Deriving Common Interests from Animal Origins: The Generative Constraints of Global Polity

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Synthesizing recent work from primatology, anthropology, linguistics, and Constructivist IR Theory, a case will be made that a comprehensive discussion of the prospects for an effective global polity must address foundational human organic capacities and drives such as kinship, status, pattern finding, theory of mind, and the desire for freedom. That synthesis will be framed within key traditional concerns of IR scholarship, particularly the calculation of interests and rules deemed pertinent to the deployment of power. This paper is aimed at preparing ground for further disciplined discussion of expressly global politics.

Please Note:

The first version of the paper reflects an abbreviated but substantive fulfillment of the objectives laid out in the original proposal. There is much more to say.

This second version adds a bibliography, expands the discussion of freedom, and makes other stylistic revisions. Thanks go to Arie M.. Kacowicz for comments on the first version.

Version 2.1 makes a significant change to the introduction and slight changes elsewhere.

These versions should not be considered appropriate for citation, but any feedback will be happily welcomed.

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The Generative Constraints of Global Polity

> *Darwin's idea... bear[s] an unmistakable likeness to universal acid: it eats through just about every traditional concept, and leaves in its wake a revolutionized world view, with most of the old landmarks still recognizable, but transformed in fundamental ways.*
>
> Daniel Dennett *Darwin's Dangerous Idea*

INTRODUCTION

What would remain if Daniel Dennett's concept of Darwinian "acid" were applied to the field of International Relations? What if all the old layers of rotting paradigms and decomposing schools of thought were seared away from the genuine substance of our discipline? What common structures would be revealed among the clearly-seen specimens of international organizations, regional alliances, and epistemic regimes? Quite likely the elements uncovered by such a thorough dousing would turn out be the bare bones, visceral organs, and connective tissues of human society itself. But this does not mean that the study of international relations would have to start anew. After all, the central obligation of our discipline, as defined by Thucydides, is to describe "the condition of humanity" without resort to fables. He began with a naked subject. Modern tools help expose it more sharply. So what, more precisely, are the questions that need to be settled?

There is an age-old debate over what it means to be human and what obligations necessarily follow. Now that evolutionary theory has become the organizing framework of the life sciences, confederates of the Darwinian research paradigm expect the last word will soon be theirs. But the question of human nature can not be closed, if ever, before Darwin's heirs settle their own boiling conflicts about the nature of free will. At stake is the prevailing conception we humans have of ourselves as a self-aware species. At stake also is our shared sense of what a human society might plausibly hope to attain.

The prominence and persistence of the free will debate among modern scientists presents a nagging dilemma for state policy makers, political activists, and IR scholars alike. The core of it is this: Suppose neurobiologists, psychologists, and other cognitive researchers continue to win adherents to the idea that belief in free will is as scientifically unsupportable as belief in supernatural realms and beings. Does it follow that freedom – the epitomizing goal of free will – would somehow go out of fashion? Does it follow that any political effort which insists on freedom as a priority

interest could be portrayed as backward and obsolete? Such outcomes certainly seem unlikely. Nevertheless, suppose that the purveyors of "Darwin's acid" begin attacking the wish to uphold freedom as intensely as they now attack the decaying remnants of creation myths. Public officials who might otherwise welcome the discipline of hard science may decide it has become too harsh for general use... perhaps too harsh for even their own use. A 21st century Emma Goldman would defiantly proclaim, "If I can't be free, I don't want to part of your evolution."

Fortunately, the formula for Darwinian acid is still under development. It is true that today's better-known blends include the idea of free will among the targets it seeks to burn it away, but only for the purpose of getting to the bottom of things. The driving goal of evolutionary science is to eliminate mystery, not free will. New and better formulations of Darwinian acid are always in the pipeline. Some of these may turn out to leave free will not only unscathed, but as fully open to honest inspection as the other building blocks of human nature.

The majority school in the free will debate clusters around cognitive scientist Douglas Hofstadter's position that "free will is a grand illusion," and that consciousness is an "hallucination perceived by an hallucination."[1] The minority tends to ally with linguistic philosopher Jonathon Searle's position that subjective consciousness is a real and distinctive property of the human species, but that the existence of free will, though desirable, is an open question.[2] My goal is to outline the contours of that debate with respect to the kinds of questions that preoccupy scholars of International Relations (IR). These include the prospects for global order, international justice, and global values, as well as prospects for the advancement of a particular actor's power and interest.[3] I also intend to challenge the position of the Hosfstadter cluster by drawing upon insights available

[1]The words regarding free will were spoken by Hofstadter while playing himself in the 1988 docudrama, "Victim of the Brain." The others are from *I am Strange Loop* (2007), where he also writes "the typical human brain perceives its very own 'I' as a pusher and a mover, never entertaining for a moment the idea that its star player might merely be a useful shorthand standing for a myriad infinitesimal entities and the invisible chemical transactions taking place among them." This cluster of views stems from experiments by Benjamin Libet, Daniel Wegner and others demonstrating the role that unconscious processes play in the initiation of acts presumed to be volitional. See Benjamin Libet. *Mind Time: The Temporal Factor in Consciousness* (2004). Libet's experiment was repeated here http://www.nature.com/neuro/journal/v11/n5/abs/nn.2112.html. See also Michael S. Gazzaniga's discussions regarding the moral and legal implications of intentional systems that refer forward from subconscious to conscious levels. *The Ethical Brain* (2005).

[2]John R. Searle, *Mind Language and Society: Philosophy in the Real World* (1998) p. 107.

[3]For a representative sample, see the program for the 2008 conference of the World International Studies Conference, where this paper was first presented. http://www.wiscnetwork.org/documents/WISCbookA4_web.pdf

from the social constructivist approach to international relations, particularly the Rule-Oriented Constructivist (ROC) stream associated with Nicholas Onuf and Frederich Kratochwil.[4]

Research practices in the field of IR have been notoriously unfocused due to an ever-proliferating number of theories, frameworks, and schools of thought, many of which are incommensurable. The ROC stream stands out for its location at the fertile intersection of linguistic philosophy, structurationist sociology, and international legal theory. This vantage also offers a short, direct path toward confluence with the views of cognitive researchers who defend the existence of free will. It tuns out that important new streams of thought within evolutionary psychology are in immediate proximity as well. This apparent convergence of ideas across so many disciplines can fortify the capacity of the ROC perspective to offer paradigmatic coherence within the field of IR as a whole.

The upshot of my position is to argue that those who claim that the fulcrum of free will has not been found – implicitly denying that it ever will be – have been looking in the wrong place.[5] By hunting so intently for an immediately-before-the-fact biological mechanism of self-aware voluntarism,[6] they have overlooked the immediately-after-the-fact tangible evidence of consequential responsibility. Drawing from Simone de Beauvoir's notion of *disclosure*,[7] I will argue that freedom stems from our intersubjectivity, which is instinctive. Freedom is thus axiomatic to the human condition. As members of a biologically evolved, sapient species, our projects are a matter of choice,

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[4]Nicholas G. Onuf. *World of Our Making: Rules and Rule in Social Theory and International Relations* (1989). Also Vendulka Kubalkova, Nicholas Onuf and Paul Kowert,eds. *International Relations in a Constructed World* (1998). Friedrich V. Kratochwil, *Rules, Norms, and Decisions: On the Conditions of Practical and Legal Reasoning in International Relations and Domestic Affairs* (1989) New York: Cambridge University Press.

[5]Philosopher Daniel C. Dennett Dennett stands out within the Hofstadter by taking a compatabilist position, but is otherwise a close ally. In *Freedom Evolves* (2003) he upholds the case for subconscious determinism, yet argues that human agents have advanced capacities to voluntarily query into the consequential benefits or pitfalls of their actions, which opens up a kind of freedom. He describes the material basis of those capacities with vague ambiguity. "It is not an anatomical layer in the brain, but a functional layer, a virtual layer composed somehow in the micro-details of the brain's anatomy." (251). Dennett also played the lead in "Victim of the Brain" (see fn. 1) as a subject whose brain had been temporarily removed and whose consciousness had been successfully uploaded and downloaded to various locales, and in multiple versions.

[6]Their view is that human intentions reflect an amalgam of desires installed by the process of trial-and-error-based evolutionary adaptation. That process gave rise to capacities for the emotions of fear, hope and despair (and various pre-primed triggers for those emotions), as beings used the cybernetic endowments (large connectivity opportunities) available to them, to assess prospects for success or failure on a given course.

[7]"Every man casts himself into the world by making himself a lack of being; he therefore contributes to reinvesting it with human signification. He discloses it." Simone de Beauvoir, *The Ethics of Ambiguity* (1948: 41).

not predestination, and *it is our supreme interest to acknowledge that fact*. A corollary assertion is that political analysts who predict specific outcomes in the evolution of human society are fundamentally in error. This position presents a direct challenge to some recent IR scholarship, including, for example, Alexander Wendt's claim for the inevitability of a world state.

The first section of this paper presents a brief discussion of developments in evolutionary psychology that are pertinent to various questions of acting in, and theorizing about, global polity. The narrative of the first section will give special attention to two themes:

1) **Malleability**. Understanding the plasticity of the human species is crucial to addressing the problem of whether freedom can or should be upheld as a fundamental political interest.

2) **Kinship**. A key insight that ongoing work in the field of evolutionary science offers to the study of international relations is an understanding of how humans identify who can be treated as natural allies or potential partners.

The main themes of the second section will be **status** (conceptualized with particular reference to malleability and kinship within populations of primates) and the overarching problem of **interests**. Since this paper remains a work in progress, the second section of this version simply elaborates some the points that I believe deserve further attention from the perspective of IR scholarship, and which I hope to take up at a later time.

1 EXPOSING THE BEAST WITHIN

Philosophers have been concerned with understanding the essence of human nature since Aristotle taught that "Man is a political animal," and "Society is a natural phenomenon." Those precepts were challenged by two highly influential Enlightenment writers... Thomas Hobbes, whose ideas still inform much scholarly thinking about the primacy of security, and Jean-Jacques Rousseau, whose work inspired an explosion of popular demands for freedom. Hobbes portrayed humans at their core as nasty brutes, Rousseau as natively compassionate and empathetic.[8] In developing their

[8]Hobbes justified the political state for its ability to constrain human drives, which consisted first of all in "a perpetual and restless desire of power after power, that ceaseth only in death." He credited the Leviathan state for channeling those beastly urges through itself... "an artificial man.. in which the sovereignty is an artificial soul." Rousseau, conversely, blamed the state for undermining humans' predisposition for peaceful contentment, and especially for alienating them from their "innate repugnance" for the suffering of others. In his view, the state served only to uphold the degeneracy, corruption, and inequality of social systems that prospered by rewarding their most prideful and egotistical members. Where Hobbes believed the state of his time deserved respect for having liberated humans from primitive insecurity, Rousseau argued that states had proven themselves to be humanity's enslaver and thus deserved replacement.

famously contrary conjectures about human life prior to the rise of recorded history, both made similar methodological and theoretical mistakes. Neither bothered testing his conjectures against facts on the ground, preferring extrapolation on the implications. Thus, neither could uncover the fundamental and remarkably similar flaws in their hypotheses. Hobbes presumed human life in the state of nature was "solitary," Rousseau echoed that it was "isolated." The reality, we now have every reason to believe, was far from the case. On this count at least, Aristotle has been redeemed.

