

Nature's New Constraints?

Political Theory and the Life Sciences Boom

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Introduction

A colleague once reported the following argument in an undergraduate paper:

Utilitarianism is wrong because it violates the second law of thermodynamics, and
we should not violate the second law of thermodynamics.

One of the reasons we chuckle at the student is that the argument commits what philosophers used to call a category error. The laws of thermodynamics are not the sorts of things that can be violated, not by us or, insofar as we know, anything else in this universe. They are laws of nature and not subject to human contrivance. On the contrary, we are subject to them: they set the parameters for our physical existence in the world. Whether there is something *in addition* to our subjection to the laws of nature, as varieties of religions insist, or whether they leave room for theories of autonomous human action, as many philosophers have hoped, is a matter of controversy. But everybody concedes this: nature does set pretty strict constraints on our physical life. There are some things we can't be or do. Levitation will never solve the problem of overcrowded sidewalks, we won't ever

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compute the first million decimals of π in our heads, and you can't keep yourself from starving by mere will power. Call this idea the *nature's constraint thesis*.

Almost equally uncontroversial is what the thesis implies for normative theorizing. Kant famously enshrined the idea in the postulate 'ought implies can,' from which logic tells us that 'cannot' entails, loosely, 'need not.' Moral or political injunctions that exhort us to the impossible are simply void, and generating them a waste of ink. The anti-utilitarian undergraduate simply did more than was necessary: if one could show that utilitarianism indeed violated the second law of thermodynamics, that would be enough to establish the needed *reductio ad absurdum*.

Here the agreements end. One set of controversies is about the scope of nature's constraints: what, *exactly*, are the parameters within which meaningful oughts might be issued? One way to think of the question is to go metaphysical and get involved in the centuries-old free will–determinism question. Another way is to sidestep philosophical metaphysics and think about the question in empirical — particularly sociological and political — terms: Human political possibilities depend on what kinds of physical beings they are, and so knowledge of "human nature," whatever that is, becomes an important political question.

This is no news. And the prevailing view has been that whatever nature's constraints, there is plenty of conceptual space for politics. This is in part because the question of human nature itself has remained an open one. Is our psychology part of our nature, or up to us? Is even biology destiny?

However, although this might be the prevailing view, it isn't the only one, and every now and then there are suggestions that nature constrains our politics far more strongly than contemporary political theorists would like to think. We live in one such moment: life sciences are ascendant both in academe and culture. They have enormous

amounts of cultural cachet, and they are the current high fashion in interdisciplinary academe. We have begun to hear new claims about recent findings having implications for politics. As evolutionary psychologist Steven Pinker puts it, “biological facts are beginning to box in plausible political philosophies,” and thus of course squeeze out implausible ones (Pinker 2002, 299).² For example, Marxism turns out to be a loser because it presupposes too much human malleability, according to Pinker. On the other hand, some evolutionary psychologists report cheerfully (and controversially) that, “the prospects for reducing or even eliminating the widespread tendency to categorize persons by race may be very good indeed” because less than four minutes of exposure to a world in which people are not categorized by race can begin eliminating existing racial alliances (Kurzban, Tooby, and Cosmides 2001, 15391).

Political theorists have been remarkably silent on these developments, and I argue they should not be. Apart from few exceptions, some of which I engage here, theorists have either ignored the political implications of the life sciences or, in some cases, exited the field. If you are a theorist who becomes convinced, say, about the claim that all norms ultimately emerge out of some kind of evolution — either the biological one, so some tens of thousands of years ago for us, or a metaphorical one, as in evolutionary game theory — then it might seem that the meaningful research questions are no longer those asked by political theorists. The problem is that while claims about biological facts boxing in plausible political philosophies aren't made or evaluated on the pages of *Political Theory*, they are made in places like *Evolutionary Psychology*, *Journal of Personality* — and *Psychology & Marketing* and *The New York Times*. For example, if it's true that conspicuous consumption is an important sexual-selection strategy, or if we need malls — or something

² Strictly speaking, Pinker must mean *knowledge of* biological facts, not the facts themselves. Facts box in human possibilities and squeeze out impossibilities, not theories.

like them — to satisfy our innate foraging tendencies, then normative critiques of commodity fetishism are going to look hollow (Hantula 2003, 758).

Now even if these claims are true, it doesn't automatically follow that Marx's or anyone else's theory automatically violates nature's constraint. But it does make it an open question. This is why I want to argue that voice — at least to engage the issues — rather than exit, would be a better option for political theorists when it comes to the new challenges presented by contemporary life sciences.

In this paper, I do two things. First, I explore what a constructive engagement between political theory and the life sciences boom might look like. I canvas some recent examples. Second, I argue that political theorists not only should pay attention to the life sciences boom, but that political theory is in fact in a good position to make sense of the boom as a political and cultural phenomenon. If we understand political theory as the conceptual analysis of arguments that have political implications, then political theory can help us think about the relationship between domains of *inquiry* — life sciences, social sciences, normative theorizing — and domains of social *practice* — the academy, culture, politics. Regarding this second goal, while things aren't *completely* up to us, my general thesis is that we have more interpretive license on nature's constraint than highly restrictive views suggest because we have some interpretive license into the concept of "nature's constraint" itself. How we want to think *about nature* is in part up to us, and the questions we ask *of nature*, via natural sciences, also up to us.

