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# The Welfare State and Moral Sentiments: A Smith-Hayek Critique of the Evolutionary Left

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[LINK TO ABSTRACT](#)

In “Reciprocity and the Welfare State,” Christina Fong, Samuel Bowles, and Herbert Gintis (2005) cite Friedrich Hayek in support of their claims about the relation between the ancestral band and the welfare state, but they completely omit any engagement of Hayek’s criticism of the social-democratic welfare state as atavistic. That moment in their work epitomizes something occurring in a major new line of literature, namely that they fail to consider how the social instincts that enabled cooperation in those ancestral bands interact with modern conditions. Here I develop the present article as a comment on Fong, Bowles, and Gintis (2005), and I also exploit the occasion to comment more generally on the big problem I see in what is otherwise a welcome and exciting new line of literature.

Fong, Bowles, and Gintis begin by declaring that “The modern welfare state is a remarkable human achievement” (2005, 277). The first paragraph concludes as follows: “The modern welfare state is thus the most significant case in human history of a voluntary egalitarian redistribution of income among total strangers. What accounts for its popular support?” The answer they provide is that the welfare state engages human instincts. Fong, Bowles, and Gintis are not the only theorists to draw a connection between our band ancestry and how modern society should be organized. Frans de Waal advances similar ideas about the role of empathy in the modern welfare state in *The Age of Empathy* (de Waal 2009, 37), and Peter Singer wrote a little book along those lines titled *A Darwinian Left* (Singer

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2000, 60–63). Many related works, from Elliott Sober and David Sloan Wilson’s *Unto Others* (1998) to Bowles and Gintis’s *A Cooperative Species* (2011) to Christopher Boehm’s *Moral Origins* (2012), draw on the principle of sympathy that Adam Smith explored in *The Theory of Moral Sentiments*. Thus we see growing interest in the claim that the welfare state can channel the beneficent aptitudes of human nature. But, I argue here, such claim fails to appreciate that those aptitudes are unsuited to the complex commercial societies within which today’s welfare states exist.

Smith held that humankind is, by nature, a sympathetic species with an innate aptitude for beneficence. That aptitude, we now know, finds its biological origins in the specific context of the ancestral hunting-gathering bands in which *Homo sapiens* evolved. In *The Descent of Man*, Charles Darwin recognized how sympathy formed the social instincts that made possible sustained interactions. More recently, biologists and others, including the aforementioned authors de Waal, Sober, Wilson, Bowles, and Gintis, as well as figures such as Edward O. Wilson and Alexander J. Field, have echoed Darwin’s message that sympathy and the aptitude for beneficence are part of humanity’s biological patrimony. Hayek, too, expounded that idea (Hayek 1967; 1976; 1978a; 1979; 1988). Hayek recognized how human society has changed greatly from the conditions of those original bands. The gradient of benevolence—the phenomenon making it more difficult for people to sympathize with each other as social distance grows larger—has been an important factor shifting society’s mode of coordination away from shared goals to shared rules. Cultural evolution has changed society greatly, but our aptitude for beneficence is still a product of biological evolution and therefore reflects yearnings bred into humanity from life (and death) in hunting-gathering bands.

Limitations of knowledge, sympathy, and accountability limit our ability to turn benevolence into beneficence. Nonetheless, an important reason why the welfare state has been so successful politically is that it resonates with its citizens’ primeval desires and instincts for imagined collectively coordinated beneficence, or encompassing cooperation. People might say that they support the welfare state because of the sympathy they hold for those in their society, yet that sympathy doesn’t translate into beneficent outcomes at the level of a complex society because the welfare state exists at a level at which sympathy can no longer coordinate human action. The desire for a beneficent welfare state is, in effect, an atavism, that is, a no-longer-apt assertion of something from a simpler age. Hayek’s atavism interpretation of modern politics has been supported or supplemented by several sympathetic researchers (e.g., Zywicki 2000; Rubin 2002; 2003; Rubin and Gick 2005; Whitman 2005; Klein 2005; 2010; Klein et al. 2015; Lucas 2010; Otteson 2012). We shall see that Fong, Bowles, and Gintis (2005) explicitly cite Hayek—and I commend them for doing so.

In this paper I start with Smith's insights about moral sentiments and argue that they dovetail, not with large-scale welfare statism, but with Hayek's criticism of just that. Thus, Smith does not provide a good basis for the evolutionary left. I develop ideas from Smith and Hayek to insist that those who explore connections between the band ancestry of sympathy and solidarity and the modern appeal and politics of the welfare state must face up to and engage the contention that the latter is atavistic.

## **The gradient of benevolence: Constraining the aptitude for sympathy**

Benevolence, understood as free acts of charity, friendship, love, and the like, is a fruit of our sympathy in society. It is certainly not the only fruit, but it is the one perhaps most becoming to a humane spirit. Although benevolence may be universal in its scope, sympathy is limited by human nature. The gradient of benevolence describes that limitation. Even though human beings may have aptitudes for benevolence, sympathy—which depends on knowledge and focal points—cannot provide the necessary impetus to coordinate a complex society. Instead, shared rules have evolved to enable people to live peacefully and prosperously in such societies.

Sympathy is a fundamental motivation impelling human beings to acts of benevolence. In the beginning of *The Theory of Moral Sentiments*, Smith writes about how a spectator has sympathy—a word he used with modern senses of both 'empathy' and 'sympathy' mixed in—for a victim on the rack because of that spectator's ability to imagine himself in the place of the victim, upon that terrible machine, suffering from the same tortures:

By the imagination we place ourselves in his situation, we conceive ourselves enduring all the same torments, we enter as it were into his body, and become in some measure the same person with him, and thence form some idea of his sensations, and even feel something which, though weaker in degree, is not altogether unlike them. (Smith 1790, I.i.1.2)

Smith argued that we sympathize with other people by imagining ourselves to be in the situation suffered by another person:

That this is the source of our fellow-feeling for the misery of others, that it is by changing places in fancy with the sufferer, that we come

either to conceive or to be affected by what he feels, may be demonstrated by many obvious observations, if it should not be thought sufficiently evident of itself. (Smith 1790, I.i.1.3)

Sympathy provides connections between people by making them interested in one another's fortunes. The spectator's sympathy for the person on the rack is an impetus that could lead him to beneficence, and to unite himself in cooperation with the person on the rack. Sympathy is therefore a basic motivation causing people to come together in solidarity.