Humans have been a social species since the beginning. And so were our evolutionary progenitors. We're hard wired for sociality. In general among vertebrate species, proportionally larger cerebral cortexes correlate with larger social groups. Not surprisingly, humans are the gregarious outliers on that scale. Recovered artifacts uphold the conjecture. Mounting evidence of complex group behaviors – from foraging through feasting – has been accumulated by archeologists who track the controlled use of fire among hominids and prehistoric humans.[9]

A distinctive implication of the Darwinian paradigm is the view that humans are not nearly as exceptional as once imagined... not a direct replica of gods, but a relative of cats and dogs. Now that we know we share a common heritage with other animals, we find ourselves in a position to learn far more about our prehistoric ancestors and our stripped-down nature than Hobbes or Rousseau ever conceived possible.[10] Our biological cousins provide analogs and homologs through which we can probe for the foundations of human behavior. But this raises new problems: Can we even dare to escape the chains of nature, so deeply anchored inside us? If not, can we turn those chains into reins, and use them to our advantage?

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Robert Sapolsky took up some of these questions in a *Foreign Affairs* article titled, "The Natural History of Peace."[11] Sapolsky is a neuroendocrinologist/zoologist well-known for his work on the biology of stress. His article narrates tales of sociality, violence, and reconciliation among several species of primates: bonobos, chimps, orangutans, and others, including his own specialty, baboons. In opposition to the pessimistic thesis that equates humans destiny with that of killer apes,

[9]Martin Jones, *Feast: Why Humans Share Food.* (2007).

[10]For other thoughts on this, see Peter Amato. "Hobbes, Darwinism, and Conceptions of Human Nature." *Minerva - An Internet Journal of Philosophy* Vol. 6 2002. Online at http://www.ul.ie/~philos/vol6/hobbes.html

[11]Robert M. Sapolsky. "A Natural History of Peace" *Foreign Affairs*, January/February 2006

Sapolsky makes the case for behavioral plasticity and cultural malleability among primate species. His crowning example is a study of a Kenyan baboon group dubbed "Forest Troop."

Though savanna baboon behavior was once considered "a textbook example of life in an aggressive, highly stratified, male-dominated society," the Forest Troop population broke the mold. Following the sudden loss of their most combative males in a food poisoning epidemic, they adopted remarkably friendly socialization and reconciliation patterns. Most intriguingly, the transformation endured. The fact that young male baboons entering Forest Troop quickly adopted the new culture is taken as evidence that rules out explanations such as a temporary change in the group's sex ratio or a deeper genetic change.[12]

The study of primate interactions provides abundant data for game theorists who want to observe the development of stable reciprocity. Sapolsky points out how cooperative advantages accrue among populations that display a "fission-fusion social structure, in which the boundaries between groups are not absolute and impermeable." Human hunter gatherer societies may provide the most robust example of this practice among primates, he suggests, and a potential model.

> Optimizing the fission-fusion interactions of hunter-gatherer networks is easy: cooperate within the band; schedule frequent joint hunts with the next band over; have occasional hunts with bands somewhat farther out; have a legend of a single shared hunt with a mythic band at the end of the earth. Optimizing the fission-fusion interactions in contemporary human networks is vastly harder, but the principles are the same.[13]

Sapolsky proposes inducing more international trade as a strategy for reducing social friction across borders. He admits, however, that important factors could impede the application of fission-fusion models in large-scale human networks. Our brains are apparently hard-wired for xenophobia right down to the level of the amygdala, a deep-seated structure that triggers subconscious preparation for fight or flight responses. A person's amygdala is likely to become metabolically active (raising alertness to threats and perhaps feelings of fear) when he or she sees someone of a

[12]Enduring cultural adaptation has been observed among elephants and birds. See Robert Wright, *Nonzero: The Logic of Human Destiny*. (2000) pp. 285-6. See also recent findings regarding human face recognition within groups of crows. Michelle Nijhuis, "Friend or Foe? Crows Never Forget a Face, It Seems," *Science News New York Times* August 25, 2008. http://www.nytimes.com/2008/08/26/science/26crow.html?ref=science

[13]Sapolsky (2006).

different race. Nevertheless, there are studies indicating this tendency is malleable as well, and that our conception of who does or does not count as an "Other" is trainable and plastic.[14]

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Other noteworthy evolutionists offering free advice to policy makers include the team of Stanley Greenspan and Stuart Shanker. Both are human development and brain science specialists. Greenspan is a clinical pediatric psychiatrist. Shanker is a philosopher/psychologist involved with therapeutic approaches to language mastery in children. Their collaboration on the functional and emotional development of primates focused on interactions between caregivers and infants.[15]

Shanker started out as a Chomskyian... a strong critic of the concept that any non-human species can use language at all.[16] He reversed himself after participating in extensive observations of bonobos at Georgia State University's Language Research Center in Atlanta. The project, led by primatologist Sue Savage-Rumbaugh, afforded the bonobos an exceptionally rich and emotionally supportive form of captivity. The most advanced subjects can "understand," she claims, around

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[14]Dr. Leda Cosmides and John Tooby. "Coalitional Psychology and Social Categorization." http://online.kitp.ucsb.edu/online/colloq/cosmides2/

[15]Stanley I. Greenspan and Stuart G. Shankar. *The First Idea: How Symbols, Language, and Intelligence Evolved From Our Primate Ancestors to Modern Humans.* (2004). DaCapo Press, Cambridge.

[16]Much of the debate on whether other primates use language turns on whether they actually create new sentences, or whether the best they can do is recombine acquired terms in simplistic pairs or threes. Noam Chomsky, whose theory of generative grammar revolutionized the field of linguistics in the late 1950s, insists that apes can not have true linguistic competence because such competence depends on a speaker's innate knowledge of the rules of a language. Such knowledge enables human children to engage in exceptionally rapid language acquisition and highly original sentence production by the age of two. It enables adults to recognize that the sentence "Colourless green ideas sleep furiously" is correctly formed, but full of nonsensical ontological violations. The capacity for linguistic competence is presumed to be an exclusively human endowment tied to the presence of a "language organ" in the brain and dependent on the healthy physical maturation of developing children. Neuronal circuitry within Broca's area is often presumed to be one of its modules, but the system is yet to be adequately identified.

A strong countervailing view to Chomsky's generativism comes from a school of thought called interactionism. Besides Shanker and Greenspan an Savage-Rumbaugh (mentioned in the text), notable proponents include Jerome Brunner, an eminent cognitive psychologist, and Michael Tomasello, a cognitive psychologist who is co-director of the Max Planck Institute for Evolutional Anthropology. Interactionists often argue that Chomsky's focus on highly abstract symbol-encoding systems raises the bar on the definition of language too high. They criticize him for overlooking the Wittgensteinian insights that meaning is embedded in the use of language, not in words themselves, and that language is embedded in social situations.

Chomsky's persuasive response is to insist on precise, clarifying definitions. Though a human athlete performing a high jump may be said to "fly" farther than a newborn chick, mature wings are as necessary for "flight" as some other innate physical capacity must be necessary for "language."

For more, see " Chimp Talk Debate: Is It Really Language?" *New York Times* Science Section. C, p1. June 6, 1995. Also online at http://www.santafe.edu/~johnson/articles.chimp.html.

3,000 words of human speech, and can interact with their keepers and visitors by pointing to printed symbols in an array of nearly 400 distinct signs called lexigrams. By comparison, an average person's vocabulary is about 50,000 words.

Like chimpanzee DNA, bonobo DNA closely resembles ours. Renowned for employing promiscuous sexuality to maintain peaceful interactions, bonobos are also known to walk bipedally for relatively long distances while carrying objects in their hands. Their skeletons bear resemblance to fossils and bone remnants of our Australopithecine ancestors who lived over two million years ago. Most importantly, bonobo social groupings in the wild vary from 50-200 members, numbers thought by some to approach the size and complexity of the earliest hominid societies. Chimp bands are considerably smaller.

While at the Language Research Center, Shanker was surprised to witness extended sessions of back-and-forth signaling between bonobos and humans. He observed remarkable bouts of bonobo-to-bonobo role-playing (one donned a gorilla mask for a chase game), and far higher levels of multi-modal, co-regulated, self-initiated signaling among them than he had imagined possible.[17] Shanker documented bonobos who could match the grammatical competence of three-year-old humans, and who could sustain attention in signaling sessions that lasted as long as half an hour.[18] Therapeutic work with human children had already established that lengthy and productive emotional interactions with caregivers are highly beneficial for later cognitive development. That seemed to be what was going on with the bonobos in Atlanta. The enriched emotional exchanges provided to the bonobos seemed to be priming them for accelerated acquisition of signaling skills.

Further research showed that all primate caregivers sustain varying degrees of attention-exchanges with their young as a precursor to more advanced forms of sequenced interaction.[19] These findings led Greenspan and Shanker to argue that cognition – and thus language acquisition – is a downstream consequence of a young learner's sustained emotional engagement.

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[17]Greenspan and Shanker, (2006: 106-111,149-153).

[18]Ibid, and "Bonobos with Dr. Stuart Shanker," Interview by Dr. Ginger Campbell March 8,2007. 18:30-20:00. http://brainsciencpodcast.wordpress.com/2007/03/08/podcast-7-bonobos-with-stuart-shanker-phd/

[19]Greenspan and Shanker, (2006: 111-23).

> In healthy development, primary emotions such as fear and anger... tend to be transformed from catastrophic emotions and fixed perceptual-motor or perceptual-action patterns into emotional signals and interactive emotional patterns...[20]

What distinguishes human intelligence on the evolutionary timescale, assert Greenspan and Shanker, is not simply an innate and unique capacity for recursive combinatorial syntax as the Chomskians hold, but our abilities as caregivers to launch our infant charges on an accelerated neurodevelopmental trajectory. This begins as we encourage them to transmit their wants and needs to us. An infant's base physical urges are thus transformable at a neuromolecular level into minded expressions of intention directed at other beings who become recognized as capable of minded response. (These interactions could be said to mark the onset of human intersubjectivity.) Over time, caregivers help their charges sustain shared levels of attentive focus for increasingly longer sequences of complex interactions. Success at pre-linguistic, emotionally-driven signaling primes children for more advanced forms of symbolic manipulation, including reflective and critical thinking. The converse is also true. Children who develop in emotionally impoverished environments tend to suffer cognitive impairment.

It is clearly in our nature to be exceptionally talented at nurture, but mastery requires skilled practice. The quality and content of the sustained interactions between caregivers and infants counts for a lot. Attentive mothering helps a child establish experience at transforming raw electrochemical surges into sequences of demand and response, as well as mediated exchanges of expectations. This underpins a child's experience of learning to trust that other beings will make patient efforts to understand his or her desires, and that other beings possess capacities to break off exchanges and resume interrupted attentional threads at some later time.

The wider implications are of great concern to Greenspan and Shanker. Having made it clear that cultivating a capacity for sustained interaction is essential for the development of an individual's cognitive skills, they argue that the prospect for a healthy and peaceful global society depends on our present ability to promote the development of effective caregiving skills around the world. They use the concluding chapters of their book to present an outline for "A New History of History," founded on the premise that "the growth of a child's mind and the formation of groups are inextricably tied

[20]Greenspan and Shanker, (2006: 292).

together."[21] A long series of hominid and human advances in caregiving explain the expansion of capacities for fusion, kinship, and alliance. That cognitive progress underpins capacities for empathetic feelings toward – and symbolic identification with – ever larger domains of humans. Group cooperation at the levels of band, tribe, clan, nation, race, team, fellow-religionists, and so on, the authors believe, has been built on those advances.