In the following, I begin by outlining briefly what I take to be the life sciences challenge to political theory and explain why evolutionary psychology figures so prominently in the challenge, even though it is so controversial. I then survey some of the attempts to connect the life sciences and particularly evolutionary accounts with explicitly normative political theories. I focus on the way the different attempts construe the

relationship between explanatory life sciences, on the one hand, and normative theorizing, on the other. The two most prominent models are reductionism (sciences are more “basic” than normative theories and serve as the latter’s “truth makers”) and the idea that the two domains of inquiry need only “resonate” with one another. I offer arguments against both approaches and propose an alternative which provides a more helpful orientation for thinking about human freedom and nature. However, I *don't* take a position on whether one of these approaches is *true* and the others false: all are *prima facie* legitimate — they are valid, consistent, and at least roughly empirically adequate. That is the central point of the paper: we have a choice between these orientations, and the reasons for the choice are never supplied by nature alone and, consequently, also not by the natural sciences alone. In the final section of the paper, I briefly consider how we might think about making those choices.

I approach the issue by focusing on the “purposiveness” of nature. Interestingly, despite the supposed tough-minded scientism of many partisans, much of the appeal of the life sciences turns on very unscientific “folk” conceptions. The most important of them is an assumption that nature is teleological, that is, purposive, directed toward some end. Although from a scientific perspective this is false, it does not invalidate the arguments; it may be an open question whether the scientific perspective is the relevant criterion. We may have good reasons to endorse one teleological model or another; that question, I argue, is legitimately a political one.

The main arguments in the paper are motivated by the philosophy of Immanuel Kant. This result will strike many as surprising, given the almost universal dissatisfaction modern philosophy has had with Kantian solutions. For theorists who have seriously tried to reconcile normative views with modern biology, Kant’s willingness to shake his theoretical fist at an indifferent nature has earned an almost unequivocal rejection (Arnhart

1998; Casebeer 2003; Jonas 2001). But it is exactly where people think we should have misgivings about Kant that we should in fact turn to him. His is a model in which metaphors — such as “Mother Nature” — are coherently and interestingly in line with the ideas that science reliably tracks a real nature and its hold on us.

The Challenge

By the “life sciences boom” I mean a general social, political, academic and cultural phenomenon that highlights life sciences (as opposed to physical sciences or engineering), the perceived importance of biological questions and biological risks for human welfare (from diseases to biological warfare), and the general value of biological accounts of individual and social life. This last comes in two related, albeit very different flavors: On the one hand, we have what we might call the “pathologization” and the reduction of individual and social problems into questions of biology. This includes the now familiar views of many mental-health issues as questions of neural hardwiring or biochemical balance, or the putative genetic basis of physiological problems like obesity, but also the ideas that poverty or riots at the aggregate level are public health problems. On the other hand, we have the far more metaphorical role the biological idiom plays in culture. Theories and practices of “viral marketing” are sweeping the advertising world and management books push “primal leadership.”

Science is of course different from faddish science-talk in popular culture and the mass media, but the latter isn't just some causally inert epiphenomenon. The cultural salience of certain types of inquiry is going to affect what kinds of claims seem compelling to people — both decision-making elites and the general public — and so also feed back to scientific practices. I don't try to sort out those causal links and entanglements here, but it

is against that background that we can make sense of the popular appeal of the life sciences in general and the newly restrictive views of nature's constraints in particular.

Most of the new life science claims that matter for politics have an evolutionary flavor. That is, they are based on the idea that human evolution has somehow rigged us in a way that constrains what we can hope to do or be. At the most general level, this is surely true, but things get controversial quickly, both by scientific and political criteria. Earlier attempts to apply the insights of evolutionary theory to human behavior — Herbert Spencer's "social Darwinism" and even E.O. Wilson's 1970s sociobiology — are by now notorious because of their unpopular policy implications. Some of the critiques of Wilson's theory have been unfair — and unfairly *ad hominem* — but there is relatively wide agreement that sociobiology fails to account for the causal mechanisms that would make it compelling. However, things have changed since the 1970s, and it is not the same *déjà vu* all over again: there has been significant development and, arguably, progress. Although some of the contemporary evolutionary attempts to explain human behavior are heirs to sociobiology, and most get called "sociobiology" by careless critics and enthusiasts alike, there is a range of approaches. There are affinities and family resemblances among them, but there are also tensions, and following Kevin Laland and Gillian Brown (2002), we can identify four approaches that are different from sociobiology and from one another:

- (1) *Human behavioral ecology*. This approach explains much human behavior and many social practices as adaptive responses to the varying circumstances in which people find themselves. "Adaptive" means that the responses are such that they increase "inclusive fitness," the likelihood that the person's genotype is passed on. Because the conditions are so varied, human behavioral ecology predicts a broad diversity in human behaviors and practices across time and space.

- (2) *Evolutionary psychology* descends most directly from sociobiology in that it identifies broad cultural universals in the human species, in stark contrast to human behavioral ecology. Evolutionary psychologists hold that these universals arose because the *human mind* is an adaptive response to the conditions in which early humans found themselves during their most important period of development, that is, the late Pleistocene period, some tens of thousands of years ago.
- (3) *Memetics* is based on an idea originally suggested by biologist Richard Dawkins. According to memetics, human culture consists of *memes*, practices, ideas, and behaviors which behave *like* genes: successful ones get passed on, while unsuccessful are eliminated. “Successful” here does not mean the biological inclusive fitness, but simple sustainability: a successful practice is one that persists. It *may* also help humans biologically, but it needn't.³
- (4) The theory of *gene-culture coevolution* regards natural selection and culture as two different but related transmission mechanisms, and its central focus is to understand and explain the ways in which natural and cultural forces interact in human behavior. Some work in this area — in the related field of evolutionary game theory, for example — admit the great difficulty of arriving at *explanations*, and so focus on weaker, though no less important, accounts of how things *might have* developed.⁴

³ Dawkins (1989) introduced this idea. The most sophisticated defense of memetics to date is Blackmore 1999.

