

1. Boehm has spent decades studying hunter-gatherers and primates and writes in *Moral Origins* that our ancestors' survival became a team sport, likely about 250,000 years — or 10,000 generations — ago, when driving big game toward teammates yielded more meat than solo hunting. But division of labor requires sustainable division of profits. Nowadays, we call that economics.

2. Boehm has built the largest database of modern hunter-gatherer behaviors (with detailed coverage including 50 of 339 known cultures). It shows they practice remarkably similar economics, leading Boehm to conclude that our ancestors transitioned from living hierarchically to becoming devoutly egalitarian. Team survival has a fundamentally different logic than self-maximizing.

3. Modern hunter-gatherers are ever vigilant against free-riding and elite-exploitation, both as threatening to team survival as any predator would be. They rigidly enforce social rules to ensure that skilled cooperators fare better than self-maximizers. For example, meat is never distributed by whomever made the kill, but by another stakeholder. Enforcement can be by ridicule, shaming, shunning, and, ultimately, exile or execution.

4. Socially enforced rules create powerful environmental pressures, and the lowest-cost strategy to avoid social penalties becomes preemptive self-control. Impulse control (whatever your genetic predispositions) has long been adaptive for humans. Even for powerful humans, because “counter-dominant coalitions” punish “resented alpha-male behavior” (like hogging an unfair share of meat). Ultimately this becomes *inverted eugenics*: eliminate the strong, if they abuse their power.

5. This premium on self-control shaped our moral sense, our capacity to internalize our culture's behavioral rules and feel strongly that certain behaviours are definitively right or wrong. Shame and guilt — i.e. our moral emotions that likely serve as evolutionarily useful “fast thinking” — enable “self-policed” social contracts.

6. Our prior “apelike...fear-based social order” changed to include “internalizing rules and worrying about personal reputations.” Conscious, reputation-based social selection for collaborative activities subsequently became dominant. Those known to be poor cooperators would not be selected for joint ventures, including the massively expensive business of raising new humans. Boehm calls this tendency for team players to breed with each other “auto-domestication” (we bred ourselves for cooperation).

7. However plausible Boehm's “moral origins” story seems, key aspects are hard to deny. Humans objectively have culturally configurable social-rule processors (*i.e.* a “moral sense”). Put another way: It is in our nature to need rules. By enabling improved social productivity, rules beat no rules. Our social-rule processors work like our language-rule processors in that both evolved for social coordination. We automatically absorb the (often tacit) rules of our native cultures grammar and behavioral norms. As Alison Gopnik notes: an “impulse to follow rules ...seems...innate” and it emerges untutored. Toddlers act in “genuinely moral” ways, understanding that certain rules should not be broken. Moralities, like languages, likely have an underlying universal structure that cultures configure differently (e.g. Jonathan Haidt's six component mix: fairness, care, liberty, loyalty, authority and sanctity.)

8. Once our social-rule processors arose, their cultural configurations also became subject to “productivity selection.”

We're descended from those with the fitter traits, and tools, and rules (i.e the higher productivity moralities). Perhaps common patterns in extant hunter-gatherer habits harbor lessons?

9. Economics today faces the same basic issues Boehm describes, further complicated by the evolutionarily recent rise of agriculture, cities, and industrialization, and the opportunities for un-egalitarian accumulation they created. But none of that negates key features of team survival logic (especially the viable limits of self-maximising).

10. Economists usually make 3 assumptions that ideas from evolution can clarify—that humans are selfish (unlimitedly self-maximizing), that competition creates efficiency, and that the “invisible hand” ensures the best overall outcome. Each requires correction.

11. Throughout nature, “self-interest” has limits. All biological appetites have maximum capacities. Most biological inputs not only have diminishing returns, in excess they're toxic (too much food/water/oxygen is fatal). Perhaps Aristotle's view that every virtue in excess becomes a vice also applies to psychological appetites like economic “self-interest” (too little is bad, too much is harmful). “Self-interest” as economists use it seems a poor proxy for our biological interests.

12. “Self-interest” also faces limits from an as yet unnamed natural principle that's more general than “survival of the fittest.” It's an extended form of Richard Dawkins's replicators (genes) vs. vehicles (bodies) distinction. Every “selfish” gene must cooperate with its vehicle-mates (genes that damage their bodies don't do well). More generally, anything that damages what it depends on lowers its own survival chances. We might call this the “vehicular viability” or “needism” principle.

13. The logic of vehicular viability, that is, self-maximizing that damages its vehicles ultimately becomes self-destructive, is a principle that applies widely (e.g. to bodies, hunting teams, food supply, companies, communities, markets, economies, ecologies...the planet). It constrains the kinds of self-maximizing that is survivable. We may be the only species ever to know this, or to have any choice about it. The rest of nature is basically genetically bound to its fate. But we have foresight and the ability to organize ourselves.

14. Robert Frank in *The Darwin Economy* distinguishes two kinds of “invisible hand” patterns: where individual and group incentives either converge or diverge. Economics focuses on the former, while mostly ignoring the latter. In the former, local incentives could work well if people choose prudently. In the latter, the “invisible hand” isn’t benign, it maliciously misleads. Frank refers to these as “Darwin’s Wedge” situations.