Extrapolating from that, Greenspan and Shanker argue that even greater capacities for inclusive empathy can be unleashed as caregiving skills intended to nurture reflective reasoning take hold. A person's empathy may extend out as far as our entire species, and even beyond, to encompass animals and the ecological balance of the planet as a whole. Progress is not guaranteed, however. There has been a woefully large number of regressive episodes in human history. The world is abundant with the ruins of once great civilizations. (Reading Greenspan and Shanker prompts acute awareness of a developing child's fragility and the importance of attentive caregiving for a society's prospects. Consider, for example, how many children are being raised by veiled caregivers and are thereby denied access to the fullest spectrum of emotional signaling. Consider as well how many infants are relegated to institutional settings where the opportunities for interaction with caregivers are even more severely impoverished. And consider how many infants suffer from debilitating nutritional impairment. As these cases compound, so will the deleterious cultural effects.)

Their book culminates with a proposal for an evolution-informed Psychology of Global Interdependency in which "the unit of survival is no longer the individual or even the small group, but the global group."[22] Few specifics are given, but its guiding principles include commitments to collaborative decisionmaking and the principle that "means don't justify the ends: The means define the ends."[23]

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Sapolsky, Greenspan, Shankar, are far from alone. Many other professionally credentialed researchers point out that the evolutionarily-endowed malleability of human behavior can be leveraged to benefit the species as a whole. Biogeographer Jared Diamond and entymologist E.O.

[21]Greenspan and Shanker, (2006: 325).

[22]Greenspan and Shanker, (2006: 454).

[23]Greenspan and Shanker, (2006: 438).

Wilson rank among the most prominent in that community. They wrap their analyses within attention-grabbing disaster narratives and apocalyptic prophecies that counsel us to live sustainably or perish. Diamond recounts numerous cases in which humans undermined the carrying capacity of local ecologies.[24] His comparison of the Haitian and Dominican experiences on Hispaniola show how catastrophic environmental mismanagement can come about in one society and be avoided by another, even though initial physical conditions are largely equivalent. Wilson tracks the increasing number of species lost to extinction during the contemporary era as a result of stresses placed upon their habitats by humans.[25] As biodiversity declines, he warns, our own species increasingly risks the same fate.[26]

The prophetic style of Diamond and Wilson seems grounded in the hope that the human capacity for reflective reason can be applied to forestall the "Tragedy of the Commons..." an exhaustion of resources that occurs when individuals discount or disregard the social costs of their selfish behaviors.[27] The problem of despoiling public goods is an old one, observed by Aristotle. "[T]hat which is common to the greatest number," he wrote, "has the least care bestowed upon it."[28] We now encounter such effects globally, as numerous experts warn of an imminent climate instability crisis, called "Gobal Warming."[29] Unfortunately, despite the human species' many accomplishments since the ancient Greeks, development of an instinctively-adaptive reaction to a looming Tragedy of the Commons is not among them. Our collective behavior resembles a cancerous growth on course to overrun and destroy its habitat. As former US Vice-President Al

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[24]Jared Diamond, *Collapse: How Societies choose to Fail or Succeed*. (Penguin 2005).

[25]Edward. O. Wilson, *The Creation: An Appeal to Save Life on Earth*. (W.W. Norton 2006).

[26]Earlier work of Wilson's, including the Pulitzer Prize winner, *On Human Nature* (1979) s directly germane to central themes of this discussion, particularly the human impulse to build status-based alliances by linking truth with authority. "The genius of human sociality is in fact the ease with which alliances are formed, broken, and reconstituted, always with strong emotional appeals to rules believed to be absolute" (p. 163).

[27]Garrett Hardin, "The Tragedy of the Commons", Science, Vol. 162, No. 3859 (December 13, 1968), pp. 1243-1248.

[28]*Politics*, Book II, Chapter III, 1261b; translated by Benjamin Jowett as *The Politics of Aristotle: Translated into English with Introduction, Marginal Analysis, Essays, Notes and Indices* (Oxford: Clarendon Press, 1885), Vol. 1 of 2

[29]See the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report, Working Group I Report, "The Physical Science Basis" http://www.ipcc.ch/ipccreports/ar4-wg1.htm . The IPCC is a joint project of the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).

Gore recently noted, "[T]he test we're facing now ... is whether the combination of an opposable thumb and a neocortex is a viable combination."[30]

If we wish to avert an irreversibly tragic outcome to the predicted climate crisis, the response hinges on more than just a *capacity* for reflective reason. Our subconscious, automatic reflex systems are not pre-tuned for this kind of challenge. Evolutionary history provided time to wire in visceral fear of spiders and snakes, but not hot stoves and climate instability. Motivating a safe response to those more modern kinds of threats requires individual instruction for each new member of our society. What needs emphasis is that our higher order cognitive competencies are not simply a matter of thumbs and brains, nor of our *capacity* to learn. Those competencies also depend on the tools and skills that are available to us. The things we have at hand are crucial to our mental preparations for intentional engagement with the world. We do not inhabit this planet as an empty-handed species, but as one whose manipulative intelligence is fortified by the practices of mastering received tools and inventing new ones.

Much of the hesitation in reversing the climate crisis can thus be attributed to shortcomings in the tools we currently use to calculate priorities. The toolkits and skill sets we rely upon to order and advance our interests are dangerously lacking. They have been optimized for pursuit of immediate, selfish, and parochial interests rather than pursuit of critically pressing species interests.

Many policy advisors and IR scholars presume themselves to be experts on evaluating national interests. Those who wish to equip themselves with better tools for doing so would do well to consider some key insights from evolutionary science. The following sections will hone in further on the issue of malleability, one of the most important tools of all.

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Coordinating social change, even if necessary for survival, is well understood to be a challenging endeavor. A popular urban legend, circulated widely on the Internet, gets to the heart of the problem:

> A team of scientists placed four chimpanzees in a large room. At its center was a ladder with a bunch of fresh bananas hanging over it. One of the chimps started up the ladder to get the bananas, but was forced down by a spray of cold water. All the others were sprayed, too. Each time a chimp began to climb, they would all get sprayed. After a while, if any chimp

[30] Al Gore's remark was made at a lecture to the TED (Technology, Entertainment, Design) conference February, 2006 in Monterey, California. Video available at http://blog.ted.com/2006/06/al_gore_on_tedt.php.

> tried to get the bananas, the others would pull him or her back down before the spraying started. Finally, they all learned to avoid climbing the ladder.
>
> After this, the scientists agreed as planned to stop spraying. They then replaced one of the chimpanzees. The newcomer tried to climb the ladder, but the others stopped him. So he also learned to resist the bananas at the top of the ladder. The scientists replaced yet another of the original chimps, repeating the cycle until there were four new chimpanzees, none of whom would try to climb the ladder. [31]

This experiment was never performed, of course, but we are instantly amused by its plausibility. We recognize ourselves in those chimps as creatures of habit who are all too easily stuck with obsolete and perhaps costly routines. It turns out, however, that such conservative behavior is more characteristic of humans than chimps.

A well-documented series of experiments comparing the behavior of chimps and toddlers demonstrated that children "over-imitate" while chimps do not.[32] In some of the experiments, subjects were initially presented with an opaque, box-like mechanism and were taught to perform a sequence of steps (tapping, sliding and poking various parts of the device) that led to the release of hidden food or a toy. After the sequence was mastered, subjects were presented with a nearly identical box built from transparent material, so as to reveal an obvious way of getting out the prize. Where chimps tended to ignore their training, going right to the step that would deliver the prize, human children strongly tended to play out the trained sequence. The reasonable conclusion is not that chimps are savvier than children, or that children are better at aping than apes. Rather, humans have undergone selection in a manner that favors great ability to memorize and repeat complex sequences of behaviors, even though instinctive retention can also incur costly results.

The question arises as to whether children over-imitate to please their teachers, or whether they do so for other reasons. A more recent set of experiments led by cognitive psychologist Derek Lyons has shown that children will persist in performing tasks revealed to be mechanically irrelevant or counterproductive *even when they think they are alone, and despite having already signaled*

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[31] This particular version was adapted from a pep talk given by then Secretary of the Navy, Gordon England, encouraging his listeners to challenge inefficient habits in their bureaucratic environment. http://www.navy.mil/navydata/people/secnav/england/speeches/mcp010807.txt

[32] Victoria Horner, Andrew Whiten. "Causal knowledge and imitation/emulation switching in chimpanzees (Pan troglodytes) and children (Homo sapiens)" Animal Cognition (2005) 8: 164–181. Horner and Wight's version of the experiment with chimps and children was shown on the NOVA science series, "Ape Genius" and is available for viewing online. http://www.pbs.org/wgbh/nova/transcripts/3504_apegeniu.html.

awareness to an authority figure that the tasks are "silly" and unnecessary.[33] Lyons conducted further experiments to support his argument that the human propensity for over-imitation indicates the presence of an "automatic causal encoding process [that] allows children to rapidly calibrate their causal beliefs about even the most opaque physical systems."[34] One implication of his research, not surprisingly, is that "Watching an adult doing something wrong can make it much harder for kids to do it right."[35] Another implication is the insight it may provide into the presumed potency of good luck charms, talismans, and other objects about which people often form misleading mental representations. If we are so easily imprinted with beliefs that causal structures of objects can interact with our own purposeful actions, we are deeply susceptible to superstitious practices.[36]

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Our exceptionally powerful instinct for imitation has benefits, nonetheless. It scaffolds and ratchets cultural advancement. Paradoxically, this capacity for conservative retention catalyzes our malleability. Behavioral adaptations have become easier over evolutionary time, whereas the physiological changes that underlay new cognitive capacities are much more costly to acquire. Many such genetic steps have been taken since the Australopithecines, but at a slow, hard-won pace over a multi-million year span. It is unlikely that any more of those steps occurred during the last several millennia.[37] The rise to modernity is cheaper with the right cognitive pieces in place, but getting them in place takes time.

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[33]Derek E. Lyons, Andrew G. Young, and Frank C. Keil, The hidden structure of overimitation Proceedings of the National Academy of Sciences USA. December 11, 2007 v104.n50 http://www.pnas.org/cgi/content/abstract/0704452104

[34]Ibid.

[35]EurekAlert.org "Humans appear hardwired to learn by 'over imitation'" December 5, 2007. http://www.eurekalert.org/pub_releases/2007-12/yu-hah120507.php

[36]Extrapolating further, we might also hope to learn more about how relatively abstract beliefs about causality are imprinted, whether grounded or superstitious. See the discussion of Scot Atran's "Magic Box" experiments in Robin Marantz Henig, "Darwin's God," *New York Time Magazine* March 4, 2007. For a discussion of the neurophysiological difficulties involved in learning to reject possibly incorrect beliefs, see Sam Harris, Samer A. Sheth, and Mark Cohen. "Functional Neuroimaging of Belief, Disbelief and Uncertainty," *Annals of Neurology*, December 2007.

[37]There has been some localized genetic differentiation in resistance to diseases, but this is far different from a species-wide change in cognitive capacity.