⁴ Evolutionary game theory is often confused and conflated with evolutionary psychology, although it has a much closer affinity with gene-culture coevolution. For two now classic examples in political science and philosophy, respectively, see Axelrod 1986 and Gibbard 1990. For a recent critical evaluation, see D'Arms, Batterman, and Gorny 1998.

Note some major differences between the four. For example, for (1) and (2), the central transmission mechanisms are the familiar natural selection and sexual selection.⁵ Approaches (3) and (4), instead, regard the cultural transmission mechanism — for example, according to memetics, *imitation* by humans — as different from natural and sexual selection. But (1) and (2) differ radically from one another in the hypotheses they would generate: human behavioral ecology would expect a wide variety of practices and behaviors in different geographic and environmental contexts (think of Montesquieu's climate theory as a pre-Darwinian precursor), whereas evolutionary psychology would expect universal traits. After all, we all have that same problem solving machine we developed in the late Pleistocene in our heads, evolutionary psychology maintains.⁶

These differences suggest that perhaps political theorists and others interested in understanding what restrictive constraints nature imposes on human political possibilities ought to wait on the sidelines while scientists sort things out among themselves and decide which of these approaches ultimately gets vindicated. While all of these four approaches are more sophisticated than sociobiology, all are still controversial.⁷ So it is even possible that none will eventually be vindicated.

There is much to be said for deferring to the scientists. However, there are many reasons to think that the scientific validity of these approaches ought not be the clincher non-scientists should wait for. The most important reason has to do with the idea of reductionism, and I will discuss it at length below. Another, politically important reason is the very cultural cachet of the life sciences. The putative insights of some of these

⁵ Sexual selection is, of course, a type of natural selection, but the two are sometimes distinguished for the sake of specificity: sexual selection works through traits that are relevant for reproductive choices, e.g., mate selection.

⁶ Some evolutionary psychologists have relaxed the claim that the mind developed in the late Pleistocene and has not changed since, but insofar as they do that, it weakens the falsifiability of the theory.

⁷ Many evolutionary biologists find some of the approaches — evolutionary psychology in particular, very problematic. For a summary of those critiques, see Laland and Brown 2002, 194. Also, in his 1985 magisterial critique of sociobiology, philosopher Philip Kitcher extended the critical analysis to E.O. Wilson's version of gene-culture coevolution in a chapter on "The Emperor's New Equations." See Kitcher 1985.

approaches, cobbled together with sundry specific findings from disciplines like neuroscience and genetics, do much work outside the natural sciences. In many cases, they already shape and even inform political and cultural discussion. And in that discussion, the theoretical incompatibilities between the four different approaches fade away. The popular arguments look like this: First some human trait is reported to have a biological basis. Then the biological basis is given an evolutionary account: it is there because it got “selected for.”

Against this background, it is not surprising that evolutionary psychology has become the most identifiable of the four approaches in the cultural imagination and even in the social sciences. Its elegantly simple claims are far more accessible than, say, the mathematical complexity of gene-culture coevolution. It sounds plausible.

So consider Pinker's (2002) argument for how evolutionary psychology helps us box in plausible political philosophies. According to him, we now know enough about human hardwiring to have a robust idea of what humans are fundamentally like: we are beings with a capacity for limited, kin-favoring altruism, as opposed to general altruism; we have fundamental differences between the sexes, with men more or less the aggressive rational types and women the nurturers as stereotypes have had it; and whatever cognitive capacities we can hope to have, as individuals we need only look at our parents: intelligence is heritable (Badcock 2000; Barkow, Cosmides, and Tooby 1992; Buss 1999; Buss and Malamuth 1996; Cosmides and Tooby 1994; Pinker 2002, 299; Plotkin 1998). These things are hardwired in us, some as contingent but heritable traits, others as the fundamental framework of human cognition. The key is that any theory which presupposes broad human malleability — that we are born as Lockean “blank slates” — is a “denial of human nature,” as Pinker unsubtly announces. This truth about us is tragic, Pinker admits, but it is what we've got, and political theories which have embraced this “tragic vision” have gotten things right, while theorists with a “utopian vision” have been rendered moot. In

the following section, I will consider the meta-theory behind the idea that if you find a biological basis for a human trait, then it is also the *fundamentally causal* basis. The theory is reductionism.

Reductionism

Begin by considering the question of nature's constraints. I said earlier that the thesis is so uncontroversial that much political theory teaching is framed around the question. But maybe some controversy is warranted. The question is, how can we think about the world in a way that makes it possible for us continue those human pursuits that we regard as necessary? In other words, how, *exactly*, should nature's constraints constrain human thought *in general* and what we might call normative thought in particular?