Sympathy isn't perfect, nor is it comprehensive. Sympathy relies on the human imagination, but it isn't always possible for people to imagine themselves in other people's situations. For one thing, a person often has little knowledge or understanding of the situation of another; he may have very little capability of really being a spectator of another. Furthermore, effective sympathy depends on focal points, upon which a sequence of benevolent efforts is mutually coordinated.

A spectator's imagination of another person's situation shall always be inferior to his awareness of his own pleasure and pain. Smith argues this point in the first chapter of *The Theory of Moral Sentiments*:

Mankind, though naturally sympathetic, never conceive, for what has befallen another, that degree of passion which naturally animates the person principally concerned. That imaginary change of situation, upon which their sympathy is founded, is but momentary. The thought of their own safety, the thought that they themselves are not really the sufferers, continually intrudes itself upon them; and though it does not hinder them from conceiving a passion somewhat analogous to what is felt by the sufferer, hinders them from conceiving any thing that approaches to the same degree of violence. (Smith 1790, I.i.4.7)

Smith repeats the same consideration in the book's sixth part:

Every man feels his own pleasures and his own pains more sensibly than those of other people. The former are the original sensations; the latter the reflected or sympathetic images of those sensations. The former may be said to be the substance; the latter the shadow. (Smith 1790, VI.ii.1.1)

In a simple society, or in the simpler orders nested within a complex society, sympathy will be a potent force in large part because people will live in similar circumstances. Those shared circumstances allow the spectator to use his local knowledge of his own situation to enter into another person's situation.

As it becomes more difficult for people to sympathize with one another, it becomes ever more difficult for sympathy to create connections that can lead to effective beneficence. Larry Arnhart touches on the concept when he writes of Smith's idea, itself of ancient Stoic origin, of a "naturally expanding circle of human care" (Arnhart 2015, 4). Sandra Peart and David Levy (2005, 186ff.) speak of the "sympathetic gradient," which can also be seen as a gradient of benevolence. Such gradient emerges out of the fading of the sympathetic faculties, the further they are extended. Smith describes the gradient of benevolence, without calling it that, in *The Theory of Moral Sentiments*, part VI, section II: "Of the Character of the Individual, so far as it can affect the Happiness of other People." Earlier in the work he anticipates that discussion with his famous paragraph about a man of humanity in Europe's reaction to an earthquake in China. Though he had no connection with China, the man of humanity would experience some melancholy if he were to receive the news that all of the empire of China had been destroyed by an earthquake:

He would, I imagine, first of all, express very strongly his sorrow for the misfortune of that unhappy people, he would make many melancholy reflections upon the precariousness of human life, and the vanity of all the labours of man, which could thus be annihilated in a moment. He would too, perhaps, if he was a man of speculation, enter into many reasonings concerning the effects which this disaster might produce upon the commerce of Europe, and the trade and business of the world in general. And when all this fine philosophy was over, when all these humane sentiments had been once fairly expressed, he would pursue his business or his pleasure, take his repose or his diversion, with the same ease and tranquillity, as if no such accident had happened. (Smith 1790, III.3.4)

Upon receiving the news, the man of humanity in Europe, motivated by his sympathy with the Chinese people's plight, would go on to speak with great sadness about the earthquake. Perhaps he would be eloquent in expressing his sentiments. But the great distance would keep him in a passive relation, unable to turn his sympathy into beneficence.

With his beneficence for the Chinese limited by his ability to act on his sympathy for them, the man of humanity's imagination is bound to turn to what is most concrete and vivid to him: His own circumstances. To emphasize how people are foremost interested in their own situation, Smith contrasts the rather fleeting distress the man of humanity felt over the news of the earthquake with the distress he would feel over the imminent loss of his own little finger. Whereas he had slept

without a care the night after learning of the far-off earthquake, he would now be wracked with anxiety:

The most frivolous disaster which could befall himself would occasion a more real disturbance. If he was to lose his little finger to-morrow, he would not sleep to-night; but, provided he never saw them, he will snore with the most profound security over the ruin of a hundred millions of his brethren, and the destruction of that immense multitude seems plainly an object less interesting to him, than this paltry misfortune of his own. (Smith 1790, III.3.4)

Like almost all of his fellow species, humane or otherwise, the man in Europe is most concerned with those situations that most vividly impact his imagination. Whether it may be preserving his own health or feeding his own family, those are the situations closest to his own heart. At the end of the day, though he is horrified at the thought of an earthquake swallowing China, the man of humanity in Europe is ultimately more *disturbed* at the imminent loss of something close to him, such as his own little finger. In passivity, the little finger looms larger than the earthquake.

The man of humanity's response to the earthquake in China could lead a spectator, otherwise unacquainted with human nature, to believe that he was a maliciously egocentric person. After describing the nature of his sentiments in the thought experiment about the far-off earthquake, Smith goes on to offer a second thought experiment, one in which the man now has moral agency: By some unexplained fantastical mechanism, the man of humanity may now spare his little finger by causing an earthquake in China:

To prevent, therefore, this paltry misfortune to himself, would a man of humanity be willing to sacrifice the lives of a hundred millions of his brethren, provided he had never seen them? (Smith 1790, III.3.4)

Smith continues:

Human nature startles with horror at the thought, and the world, in its greatest depravity and corruption, never produced such a villain as could be capable of entertaining it. (ibid.)

Now, in agency, the earthquake looms larger than the little finger.

Even Smith, certainly a man who sees no harm in moderate self-love, is led to question why there is such a discrepancy between our animated action and our passive emotions:

When our passive feelings are almost always so sordid and so selfish, how comes it that our active principles should often be so generous and so noble? When we are always so much more deeply affected by whatever concerns ourselves, than by whatever concerns other men; what is it which prompts the generous, upon all occasions, and the mean upon many, to sacrifice their own interests to the greater interests of others? (Smith 1790, III.3.4)

Smith answers his own question with the man in the breast. In agency the man sacrifices his pinky because otherwise he would suffer the condemnation of the man in the breast. The man in the breast impels duty to abide by certain principles, by certain *general rules*. In the circumstances posited by Smith, that the man was to lose his little finger but somehow could prevent that by bringing on the earthquake, the applicable general rule might be the injunction that he should never harm another for his own gain. On a modified circumstance, that the earthquake were to occur unless the man should step up and sacrifice his little finger, the general rule might be “that the many should be preferred to the one” (Smith 1790, II.ii.3.11).