To the degree that we are "pervasively and profoundly phenotypically plastic," writes cognitive scientist Kim Sterelny, it is because our hominid progenitors embarked on a process of niche construction that selected for reliable transmission and accumulation of information.[38]

> The evolution of high volume, high fidelity information sharing is not just the evolution of a particular kind of head. It is as well the evolution of a particular kind of social milieu.[39]

As vertebrate social groups grow in size and complexity, more brain power is given over to mechanisms that help track real or potential friends and foes, and their relations to other real or potential friends or foes, ad infinitum. Many evolutionists work within the paradigm of the foe-oriented "Machiavellian Hypothesis," assuming that modern human intelligence arose from competitive pressures that favored the complementary abilities to deceive others and to detect deceivers.[40] As the saying goes, "What counts most in life is sincerity. If you can fake that, you've got it made." Sterelny, however, believes the benefits of profitable alliance provided even stronger selective inducements. "We are creatures of feedback," he writes. "[Hominid] co-operation altered the selective and developmental environments in ways that selected for further co-operation."[41]

Useful cultural innovations may have been difficult to achieve, but selection for fast imitation made new stocks of cognitive capital increasingly easy to pass on, so that a novel lifeway adopted by one generation could be given a solid foundation in the learning environment of the next. Sterelny notes that the ability to navigate the social complexity of larger groups permitted information to be passed obliquely. More adults could share information with each other, and children had more opportunities to acquire information from adults who were not their parents or immediate relatives.

Those who could track more cues across a wider range of environments would have been better able to survive and even prosper under pressures such as climate change, depletion of the most easily hunted game targets, migration experiences, and seasonal variances. More importantly, in Sterelny's view, the accumulation of foraging and social skills fostered perception of a "translucent"

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[38]Sterelny received the 2008 Jean-Nicod prize and delivered a 4-part lecture series titled (in an apparent nod to Jared Diamond) "The Fate of the Third Chimpanzee." Online at http://www.institutnicod.org/lectures2008_en.htm. This cite from Sterelny 2008. Jean-Nicod Lecture 2, p. 10.

[39]Sterelny 2008. Jean-Nicod Lecture 3. p. 3

[40]For example, see R.I.M. Dunbar, "THE SOCIAL BRAIN: Mind, Language, and Society in Evolutionary Perspective," *Annual Review of Anthropology*. Vol. 32: 163-181. October 2003.

[41]Sterelny 2008 Jean-Nicod Lecture IV p.7.

environment containing a "broad spectrum" of opportunities and threats. That perceptive opening is crucial for Sterelny. With so many more complex signals to evaluate as hominid evolution proceeded, drives gave way to preferences.[42] Utility functions variegated. Feedback was even further enriched. What Sterelny calls "The Evolution of Agency" took place as hominids and then humans expanded ensembles of capacities to track and manipulate environmental complexity... and also the effects of those manipulations.[43]

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To the extent they focus on narratives at all, IR scholars tend to deal with historical periods in which names and details about authentic people and places are more or less pronounceable and knowable. Attempting to stretch one's mind over the length of evolutionary history is quite a different endeavor. We have some hand-made stones and broken bones to talk about, and many layers of strata yet to sort through, but the agents who made that history will always be anonymous to us. Still, evolutionary psychology offers a disciplined approach for those who would dare to infer what happened: In a process requiring millions of years, our forebears awakened to the punctuating rhythms of days, nights, seasons, and stars... the cycles of birth, growth, maturation, and death... the habits of fruitful co-operation... and a growing appreciation for the beauty of pattern and their own powers to portray it.

Those forebears learned to prize many things, and then to evaluate among them. Base instinct could not store all there was to know, but instincts for remembering, sequencing, evaluating, and sharing signals came increasingly into play. With each step, more richly nuanced stocks of knowledge could be carried forward and augmented, both within and across social groups. As those groups accumulated social knowledge (incorporating such knowledge as skilled practices), the physical instincts and innate capacities of the hominid body continued to transform. Some grew stronger and more pronounced even as new ones arose, all at the behest and benefit of our further awakening.

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[42]Kim Sterelny. "The Evolution and Evolvability of Culture." *Mind & Language* 2006, vol. 21, no2, pp. 137-165.

[43]Kim Sterelny. *The Evolution of Agency and Other Essays*. Cambridge Studies in Philosophy and Biology. 2001.

Evolutionary thinking about the rise of symbolic culture dovetails nicely with sociologist Anthony Giddens' theory of structuration, and IR theorist Nicholas Onuf's seminal framework for constructivism. The most salient common thread is that discernable conditions of recursive symbolic communication provide both the medium and outcome of skilled human practice.[44]

According to the eminent political scientist John Ruggie, the key to understanding social constructivism is that it "rests on an irreducibly intersubjective dimension of human action."[45] Underscoring the point, he reminds us of Max Weber's dictum that, "We are *cultural beings*, endowed with the capacity and will to take a deliberate attitude towards the world and to lend it *significance*." (Emphasis from the original.)

To put it another way, from the perspective of IR constructivists, human agents and their symbolic background are co-constituted via speech-act-grounded rules of symbolic communication. We can thus speak of social facts that depend on human agreement (rules we can break), in distinction from brute facts that do not (rules that can break us). That constructivist view of the world reverberates with the distinction that Sterelny and others make between the complex evaluative preferences underlying modern humans' utility functions, and cue-based urges that drive behaviors in simpler creatures.

The point is crucial and merits reiteration. Before now, IR scholars and state policy practitioners seeking insight from the Darwinian paradigm would have been likely to conceptualize war as a persistent and overarching prospect, drawing upon a simplistic "red in tooth and claw" caricature of human nature, forever rooted in a Hobbesian jungle.[46] But that caricature differs greatly from the current view among modern evolutionists, whose discourses are beginning to head in directions that structurationists have been pursuing for well over two decades. IR "realists" may continue to invoke brutish notions of Darwinism, but there are far more insightful ways to answer E.O. Wilson's call to "biologize" the study of human society. Those who study the development and pursuit of national interests should heed that call. By the same token, new-school Darwinists who

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[44]That formulation drew on Giddens' description of the "Duality of Structure. See *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, University of California Press. 1984. Nick Onuf's conception of Rule is easily conflatable, as is, in many ways, Peter Berger's notion of *nomos*.

[45]John Gerard Ruggie, "What Makes the World Hang Together? Neo-utilitarians and the Social Constructivist Challenge," *International Organization* 52, 4, Autumn 1998. 855-85. Quote at 856.

[46]See, for example, Bradley A. Thayer, *Darwin and International Relations: On the Evolutionary Origins of War and Ethnic Conflict* (2004).

are concerned with cultural evolution are likely to find rich intellectual insights within the work of linguistic-based philosophy and social science.

Some may argue, in league with philosopher/psychologist James Baldwin, that the human genome has become subject to cultural (epigenetic) choices.[47] The classic example is the inherited propensity for lactose tolerance within Scandinavian populations where there had been long-term traditions of dairy farming combined with low levels of immigration. But contemporary society is characterized by symbolic marking, intense mobility, and rapid technological innovation. The pivot of human adaptation remains cultural accumulation. Psychologist George Miller calls us "informavores." Another psychologist, Steven Pinker, refined that neologism with another, saying we have become "verbivores."[48] Their point is that we consume symbols as avariciously as any other resource, if not more so. But it is also true that we generate symbols ever more prolifically. Anthropologist Terrence Deacon thus refers to us as "The Symbolic Species."[49]

This discussion of the broad compatibilities between IR-flavored social constructivism and recent thinking about cultural evolution in the Darwinian paradigm can be further tightened. In doing so, linguistic philosopher Jonathon Searle will stand out as a significant reinforcing figure. First, because Searle's system for categorizing speech acts provides crucial foundational support in Onuf's system for categorizing rules.[50] Second, because Searle has come to represent an archetype of the minority view in the festering debate among cognitive scientists about the existence of free will. But that part of the investigation must be postponed for now.

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Over recorded history, technological leaps such as phonetic alphabets, movable type printing, wired telegraphy, and radio have set the stage for ensuing leaps in peoples' day-to-day practice of

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[47]See P Griffiths, 'Beyond the Baldwin Effect: James Mark Baldwin's 'social heredity', epigenetic inheritance and niche-construction', in Weber, B. and Depew, D., *Learning, Meaning and Emergence: Possible Baldwinian Mechanisms in the Co-Evolution of Mind and Language*. 2003

[48]Steven Pinker. *The Stuff of Thought: Language as a Window into Human Nature*. (Viking 2007).

[49]Terrence W. Deacon. *The Symbolic Species: The Co-evolution of Language and the Brain*. (Norton 1997).

[50]Onuf's corollary derivation of the interests "standing, security, and wealth" may ultimately prove to be his most potent contribution to IR theory, but that aspect of his categorical framework has been generally overlooked so far. Fore more, see Craig Simon, "Who's the Boss? A Constructivist Perspective on The Genesis of Power and the Origin of Rule." Paper presented to the Annual Conference of the US International Studies Association, SouthEast November 4, 2005.

information exchange. As a result, ever greater numbers of people can be remotely present to each other, though physically absent, through use of synchronous and asynchronous communication tools. Add to that the information generated by new observational tools such as calendars, clocks, microscopes, telescopes, and so on, up through the ultra-calibrated instruments and methods of the contemporary period. Humans have increasingly more to talk about and increasingly more ways to do it. The lasting impact of these technologies on human niche construction is undeniable.

Perhaps another leap is underway... perhaps it is one of the most significant. Recent innovations such as networked computers and mobile phones (now used by over half the world's population[51]) facilitate what Internet ethnologist Mark Pesce calls hypermimesis, "the unprecedented acceleration of the natural processes of observational learning, where each behavioral innovation is distributed globally and instantaneously."[52] Information exchange among hyperconnected peers, he believes, rapidly allows successful new behaviors to become "part of the global behavioral kit." Anthropologist Michael Wesch has pursued a similar line of investigation, detailing the emergence of "digital natives" on user-authored video content platforms, particularly YouTube. His own submission to the site, *Web 2.0 ... The Machine is Us/ing Us*, has been viewed over 6 million times.[53] "When media change," he concludes, "human relationships change."[54]

The full effects of hyperconnectivity are yet to be understood, though one might surmise that its combination with young peoples' latent propensity for over-imitation will help recruit massive populations of fashion victims. In other words, it's a good tool for making money. More serious speculation is also reasonable: Our species is incorporating radically oblique, electronically-mediated information exchange skills across most of our global niche. At the same time, scientific knowledge and its enabling technologies are advancing prodigiously. Presuming that a nightmarish climate catastrophe can be averted or muddled through, do recent transformative leaps in communication technology make it a good bet that some threshold will soon be crossed?

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[51] *The Economist* "Halfway there" May 29, 2008.

[52] Mark Pesce, "Hyperpolitics (American Style) Live," Presentation at the Personal Democracy Forum, June 24, 2008. Video available online at http://blog.futurestreetconsulting.com/?p=62

[53] http://www.youtube.com/watch?v=6gmP4nk0EOE

[54] "An anthropological introduction to YouTube" presented at the Library of Congress, June 23rd 2008. http://www.youtube.com/watch?v=TPAO-lZ4_hU. See also Clay Shirky, *Here Comes Everybody: The Power of Organizing Without Organizations.* (2008, The Penguin Press).

A case for "no" would hold that we have crossed it already with the triumph of industrialized capitalist globalization, entrenching Schumpeterian-styled creative destruction as a way of life.[55] There would be nothing to wait for, except more of the same. The best bet in that case would be learning to cope with the incessant, disruptive indignities of Future Shock.

Pesce's case for "yes" focuses on the rise of projects like Wikipedia, a "project of the mob, for the mob, and by the mob." He believes that Wikipedia's altruistic participation and sharing model foreshadows the end of scarcity-driven production. Another case for "yes" is the argument that the analogies to Gutenberg and Westphalia invoked so assuredly during the Internet boom need more time to play out.[56] Where the World Wide Web has not even reached the end of its second decade, more than two centuries passed between the introduction of the technology that enabled mass production of vernacular text production (1455) and the inception of what historians now recognize as formal national sovereignty (1648).