Reductionism spells out one modern answer to the question. In most general terms, reductionism says that the humans experience of their free choice can be exhaustively accounted for by reference to some natural facts. Further, those natural facts are the uncontroversial basis for higher-level theory: they must be held constant, and the higher-level theory is evaluated against them. Like many conventional "scientific" approaches to inquiry, evolutionary psychology subscribes to reductionism, both to intertheoretic and, significantly, explanatory reductionism. One strong form of it is E.O. Wilson's argument for interdisciplinary "consilience": not only are the *theories* of higher-order sciences validated by true theories in more basic sciences — ultimately by physics — but scholars in higher-order sciences need in fact turn to more basic sciences in order to *answer* compellingly their own *questions* (Wilson 1998). So, a psychologist's or a political scientist's question about some individual or social behavior pattern is *answered* by reference to human hardwiring.

Reductionists don't deny there is something we call freedom.⁸ Most evolutionary accounts admit that identifying constraints does not *determine* what we must be. There are still a host of options, even if the range is narrower and perhaps more tragic than some of us had hoped. But, their argument goes, the problem with the "utopian" theorists is that they have an annoying penchant for wanting to go beyond those constraints. That is what the reductionist arguments try to rein in.

The reining in, even when it is reductionist in its orientation, need not follow Pinker's blueprint. For example, political theorist Larry Arnhart has offered a sophisticated theory in which he interprets Aristotle's philosophy as not only consistent with evolutionary theory, but as the best way to think about human action and politics, given the truth of evolutionary theory (Arnhart 1998). This is no mean feat, as his Aristotelianism has much premodern baggage which is on its face incompatible with not just evolutionary theory, but modern science in general: strong teleology and *normative* natural law, for example. What makes Arnhart's a reductionist approach, however, is what he holds constant: he interprets Aristotle in light of modern evolutionary theory.

That seems eminently sensible, and to try to do things the other way round might seem odd. However, it needn't be. Reductionism isn't the only justifiable way to conceive of the phenomenology of choice.

The reason is simple: commitment to the nature's constraint thesis only requires that the way we think about our experience of choice in general and specific options in particular be *consistent with* the way the world is. *Assuming* that we want to validate at least some part of the human phenomenology of choice (not making that assumption may itself violate the nature's constraint thesis), such a consistency requirement demands merely that

⁸ Philosopher Daniel Dennett (2003) has, in particular, tried to argue for the compatibility between reductionist evolutionary theory and freedom.

some of the things we take to be exercises of our agency not be *effectively* contradicted by the world. By effective contradiction, I mean something that *defeats* my pursuits in general. If I believed that I have a choice about being subject to gravity, I would likely bring an end to my sense of agency pretty quickly. (I am writing this in my seventh-floor office.) But, importantly, the consistency requirement does not rule out non-efficacious and even false beliefs. In many elevators, the “Close door” button is a sham, but since the closing of the door does sometimes coincide with its use, we get to retain our sense of being in control of our busy lives (by having a seemingly efficacious way to react to an impatience-inducing situation). Similarly, despite the spectacular lack of epistemic warrant for beliefs in gods, angels, house-elves and the like, humans continue to incorporate them into their conceptions of the world, in part because they tend to have an effect opposite of an effective contradiction: for some people, they are ways of making sense of the world and they help make the people’s sense of themselves meaningful. Many types of religious faith and other supernatural beliefs can be consistent — in the sense I use the term here — with the way the world is.

Of course, evolutionary theorists do not deny the apparently universal human tendency to supernatural belief. But those who take an active interest in the tendency tend to focus on *explaining* it. The form of the explanation is that those beliefs emerge functionally: for example, they help assuage our fears of the unknown, as Marx implied in the *German Ideology*. I find the general idea pretty plausible, but the key point is that *explaining* religion needn’t entail its elimination. Some of us think it would be a good idea; others don’t. But even the normative atheists among us need to admit that the criteria with which we evaluate thought need not fully depend on the way the world is. The explanation of why we have superstitious beliefs may be true, but it is an open question whether the *meaningfulness* of such beliefs is subject to such explanatory accounts. There is, in short,

plenty of room for a variety of different normative conceptions of the world and no obvious reason to think reductionism on its own rules any out.

Intermediate Reflections on Kant

Since reductionism isn't the only way to think about the relationship between normative accounts of the world and the world itself, we will want to know what some alternatives look like. The next two sections consider two such alternatives; in this section, I provide the theoretical grounds for them.

The conclusion in the previous section is Kantian. This is why it is significant that Pinker's typology of political philosophies into "tragic" and "utopian" almost completely overlooks Kant. In some ways, Kant looks about as tragic as they come. His famous statement about "the crooked timber of humanity" of which nothing quite straight could ever be made could be an evolutionary psychologist's bumper sticker, and Pinker indeed cites it approvingly.⁹ In the same context, Kant had called "unsocial sociability" a central feature of the human condition. But Pinker ignores altogether the fact that Kant is *also* an optimistic Enlightenment thinker who believes in human progress, even after some of the excesses of the French Revolution.¹⁰

Even more significant are Kant's philosophical reasons for what ends up confounding Pinker's typology. This is Kant's famous idea of transcendental arguments: There are many issues which go beyond the possibility of our having *knowledge* about them. These include heavy hitters such as the existence of God, human free will, the purposiveness of nature and human history. Although we can't *know*, say, that God exists, there can be rigorous arguments which show that we may and in fact ought to *assume* she

⁹ "Idee zu einer allgemeinen Geschichte in weltbürgerlicher Absicht," in Kant 1902-, vol. VIII, p. 23. The "crooked timber" translation is Isaiah Berlin's.