Smith’s remarks about the sordid and selfish nature of our passive emotions are significant for understanding sympathy’s role a complex society. Everyone may very well be the center of his own world, yet that doesn’t mean that everyone is sordidly selfish, willing to sacrifice other people’s well-being for his own betterment. After all, with agency the man of humanity would sacrifice his little finger. Smith has illustrated that “our active principles” are often “so generous and so noble” (1790, III.3.4). But without the power to turn his sympathy into beneficence, without a position to exercise his active principles, the man of humanity’s mind wanders to what leaves the most vivid impressions upon his imagination, and that is his own circumstances.

The man of humanity’s response to the far-off earthquake illustrates that, while the human race may have an aptitude for beneficence, that aptitude flourishes with genuine agency. Just like anything else with human behavior, beneficence faces certain constraints, and the gradient of benevolence is foremost among those constraints. Smith himself concluded that even if benevolence may be limitless in scope, benevolence can only lead to beneficence if the spectator in question can act and has the knowledge to actually help the situation:

Though our effectual good offices can very seldom be extended to any wider society than that of our own country; our good-will is circumscribed by no boundary, but may embrace the immensity of the universe. (Smith 1790, VI.ii.3.1)

Without the ability to cooperate with those suffering because of the cataclysm in China, the man of humanity simply goes on his way and pursues the concerns close to his own heart. Today a man of humanity would be able to donate money to help a large charity provide aid for those in China, but to be effective even that act of beneficence requires that there be other people with the ability and the knowledge to use his charity to help the Chinese victims.

To say that sympathy is limited, though, is to not say that it is necessarily ineffectual, nor is it to say that it isn't an important motivating force in society. Sympathy creates very meaningful connections in the daily life of people the world over. It may be by the butcher, the baker, and the brewer's interest in honest income that their customers get their dinner, but, for just one vital instance of effective sympathy we can point to the reliance of children on the beneficence of their parents or other caretakers. Nobody can really doubt that sympathy can lead to effective beneficence within local circumstances, such as each person's family, as long as people can coordinate around pull-together efforts. As pull-together efforts diminish in importance, people are less able to unite in shared goals, and so their sympathy is less likely to lead to effective beneficence.

Where sympathy has failed, voluntary exchange has been able to ensure that people's interests tend to be harmonious and that what is good for Jack is also good for Jill. The institutions of the commercial society coordinate the plans of the people, without the need for beneficent motivations (Field 2004, 109–112). The institutions of civil society, on the other hand, need to put people in an position to act upon their sympathy. Even while the man of humanity is a man of humanity, a spectator would not know that from how he reacted in passivity. Although his concern for his own little finger may seem sordid, that very same concern for what is tangible around him shall guide him to great acts of beneficence in the communities that surround him, where he can act upon the sympathy he feels for others, and with effect.

In modern societies, people are put in positions of indolent benevolence much like that of the man of humanity when he had learned of the far-off earthquake. As society has increased in complexity, an ever wider variety of simple orders have become nested within their wider orders, and that greater complexity has reduced the scope of shared goals as reliable ways of coordinating activities. Whereas ancestral hunting-gathering societies relied on solidarity and pull-together efforts to coordinate the intentions of their members, the modern commercial society relies less on shared goals than on shared *rules*, such as commutative justice and the pursuit of honest income. To those within it, society has become much wider than simply a collection of several families. The semi-biological connections defining a band have been replaced by ever more abstract rules-based connections (Popper 1966, 173–175). The problem facing those complex societies isn't the

hunter-gatherer's problem of eking out a living on East Africa's savanna or New Guinea's highlands. The problem facing those complex societies is ensuring that strangers can live in harmony with one another.

Laws are the most important of the shared rules unifying complex societies. In *The Origins of Political Order*, Francis Fukuyama defines the law as "a body of abstract rules of justice that bind a community" (2011, 246). As open protocols enabling cooperation between strangers, laws have enabled people from different background to interact, knowing that they will be treated as equals before the law (Shermer 2008, 200–203). An important difference between beneficence and commutative justice is that while beneficence prompts the gratitude of others, no one deserves gratitude from simply following the law. "Mere justice," Smith explains, meaning commutative justice, "is, upon most occasions, but a negative virtue, and only hinders us from hurting our neighbour. The man who barely abstains from violating either the person, or the estate, or the reputation of his neighbours, has surely very little positive merit" (1790, II.ii.1.9). As the complexity of society has increased, our ability to directly help those outside of our own little platoons in society has diminished, with the result that the order of such societies is created more by shared rules than by shared goals.<sup>2</sup>

The welfare state is clearly not a band, yet de Waal seems to suggest otherwise. In *The Age of Empathy: Nature's Lessons for a Kinder Society*, he writes about society taking care of steelworker Steve Skvara after the factory he worked at closed: "In the same way that Skvara felt an obligation to his wife, society ought to feel an obligation toward him after a lifetime of hard work" (de Waal 2009, 37). Singer expresses a similar mindset in *A Darwinian Left* when he writes: "If we shrug our shoulders at the avoidable suffering of the weak and the poor, of those who are getting exploited and ripped off, or who simply do not have enough to sustain life at a decent level, we are not of the left. ... The left wants to do something about this situation" (Singer 2000, 8–9). But the welfare state doesn't unite its citizens together in solidarity towards beneficent goals, such as taking care of Skvara. Instead, the welfare state must supervene above citizens' own actions and sentiments when carrying out its policies. As a coercive institution, the taxing state supervenes and pursues its own goals independent of its citizens' feelings of benevolence. Whether someone actually feels any obligation towards Skvara is irrelevant for the welfare state's operation. Rather, its motivating philosophy is straight out of *Leviathan*: Where private agents fail, a state can simply come in, and fix the problem by reshaping the incentives and effecting lump-sum redistributions

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2. Where I speak of 'shared rules' in this paper, I mean in particular rules that are "precise and accurate," as Smith says are the rules of commutative justice. Smith affirms that aesthetics, too, involves rules, albeit rules that are "loose, vague, and indeterminate" (Smith 1790, III.6.8–11, VII.iv.1–2.).