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Some do more than speculate about the next threshold. Advocates of "transhumanism," a radical project for disease-ending, capacity-expanding human enhancement, have placed a huge stake on making sure it will be crossed. This project is also known as "posthumanism" or "The Singularity." Its ultimate goal is minded immortality. The primary strategy of the transhumanists is to engineer a suite of technologies – drawing upon computerization, robotics, and brain science, among others – so that human minds can eventually be transferred to more durable, non-biological host bodies. An interim strategy foresees radical enhancement of biological human bodies by combining better diets with yet-to-be-achieved advances in pharmaceuticals, prostheses, and genetic engineering. Transhumanists intend to stay alive and viable until the manufactured hosts become available.

Ray Kurzweil, a pioneering inventor in fields as diverse as digital music synthesis, optical character recognition, speech synthesis, and voice recognition, is perhaps the best known impresario of the transhumanist movement. His vanguard role was established in 1999 with the publication of *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. In a 2005 followup,

[55]Consider also, in this context, Francis Fukuyama heralding of the triumph of liberalism in *The End of History and the Last Man* (1992).

[56]I addressed the long-term implications in an unpublished conference presentation, "Post-Westphalia Dot Com." At The Miami Group, a University of Miami/Florida International University Colloquium, February 2001.

The Singularity is Near: When Humans Transcend Biology, Kurzweil predicted that biological humans will be surpassed by cybernetically enhanced ones and sentient machines in 2045.[57]

Use of the term Singularity to represent such an event was popularized in the 1980s by mathematician and science fiction author Vernor Vinge, who still stands by the prediction and writes about the implications.[58] The transhumanists hope and expect that recursive self-augmentation among intelligent machines could result in an explosive change, metaphorically equivalent to what occurs at a black hole's event horizon, beyond which nothing can be seen. An observation by Intel co-founder Gordon Moore is a significant principle in the transhumanist mindset. "Moore's Law" has adequately predicted the pace of exponential improvements in the density of transistors placed on integrated circuits over several decades of time. Kurzweil forecasts similar growth of accumulating returns in the suite of technologies deemed pertinent to the Singularity.

A prominent critic of transhumanism is foreign policy specialist Frances Fukuyama, whose work has been relatively attentive to evolutionary science. Declaring transhumanism to be among "the world's most dangerous ideas," Fukuyama focuses his critique on the long-term behavioral implications of human DNA manipulation.[59] He also worries about the transhumanist presumption of human malleability and plasticity, arguing, "if there is a viable concept of human dignity out there, it needs to be defended."[60] Unsure of its actual substance, he calls it "Factor X," presuming it arose from a "very important qualitative, if not ontological... [evolutionary] leap from parts to a whole."[61]

The drive to uphold human "dignity" has become a touchstone for religiously-motivated critics of bio-engineering, especially with regard to hot-button issues such as cloning and embryonic

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[57]"Humanish" people may have a limited presence, just as technologically resistant Amish co-exist now.

[58]Vernor Vinge, *Rainbows End: A Novel With One Foot In The Future* (Tor Books, 2006).

[59]Frances Fukuyama, "Transhumanism," *Foreign Policy Magazine* (September/October 2004) and *Our Posthuman Future: Consequences of the Biotechnology Revolution* (2002)

[60]Fukuyama (2002: 177).

[61]That leap makes Factor X "a concept one can believe in." (2002: 170). Note Fukuyama's observation that "moral order comes from within human nature and is not something that has to be imposed on human nature by culture." (2002: 156). Fukuyama's conception of human nature is an inclination to collect social capital. See his *The Great Disruption: Human Nature and the Reconstitution of Social Order*, part II (Free Press: 1999). With awareness of these elements, a structurationist-styled notion of co-constituted agents and structures would presumably be available to him.

stem cell research.[62] Stephen Pinker, a prominent voice within the Hoftstadter cluster, has railed against what he calls the "explicitly biblical" arguments used in attempts to block such research, and also against what he believes to be the nearly useless "squishy, subjective" notion of dignity in general.[63] Nevertheless, the eminent philosopher Jurgen Habermas has also expressed concerns about the impact of genetic enhancement. His proposal for a "species ethic" delineates the kinds of genetic interventions he believes could be either approved or deemed immoral.[64] So far, it seems, concerned social scientists and philosophers are having some success in their efforts to define terms and to keep pace with developments as they track the work of scientists the technologists. This may not remain true if the transhumanists' expectations for accelerating returns prove out.

Kurzweil's spectacular claims have been the subject of periodic media attention, especially since some of his predictions, such as the "waking up" of dumb matter in the universe and the rise of planet-sized computers, appear better suited to the realm of cranks and B movie plots. Though critics may deride it as "rapture for nerds," the Singularity project also draws respectful coverage. *IEEE Spectrum*, the venerable journal of the Institute of Electrical and Electronics Engineers, devoted its entire June 2008 issue to the Singularity, tracking relevant advances in robotics engineering, brain mapping, nanotechnology, and artificial intelligence. As outlandish as the project may appear, especially to biologists who have detailed professional understanding of the technical challenges involved, it's important to remember that each transhumanist victory, other than the last one, perhaps, will also be rewarded as a human victory. There is huge market interest in robotics, pharmaceuticals, nanotechnology, and the rest. Each practical step forward toward healthier, more long-lived people and smarter, more autonomous machines is likely to earn significant profits, encouraging greater investment, and accumulating the progress Kurzweil wants to see.

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[62]See *Human Dignity and Bioethics: Essays Commissioned by the President's Council on Bioethics*. The President's Council on Bioethics Washington, D.C., March 2008. The commission was chaired by Edmund D. Pellegrino, M.D. http://www.bioethics.gov/reports/human_dignity/index.html See also Leon R. Kass, *Human Cloning and Human Dignity: The Report of the President's Council on Bioethics* 2002. See also Eric Cohen, *In the Shadow of Progress: Being Human in the Age of Technology*. (2008).

[63]Stephen Pinker, "The Stupidity of Dignity: Conservative bioethics' latest, most dangerous ploy." *The New Republic*. May 28, 2008.

[64]Jurgen Habermas, *The Future of Human Nature*, translated by Hella Beister and William Rehg, (Polity Press, 2003).

Why are so many people so comfortable with the idea of the Singularity? Why do so many people welcome the idea of abandoning their bodies? Here is where the free will debate reenters the conversation. And here is where it links up with the issue of human malleability. Here also is where IR scholars familiar with the agent/structure debates might be able to help clear things up for the Darwinists. The purpose of this section is to launch a challenge to ethologist/evolutionary biologist Richard Dawkins' well-known definition of a *meme*... an idea that is able to copy and transmit itself in ways analogous to the copying and transmission of genes (A fuller description will be presented shortly). This challenge is necessary because the current understanding of memes serves to replicate persistently misleading ideas about the exogenous nature of causality in human affairs, and thus deprecates our respect for freedom.

To begin, it is important to recognize that one of Dawkins' most significant achievements as a biologist has been to crystalize thinking about what might be called the chicken and egg problem of evolutionary science. For Dawkins, eggs use chickens to make more eggs. That is, the analysis of how genes use bodies (phenotypes) to replicate more genes is coupled to an understanding that selective pressures act upon genes rather than individuals or groups. So, instead of being primarily concerned with how the fittest *individuals* pass on their genes to subsequent generations, evolutionists have come to focus more on how various behaviors among *kin* serve to propagate genetic variants.

In Dawkins' elegant formulation, the beast within is the "selfish gene," hungry for space in the gene pool. The stability of altruistic behaviors among kin, however costly for some individuals (even up to forfeiture of reproductive possibilities and loss of life), can thus be understood in the context of a genotype's protective strategy for success.[65] Dawkins also holds that the phenotype can extend beyond bodies into artifacts and even other bodies.[66] Ant hills, for example, would be an expression of ant genes, and a host's disease symptoms resulting from a parasitical, bacterial, or viral intrusion would be an expression of the infecting agent's genes.

[65]This part of the discussion skirts a minefield of debate among evolutionists, who have become very sensitive to distinctions between once-prominent concepts of group selection and more recent thinking about kin selection. Suffice it to emphasize again that the agent undergoing selection through a process of variation and adaptation is the gene.

[66]Richard Dawkins, *The Extended Phenotype: The Long Reach of the Gene*. (1982).

Dawkin's concept of memes is where the trouble starts. He describes them as units of cultural transmission that "propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation."[67] According to his formulation, memes are to ideas as genes are to phenotypes. That is, memes are selfish entities that can use brains to propagate themselves. The word has, in its own catchy meme-like way, taken hold in common parlance. Since a meme is often portrayed as a kind of mental virus, the idea has been enlisted to hype a kind of advertising called viral marketing. The concept is also widely put to use as an all-purpose explanation for transmission and mutation of cultural ideas.[68] Journalist Robert Wright, for one, has joined the meme bandwagon with fervent enthusiasm.[69]

Memes are also a central concept in transhumanist ideology. Proponents start from the assumption that memes are drjiven to replicate themselves by exploiting available phenotypes and working to evolve better ones. The most aggressive memes, therefore, would find it advantageous to prompt humans to build superior hosts through which those memes could prosper even more. The most successful of those memes would be prepared to switch substrates altogether, discarding human hosts and taking on cyborg form when that better serves their needs. One seemingly positive analogy for this is a butterfly emerging from a caterpillar-spun cocoon. Another is a parasite that develops by devouring the body cavity of its host, and finally drives the host to suicide when it is ready to breed.[70]

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Dawkins' error boils down to crediting memes with algorithmic force. This presumed endowment manifests itself as a self-propelled, generative dynamism, and a driving, ontological priority. It has inspired legions of meme fanatics, including psychologist Susan Blackmore, who advocates a worldview that subordinates human intentionality and dismisses the existence of

[67]Richard Dawkins *The Selfish Gene* (1976: 192).

[68]See, for example, Howard Bloom, *The Lucifer Principle: A Scientific Expedition Into the Forces of History* (1995).

[69]"Keep your eye on the memes." Wright, *Nonzero* (2000: 128).

[70]See James Owen, "Suicide Grasshoppers Brainwashed by Parasite Worms" *National Geographic News* September 1, 2005. Historian of science George B. Dyson anticipates a somewhat softer outcome in the form of human-machine symbiosis. *Darwin Among The Machines The Evolution of Global Intelligence* (1997).

axiomatic human freedom.[71] Dawkins' error is easily redeemed. His edifying conception of the extended phenotype provides a far better way to account for the replication of ideas. In the paragraphs below, I briefly propose a reformulated description of memes that I believe will prove to be more straightforward and productive for the long run.

First of all, a move toward reformulation starts by accepting that there is no evident or pressing need to elevate memes beyond the status of an extended phenotype. The concept of memes, at its core, is redundant. The genes-eye view is already good enough to explain the rise of culture. Since it is possible to speak distinctively about materially-expressed extended phenotypes, that concept can be recruited to speak also about symbolically-expressed ones. In that sense, all the tools and rules we fabricate can be seen as extra-somatic membranes of our physical and intellectual existence.[72] People are not vessels for memes, but for genes. So then would all our artifacts be such vessels... including memes as well. Describing memes in such terms would provide stronger theoretical grounding for them within Dawkins' own oeuvre, and thus a more integrated description of the extended phenotype itself.