¹⁰ Kant's second essay in Kant 1979, written likely in the mid-1790s, has a famous and enthusiastic evaluation of the French Revolution.

does exist. In slightly more pragmatic terms: transcendental arguments tell us that there are beliefs which we ought to treat *as if* they were true in order for human life to make sense.

Most people find Kant's argument wanting. One reason is simply a common misunderstanding, according to which Kant's realm of "as ifs" is a different world from the material world of causal determinism. If that were true, Kant would be hardly more than a footnote to Cartesian dualism, according to which our souls indeed are fundamentally different entities from those in the material world. This isn't what Kant thinks; his distinction between the causal world and the realm in which we are free is a distinction between *perspectives* from which we think about the one world where we find ourselves. Whatever "as if" beliefs we might have, they cannot violate nature's constraints (although they may lead us to lament them). Of course, this has been a cause for another sort of frustration with transcendental arguments, which is that they are mysterious. Many modern thinkers, particularly scientifically hardnosed ones, have tended to find Kant's talk of freedom as "a kind of causality" which is nevertheless *somehow* separate from the natural causality of the physical world quite difficult to understand. I will return to this question in the final section.

Resonance

William Connolly (2002) offers one of the few recent attempts by political theorists to take the life sciences phenomenon seriously from something other than a reductionist perspective. He wants an account of human thought which is freer, more playful and less constrained by the structures of thought — the sharp boundary between knowable and unknowable domains — than Kant's. Connolly's aspiration is political: his conception of human thought gives us a better handle, he argues, on environmental politics, the problems of democracy and pluralism. At the same time — and here life sciences march in — he

wants compatibility with the nature's constraint thesis (although he doesn't put the matter in those terms). But he is no reductionist: Connolly admits in his preface that it was only when modern cognitive science began producing results resonant with his theoretical thinking that he thought it worthwhile to turn to:

From time to time I have looked into brain research only to move away. It seemed too sucked into a reductive model of science and unappreciative of the need to enter into communication with phenomenological experience. A few years ago I took another look. It turned out that exciting things were happening and that political questions I had been exploring over the past two decades could profit from attention to research into brain-body-culture relations. (Connolly 2002, xiii)

The key term Connolly uses to describe the relationship between the various domains of inquiry which he connects is "resonance." For example, Keith Ansell Pearson's account of symbiotic bacteria in evolution "resonates with experiences of perception, thinking, culture, and action that make independent claims upon contemporary attention" (Connolly 2002, 61). Similarly, Connolly says, recent research into neural network models of the mind by cognitive scientists "resonates" with philosopher Spinozistic accounts of the mind (Connolly 2002, 88-91).

There are two ways of trying to understand this. One, a more sympathetic one, is to think of Connolly as engaged in a sort of triangulation between modes of inquiry. He admits that many of the approaches he draws from are controversial, but it can strengthen them to find independent domains of inquiry support one another mutually. But, of course, that needn't be the case. Democritus's atomism resonates with modern physics, but the former is nevertheless false while the latter (as far as we know) true. And so the second, less sympathetic, reading of Connolly's "resonance" is that it is ultimately nothing more than a slightly complicated instance of the sharpshooter fallacy, that is, drawing your target around the bullet hole you already made or, less metaphorically, only seizing the evidence that supports your theory.

However, we must not rush to indict Connolly for a sharpshooter fallacy. First, Connolly can't (and doesn't) presuppose that scientific practices be subject to what we want. Furthermore, he draws from the life sciences not only to support but also to enrich his micropolitical and moral-psychological theory of "immanent *naturalism*." It is a naturalist account — that means it does not assume any supernatural theories — and thought, Connolly insists, is *material*: thinking is ultimately biochemical. But Connolly is right in thinking this does not lead one to reductionism: thinking may be biochemical, but it doesn't mean the content of a thought is explained by explaining the biochemistry of that same thought. (I return to this idea below.)

In general, however, Connolly's model of approaching the nature's constraint problem is more puzzling than obviously wrongheaded: it does leave it ultimately unclear what the attention to life sciences is meant to do. On the one hand, Connolly's sympathies tend to be toward revisionist models of science, and he professes to reject reductionist and positivist approaches (Connolly 2002, 58–9). But, at the same time, Connolly's approach seems to rely on a crude and surprising positivism: his political theory, he implies, is appealing *because* it is supported by descriptive life sciences. For example, his idea that culture gets inscribed into our minds without our awareness is made plausible by the fact, he suggests, that neuroscientists have measured a half-second delay between sensory input and consciousness in some cases (Connolly 2002, 83). His standards of goodness are old-fashioned grounds of scientific validity. Finally, the puzzling fact that Connolly seems willing to make up facts belies both a curious positivism and, at the same time, suggests his attention to life sciences is purely rhetorical.¹¹

¹¹ Connolly writes: "And today, several neuroscientists conclude that the lower region of the breast, while not as complex as the brain system in the head, houses a simple cortical complex that communicates with higher brain regions to issue intense feelings of disgust, anxiety, fear, and terror." (82) There is no footnote for this, nor is it obvious there could be: the claim goes, to put it mildly, beyond the currently available data. It is conceivable he has

None of this means that the resonance approach is illegitimate as such. After all, one of the purposes of political theory is to articulate ways in which we ought to think about the world, about social and political life, and about the preconditions that make different visions possible. But as an attempt to consider what recent developments in the life sciences might say about the nature's constraint thesis, it remains unclear. So I want to turn to another alternative to the evolutionary psychologists' reductionism and Connolly's slightly foggy resonance.