(Ostrom 2005, 254). In pursuing such strategies, the welfare state must supervene over citizens because the strategies are accomplished using coercive means reserved for the state alone. There is no need for our aptitudes for beneficence in such matters at all. Ultimately, the operation of a welfare state is primarily a matter of ensuring that taxation be imposed and that the money goes where a government's directives say it shall, with the sentiments of most of those contained within it being irrelevant to those directives.

At that point, the welfare state is not quite advancing beneficence, understood as the free acts of charity, friendship, love, and the like. As Smith wrote: "Beneficence is always free, it cannot be extorted by force" (1790, II.ii.1.3). Yes, a welfare state can give money to the poor, but in doing so it doesn't participate in the becoming use of its own resources deserving of a spectator's approval. One may contend that it isn't even using its own resources; it's using what it has extracted from taxpayers. The welfare state therefore isn't an institution by which all the members of society come together, as they would in a hunting-gathering band, to cooperate together, more or less as equals, towards rising up the poor together. Instead, the welfare state is an institution that supervenes upon the rest of society, and pursues its goals using the means reserved for the state alone.

By supervening above the actions of private citizens, the welfare state puts decisions about policy matters outside of the influence of most people. A modern government exists in a complex society, and it grows complex as an organization. Hierarchy is one of the defining aspects of such a complex organization. It is a general trait of complex organizations, not unique to society, that as organizational systems become more complex, so too they become more hierarchical. Whether we think of the hierarchy in terms of a multinational firm's command structure or the role that the central nervous system plays in maintaining the health of an organism, all complex organizations have some kind of hierarchy to cope with the demands put on them by information processing. In "The Architecture of Complexity," Herbert A. Simon even goes as far as to make hierarchy a basic principle of complexity: "complexity frequently takes the form of hierarchy, and...hierarchic systems have some common properties that are independent of their specific content" (1962, 468).

In the welfare state, hierarchy implies that not everybody will be in the position to make decisions. As much as de Waal may write about "a new epoch that stresses cooperation and social responsibility" (2009, ix), decisions within the welfare state will be made by a few individuals, and so most will be left, at least in the short run, in a passive position to follow along with what the decision makers decided. Although people can vote for members of Congress, most Americans had no voice in whether Congress listened to the advice of 1981's National Commission on Social Security Reform or in whether Medicare and Medicaid were

added to Social Security with the Social Security Amendments of 1965. Moreover, due to the almost infinitesimal odds of actually influencing an election, the ‘activity’ of voting does little to make a voter any less passive. Instead, he is left much like a spectator to a boxing match: Fully able to cheer for his party, but effectively unable to influence to final outcome of the activity before him.

In his paper “Adam Smith, Moral Sentiments, and the Welfare State,” Eric Hammer (2013) examines the moral dimensions of the various roles involved in the welfare state—the taxpayer, the recipient, the administrator, the politician, and the voter—and makes use of the four “sources” of moral approval enumerated by Smith (1790, 326–327 §16). Scrutinizing the moral experience of each person in the various roles makes a very powerful critique of morality of the welfare state: Beneficence and gratitude find very little place; indeed, moral pathologies abound. Genuine sympathy and moral learning and correction have almost no place there.

In short, the welfare state’s hierarchy puts most of its citizens in a passive position when it comes to deciding what the welfare state actually does, and, as a result, citizens are not in a position to exercise their active principles, their aptitudes, for beneficence. Despite its claim, the welfare state is not a beneficent institution; instead, it must necessarily supervene over its citizens’ own beneficent motivations in pursuing its own goals.

## **Beneficence’s origin in the hunting-gathering band**

As Lyndon Johnson began the rhetorical campaign for his Great Society programs, he argued that the United States could unite as a nation to be beneficent towards those at the margins of society: “And with your courage and with your compassion and your desire, we will build a Great Society. It is a Society where no child will go unfed, and no youngster will go unschooled” (Johnson 1964). With its emphasis on solidarity and pull-together efforts, Johnson’s rhetoric resonates with humanity’s innate aptitudes for beneficence. Although the gradient of benevolence ensures that, at the level of national policy, hardly anyone’s benevolence can ever be realized as beneficence, people still continue to desire such policies because they resonate with our innate yearning for encompassing sentiments—what Daniel Klein calls “the people’s romance” (Klein 2005; Klein et al. 2015).

Human morality can rapidly change through cultural means, but there is still a biological human nature that conditions all of its cultural expressions. William Donald Hamilton wrote of the importance of such a human nature, arguing that the genetic system “provide[s] not a blank sheet for individual cultural develop-

ment but a sheet at least lightly scrawled with certain tentative outlines” (Hamilton 1975, 134). The tentative outlines scrawled by natural selection onto the human genetic system have had an impact on both the form of human society and what people expect from their societies. All biology-free explanations of human conduct simply cannot capture the nature of those tentative outlines (Arnhart 1998, 7–8; Hodgson 2013, 61–64). Some of those outlines involve matters that are distinctly moral, which is to say they relate to a human being’s reflection on the propriety of its own conduct (Darwin 1989/1877, 101–103; Sober and D. S. Wilson 1998, 237–240). As Boehm writes in *Moral Origins*: “A sense of right and wrong and a capacity to blush with shame, along with a highly developed sense of empathy, compel us as moral beings to consider how our actions may negatively affect the lives of others—or how we may gain satisfaction in helping them” (2012, 32). Moreover, as illustrated by de Waal’s research into reconciliation in other primate species, that sense of right and wrong has a lengthy phylogeny across our ape-like progenitors (de Waal 1997, 176–178).

*Homo sapiens* has walked the earth for over 150,000 years. The vast majority of that time has been spent in the social context of hunting-gathering bands. The aptitudes and instincts underlying human nature have consequently been selected for coping with the problems of life within the conditions of the ancestral hunting-gathering band. The commercial society, not the band, is the freakish society. Our aptitudes for beneficence evolved because of the fitness benefits they provided in the Late Pleistocene, not for the benefits they provide in modern-day contexts.