Another virtue of accounting for memes as a symbolically-expressed extended phenotype of the human species is that doing so could provide a sturdy bridge for interdisciplinary discourse. For example, this proposed reframing would allow for a closer accord with the structurationist concepts described earlier, in which cultural artifacts are seen as the *simultaneous* medium and outcome of social practice. Likewise, a meme's reformulated ontological status could be shown to match that of any other discernable social practice within Searle's conception of social reality. This move, therefore, promises to reveal commensurable perspectives across the disciplined discourses of evolutionary science, linguistic philosophy, sociology, and constructivist IR. But achieving such a

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[71] Susan Blackmore. *The Meme Machine*. (1999, Oxford University Press). See also Robert Aunger. *The Electric Meme: A New Theory of How We Think*. (2002, Free Press).

[72] Consider, for example, recent work by cognitive archaeologist Lambros Malafouris. He seeks to uncover the evolutionary background for the links between neuro-plasticity and cultural plasticity by investigating the "novel demands" that prehistoric tool development placed upon human brains. From this perspective, material culture is an adjunct of minds rather than a residual outgrowth of them ... a notion that seems reasonably compatible with structuration. But Malafouris also argues that "the tool is often smarter than the toolmaker and can be sown in time to posses a mind of its own." Before and beyond Representation: Towards an enactive conception of the Palaeolithic image, in C. Renfrew and I. Morley (eds) *Material beginnings: a global prehistory of figurative representation*. Cambridge: McDonald Institute for Archaeological Research (in press). See the interview with Malafouris at http://revminds.seedmagazine.com/revminds/member/lambros_malafouris/. See also Christopher Witmore, "Deprivation through 'dialectics': Why some archaeologist's are hamstrung by things and why things are hamstrung by some archaeologists." http://traumwerk.stanford.edu/archaeolog/2006/07/deprivation_through_dialectics.html

commensurable understanding would be no simple task. The artifact-as-agent paradigm is quite persistent and may continue to exert an appeal across otherwise sober and scientifically-oriented disciplines. The challenge for the memetic fundamentalists is their willingness to apply Darwinian acid to their own ways of thinking.

This is not to say that the practice of referring to "memes" must end. The idea resonates. Its vernacular understanding is bound to persist. But there are compelling reasons to question and reject the epiphenominality and subordination of human thought enshrined by Dawkins' approach.

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Exogenous conceptions of causality are problematic because, among other reasons, they are so susceptible to exploitation by dogmatic absolutists. Such conceptions are rooted in a natural human propensity to seek kinship with a world-controlling source of overarching truth (an argument to be further pursued later). The power behind that truth might be portrayed as an identifiable supernatural being, or as embodied in a cosmic essence like Plato's ideal forms or Isaac Newton's active principle. The danger lies in the hubris that may arise in those who claim to be "Truth's" authoritative spokesperson: When Nature speaks – as when God speaks – a ventriloquist is doing the talking.[73]

Daniel Dennett warns against narratives that invoke ungrounded "skyhooks" to explain occurrences necessary for the existence of complex natural entities. He equates them with supernatural miracles, and juxtaposes them against firmly-rooted "cranes" that enable the slow construction of material and biological entities from the ground up.[74] These are indeed helpful metaphors. But as a meme fundamentalist, Dennett works in league with those who insist the human mind is simply a substrate for an immaterial replicator. If memes can override material circumstance and causally manipulate human behavior, then: 1) Inventions and cultural innovations that occur must depend on the intervention of memetic skyhooks; and 2) Anyone who claims to speak for the most superior of all memes would be claiming universal warrant. Consider, in this context, how E.O. Wilson's campaign for consilience – the ordered unification of knowledge – illustrates his own deep-seated drive for pattern finding. His expressed goal is to "devise a universal litmus test for scientific

[73]This is a paraphrase of Mark Dery's concept, "ventriloquizing nature." See, " "Wild Nature" (The Unabomber Meets the Digerati)" regarding appeal to the authority of nature, "forestalling debate by camouflaging the man-made as the god-given." http://www.levity.com/markdery/ ESCAPE/VELOCITY/author/wildnature.html.

[74]Daniel Dennett. *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (1995).

statements and with it eventually attain the grail of objective truth."[75] Though Wilson does not speak of a "holy" grail, his idea of universal objectivity implies that finite beings could somehow gain the power of infinite omniscience.

The field of International Relations, long dominated by realist/neo-realist and liberal/neoliberal schools of thought, is certainly not immune to this hunger for exogenous explanation. Realist presumptions of structural anarchy relegate a policymaker's choices subsidiary to one's position in the system. Liberal presumptions about the primacy of utility maximization among interest groups and interested individuals attribute their various choices to their pre-given interests. Even political scientist Alexander Wendt, a constructivist who has become one of the best-known critics of those materialist schools, can fall under the spell of exogenous thinking. In his article "Why a world state is inevitable" (a title faithful to its determinist perspective), Wendt argues that the increasing potential costs of war, combined with the unceasing demand for rights creates the material basis for a world state.[76] That is a valid normative wish, but arguing for its inevitability changes the stakes.

Wendt's case for the inevitability of a war-stopping world state is a rests on a teleological assumption about how the logic of anarchy will drive the process.[77] He has little to say about possible alternative outcomes. Here is one to consider: Just as Westphalia established sovereign temporal authority for states and principalities while leaving the Holy Roman Empire's claims to atemporal authority intact, new forms of expressly global authority might arise (perhaps to provide gatekeeping powers over specific resources and practices) without challenging states' monopolies on coercive force within bordered territories.

There are other alternatives: Things could persist much as they are; human society could suffer a tragic regression; Ray Kurzweil could become master of the universe. But particular details are beside the point. When free people are involved, anything can happen. We can wager on likelihoods, but predicting inevitability makes human agents into epiphenomena. Wendt's earlier contributions to the field of IR included cogent analyses demonstrating how the system of states is

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[75]Edward Wilson, *Consilience* (1998: 59-65, esp. 60).

[76]Alexander Wendt, "Why a world state is inevitable,"*European Journal of International Relations*, vol. 9, no. 4, (2003).

[77]Wendt (2003: ii).

not materially fixed, but culturally mutable.[78] Now, though asserting that "Human agency still matters along the way,"[79] the clear thrust of his argument is that the systemic trajectory of history itself is purposively fixed, and that once the system takes on his predicted form, that form will stay fixed.[80]

The human experience provides many notorious examples of exogenously-styled faith taken to catastrophic extremes. These include religious dogmatists who claim to be executing the word of God (the 9/11 attacks, after all, were a faith-based initiative), but also historical materialists, self-described Social Darwinists, and others who justify their own actions by claiming authority as the vanguard of history, or (just as arrogantly) by professing humble obedience to the ways of the world. Exogenous faith provides an all-purpose hand-washing rationale for those who wish to live by excuses. When they act, they don't presume themselves to be the ultimate authority for their own actions. Instead, they express a commitment to act in harmony with causes or commands assumed to arise outside themselves. Such thinking, however unfounded and irrational the basis may be, can drive people to violent extremes.

To be clear, I do not consider Dawkins' own views to reach such extremism, and I do not mean to lump him with the members of such groups. But, given how the standard conception of meme bundles with the old, misleading error of exogenous causality, it has been refreshing to find studies by investigators within the Darwinian paradigm who have worked out alternate accounts of cultural information transfer and accumulation.[81]

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Is the beast within predetermined, and only capable of being exposed, or is it now capable of being reinvented and re-proposed? We can't know how the transhumanist project will turn out or whether Fukuyama's worst-case fears are justified. We can't reliably predict how our grandest social projects will end up. But if we accept the persuasive evolutionary arguments for phenotypic

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[78]Alexander Wendt, "The agent-structure problem in international relations theory" *International Organization*, vol. 41, no. 3, 1987. "Anarchy is what states make of it: the social construction of power politics" *International Organization*, vol. 46, no. 2, 1992.

[79]Wendt (2003: ii).

[80]For other criticism, see V. P. Shannon ,"Wendt's Violation of the Constructivist Project: Agency and Why a World State is Not Inevitable" *European Journal of International Relations*, December 1, 2005; 11(4): 581 - 587.

[81]In addition to Sterelny, see anthropologist Dan Sperber's "An Objection to the Memetic Approach to Culture", in *Darwinizing Culture*, R. Aunger (ed.), (2000: 163–173).

malleability, it's fair, even necessary, to ask, "Who gets to swing the mallet?" Are our projects truly *our* projects? That question moves the discussion again to the inexhaustible topic of free will.

To begin, consider the difference between free beer and free speech.[82] Indulging the former is equivalent to taking one's choices exclusively from a menu. This means accepting the constraints imposed by the offering authority at a given time and consuming what is offered, even if only a single brand of beer. Engaging in the latter raises the possibility of proposing a change to the menu itself. Doing so can open up a new world of options, but also imposes many other constraints, such as having to make oneself intelligible in order to convey the desired change. In either case, the behavior of the agent is an event that discloses a new sign (or set of signs) into the background conditions of the social environment. The former behavior (like indulging in free beer) can be exceptionally simple, almost verging on automatic. Such minion-like conduct is essentially reproductive of existing conditions. The latter (like challenging the current description of memes) tends to be far more complex and riskier. The action could entail outright rejection or going unanswered, as well as the prospect of unforeseen consequences.

The comparison offers two insights. The free speech example implies that those who take a relatively expansive view of freedom will recognize a person's capacity to intervene within the background conditions of a social milieu. The free beer example is more fundamental because it implies that even those who take the most constrained view of human circumstances must recognize that people always retain the option of refusing to partake from a conditioner's menu. So both views share a single premise: For all circumstances where a choice is not automatic, freedom is axiomatic.

Ironically, to assert that freedom is axiomatic bucks the trend of discourse in early 21st century America, often proclaimed by its citizens as the freest nation in the world. It has become commonplace for Americans to declare they "have no choice" when announcing portentous decisions, as if a menu deserves responsibility for one's indulgences.[83] But the domain of human choice is broader than they admit. Freedom can be shown to be as fundamentally instinctive in human development as language and theory of mind. Perhaps the most reliable evidence of its universality is a healthy child's first utterance of the word, "No!" combined with a refusal to

[82]These ideas originate from the free software movement, started in 1983 by hacker community advocate Richard Stallman. See "The Free Software Definition" http://www.gnu.org/philosophy/free-sw.html.

[83]The list can begin with Kenneth M. Pollack's 2002 statement, "The United States has no choice left but to invade Iraq itself and eliminate the current regime." "Next Stop Baghdad?" *Foreign Affairs* March/April 2002.

cooperate with a particular command. That locution underlies a speech act which has been the source of endless frustration for parents, especially when it means rejection of food. Nevertheless, parents can take some satisfaction in a child's refusal to behave as an automatic appendage of someone's wishes, even their own. That early defiance is a glimmer of intersubjectivity. The child's expression of desire for a different condition in the social milieu, however narrow that milieu may be, recapitulates the birth of human agency.

* * *

Some readers may object that this discussion has conflated or confused the meanings of freedom and free will. For example, even if one accepts the existence of free will, how is it possible to argue that freedom is axiomatic for a person in chains? Do not prisoners lack freedom? My answer is that, for the purposes of the current discussion, otherwise compelling libertarian-styled and "negative liberty" arguments for advancing freedom by limiting the powers of coercive authority are a distraction.[84] An even greater sense of emancipation can arise from recognition and acceptance of the capacity for free will in oneself and others.

