, science communicators must push back against this harmful Social Darwinian rhetoric that attempts to rationalize preventable casualties. In particular, we need to better communicate that evolutionary theory cannot be fully explained by a concept like “survival of the fittest.” These framing shortcuts can be helpful, but limit deeper understanding. And the consequences of misunderstanding can be deadly, especially when those shortcuts inform public decision making—or are cited as absolute laws that justify mass death. To avoid this weaponization of science in the future, we as communicators have a responsibility to convey important evolutionary theories without ignoring the vital role of complex modern society.