From those original aptitudes and instincts, morality has culturally evolved so as to make existence in a commercial society possible. In *The Fatal Conceit*, Hayek argued that, because human social instincts have evolved to sustain cooperation in ancestral hunting-gathering bands, the rules of the commercial society could therefore be considered in a sense artificial:

The [extended] order is even ‘unnatural’ in the common meaning of not conforming to man’s biological endowment. Much of the good that man does in the extended order is thus not due to his being naturally good; yet it is foolish to deprecate civilisation as artificial for this reason. It is artificial only in the sense in which most of our values, our language, our art and our very reason are artificial: they are not genetically embedded in our biological structures. (Hayek 1988, 19)

As David Hume wrote in *A Letter from a Gentleman to His Friend in Edinburgh*: “sucking is an action natural to man, and speech is artificial” (Hume 1967/1745, 31). Like language, the rules of civilization have resulted from historical sequences of human actions, and so are, in that sense of the word, artificial.

Whereas the shared rules of today's commercial society have evolved out of a process of cultural evolution and are therefore not innate instincts, humanity's aptitude for beneficence is a part of its biological patrimony. Smith, in the first sentence of *The Theory of Moral Sentiments*, declared that sympathy is what biologists would understand as a human instinct: "How selfish soever man may be supposed, there are evidently some *principles in his nature*, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it" (1790, I.i.1.1, my emphasis).

Darwin provided a description of the evolution of human social instincts in *The Descent of Man* by the principle that, in their struggle for existence, more cooperative bands would be more likely to triumph than less cooperative ones. Darwin theorized that a *sine qua non* for the evolution of social behavior was what Smith called the pleasure of mutual sympathy: "With respect to the impulse which leads certain animals to associate together, and to aid one another in many ways, we infer that in most cases they are impelled by the same sense of satisfaction or pleasure which they experience in performing other instinctive action or by the same sense of dissatisfaction as when other instinctive actions are checked" (Darwin 1989/1877, 108). From those original impulses, natural selection would then choose "the social and moral faculties" that enabled bands with cooperative members to spread across the world:

Selfish and contentious people will not cohere, and without coherence nothing can be effected. A tribe rich in the above qualities [including sympathy, fidelity, and courage] would spread and be victorious over other tribes: but in the course of time it would, judging from all past history, be in its turn overcome by some other tribe still more highly endowed. Thus the social and moral qualities would tend slowly to advance and be diffused throughout the world. (Darwin 1989/1877, 135)

Although Darwin here uses the word *tribe*, we now know that it is more fitting to use the word *band*. By means of successfully propagating bands, our more social ancestors would establish themselves as a successful new species, and so natural selection would create an intensely social species with instincts for beneficence.

The basic principles Darwin laid out for explaining the evolution of the aptitude for beneficence have remained relatively unchanged since then. Bowles and Gintis's 2011 book, *A Cooperative Species*, provides a compelling retelling of Darwin's theory that natural selection chose our cooperative instincts because of how that nature led to bands more likely to succeed in their struggle for existence. Bowles and Gintis argue that *Homo sapiens* became a cooperative species "because

our ancestors lived in environments, both natural and socially constructed, in which groups of individuals who were predisposed to cooperate and uphold ethical norms tended to survive and expand relative to other groups, thereby allowing these prosocial motivations to proliferate” (Bowles and Gintis 2011, 1).

However simple were the first human bands, human societies have since then grown in complexity. Ever since human beings first began to settle in sedentary communities in the wake of the Neolithic Revolution, some 10,000 to 12,000 years ago, human societies have vastly increased in complexity. Though the first farmers certainly never intended it, their innovative way of life revolutionized the very way that people interacted with one another, launching the historical journey from hunting-gathering bands to commercial societies. In *The Social Conquest of Earth*, Edward O. Wilson describes how the emergence of sedentary communities with the Neolithic Revolution made possible the ever-expanding subdivision of human society:

With the emergence of villages and then chiefdoms in the Neolithic period around 10,000 years ago, the nature of the networks changed dramatically. They grew in size and broke into fragments. These subgroups became overlapping and at the same time hierarchical and porous. The individual lived in a kaleidoscope of family members, coreligionists, co-workers, friends, and strangers. ... In modern industrialized countries, networks grew to a complexity that has proved bewildering to the Paleolithic mind we inherited. Our instincts still desire the tiny, united band-networks that prevailed during the hundreds of millennia preceding the dawn of history. (E. O. Wilson 2012, 243–244)

Agriculture brought about processes towards ever more complex societies. Changes, whether by conquest or peaceful cultural transmission, became a catalyst to further change. Selective pressures generated ever more complex societies. Civilization thus became autocatalytic: Change catalyzed further change.

## **Hayek and the two-worlds hypothesis**

Human morality has had to evolve culturally to deal with the challenges. But even though morals have changed to deal with those challenges, human beings are largely still the same hunting-gathering animals at heart, and so their aptitudes still reflect natural selection as it transpired among the bands, not in modern civilization. Hayek argues the point in *The Fatal Conceit*:

[M]an's instincts, which were fully developed long before Aristotle's time, were not made for the kinds of surroundings, and for the numbers, in which he now lives. They were adapted to life in the small roving bands or troops in which the human race and its immediate ancestors evolved during the few million years while the biological constitution of *Homo sapiens* was being formed. These genetically inherited instincts served to steer the cooperation of the members of the troop, a cooperation that was, necessarily, a narrowly circumscribed interaction of fellows known to and trusted by one another. These primitive people were guided by concrete, commonly perceived aims, and by a similar perception of the dangers and opportunities—chiefly sources of food and shelter—of their environment. (Hayek 1988, 11–12)

Hayek follows his comments about earlier human societies with his main argument:

Part of our present difficulty is that we must constantly adjust our lives, our thoughts and our emotions, in order to live simultaneously within different kinds of orders according to different rules. If we were to apply the unmodified, uncurbed, rules of the micro-cosmos (i.e., of the small band or troop, or of, say, our families) to the macro-cosmos (our wider civilisation), as our instincts and sentimental yearnings often make us wish to do, *we would destroy it*. Yet if we were always to apply the rules of the extended order to our more intimate groupings, *we would crush them*. So we must learn to live in two sorts of world at once. (Hayek 1988, 18, emphases in original)

Hayek's argument, which I call here the 'two-worlds hypothesis,' is that a complex society is constituted by simple, more band-like orders, which still are constituted by pull-together efforts, and that human social instincts are germane to those band-like orders rather than to the wider order. What differentiates these two types of order is the difference between their primary modes of coordinating concatenations of affairs.<sup>3</sup> Should we treat one like the other, we shall unravel them, because they rely on different modes of coordination—one based on shared goals, the other on shared rules. Brandon Lucas (2010) argues that Smith's thinking on the evolution of society and human nature fits remarkably well with Hayek's two-worlds hypothesis.