People can learn to exert control over their emotional states even under the most dire circumstances. Just as Siddhārtha Gautama and others could laugh at hunger, so can an imprisoned person experience joyful serenity. Conversely, many people suffer from addictions and self-imposed stresses despite virtually unhindered mobility, supplemented by access to great wealth. The point here is not about who is freer, or whose circumstances are more favorable to freedom, but about the ubiquitous presence of the human *capacity* for emancipation.

Cartoonist Gary Larson, creator of the "Far Side" series, offered an expansive view of this capacity in a single frame depicting a scene from hell. Two demons are overseeing workers in a burning cave. All the workers are grim and suffering, except one who whistles a song as he pushes his wheelbarrow with alacrity. In reaction, one demon says to the other, "You know, we're just not reaching that guy."

This admittedly optimistic perspective is unlikely to satisfy those who view free will as a "useful fiction." Like religion, free will is taking on the status of a "purpose driven lie," beloved by

[84]These views have been best elaborated by Isaiah Berlin and Joseph Raz

the masses, scorned by the intellectuals, and exploited by the rulers.[85] The beneficial purpose of such fictions (for those who perceive them as such) is to serve as a deterrent that reduces the cost of maintaining social harmony. Anything that makes people feel responsible and accountable for their actions greatly eases the task of enforcing legal order. Since the charge that religion is a "useful fiction" is far better known than the one directed toward free will, comparing the two can offer a productive insight.

Those who subscribe to supernatural beliefs generally anticipate that pain and pleasure will be meted out in accord with a given system of metaphysical justice as set out by a presumed deity. No crime or "sin" can escape notice of the being assumed to oversee the supernatural order. The consequent punishments for bad behaviors (as well as the payoffs for good ones) are inevitable, even if they must wait to be felt during some kind of an afterlife. But there are many subscribers to supernaturalism who also feel a profound desire for communion with their deity. Their experience is deeply emotional, utterly distinct from Pascal's Wager on the chances of penalty or payoff.

A revealing juxtaposition of those supernatural belief styles appeared during the course of 2004 US Senate race in Illinois, when Alan Keyes, the Republican candidate, declared that Jesus wouldn't vote for his Democratic opponent, Barack Obama. Asked to comment on Keyes' assertion during a televised debate, Obama answered, "My first reaction was that I wanted to know who Mr. Keyes's pollster was, because if I had the opportunity to talk to Jesus Christ I'd be asking [about] something much more important than this Senate race. I'd want to know whether I was going up or down." Keyes responded, "The question I that I would pose to the Lord is not whether I'm going up or going down. I want to know where He stands so that I may follow Him."[86]

There is no question that humans have shown themselves to be highly susceptible to beliefs about supernatural incentives and deterrents, as well as the wish for harmony with a metaphysical

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[85]This line is attentive to observations by Seneca and Gibbon "Religion is regarded by the many as true, by the wise as false, and by the rulers as useful.," wrote the former. For the latter, "The various modes of worship, which prevailed in the Roman world, were all considered by the people, as equally true; by the philosopher, as equally false; and by the magistrate, as equally useful."

[86]This portion of their debate has been widely archived on the Internet. For YouTube footage, see http://www.youtube.com/watch?v=Md2bf9DNVB4. It is important to note, in this vein, that Keyes and other outspoken Christians argue that free will exists because their deity has free will and humans were created in that deity's image. Nevertheless, in support of that logic, Keyes simultaneously argues, "I'm just articulating the view that I sincerely and honestly know to have come from the hand of Almighty God, and that *I have no choice but to follow*, because it shapes my conscience." (My emphasis) See his speech at Vision America's War on Christians Conference held March 28, 2006 in Washington DC. http://www.keyesarchives.com/transcript.php?id=410.

order. That susceptibility opens the way to exceptionally effective mechanisms of social control... the useful fictions deployed by parents, magistrates, and politicians alike. Of course, such levers exert scant leverage on someone whose worldview is free of supernaturalism.

The overriding question about the portrayal of free will as a useful fiction is now coming into clearer focus. That is: In what ways can free will also be exploited as an instrument of social control?

* * *

The rise of modern secularism has been associated with the rise in the number of people who proclaim a self-conscious commitment to "do the right thing when no one is watching," and who insist that it is possible for individuals to behave with moral integrity despite the absence of an otherworldly overseer. Rather than rooting responsibility in the need for submissive obedience to the dictates of a supernatural authority, such people attribute ultimate responsibility for behavior solely to individual actors.[87] But the proper source for the definition of integrity is not as clearly consolidated.

Lacking a menu of "revealed" laws, many secularist-minded individuals accept the task of working out behavioral imperatives for themselves from the ground up, or of at least modeling their own moral and ethical priorities on those professed by other humans. A favored precept, the Golden Rule, is presumed to work just as well when conceived as being handed down from human to human rather than from god to human. An alternative view among secularists is that it is possible to derive rules for moral behavior from an impersonal "natural" law. From this perspective, the Golden Rule is not handed down by a god, but is somehow embedded within the makeup of reality, where it is discernable to humans. Parenthetically, this quest for scientifically-sound harmony with *a priori* moral principles does bear resemblance to a religionist's deep-seated desire for communion with his or her deity, except that supernatural realms and beings are not included in the search.

The rise of secularism represents an ongoing unburdening from the constraints of religious mythology and pre-scientific cosmology. This shift is widely regarded as progress for human culture, especially among those who favor rigorously-integrated, evidence-anchored models of reasoning.[88]

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[87]To pursue this line of argument, it would be useful to compare philosopher Martin Buber's argument that there is no responsibility unless there is a God (thou, another subject) to be responsible to. Also germane would be the fact that Immanuel Kant's initial formulation of the Categorical Imperative included anticipation of"crowning glory" in a heavenly paradise.

[88]Of course, secularism can not guarantee enduring security and prosperity. The worldview represents a gamble, like any other type of human choice.

Alongside this rise, outspoken critics of religious dogma have become quite bold in their attacks. Christopher Hitchens, Sam Harris, and Richard Dawkins – among other notable members of the Hofstadter cluster mentioned at the outset of this paper – have angrily denounced religious supernaturalism as delusional and as perhaps the greatest self-inflicted cause of human misery. But many welcome the rise of secularism for a simpler reason: It appeals to their sense of independence and freedom. It appeals to their desire to live as a full-fledged menu makers rather than as an obedient minions. But this appeal is not ubiquitous. Some argue that the sensation of independent free will is as illusory and wish-based as the existence of supernatural beings and places. The desire to live as chefs rather than sheep is central to the Hofstadter cluster's "grand illusion" of consciousness. But in reality, as they see it, memes are our shepherds.

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For those who fundamentally deny the existence of free will, what matters is the useful fiction sustained by the *feeling* of free will. Their argument begins with the unassailable observation that the evolutionary process has embedded within the brain's physiology numerous systems that operate at subconscious levels of awareness. These systems, whose structures and expressions are just now beginning to be uncovered and examined at the neuromolecular level, underlie our full suite of behavioral tendencies.[89] Alongside of that, individuals also build up vast stocks of neuronal circuits and schema during lifetimes spent acquiring habits, skills, patterned responses, and other conditioned behaviors.

In light of the strong causality exerted by these more or less discrete systems within our brains, neuroscientist/psychologist Michael Gazzaniga argues that from a scientific standpoint it makes little sense to speak of concepts such as "I" or "You." In fact, our very sense of "I" is managed by yet another discrete system he calls "the Interpreter." It serves to integrate observed actions, but

[89]Six core humans emotions – happiness, sadness, surprise, fear, disgust and anger – have been identified and examined at length by eminent psychologist Paul Ekman, who pioneered research on cross-cultural recognition of facial expressions. *Emotions Revealed, Second Edition: Recognizing Faces and Feelings to Improve Communication and Emotional Life* (2007, Holt Paperbacks). Of those six, disgust has piqued notable interest among scholars, political analysts, and media actors; all want better understanding of how innate human emotional systems constrain voter and consumer behavior. Other highly extroverted emotions that are being submitted to study are amusement and relief. Furthermore, researchers are actively probing for more precise understandings of nearly kind of thought we tend to have... libidinous hunger, fight or flight arousals, the acute desire for cleanliness, generous altruism toward kin, loyalty to authority, intuitive reciprocity, concern for what we recognize as fairness, loneliness, status anxieties, and so on.

can not control them, because, "by the time you're consciously aware of something, your brain's already done it."[90]

Yet, as a member of the President's Council on Bioethics, Gazzaniga has been adamant that "Neuroscience should butt out of the courtoom." He worries about "Officer Krupke" and "Twinkie" defenses, by which people try to exploit technical discussions about the function of discrete brain systems as a clever strategy to escape penalties for criminal acts. In such arguments, the devil that made them do it is said to be some neurophysically-based malfunction or impairment. "[I]t's a very dangerous game to play," Gazzaniga has said, "and a lot of us are against it being played."[91] This is clearly a political choice. Gazzaniga's view as a science professional is that human behavior reflects an exquisitely complex interplay of evolutionary pressures and rule-based social interactions, and is thus easily nudged in different directions depending on environmental circumstances and linguistic triggers.[92] But from his perspective as a respected advisor to politicians and legal experts, there is obvious advantage in insisting that accountability must be vested at the level of the individual.

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The crux of the freedom-as-useful-fiction argument (or, at least, my take on what I think the Hofstadter cluster is about) begins with this: Our sense of freedom is rooted in our biological endowment for tracking success or failure in goal achievement. This is a basic capacity we share with far simpler animals. Like them, we can intentionally watch where we are going.

For philosopher Ruth Garrett Millikan even squirrels demonstrate this capacity for "mental trial and error, hence rationality, at the perceptual level." Her evidence includes an observation, conducted from her home, of a grey squirrel planning and executing a raid on a bird feeder.

> It studied the situation long and hard from one side of the deck, then from the other. It climbed up on the railing to study the situation from there, first from one side, then from the other side, and then from underneath. It eyed the screen on the door that goes out to the deck. Finally it made a try. Starting from a run along the railing, it leap and ricocheted off the

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[90]Seed Salon, "The Transcript: Tom Wolfe + Michael Gazzaniga" July 1, 2008. http://seedmagazine.com/news/2008/07/tom_wolfe_michael_gazzaniga.php

[91]The Dana Foundation, "Gazzaniga on Neuroethics, Stem Cell Research, and Arts and Cognition Interview shown on 'Charlie Rose' program" April 20, 2006. http://www.dana.org/news/features/detail.aspx?id=9202.

[92]For a discussion of how this tendency might be put to good use, see Richard H. Thaler and Cass R. Sunstein Nudge: Improving Decisions About Health, Wealth, and Happiness (2008) See also Noah J. Goldstein, Steve J. Martin, Robert B. Cialdini *Yes!: 50 Scientifically Proven Ways to Be Persuasive* (2008).

> screen toward the feeder but missed. Once again it surveyed the situation from various angles, and finally succeeded by hitting the screen a little higher up, then hanging on tight to the whirligig feeder while it wound up, unwound, wound up again and unwound. I hadn't the heart to shoo it away![93]

Human brains augment this perceptual monitoring ability with tremendous memory and imaginative capacities. Those capacities are enlisted to support trial and error calculations in a vast array of problem-solving tasks. They support even vaster accumulations of symbolic resources that we use to develop, retain, and transmit problem solutions across social milieus. The so-called Interpreter serves to synchronize the tracking.