Supervenience

We can motivate the alternative with a simple reminder about the difference between metaphysics — questions of what there is — and epistemology — questions of how we know anything. Even if we grant that materialism is true or, more politically, that anything likely to count as knowledge in the modern world has to be consistent with a natural-scientific view of the world, it does not follow, as the reductionists insist, that everything has to be reducible to it. Bill Clinton was right: it does depend what “is” means. It may well be that all thought — including our sense of choice — is an electrochemical state of the brain, in the sense that a different thoughts have different and possibly unique physical states which correspond to them. But in another way, in terms, say, of what thought is *about*, thought is *not* just physical states of the brain.

The conceptual device which allows us to have this idea of two distinct kinds of “is” comes from philosophers, who, for all their supposed distance from the real world, are far ahead of political theorists in these matters. Consider the conceptual device of supervenience, for example. “My sadness is caused by a specific electrochemical process in

in mind the work by Damasio (1994; 1999; 2003) about the embodiment of emotions, but this would be a most curious way of putting the point.

my thalamo-amygdala pathway” and “My sadness is caused by Aunt Harriet passing away” can both be true, if it is the case, as many people think, that “the mental” supervenes on “the physical.” The idea is this: there are different domains of phenomena and entities — the mental and the physical, for example — and some are related in such a way that events and phenomena in one depend on the other, but not vice versa. Call the former the supervening domain and the latter the base. Now, if domain A supervenes on domain B, it means there can be no change in A without there also being a change in B.¹² If I profess sadness about Aunt Harriet’s death, but some sophisticated device designed to detect subcortical activity finds no related activity in the thalamo-amygdala pathway, then either it is false that the mental supervenes on the physical, or I am lying.

The concept can help us understand why it might be true that everything ultimately depends on physics, and why it may be nevertheless legitimate for biologists to talk about biological mechanisms, psychologists to talk about mental mechanisms, and political scientists to talk about various social mechanisms. Furthermore, consider this: We will readily admit that the behavior of computer programs’ user interfaces depends — and perhaps supervenes — on underlying software and hardware. Every time I compute my students’ grades using my grading program, some specific electronic operation involving silicon takes place inside my computer (even though I am blessedly unaware of what it is). Now imagine you ask me, “How do you write a formula using an IF statement in Excel?” Does it matter that you are a Windows user and I an owner of an Apple Macintosh? Not these days: “platform independence” makes my Excel behave just like yours, in all the ways

¹² This expression of the idea is generally the most confusing part, since it seems that what depends on what just got switched around. But that is only because of the logical *expression* necessary to convey the metaphysical relationship requires it. Unsurprisingly, philosophers have debated on the best definition of the supervenience relation, and it is not irrelevant how it is conceived. The definition of supervenience as “strong covariance” seems to me sufficiently robust for our purposes: “Entities in domain A supervene on entities in domain B if and only if, necessarily, for any object x and any property F (in A), if x has F, then there is a G (in B) such that x has G and, necessarily, anything with a G has F.” (Note that the first necessity operator after the biconditional “if and only if” ranges over the entire right-hand side of the biconditional.)

that matter for the casual end user. At the same time, given that both the underlying software and hardware between the two types of computers are quite different, it is very likely that things are very different from both a programmers' and hardware engineers' points of view. The surface-level computational state (say, the algorithm that tells the computer to display student X's grade if she took the final exam) is the same, even if the software-level computational state or the machine state are very different.

This complement to supervenience philosophers have called "multiple realizability" (Fodor 1968; Putnam 1975). Together, the two should make us mindful of the fact that sometimes explanations at the supervening level, without reduction, are not only sufficient, but the only relevant ones. Neither you nor I are interested in how Excel works from the programmer's perspective. Is software on both platforms written in C++ these days? Or are Mac applications still written in Pascal? I don't know, or need to. It is not that the questions are always irrelevant, but they may be irrelevant for you and me here and now. The same may be true for social and political phenomena.

The *concepts* of supervenience and multiple realizability are not *arguments* that there necessarily is supervenience or multiple realizability in any domain which political scientists might be interested in. They are merely conceptualizations. Does the state supervene on its citizens? Are, say, election results entities in a domain that supervenes on individual voters? Does individual behavior supervene on the individuals' psychologies? Those are open questions, *both* conceptual and empirical.¹³ But the idea here is simply what I have already said: reductionism doesn't automatically win the day, and that reductionist explanatory arguments need more of a background story than the relatively uncontroversial fact all humans are ultimately just biochemistry at work.

¹³ In fact, there are debates in philosophy whether *anything* in the world supervenes on anything else. For a very technical but interesting argument on this, including a review of some of the relevant literature, see Yablo 1992. Also see Humphreys 1997; Yablo 1997.

What can we conclude at this point? Notice that *our conceptions* of nature's constraints are just that, conceptions. That means that they are in the same domain as the oughts, which they are to constrain. The reductionist mistake is to think that if "Stuff" is *metaphysically* more basic than "Normative Ideas," then *thoughts* about Stuff are also more basic than Normative Ideas. The latter simply doesn't follow from the former without a further argument. At the same time, it doesn't follow that all structures of thought — all different types of theories — have the same *status*. That would be a radical epistemological relativist's mistake. We take ourselves to have *better reasons* for treating some types of ideas — say, the theory of evolution — as more robust than others — say, the theory of benevolent house-elves. Connolly's problem — mistake is too strong a word — is that he leaves it unclear as to what the relationship between the various domains is and therefore unclear as to how his account is to gain our assent. Here, criticism isn't enough: you can reject reductionism, but then you do need to offer something in its stead.

