

Caught in the middle

between genes and memes

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1 Introduction

This essay explores the implications of being a cultural creature, the central question being what it means to be a carrier of genes that have evolved to support the existence and evolution of what Dawkins (1976) calls memes. This is definitely a very personal question, for both you—the reader—and me—the writer. Given that neither our genes nor our memes will be identical, there’s unlikely to be an answer that is universally valid. What I can, however, do is to frame the question such that it helps us to successfully navigate the tensions that exist between our individual and group needs, our cultural demands and the genetic programming of ourselves and other individuals.

The ultimate purpose of this exercise is to gain a deeper understanding of why we do what we do and also (hopefully) to make it easier to recognize what we want to do. As unlikely as the latter outcome may be, it is the desire to know this—or rather, my frustration with the metacognitive deceptions that have so far gotten in the way of true self-knowledge—that led to my long-term fascination with this subject. It all started with a dream.

I had a dream—a lucid dream, in which I was aware that I was dreaming. From studying LaBerge and Rheingold (1990), I knew that, in this dream-world, I could do anything I wanted to. Nothing happened, until something

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did happen—something that I thought I wanted; it turned out I didn’t. The ensuing confusion—that I could no longer trust my personal narrative about myself and my motivations—arose from a misappropriation of the ownership of my personal history, which was never personal to begin with, but had really always been a cultural product. So how can culture come to possess a mind to the extent that it no longer feels as our own?

2 Discussion

Mimetic culture Donald (1991) provides an account of the gradual evolution of modern cognition that achieves its gradualism by hypothesizing an intermediate stage between episodic cognition, which we share with the other great apes, and mythic cognition, which, of the extant primates, only *Homo sapiens* possesses. He calls this intermediate stage *mimetic* cognition.

In his view, mimesis—the ability to act out episodic memories¹—is still the basis of much of contemporary culture. Rituals, games, customs and many skills are at least partially mimetic in nature. Mimesis depends on advanced meta-cognitive abilities that to some extent may be present in other mammals (some examples of which can be found in the commentaries on Donald, 1993, pp. 755–756, 768, 771–772), but which Donald assigns to late *Homo habilis* or early *Homo erectus* along with the first archaeological evidence of tool making (Donald, 1991, 1993).

Donald (2001, pp. 254, 338) suggests that from the mimetic stage onwards, evolutionary models may be improved by including group selection as an additional level of natural selection, running in parallel and interacting with individual-level natural selection. When the relative fitness of individuals became intertwined with the culturally-programmed phenotype of their group, groups turned into mediators between group-members and selective pressures emanating from the group’s environment, or *niche*. The group’s unique culture came to influence the fitness of its members relative to members of other groups, and, as the relative importance of selective forces emanating from the group started to outweigh those emanating from the group’s environmental niche, it became increasingly important for genes to support the behavioral flexibility required by rapidly evolving group cultures. Thus, the possibilities of self-sacrificing and altruistic behaviour had to be extended to include the group as an object of altruism.²

Archaic hominids were already social (and altruistic) animals before the

¹Mimesis is not the same as mimicry, which involves the exact duplication of behaviours, such as the duplication of sounds in song birds. Nor is the same as imitation, by which apes and monkeys copy their parents’ way of doing things. “Mimesis usually incorporates both mimicry and imitation to a higher end, that of re-enacting and re-presenting an event or relationship. [...] It involves the *invention* of intentional representations” (Donald, 1991).

²With this broadening (read: easing) of the individual’s moral community, problems regarding cheating will inevitably pop up, but, with group selection in full swing, solutions to such problems can and will be solved by cultural evolution, while social pressures on the genetics of group members will ensure compliance to such solutions.

emergence of mimetic culture, but only with the advent of mimetic culture did the interests of the group start to override the interests of the individual. How this was not so before deserves elaboration.

Selfish genes For non-human animals, the argument that they’ve evolved to serve “the greater good” is easily refuted, as has repeatedly been done by a number of authors (e.g. Hamilton, 1964; Dawkins, 1976). Dawkins (1976) has done this most expertly by means of reducing individuals to copying machines for their genes. Genes, then, can encourage altruism whenever this serves them best. That is, those genes that have evolved to—in concert—influence the behaviour of their host such that the maximum number of these genes are present in the next generation will be the genes that will preferentially survive. Altruism then makes perfect sense if you consider that family members will typically share many genes, and indeed altruistic tendencies are generally highly discriminative, with the closest relatives being the most likely beneficiaries, because the inclusive fitness value of altruistic behaviour is dependent on the *coefficient of relatedness* (Hamilton, 1964). This type of altruism is said to be the product of *kin-selection* and can be seen in, for example, the banded mongoose (Gilchrist, 2004; Gilchrist et al., 2004; Hodge, 2005).