Our basic senses of self and freedom emerge from the operation of this highly-evolved tracking system. The process of mental reflection, then, is an exceptionally sophisticated version of tracking. The ongoing emergence of social reflexivity, in turn, manifests our evolved capacity for tracking intersubjectively-generated feedback within a collaborative social milieu. The feeling of freedom is a key link in the feedback loop that serves to fix within us stocks of utility calculations and habits of self-monitoring that establish and reinforce socially adaptive patterns of behavior.

Given that people are already primed by evolution to *feel* they are the authors of their choices, they are innately susceptible to social narratives which fortify that belief. Success at tracking what are felt to be one's own choices becomes its own reward, even if those choices ultimately reflect eons of evolution and a lifetime of social conditioning. So, humans do indeed feel pressure to act with a sense of moral integrity, even when no one else is watching (putting aside discussion of what the content of a moral system might be). The hard-wired systems by which we monitor ourselves are enlisted to remind us of those pressures on society's behalf. For healthy humans in a wakeful state, the tracking never stops. Potential targets are always in play, even if below the level of conscious perception. The desire to hold oneself in high estimation in accord with some given moral standard – the persistent urge to hit targets picked out by subliminal mental processes – can exert far deeper sway than the fear of getting caught and punished by someone who is watching. That makes the day-to-day jobs of parents and police much easier.

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[93]Iin "Styles of Rationality," in *Rationality in Animals*, M. Nudds and S. Hurley eds. (Oxford: Oxford University Press).

My objection to the argument that our sense of freedom represents nothing more than a useful fiction is this: The scientific community's best explanations of human behavior do not rule out the case for axiomatic freedom that was made earlier. If people can learn to escape the lures of free beer and the burdens of supernatural illusion, are not the same avenues of escape available to anyone who wishes to break the chains of cultural heritage or resist the calls of physiological pressure? Admittedly, very few people have the internal fortitude to laugh at hunger as they starve to death, but there are countless examples of people who have acquired, through meditative practice, remarkable control over their states of consciousness. With discipline, one can conquer socially-prompted urges for reciprocal response and intersubjective play, and even overcome deeply inborn instincts for spacial orientation and perceptive awareness.

From the traditional perspective of mindfulness, the experience of freedom is associated with a sublime awareness of presence at the moment called "now," distinguishable from the fountains of thought that typically compete for a person's attention. Being awake to one's freedom while having such an experience means embracing the responsibility to stay awake for what comes next. Such awareness is not limited to meditative isolation. It can be experienced during action... rejecting nostalgia, initiating an adventure, even sampling a menu. Our sense of freedom is as natural to us as sight, balance, and all the other senses. To lose the ability to fully exercise that freedom would therefore be as horribly crippling as losing the ability to fully exercise hearing or tasting or any of the rest. This is why we are so reluctant to give it up, or to see our kin robbed of it. To insist that people deny their freedom (and their commensurate responsibility for their choices) is like demanding they live with their eyes closed.

It is distressing, therefore, to observe that so many otherwise sober-minded researchers within the Hofstadter cluster deny that axiomatic freedom is a valid concept. Stephen Pinker, echoing philosopher Dan Dennett, argues that "the last thing we want is a soul to do anything it desires."

> If behavior were chosen by an utterly free will, then we really couldn't hold people responsible for their actions. That entity would not be deterred by the threat of punishment, or be ashamed by the prospect of opprobrium, or even feel the twinge of guilt that might inhibit a sinful temptation in the future, because it could always choose to defy those causes of behavior. We could not hope to reduce evil acts by enacting moral and legal codes, because a free agent, floating in a different plane from the arrows of cause and effect, would be unaffected by the codes. Morality and law would be pointless. We could punish a

> wrongdoer, but it would be sheer spite, because it could have no predictable effect on the future behavior of the wrongdoer or of other people aware of the punishment.[94]

It is certainly reasonable for Pinker to associate axiomatic freedom with the *capacity* to declare essentially, "No one can tell me what to do, I will do whatever I want, and I don't care what anyone thinks about what I do." But someone who has fully developed their capacity for free will is not predestined to make such a declaration, nor to behave in accord with such an ethic. Moreover, Pinker seems to be implicitly equating "an utterly free will" with irresponsible, randomly chosen behavior. This would be fundamentally mistaken. Consider, for example, the villain of the film *No Country for Old Men*, a person unconstrained by human empathy or social norms. At one point in the story he decides whether to murder based on the flip of a coin. If such a person presumes anything about himself, it would be that he is irrevocably subject to arbitrary external dictums, whether coin flips or useless promises. He may not care what anyone else thinks, but he will nevertheless track his own behavior to maintain alignment with his chosen course. He does not make himself responsible to "society," but to his random choice generator.

Psychopaths provide convenient examples for thought problems about incorrigible zombies. By extension, however, people who consider themselves subject to the dictums of supernatural beings or master memes would also be displacing their responsibility. The common thread is that the agent treats the received dictum as a rule originating from a sovereign externality, whether the random outcome of a coin flip, the explicit command of a god, or the brain-inhabiting replicant of an adaptive variation.

Furthermore, people who are most keenly aware of their freedom do not find themselves "floating in a different plane." Rather, one who acquires the ability to shed all cares about social artifices like status and faith and organizing principles does so by, let us say, "clearing a space" for uncluttered thought within the present "plane." Doing so typically requires serious discipline, and might require extended periods of study and practice. When reached, that space provides metaphoric ground upon which the most acute awareness of one's intentionality and responsibility can be realized.

Regardless of Pinker's misleading assumptions about how freedom is achieved and what it means with regard to embrace of personal responsibility, he is indeed justified in worrying about

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[94]Steven Pinker. 2002. *The Blank Slate: The Modern Denial of Human Nature*. 177

how such decidedly unconstrained people could be deterred from unwanted behaviors. He is also correct in drawing attention to the unmitigated power of defiance enabled by freedom. Given those reasonable concerns, it might help to consider this question: Once someone achieves such an exquisite level of unburdened freedom, what choices are available besides remaining immersed in emancipated awareness?

By definition, all avenues would lead away from uncluttered mindfulness and back toward susceptibility to social artifices and physical hungers. But some avenues might be relatively more likely to loop back toward that hard-won cleared ground. And some of those that do indeed loop back might engage us in helping to open the way for the emancipation of others. And those others could become potential allies who might eventually help us clear an even larger, more hospitable space for freedom. So it is quite natural that people who deeply value their own freedom would also value it for others. The practice of freedom is a compassionate enterprise. Rooted in our biologically-evolved endowment for tracking intersubjective engagement, the crowning glory of free will is not that it provides a capacity to defy, but to ally.

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The English word "freedom" originates in the Sanskrit word for love, *priya*, which also yields "friend." Yet the Hindu ideal of freedom is associated with self-mastery, in the sense of being the owner of oneself (*swami*). These concepts are not at odds with each other, and can be compared to the earlier dichotomy of free beer and free speech. Where self-mastery implies the ability to refuse unwanted options, loving friendship implies the willingness to engage with others in making and remaking a social milieu. Freedom, therefore, is a key interest for any human culture that seeks to endure, whether organized as a notion state, or as a global polity. Freedom is in our nature, and it exists there to our benefit.

2. Imposing a Being Without

Several key points of the initial proposal have yet to be explored in detail. Lines of discussion that would merit elaboration in any subsequent revisions of this paper are listed and briefly summarized below:

1) *The development of status-related behaviors and recursive sequentiality in the social navigation practices of primates.* Such behaviors point to the possibility of proto-capacities that underlay selection for more robust capacities underpinning the development of higher order symbolic

awareness and self-aware efforts to manipulate background conditions. Where responses to predators and insect threats may indeed be hardwired, and many other behaviors may be cue-bound, the content of status relations shows both dynamism and persistence. Such relations are carefully cultivated and defended. My hypothesis is that such behaviors are crucial for the development of pattern-finding as a social practice. They prepare the ground for normativity, and underlay grand "truth"-seeking practices, especially religion and science. I align myself with Darwinists who argue that language is not a spandrel, but I argue against those who claim that religion is. Both practices, I believe, reflect the evolved human capacity for truth-seeking/truth-making behavior.

2) *The significance of Searle's "Chinese Room" thought problem for the consciousness/free will debate.* This may be the most persistently contested argument between the Searle and Hofstadter clusters. As a version of the Turing Test, the Chinese Room problem can be elaborated to open up discussion for the "halting problem" of Turing Machines, perhaps shedding insight on the differences between humans, who access brute reality via heuristics, and machines, which are appended to brute reality via algorithms. Also, what sense of freedom, if any, is presumed possible for the Chinese Room's inhabitant, and why does this matter?

3) *Further elaboration of the links between Searle's work on speech acts and Onuf's work on rules and interests.* This would get to the crux of my larger argument about free will and its link to the means by which humans disclose signs that bring about changes to background conditions. Work by sociologist Richard Swedberg will also be referenced for its valuable background on the study of interest within the social sciences.

4) *The relationship of these ideas to traditional IR scholarship, particularly Morgenthau's conceptions of power and interest.* Following from the immediately prior discussion of interest, issues relating to the deployment of power would be affirmed as a key concern of political decisionmakers. Nye's popular but intrinsically loose distinction of hard and soft power can be refined with reference to a three-part scheme derived from Onuf's categories of rules and interests. Note that Onuf's conception of assertive rules is well-suited to provide accounts of normativity and legitimacy as an aspect of power.

SUMMARY

In light of the Darwinian paradigm's unifying power in the biological sciences, and its likely ascendance for the study of many other human-related subjects,[95] my intention is to help prepare ground for a research program that would build bridges from the fields of International Relations and Global Politics to the fields of Darwinian-rooted evolutionary psychology and cognitive science, starting with a compatible understanding of self-conscious, co-constitutive agency as a point of contact. I am not yet aware of others who might have attempted to draw such an explicit link between constructivist thinking in IR scholarship and state-of-the-art research in cognitive evolution. I am also not aware of whether anyone has made a direct challenge to the conception of memes using the arguments given here. Sustaining that challenge is key, I believe, for those who may wish to avoid potential for alignment with deterministic ideologies.

Though I offer this paper as an attempt to start a new conversation, I would be delighted to find that it is already ongoing among IR scholars, and I would seek to join that conversation in any subsequent revisions. In any case, I am confident that this is a useful venture. A better understanding of our innate human capacity to make and follow social rules would dramatically improve our ability to advance the well being of our species within our global habitat.

Finally, there is the question of what I mean by "generative constraints." One typically finds mechanisms cast as generative, but it is not oxymoronic to say that constraints can be as well. The term is compatible with the structurationists' dual conception of rules: Rules constrain and rules enable. Knowledge of language empowers speakers, provided that speakers employ vocabulary and grammar intelligibly. There are even rules for freedom. The generative constraints of global polity, therefore, represent the disclosure of freely-formed intentions to conceptualize an expressly global niche for political discourse. That niche would be characterized by the kinds of rule systems that are of concern within every sort of polity... binding values, executive functions, new contracts, and so on. The enduring value of evolutionary science is its exquisite insight into how human populations have successfully engineered social milieus of mutually-recognized, interest-bearing agents. Whether our capacity for such engineering can be applied in a sustainable manner across our entire global habitat remains to be seen.

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[95] See, for example the draft by , David Sloan Wilson and William Scott Green, "Evolutionary Religious Studies (ERS): A Beginner's Guide." Available online via http://evolution.binghamton.edu/religion/guide.html.

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