The supervenience account gives us a rich way of think about the dynamism between the different types of inquiry into different domains of entities. It allows us to bring the dynamism between them into normative and conceptual inquiry. Consider two cases from contemporary micropolitics: First, it now seems that there is a biological basis for human obesity (see, e.g., Barsh, Farooqi, and O'Rahilly 2000; see, e.g., Lazar 2005; Speakman 2004). In many ways, this is politically welcome: it calls into question much of the moralizing, excessively individualist rhetoric about some people's weakness of the will. But it actually doesn't settle the issue, since "biological basis" is ambiguous and, crucially, not obviously the key causal factor. There are arguments and evidence, from philosophy and psychology, that there can be "downward" causation from the mental to the physical

(Damasio 1999; Yablo 1992).¹⁴ So part of the issue depends on the *exact* causal mechanisms in the interstices of the mind and body. But, at the same time, these are not independent of political and cultural norms about weight and individual agency, or political, cultural and economic practices about food. Or think, second, about the related but more specific political phenomenon of eating disorders. It makes a difference whether eating disorders among young women are primarily “medical” or social phenomena, but it is important to see that even if the former is the case, it does not shut out the possibility of normative inquiry about the political aspects of the problem (see, e.g., Bordo 1993; Hesse-Biber 1996; LaVaque-Manty 2001). If the propensity to develop an eating disorder is hardwired into some subset of the population, the solution for dealing with it might take one form — assuming it is regarded as a public-health issue worth dealing with, a fact which in turn depends on social and cultural facts. But if, instead, there is no firm evidence of the primacy of the biological basis, but, rather, the best explanation is that of rational agents responding to paradoxical incentives in a world gendered in a particular way, then the political solution might not even get cashed out as a public-health issue. The biological questions matter, but they are not automatically primary to the political or social questions.

Thinking this way, we see, first, that any naïve distinction between thought and nature commits the fallacy of a false dichotomy. Second, the reasons with which we accord one way of thinking or one mode of inquiry more robust status than some others are answers to questions of how we *ought* to think. There is, in other words, no getting away from normative questions and, crucially, no independent unambiguous perch from which we can identify nature’s constraints in their unmediated, just-the-facts-m’*am* state. We have

¹⁴ The documented efficacy of biofeedback technologies is one example. Of course many of the empirical claims — for example about the so-called “placebo effect” — remain highly controversial see de la Fuente-Fernandez et al. 2001; Kuehn 2005.

good reasons to believe in the nature's constraint thesis, but for better or worse, we don't (yet?) have good reasons to affirm one conception of those constraints over another.

Options: Beyond Teleology, or Nature as a Stepmother?

*Who doesn't know
The elements,
Their powers
And properties,
Would have no mastery
Over minds and spirits.*¹⁵

This snippet from Goethe is instructive: if you want to make sense of anything — including social life — you had better have a good grip on what nature is. There's a crucial poignancy to this verse. The words are spoken by Faust, after all, and they remind us our interests usually aren't idle: mastery is not just a thorough understanding, but an ability to intervene in the various mechanisms of the world, whether natural or social. They needn't involve Faustian bargains (at least we hope so), and they needn't be unsavory. Finding a cure for cancer and ending wars are unequivocally commendable aspirations.

So there are things at stake. And the foregoing discussion should suggest that some of the conventional attempts to separate the stakes from ideally neutral knowledge aren't going to be as easy as we think. It isn't that some scholars, whether on the life-sciences or cultural ends of the spectrum, inappropriately mix facts and values. Some do, but those are not the theoretically hard cases. Far knottier is that what we take to be fact is inseparable from we think is *worth* pursuing, and what kinds of claims command our assent is

¹⁵ Goethe 1887, 64. This is lines 1277–1282 of the Weimar edition. I translate the text loosely, without trying to stick to Goethe's meter: "*Wer sie nicht konnte / Die Elemente, / Ihre Kraft / Und Eigenschaft. / Wäre kein Meister / Über die Geister.*" The final line is the most important for my purposes. The sense in which I offer the stanza — slightly idiosyncratic, and arguably not the sense it has in the play — turns on the ambiguity of *Geist* and its standing in contrast to *Natur*. It doesn't only refer to spirits, but also to minds and, generally, to human and social phenomena, including thoughts. For example, the German term for social sciences and humanities is *Geisteswissenschaften*, in contrast to *Naturwissenschaften*, the natural sciences.

inseparable from our conceptual scheme, or, in slightly easier language, what claims seem true to us is inseparable from how we understand the world at large (Fleck 1979; Putnam 1981; Sellars 1963).