Another type of altruism that is fairly common in the animal kingdom is reciprocal, or *tit for tat*, altruism, proposed by Trivers (1971) as a model for cooperation between unrelated individuals within groups of primates, including humans. A requirement for this strategy, according to Trivers, is that individuals possess a good enough memory for keeping track of who owes them what and what they owe whom. Such detailed book-keeping is necessary to avoid cheating; otherwise, cheaters *will* inevitably pop up. Thanks to their excellent episodic memory, nonhuman primates are definitely capable of this type of altruism (de Waal and Lakmaker, 1996).

In our own complex primate society, the functioning of psychopaths offers insight into the social consequences of cheating. When so-called *successful psychopaths* are not detected, they can victimize not only individuals, but whole groups, even economies (Babiak, 1995; Boddy, 2006; Boddy et al., 2010; Kirkman, 2005). Obviously, for altruists, it’s essential to be able to weed out and discriminate against cheaters, or their altruism would not be an evolutionary stable strategy (ESS) and remain vulnerable to invasion by mutants. Axelrod and Hamilton (1981) compared many possible strategies using game theory and concluded that *tit for tat* was always the most successful strategy. It was also the simplest, based on three rules: a player following this strategy (1) is never the first to defect; (2) provoked to immediate retaliation by defection; and (3) willing to cooperate again after just one act of retaliation for defection.

When Dawkins (1976) called our genes ‘selfish’, he meant that for them it doesn’t matter through which carrier their copy number is maintained. Genes that act in concert to maximize their number in successive generations can achieve a kind of immortality, regardless of which of their disposable vehicles

passes down these genes along generation lines.³ The above-mentioned explanations for altruistic behaviour are fully in accord with Dawkin’s gene-centric view of evolution wherein the replicators are genes and the vehicles are individual organisms. However, it can be argued that humans have evolved an expanded facility for altruism that cannot be satisfactorily explained by natural selection operating on individuals alone.

Group selection Not all authors agree that group selection is an extraneous explanation for altruistic behaviour in nonhuman animals. So far, I’ve followed here the consensus view as propagated by Hamilton (1964) and Dawkins (1976). Donald’s suggestion—that mimesis might, in fact, imply group selection—is buried in an endnote (Donald, 2001, p. 338) probably because it refers to a controversial work of Sober and Wilson (1999) in which they try to resurrect group selection as one level in their multilevel selection theory. (See Dennett, 2002 for a decent critique of this model.)

For the moment, we can bypass most of the controversy by selectively applying the concept of group selection to mimetic culture as per Donald’s suggestion. Ignoring the rest of the debate is perfectly acceptable, because for most animals models with or without group selection are mathematically and experimentally equivalent (Dennett, 2002). Either way, within Donald’s framework, of which gene-culture co-evolution is a central feature, a model that includes group selection makes sense.

Multi-level selection models (such as proposed by Sober and Wilson, 1999) have been criticized for failing to distinguish between replicators and vehicles (Dennett, 2002). When we consider that human groups can (and often are) extinguished or outcompeted by other groups, it becomes apparent that groups are perfectly valid vehicles for the replicable units of cultural information called *memes* by Dawkins (1976). The increased intergroup competition due to an increase in (fitness) variation between mimetic group cultures could have sped up the increase in brain size of *H. erectus* on the way to *H. sapiens* and *H. neanderthalensis* by means of a positive feedback loop wherein increasingly demanding group cultures selected for increasingly adaptive and clever individuals, who in turn could invent cleverer cultural practices.

It is this accelerating phase of hominid evolution where we have to expect the individual to have evolved to define its identity more and more in terms of group position, an ongoing process which switched into a higher gear with the advent of mythic culture.

Mythic culture Mythic culture emerged together with spoken language, probably in *H. sapiens*. Gossip and myth combined with ritual, allowing more complex forms of social organization and communication. Group life became embedded in a narrative, which supplied group members with meaning and identity (Donald, 1991).

³Do note that, despite the anthropomorphizing language use, genes do not intentionally partake in this process.

Significantly, until the agricultural revolution, human groups remained organized as small tribes. It is safe to assume that most modern humans, in the 8000–13000 years since the agricultural revolution took place in the fertile crescent, haven’t had the opportunity to fully adjust their social instincts to the demands of life in contemporary, impersonal super-groups (Quinn, 1992).

Selfish memes A meme, according to Dawkins (1976), can be defined as any type of cultural entity that an observer might consider a replicator. Memes are information that can be exchanged between brains and thus be transferred to the next generation. An important feature of memes is that, as long as they can ‘infect’ enough new individuals through their host (horizontally or vertically), they do not have to supply their host with a fitness benefit.