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3. On concatenate coordination, see Klein (2012, ch. 4).

The two-worlds hypothesis should not, however, treat those two types of order as binaries, but rather as existing along a spectrum at least in part due to the influence of the gradient of benevolence. The simpler orders nested within modern society, be they firms, churches, or clubs, rely on a bit of both. The extended order of the macrocosmos grows out of the many microcosmoi within it. Sympathies, however fleeting they may be, enshroud all human interactions, and so the difference between what Hayek calls the macrocosmos and the microcosmos is a matter of degree. By and large, the distinction is made by how important sympathy is for achieving coordination among people, and how important market signals, such as profit and loss, serve that role. It is perhaps unfortunate that Hayek elaborated his ideas in binary form (Garnett 2010, 52–54). Nevertheless, we should still be quick to pick up on the importance of the problem addressed by the two-worlds hypothesis. There is a very real problem to the flourishing of complex orders generated by human beings interacting outside of the kind of context within which their social instincts were selected for.

Fong, Bowles, and Gintis (2005) also argue for the importance of those social instincts, especially strong reciprocity, to the flourishing of the welfare state and its egalitarian policies. They aver that the welfare state “conforms to deeply held norms of reciprocity and conditional obligations to others” (2005, 277). They trace people’s support of egalitarian policies to the social instincts desiring solidarity and pull-together efforts in society. People demand egalitarian policies because they demand policies that reward everyone alike for pulling together in the joint effort of working towards social goals. Those motivations, as Bowles and Gintis argue in *A Cooperative Species*, originate from interactions within the context of hunting-gathering bands (Bowles and Gintis 2011, 159–163). David Sloan Wilson echoes this point in *Darwin’s Cathedral* when he wrote that motivating the organization of society

is a strong moral sentiment that society must work for all its members from the highest to the lowest. I interpret this spirit of *communitas* as the mind of the hunter-gatherer, willing to work for the common good but ever-vigilant against exploitation. (D. S. Wilson 2002, 224)

Wilson has joined with others to set up an advocacy organization called The Evolution Institute ([link](#)), which seems to lean left though is vague about policy positions. His most recent book contains a couple of mildly snarky comments about Hayek but does not bring up the atavism critique (D. S. Wilson 2015, 95, 101).<sup>4</sup>

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4. An excellent review of D. S. Wilson (2015) is Orr (2015).

To paraphrase Darwin (1989/1877, 135), no hunting-gathering band can cohere without such a spirit of *communitas*. If people are to pull together, then there must be the expectation that everybody will benefit from pulling together. The groups that best pull together will evolve a *communitas* of cooperation (D. S. Wilson and Gowdy 2015). The policies of the welfare state conform to that *communitas* in that they promise that everybody in society shall be collectively looked after by everybody. Such promises or images recommend themselves to our primeval tendencies for shared goals, belonging, solidarity, and encompassment.

Fong, Bowles, and Gintis cite Hayek's two-worlds hypothesis to support their argument that our aptitude for beneficence, rather than our self-love, explain the demand for welfare-state policies. Like Hayek, they argue that economists have chronically misdiagnosed support for welfare-state policies as being on account of "selfishness by the electorate" (Fong, Bowles, and Gintis 2005, 297). They count Hayek as a joint member in a greater research program that takes seriously "the force of human behavioral predispositions to act both generously and reciprocally" (*ibid.*). But yet they then fail to seriously consider Hayek's two-worlds hypothesis. At the end of "Reciprocity and the Welfare State" they quote from Hayek's "The Three Sources of Human Values" as follows:

[The] demand for a just distribution ... is ... an atavism, based on primordial emotions. And it is these widely prevalent feelings to which prophets (and) moral philosophers ... appeal by their plans for the deliberate creation of a new type of society. (Hayek, as quoted in Fong, Bowles, and Gintis 2005, 297)

Yes, Hayek does agree with Fong, Bowles, and Gintis that sentimental yearnings largely derived from our band heritage explain the demand for egalitarian policies. The three argue persuasively for that case, and to that extent I concur with them. Nevertheless, Hayek contended that, as gratified by modern collectivism, those yearnings are *atavistic*. Such gratification is unsuited to a complex society. Fong, Bowles, and Gintis do not engage that contention; the contention itself certainly upsets the warm glow of the welfare state, a glow we do find in their work and the work of others of the evolutionary left. They merely cite one aspect of Hayek's two-worlds hypothesis without grappling with the others. In fact, the quotation from Hayek as they display it is doctored a bit so as to downplay Hayek's critical posture. The full original passage reads:

Their demand for a just distribution in which organized power is to be used to allocate to each what he deserves is thus strictly an *atavism*, based on primordial emotions. And it is these widely prevalent feelings

to which prophets, moral philosophers, and constructivists appeal by their plans for the deliberate creation of a new type of society. (Hayek 1978b, 18, emphasis in original)<sup>5</sup>

As can be seen, Fong, Bowles, and Gintis omitted “strictly” and removed Hayek’s italics on “atavism,” and they elided his talk of “organized power” and “constructivists.”

Throughout “The Three Sources of Human Values,” Hayek emphasized how the commercial society was made possible by the decline of solidarity, and by the ascent of shared rules of conduct, allowing each person to pursue his own purposes. The morals necessary to the shared grammar-like rules “do not serve to gratify human emotions...but they served only as the signals that told the individual what he ought to do” (Hayek 1979, 160). But Fong, Bowles, and Gintis (2005) not only did not address Hayek’s claim about the atavistic nature of welfare-state policies, but almost immediately below their quotation from “Three Sources” they suggested that the welfare state could even mobilize our aptitude for beneficence in matters of national policy: “To mobilize rather than offend reciprocal values, public policies should recognize that there is substantial support for generosity towards the less well off as long as they have tried to make an effort to improve their situation and are in good moral standing” (Fong, Bowles, and Gintis 2005, 297). In other words, the welfare state can appeal to the human proclivity for reciprocation, those “primordial emotions” Hayek refers to above, and, from that appeal, succeed as an institution in today’s complex society.