Evolutionary psychologists like to contrast the positions they advocate to intuitively appealing but nevertheless misguided “folk” beliefs. Pinker offers, yet again, an excellent example. He accuses the advocates of the “blank slate” thesis of an appeal to naïve, misguided and patently false folk intuitions such as the notion that our mind is a “ghost in the machine” or that “natural” humans were “noble savages” (Pinker 2002, 405 ch. 1). But, in fact, his own rhetoric appeals to those very populist beliefs: most right-thinking Americans, he suggests, will immediately see how ridiculous the view that the utopian visionaries peddle is. Nowhere is this more apparent than in his discussion of art, where it turns out that a kind of middle-brow taste in visual arts reflects an evolutionary adaptation, and contemporary art in particular simply goes beyond the aesthetic sense evolution gave us:

Organisms get pleasure from things that promoted the fitness of their ancestors, such as the taste of food, the experience of sex, the presence of children, and the attainment of know-how. Some forms of visual pleasure in natural environments may promote fitness, too. As people explore an environment, they seek patterns that help them negotiate it and take advantage of its contents. The patterns include well-delineated regions, improbable but informative features like parallel and perpendicular lines, and axes of symmetry and elongation. (Pinker 2002, 405)

This explains why there is an allegedly universal preference for “calendar landscapes, popular songs, and Hollywood romances and adventures” (409), and there is no reason to lament what we might call Western cultural imperialism because it is “what people want.” The rhetoric is the same throughout.

What is going on? Again, it is useful to resist cheap shot lampooning and see if a theoretically more interesting explanation might be available. There is one: much of the evolutionary psychologists' rhetoric trades on an appeal to a natural teleology. Just think of the anthropomorphic, intentionalist language in which evolutionary mechanisms are so often explained. The idea is prevalent also in evolutionary psychology. Sometimes the idea that evolution is teleological is just metaphorical and separable from scientific claims, but often it is tangled with evolutionary psychologists' theoretical assumptions, and in popular presentations, evolutionary psychology's intuitive appeal turns on thinking of nature in teleological terms: nature does nothing in vain.

Part of the theoretical appeal of the evolutionary accounts of human behavior, I want to suggest, is exactly the fact that teleology seems to have an almost irresistible grip on us. It may be, as Susan Neiman suggests, that it is a fundamental part of the human condition to want to seek a "sufficient reason" for the world and to feel a kind of metaphysical bewilderment and unease at the thought there might not be one (Jonas 2001; Neiman 2002). There may also be an evolutionary explanation for our having such a trait (Fodor 1998, 169). But the key is to see that it is something *we* bring to the conceptual scheme with which we look at the world. Kant was very clear on the idea that nature's purposiveness was a transcendental "as if." He did, however, argue that it was a necessary assumption if knowledge about natural processes and particularly developmental natural processes was to make sense.¹⁶ We now know, thanks to Darwin, that *that* assumption isn't necessary: the theory of evolution allows us to make sense of nature without presupposing its purposiveness — no matter how much evolutionary psychologists, and pretty much everyone else, want to appeal to teleological intuitions.

¹⁶ This is in his *Critique of the Power of Judgment*, §§ 74–83, pp. 395–436 of vol. V of (Kant 1902-); in English at 266–303 of Kant 2000.

We might conclude that the appeal to teleology is therefore straightforward grounds for dismissal. Since nature isn't, as far as we know, purposive, all appeals to teleology are illegitimate. Insofar as they inform the theory's fundamental assumptions, the theory is false; insofar as they are metaphors, they are misleading rhetorical devices ill-becoming of levelheaded scientists.

But this is just one possible conclusion. One possibility would be to "deflate" teleology in a way that makes it compatible with evolutionary theory. Larry Arnhart's Aristotelian naturalism, which I discussed above, is an example of this: he offers an interpretation of teleology that strips the scientifically implausible aspects and simply understands the natural end of an entity as the thing that is good for its survival. What he calls the "goal-directed character" of organisms, which Darwinism accepts, is all Aristotelian naturalism requires (Arnhart 1998, 11). This is a perfectly legitimate strategy, but it isn't the only way to make our penchant for teleology meaningful.

If we take a step back, we can ask normative questions about the "as if" of nature's purposiveness. Perhaps the fact that it is so hard for us to resist the idea is a good reason to regard it as legitimate, at least in a limited way. Kant often writes of "stepmotherly" nature, and perhaps that metaphor might be worth taking seriously: sure, we grant, there isn't any real Mother Nature; teleology is false. But many a human pursuit, we might say, becomes more meaningful if we allow even for tough-minded science to employ talk of nature as our benevolent stepmother. Then it becomes perfectly legitimate to ask whether the sort of science that makes such assumptions gets us something we regard as worthwhile, and *that* is a political question.

One could, of course, argue that it is in fact these intuitive commitments to teleology that help produce bad science. That option, too, is available. Some of us do find the universe's ultimate purposelessness far more appealing than the misty-eyed yearning for

meaning. The advantage of such an assumption is (apart from being, as far as we now know, true) that it keeps all meaningful agency with humanity. It doesn't elevate humanity above everything else or make it omnipotent (the assumption does *not* deny the nature's constraint thesis), but it does say that *we* are responsible for what we make of the conditions — largely constrained by nature — in which we find ourselves.

Perhaps a compromise image is appropriate here, in part to concede the difficulty of resisting agentic and teleological talk of nature. This image, too, is due to Kant, and we could think of it as his reformulation of the nature's constraint thesis: Nature sets problems for us but doesn't solve them; we do, or try. Even here, what count as problems and what count as solutions is up to us. Political theorists' job isn't, in my view, to offer conclusive answers to those questions — there is much to be said for democracy, after all — but it can help clarify them. To do so, it needs to pay attention to how we describe the problems. It can and should also question the background theories — ways of thinking about the world — that generate those descriptions.

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