15. Economists have long preached that competition creates efficiency as if it was a law of nature. But nature itself teaches different lessons. “Natural” competitions routinely deliver disaster (e.g. self-extinction by overhunting) and regularly create waste. Dawkins, to illustrate how “unintelligent” natural competition is, calls tree trunks “standing monuments to futile competition.” A forest canopy approximates “an aerial meadow...on stilts...gathering solar energy.” Yet that energy is largely “wasted” on the stilts which only raise the canopy to gather “the same harvest” it would at lower heights. If somehow the trees could agree and enforce height limits, each could save energy and the forest as a whole would be “more efficient.” Obviously trees can’t do this. But need our economics be as dumb as trees?

16. Competitions for positional rank generally drive added, and often avoidable, overhead costs. In these “arms races” however much is spent — on taller trunks, larger antlers, fancier cars —

the same fraction “win.” Such overheads could be minimized by intelligent coordination and enforcement for mutual as well as group benefit. Such coordination of joint interests is not only rational, it is needed to avoid foreseeably bad outcomes, like those that uncoordinated self-maximizing delivers in the tragedy of (or freedom in) the commons.

17. Rules that limit acceptable behaviors (i.e. ethics or morals) are key and Game Theory now permits the objective study of natural laws in ethics. Until recently evolution was the only “game theorist” in town, constantly testing not only Darwin’s “endless forms” but also endless behavioral strategies, and naturally selecting the more productive. Prehistory was shaped by blind genetic strategies, until proto-humans arrived, and non-genetic strategies and social rules emerged. We have only recently developed the ideas and tools to understand that we are game theorists. Game theoretic computer simulations are “behavioral telescopes” that make visible the objective long-term effects, patterns, and limits of behavioural rules.

18. The “naturalistic fallacy” says, roughly, that we can’t derive ethical lessons from nature. But we can, and should, learn from our own nature. We can compare the productivity and sustainability of various ethical rules—even if only to map negative ethical spaces that foreseeably become self-destructive. Surely self-destructiveness is objectively bad? Perhaps rightly called evil? This is almost a sort of “negative telos”: life that doesn’t discover such “purpose” doesn’t survive. Likely no other species has any choice in this. But we do.

19. For example, we can assess how various ethical rule-sets perform in games like the Prisoner’s Dilemmas, compared to it’s most productive known strategy, Tit-For-Tat (i.e. start cooperatively, then do what the other player did last time). The results are intriguing: “Rational” self-maximizers do worse than the

Golden Ruled. And Jewish tenets “beat” Christian ethics. But Tit-For-Tat requires more...

20. “Rational self-maximizers” typically don’t cooperate yielding low productivity. The Golden Ruled cooperate, thereby beating “rational self-maximizers.” But Christian turning-the-other-cheek (as Machiavelli and Nietzsche complained) is exploitable. Old Testament eye-for-an-eye is closer to Tit-For-Tat because punishment must be sufficient to ensure that cheating doesn’t pay. But punishment also must not obstruct further cooperation, so forgiveness is needed (forgiveness isn’t only divine, it can be evolutionarily adaptive... after punishment). We could call this the “Golden Punishment Rule,” it encodes a natural logic of ruthless cooperation (high productivity cooperation must prevent or punish unsustainable exploitation).

21. Darwin (being un-Darwinian) said “social instincts...with the aid of active intellectual powers... naturally lead to the golden rule.” Game theory shows that simple, rigidly followed rule — without active intellectual powers — can create evolutionarily stable cooperation. And human “games” often have much simpler structures than Prisoner’s Dilemmas (a known bad cooperator is eliminated in advance). It’s early in the study of game theory, but it seems that the behavioral universe has certain stable, high-productivity rule patterns which evolution/culture can discover. And behaviours that violate the “vehicular viability” principle eliminate themselves. Perhaps this explains the similarities among team-economic-practices of Boehm’s surviving hunter-gatherers.

22. Our survival has long required a mix of self-interest and cooperation that binds our self-interest inalienably to the interests of others. Economists generally believe that self-maximizing agents responding to local incentives in markets ensure the best outcomes. They’re wrong. Many situations have Darwin’s Wedge dynamics. And local incentives often encourage both sides of

voluntary transactions to exclude costs (like pollution). Sadly for the besotted “free-market” lovers, their love can’t cure these kinds of problems without needing some element of (typically hated) central enforcement.

23. Something must reconnect supposedly “rational” self-maximizing to collective self-preservation. This needn’t mean being “devoutly egalitarian,” but delegating our interdependent futures to mindless “market forces,” and their dumb coordination, is neither rational, nor survivable. We can and must coordinate better than the invisible hand’s invisible brain.

Highly configurable ethics are in our nature (economics is ethics enacted). But no configuration that ignores our inalienable interdependence and our vehicular limits is fit to survive.

A high level of correlation exists between success in a hunter-gather society and in a modern economy. Many of the factors are opposed to the idea of optimization of society through individual self-maximizing.

There are many factors of competition that can create inefficiency.

There is a higher (yet unnamed) natural principle that “survival of the fittest” must yield to.