Yet, in making such political suggestions, Fong, Bowles, and Gintis do not address the main thrust of the two-worlds hypothesis: That welfare-state policies do not suit the society in which we now live. Hayek propounded the atavism thesis most conspicuously in his essay “The Atavism of Social Justice” (Hayek 1978a), but he also advanced it in several other works (Hayek 1967; 1976; 1979; 1988). Hayek used the term *atavistic* four times in *The Fatal Conceit*, referring generally to collectivist mentalities (Hayek 1988, 19, 51, 104, 120).

Welfare-state policies also do not concord very well with the moral philosophy of Smith. The gradient of benevolence should inform us that we really cannot think that a person can carry out what she thinks are her beneficent duties towards others through coercive organizations at the level of a vastly complex society. Nevertheless, people still demand those programs—because the programs

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5. “The Three Sources of Human Values” first appeared as an LSE occasional paper (Hayek 1978b), and that is the version cited by Fong, Bowles, and Gintis (2005) and the version quoted here. The essay was also published in *Law, Legislation and Liberty, Volume 3: The Political Order of a Free People* (Hayek 1979). The passage in question is all but identical in the 1978 and 1979 incarnations, save for an irrelevant variation between “plans” (1978b, 18) and “plan” (1979, 165).

resonate with the social instincts that attract people to collective, encompassing action, to the people's romance or imagined *communitas*. Even though human societies began as simple hunting-gathering bands, the demands for mutual coordination have led to the evolution of different methods of people coordinating their resources and activities into complex concatenations. The gradient of benevolence has led to the decay of shared goals across complex societies. The emergence of rules-based modes of coordination has been accompanied by moral changes that have enabled each person to follow his own purposes so long as he does not violate his society's shared rules of conduct. The welfare state, as recommended by Fong, Bowles, and Gintis, represents an undoing of that evolution by reasserting our sentimental yearnings for encompassing coordination where cultural evolution has made them inappropriate.

Despite my misgivings with how they treat the two-worlds hypothesis, I am glad that Fong, Bowles, and Gintis (2005) at least make mention of Hayek. Others make no mention of him at all, though it seems to me that they should. Frans de Waal, for example, says in *The Age of Empathy* that, firstly, solidarity and empathy are needed in volunteer community services, and then that "the second area where solidarity counts is the common good, which includes health care, education, infrastructure, transportation, national defense, protection against nature, and so on. Here the role of empathy is more indirect, because no one would want to see such vital pillars of society depend purely on the warm glow of kindness" (de Waal 2009, 223). In the preface to the book, he writes:

American politics seems poised for a new epoch that stresses cooperation and social responsibility. . . . Empathy is the grand theme of our time, as reflected in the speeches of Barack Obama, such as when he told graduates at Northwestern University, in Chicago: "I think we should talk more about our empathy deficit. . . . It's only when you hitch your wagon to something larger than yourself that you will realize your true potential." (de Waal 2009, ix; see Obama 2006)

De Waal's remarks are admirable for their candor, but he should take pains to engage the serious critique of the passion to recreate the ethos and mentality of the small band in the political mythos of the modern social-democratic nation state.

As a beneficent species, we seek out solidarity, even where it is not to be found. Darwin described the principles by which human beings evolved as such an animal in *The Descent of Man*, and those principles were later affirmed by Bowles and Gintis in *A Cooperative Species*. Fong, Bowles, and Gintis traced support for the welfare-state policies to such social instincts, and they correctly recognize that support for such policies is derived from our aptitudes for beneficence. They fail,

however, to confront the implications of Hayek's two-worlds hypothesis. Human society has indeed greatly changed since the evolution of those aptitudes, and because of those changes those aptitudes may have been made ineffective within certain contexts. The Hayekian contention—that the politics of the welfare state, in the size and scope generally favored by the left, are atavistic—has, thus far, not been seriously engaged by the evolutionary left.

## References

- Arnhart, Larry.** 1998. *Darwinian Natural Right: The Biological Ethics of Human Nature*. Albany, N.Y.: State University of New York.
- Arnhart, Larry.** 2015. The Evolution of Darwinian Liberalism. *Journal of Bioeconomics* 17(1): 3–15.
- Boehm, Christopher.** 2012. *Moral Origins: The Evolution of Virtue, Altruism, and Shame*. New York: Basic Books.
- Bowles, Samuel, and Herbert Gintis.** 2011. *A Cooperative Species: Human Reciprocity and Its Evolution*. Princeton, N.J.: Princeton University Press.
- Darwin, Charles.** 1989 [1877]. *The Descent of Man, and Selection in Relation to Sex, Part I*, 2nd ed., eds. Paul H. Barrett and R. B. Freeman. New York: New York University Press.
- de Waal, Frans.** 1997. *Good Natured: The Origin of Right and Wrong in Humans and Other Animals*. Cambridge, Mass.: Harvard University Press.
- de Waal, Frans.** 2009. *The Age of Empathy: Nature's Lessons for a Kinder Society*. New York: Harmony Books.
- Field, Alexander J.** 2004. *Altruistically Inclined? The Behavioral Sciences, Evolutionary Theory, and the Origins of Reciprocity*. Ann Arbor, Mich.: University of Michigan Press.
- Fong, Christina M., Samuel Bowles, and Herbert Gintis.** 2005. Reciprocity and the Welfare State. In *Moral Sentiments and Material Interests: The Foundations of Cooperation in Economic Life*, eds. Herbert Gintis, Samuel Bowles, Robert Boyd, and Ernst Fehr, 277–302. Cambridge, Mass.: MIT Press.
- Fukuyama, Francis.** 2011. *The Origins of Political Order: From Prehuman Times to the French Revolution*. New York: Farrar, Straus and Giroux.
- Garnett, Robert F. Jr.** 2010. Commercial Society After Modernism. In *Conversations on Philanthropy, Vol. VII: Re-imagining Philanthropy: Myths and Opportunities*, ed. Lenore T. Ealy, 49–64. Alexandria, Va.: Project for New Philanthropy Studies. [Link](#)