When combining a meme-centric view of cultural evolution with a group-selectionist account of the supporting genetic changes, a grim picture emerges: human culture, liberated from the confines of tribal groups, has evolved to the point where it matters more how humans can be productively harvested for the outputs advantageous to their culture than how they wish to live together. And thus, our unique propensity for self-sacrifice enters the picture, one which is not always entirely voluntary, but all too often deemed necessary, because the alternative to sacrificing oneself for our misanthropic memes is often to actually or effectively kill oneself.

Suicide (behavioral and physiological) is not uniquely human. What *is* uniquely human is that the unfolding of the narratives we live by can be sufficient to convince us that our lives are no longer worthwhile (Baumeister, 1990). It is true that in some circumstances suicide may be good for your genes, and kin selection can perhaps account for those instances (Bering, 2010). When, however, suicidal tendencies are solely caused by mythical displacement (and not by actual obsolescence), it must be evident that our genes are losing from our memes.⁴

3 Conclusion

Cliff-hanger Why is it so important to be able to distinguish between the various types of self-sacrifice that have been discussed in this essay? Because, in this century, our survival as a species might come to depend on our ability to reclaim culture as the type of communal property as which it began instead of continuing to live our lives as sacrificial lambs in the service of unfriendly memplexes. Not just us, but all the planet’s ecological support systems have been converted by culture. This *enculturalization* process is still running on full steam, blind and relentless as ever. There are two problems with this:

⁴See Quinn (1992) for a unique insight into the devastating psychological and ecological consequences of being possessed by memes that do not acknowledge our genetically programmed needs and limitations.

(1) anthropocenic⁵ cultural practises have pushed us fully into the sixth great extinction event, and (2) this culture drives people crazy.

The first problem is widely recognized and uncontroversial (IUCN, 2009; Pimm et al., 1995). The extent of the second problem is best summarized by Robert Sapolsky (2004, ch. 14): “5 to 20 percent of us will suffer a major, incapacitating depression at some point in our lives, causing us to be hospitalized or medicated or nonfunctional for a significant length of time. [The] incidence [of depression] has been steadily increasing for decades—by the year 2020, depression is projected to be the second leading cause of medical disability on earth.”

Harmful narratives This essay has attempted to interrupt the dominant cultural narrative that the human condition has been steadily improving ever since human cultures started increasing in complexity—an accelerating process that was kicked in a higher gear with every new social revolution, such as the agricultural revolution and the industrial revolution (de Botton, 2013; Quinn, 1992). To explain why our culture—that very thing which we derive meaning and identity from—doesn’t necessarily care much about us (and even less about our feelings), I’ve demonstrated why it could be in our genes’ best interest to make us care more about our disinterested culture than about our own (and each other’s) personal well-being.

Regarding my own confusion about my identity—the confusion that prompted this exercise—I can conclude that part of this confusion is due to a misappropriation of what constitutes ‘my’ mind. To clarify: my mind is both the product and a constituent of my *community of mind*. As a product, I will unwittingly try my best to fit in and conform to whatever demands are implied by whatever myths I feel part of. But, as a constituent, unsatisfied as I am with my programming, I will always try to sabotage and cheat my way out of a cultural identity that will forever remain at odds with my genetically determined sense of community. And most of this self-sabotage will remain unconscious as long as my conscious self is occupied with trying to fit my thoughts into Mother Culture’s mould.⁶

As should have become apparent, we cannot escape the cages of our biological and cultural programming. But, we can recognize that, unlike our biological heritage, our cultural programming is not an immutable fact of life. Potentially, our culture can be reprogrammed to the advantage of shared (biological) values, and it probably will, as soon as more artists start to catch up to these facts.

The suffering artist It is the job of the artist to invent new representations of reality. The artist’s fluency in expressing his or her thoughts and feelings,

⁵The *anthropocene* is an informal geological term for the current epoch that reflects the fact that much of our environment is either completely man-made or transformed by human activity (Revkin, 2011).

⁶I use the term *Mother Culture* to mean a culture’s most influencing features (its attitudes, values, viewpoints, etc.) that are usually not consciously recognized as being culturally-specific by the members of that culture (Quinn, 1992).

however, is no guaranty that these will be particularly accurate (or even original). Still, scientists can produce an endless stream of evidence on the nature of the forces that shape our altruism. Yet, none of this will enter the mainstream consciousness without the help of artists. Worse still: scientific literacy will not aid with the integration of such knowledge in our personal life, unless it is translated into mimetic and mythic thought structures first.

As we look down the cliff’s face in this age of genetic engineering, will we be able to use some of our ingenuity to re-engineer our culture? Mother Culture tells us that we need to evolve—become better persons—to allow society to further progress (Quinn, 1992). But, really, shouldn’t we be looking for a new mother and a new place in the world? Can’t we make our groups reflect what we *want* to be rather than let them dictate who we ought to be? I’m convinced that we can, if the poets of today dare to wake up from this nightmare to dream up new narratives in which there is a place for the actualization of our human wants and needs. Such a culture, where the role of altruism is not to deny our own fragile nature, is a culture that I could trust to sustain our species and our ecosystems for a little bit longer. One day, I’d like to have a dream in which I realize that the person I’m expected to be has become the person I am.