- Hamilton, W. D.** 1975. Innate Social Aptitudes of Man: An Approach from Evolutionary Genetics. In *Biosocial Anthropology*, ed. Robin Fox, 133–153. London: Malaby Press.
- Hammer, Eric.** 2013. Adam Smith, Moral Sentiments, and the Welfare State. Working paper. [Link](#)
- Hayek, Friedrich A.** 1967 [1963]. The Legal and Political Philosophy of David Hume. In *Studies in Philosophy, Politics, and Economics*, 106–121. Chicago: University of Chicago Press.
- Hayek, Friedrich A.** 1976. *Law, Legislation and Liberty, Vol. 2: The Mirage of Social Justice*. Chicago: University of Chicago Press.
- Hayek, Friedrich A.** 1978a. The Atavism of Social Justice. In *New Studies in Philosophy, Politics, Economics and the History of Ideas*, 57–68. Chicago: University of Chicago Press.
- Hayek, Friedrich A.** 1978b. *The Three Sources of Human Values*. London: London School of Economics and Political Science.
- Hayek, Friedrich A.** 1979 [1978]. The Three Sources of Human Values. In *Law, Legislation and Liberty, Vol. 3: The Political Order of a Free People*, 153–176. Chicago: University of Chicago Press.
- Hayek, Friedrich A.** 1988. *The Fatal Conceit: The Errors of Socialism*, ed. W. W. Bartley III. Chicago: University of Chicago Press.
- Hodgson, Geoffrey M.** 2013. *From Pleasure Machines to Moral Communities: An Evolutionary Economics Without Homo Economicus*. Chicago: University of Chicago Press.
- Hume, David.** 1967 [1745]. *A Letter from a Gentleman to His Friend in Edinburgh*, eds. Ernest C. Mossner and John V. Prince. Edinburgh: Edinburgh University Press.
- Johnson, Lyndon B.** 1964. Remarks at Ohio University (Athens, Ohio), May 7. [Link](#)
- Klein, Daniel B.** 2005. The People’s Romance: Why People Love Government (As Much as They Do). *Independent Review* 10(1): 5–37. [Link](#)
- Klein, Daniel B.** 2010. From Weight Watchers to State Watchers: Towards a Narrative of Liberalism. *Review of Austrian Economics* 23(4): 403–410.
- Klein, Daniel B.** 2012. *Knowledge and Coordination: A Liberal Interpretation*. Oxford: Oxford University Press.
- Klein, Daniel B., Xiaofei (Sophia) Pan, Daniel Houser, and Gonzalo Schwarz.** 2015. A Demand for Encompassment: A Hayekian Experimental Parable About Political Psychology. *Rationality and Society* 27(1): 70–95.
- Lucas, Brandon.** 2010. Adam Smith’s Congruence with the Hayekian Narrative. In *The Influence of Adam Smith: The Hayekian Narrative, Honest Profit, and the*

- Invisible Hand*, 5–57. Ph.D. dissertation, Department of Economics, George Mason University.
- Obama, Barack.** 2006. Commencement address at Northwestern University (Evanston, Ill.), June 16. [Link](#)
- Orr, H. Allen.** 2015. The Biology of Being Good to Others [review of D. S. Wilson 2015]. *New York Review of Books*, March 19. [Link](#)
- Ostrom, Elinor.** 2005. Policies That Crowd Out Reciprocity and Collective Action. In *Moral Sentiments and Material Interests: The Foundations of Cooperation in Economic Life*, eds. Herbert Gintis, Samuel Bowles, Robert Boyd, and Ernst Fehr, 253–276. Cambridge, Mass.: MIT Press.
- Otteson, James.** 2012. The Inhuman Alienation of Capitalism. *Society* 49(2): 139–143.
- Peart, Sandra J., and David M. Levy.** 2005. *The “Vanity of the Philosopher”: From Equality to Hierarchy in Post-Classical Economics*. Ann Arbor, Mich.: University of Michigan Press.
- Popper, Karl R.** 1966. *The Open Society and Its Enemies, Vol. 1: The Spell of Plato*. Princeton, N.J.: Princeton University Press.
- Rubin, Paul H.** 2002. *Darwinian Politics: The Evolutionary Origins of Freedom*. New Brunswick, N.J.: Rutgers University Press.
- Rubin, Paul H.** 2003. Folk Economics. *Southern Economic Journal* 70(1): 157–171.
- Rubin, Paul H., and Evelyn Gick.** 2005. Hayek and Modern Evolutionary Theory. *Advances in Austrian Economics* 7: 79–100.
- Shermer, Michael.** 2008. *The Mind of the Market: Compassionate Apes, Competitive Humans, and Other Tales from Evolutionary Economics*. New York: Henry Holt and Company.
- Simon, Herbert A.** 1962. The Architecture of Complexity. *Proceedings of the American Philosophical Society* 106(6): 467–482.
- Singer, Peter.** 2000. *A Darwinian Left: Politics, Evolution, and Cooperation*. New Haven, Conn.: Yale University Press.
- Smith, Adam.** 1979 [1790]. *The Theory of Moral Sentiments*, eds. D. D. Raphael and A. L. Macfie. Oxford: Oxford University Press.
- Sober, Elliott, and David Sloan Wilson.** 1998. *Unto Others: The Evolution and Psychology of Unselfish Behavior*. Cambridge, Mass.: Harvard University Press.
- Whitman, D. Glen.** 2005. Group Selection and Methodological Individualism: Compatible and Complementary. *Advances in Austrian Economics* 7: 221–249.
- Wilson, David Sloan.** 2002. *Darwin’s Cathedral: Evolution, Religion, and the Nature of Society*. Chicago: University of Chicago Press.
- Wilson, David Sloan.** 2015. *Does Altruism Exist? Culture, Genes, and the Welfare of Others*. New Haven, Conn.: Yale University Press.

- Wilson, David Sloan, and John M. Gowdy.** 2015. Human Ultrasociality and the Invisible Hand: Foundational Developments in Evolutionary Science Alter a Foundational Concept in Economics. *Journal of Bioeconomics* 17(1): 37–52.
- Wilson, Edward O.** 2012. *The Social Conquest of Earth*. New York: W.W. Norton & Company.
- Zywicki, Todd J.** 2000. Was Hayek Right About Group Selection After All? *Review of Austrian Economics* 13: 81–95.

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