References

- Robert Axelrod and William D. Hamilton. The evolution of cooperation. *Science*, 211(4489):1390–1396, 1981.
- Paul Babiak. When psychopaths go to work: A case study of an industrial psychopath. *Applied Psychology*, 44(2):171–188, 1995.
- Roy F Baumeister. Suicide as escape from self. *Psychological review*, 97(1):90, 1990.
- Jesse Bering. Is killing yourself adaptive? that depends: An evolutionary theory about suicide. *Scientific American (blog)*, Oct 2010. URL <http://blogs.scientificamerican.com/bering-in-mind/2010/10/11/is-killing-yourself-adaptive-that-depends-an-evolutionary-theory-about-suicide/>.
- Clive Roland Boddy. The dark side of management decisions: Organisational psychopaths. *Management Decision*, 44(10):1461–1475, 2006.
- Clive RP Boddy, Richard Ladyshevsky, and Peter Galvin. Leaders without ethics in global business: Corporate psychopaths. *Journal of Public Affairs*, 10(3):121–138, 2010.
- Richard Dawkins. *The Selfish Gene*. Oxford University Press, Oxford, 1976.
- Alain de Botton. *Religion for Atheists: A Non-Believer’s Guide to the Uses of Religion*. McClelland & Stewart, 2013. ISBN 9780771025983. URL <http://books.google.nl/books?id=uctQMAEACAAJ>.

- Frans de Waal and Fieke Lakmaker. *Van nature goed: over de oorsprong van goed en kwaad in mensen en andere dieren*. Contact, 1996.
- DC Dennett. Unto others: The evolution and psychology of unselfish behavior. *philosophy and Phenomenological Research*, 65(3):692–696, Nov 2002. ISSN 0031-8205. doi: 10.1111/j.1933-1592.2002.tb00234.x.
- Merlin Donald. *Origins of the modern mind: Three stages in the evolution of culture and cognition*. Harvard University Press, 1991.
- Merlin Donald. Précis of origins of the modern mind: Three stages in the evolution of culture and cognition. *Behavioral and Brain Sciences*, 16(04): 737–748, 1993.
- Merlin Donald. *A mind so rare: The evolution of human consciousness*. WW Norton & Company, 2001.
- Jason S. Gilchrist. Pup escorting in the communal breeding banded mongoose: behavior, benefits, and maintenance. *Behavioral Ecology*, 15(6):952–960, 2004.
- Jason S. Gilchrist, Emily Otali, and Francis Mwanguhya. Why breed communally? factors affecting fecundity in a communal breeding mammal: the banded mongoose (mungos mungo). *Behavioral Ecology and Sociobiology*, 57(2):119–131, 2004.
- William D. Hamilton. The genetical evolution of social behaviour. i. *Journal of theoretical biology*, 7(1):1–16, 1964.
- Sarah J. Hodge. Helpers benefit offspring in both the short and long-term in the cooperatively breeding banded mongoose. *Proceedings of the Royal Society B: Biological Sciences*, 272(1580):2479–2484, 2005.
- International Union for Conservation of Nature IUCN. Extinction crisis continues apace. Nov 2009. URL <http://www.iucn.org/?4143/Extinction-crisis-continues-apace>.
- Christine A Kirkman. From soap opera to science: Towards gaining access to the psychopaths who live amongst us. *Psychology and Psychotherapy: Theory, Research and Practice*, 78(3):379–396, 2005.
- Stephen LaBerge and Howard Rheingold. *Exploring the world of lucid dreaming*. Ballantine Books New York, 1990.
- Stuart L Pimm, Gareth J Russell, John L Gittleman, and Thomas M Brooks. The future of biodiversity. *Science-AAAS-Weekly Paper Edition*, 269(5222): 347–349, 1995.
- Daniel Quinn. Ishmael. 1992.

- Andrew C. Revkin. Confronting the ‘anthropocene’. *New York Times*, May 2011. URL <http://dotearth.blogs.nytimes.com/2011/05/11/confronting-the-anthropocene/>.
- Robert M. Sapolsky. *Why Zebras Don’t Get Ulcers*. Henry Holt and Company, New York, 2004. ISBN 9780805073690.
- E. Sober and D.S. Wilson. *Unto Others: The Evolution and Psychology of Unselfish Behavior*. Harvard University Press, 1999. ISBN 9780674930476. URL <http://books.google.nl/books?id=ouwg5swAV5oC>.
- Robert L Trivers. The evolution of reciprocal altruism. *Quarterly review of biology*, pages 35–57, 1971.