If Materialism Is True, the United States Is Probably Conscious

If you're a materialist – that is, if you think the material world is all there is, and there are no immaterial souls – then you probably think that rabbits have conscious experience. They have "phenomenology". There's something it's like to be a rabbit. And you ought to think that. After all, rabbits are a lot like us, biologically and neurophysiologically. If you're a materialist, you probably also think that conscious experience would be present in a wide range of alien beings behaviorally very similar to us even if they are physiologically very different. And you ought to think that. After all, to deny it seems insupportable Earthly chauvinism; the vast universe presumably contains many entities that a neutral observer would recognize to be as complex, linguistic, intelligent, and self-aware as we are. It would be odd if among them only we with our neurons had subjective experience or (as we philosophers call it) phenomenal consciousness. But, I will argue, a materialist who accepts the possibility of consciousness in oddly-formed aliens ought to accept the possibility of consciousness in spatially distributed group entities. If she then also accepts rabbit consciousness, she ought to accept the possibility of consciousness even in rather dumb group entities. Finally, the United States would seem to be a rather dumb group entity of the relevant sort. (Or maybe, even, it's rather smart, but that's more than I need for my argument.) If we set aside our morphological prejudices against spatially distributed group entities, we can see that the United States has all the types of properties that materialists tend to regard as characteristic of conscious beings.

Of course it's utterly bizarre to suppose that the United States is literally phenomenally conscious. But how good an objection is that? Cosmology and microphysics are bizarre. The world is a bizarre place. Our sense of strangeness is no rigorous index of reality.

My argument is conditional and gappy. *If* materialism is true, *probably* the United States is conscious. Alternatively, if materialism is true, *the most natural thing to conclude* is that the United States is conscious.

1. Antarean Antheads and Your Own Horrible Contiguism.

We are deeply prejudiced beings. Whites are prejudiced against blacks; Gentiles against Jews; overestimators against underestimators. Even when we intellectually reject such prejudices, they permeate our behavior and our implicit assumptions. If we ever meet aliens, we'll presumably be biased against them too, especially if they look weird.

It's hard to imagine a prejudice more deeply ingrained than our prejudice against entities that are visibly spatially discontinuous – a prejudice built, perhaps, even into the basic functioning of our visual system. Let's call such prejudice *contiguism*.

You might think that so-called contiguism is always justified and thus undeserving of a pejorative label. If you'll excuse me for saying so, that attitude is foolish provincialism. Let me introduce you to one of my favorite non-Earthly species.

On the surface of a planet around Antares lives a species of animals who look like woolly mammoths but who act much like human beings. I have gazed into my crystal ball and this is what I see: Tomorrow, they visit Earth. They watch our television shows, learn our language, and politely ask permission to tour our lands. It turns out that they are sanitary, friendly, excellent conversationalists, and well supplied with rare metals for trade, so they are welcomed across the globe. They are quirky in a few ways, however. For example, their cognitive activity takes them, on average, about ten times longer to execute. This has no overall effect on their intelligence, but it does test the patience of conversational partners unaccustomed to the

Antareans' slow pace. The Antareans also find some tasks cognitively easy that we find difficult, and vice versa. For example, they are baffled and amused by our difficulty with simple logic problems like the Wason Selection Task (Wason 1968) and tensor calculus, but they are impressed by our skill in integrating auditory and visual information.

Over time, some Antareans migrate permanently down from their orbiting ship. Patchy accommodations are made for their size and speed, and they start to attend our schools and join our corporations. Some achieve political office and display approximately the normal human range of vices. Although Antareans don't reproduce by coitus, they find some forms of physical contact arousing and have broadly human attitudes toward pair-bonding. Marriage equality is achieved. What a model of interplanetary harmony! Ordinary non-philosophers across the planet all agree, of course, that Antareans are conscious.

Here's why I call them "antheads": Their heads and humps contain not neurons but rather ten million squirming insects, each a fraction of a millimeter across. Each insect has a complete set of minute sensory organs and a nervous system of its own, and the antheads' behavior arises from complex patterns of interaction among these individually dumb insects. These mammoth creatures are much-evolved descendants of Antarean ant colonies that evolved in symbiosis with a brainless, living hive. The interior insects' interactions are so informationally efficient that neighboring insects can respond differentially to the behavioral or chemical effects of other insects' individual outgoing efferent nerve impulses. The individual ants come in different types varying in size, structure, sensa, and mobility. There are specialist ants with various affinities, antagonisms, and predilections, but no ant individually approaches human intelligence. No individual ant, for example, has an inkling of Shakespeare despite the Antareans' great appreciation of Shakespeare's work.

There seems to be no reason in principle that such an entity couldn't execute any computational function that the human brain could execute or satisfy any high-level functional description that the human organism could satisfy. All the creativity of literary interpretation, all the cleverness of humor and weirdness of visual art, should be available to the antheads on standard materialist approaches to cognition.

Maybe there are little spatial gaps between the ants. Does it matter? Maybe, in the privacy of their homes, the ants sometimes disperse from the body, exiting and entering through the mouth. Does it matter? Maybe if the exterior body is too severely injured, the ants recruit a new body from nutrient tanks – and when they march off to do this, they retain some cognitive coordination, able to remember and report thoughts they had mid-transfer. They reconvene and say, "Oh it's such a free and airy feeling to be without a body! And yet it's a fearful thing too. It's good to feel again the power of limbs and mouth. May this new body last long and well! Shall we dance, then, love?"

We might equally imagine an entity that is *always* spatially distributed in this way – maybe with a thousand limbs that communicate by light signal, with each limb individually dumb but capable of human-level intelligence as a group.

2. Anti-Nesting Principles.

You might object thus: The individual ants would be individually conscious, and it's impossible for one conscious organism to be constituted by other conscious organisms. Some theoreticians of consciousness have embraced such anti-nesting principles – though never with what seems to me any good motivation.

Hilary Putnam (1965), for example, simply stipulates: No organism capable of feeling pain possesses a decomposition into parts which are separately capable of feeling pain. Putnam offers no argument for this stipulation apart from the fact that he wants to rule out the apparently absurd possibility of "swarms of bees as single pain-feelers" (p. 163). Putnam doesn't explain why this possibility is absurd for actual swarms of bees, much less why no possible future evolutionary development of a swarm of conscious bees could ever also be a single pain-feeler. It seems a danglingly unjustified exception to his otherwise clean functionalism.

Anti-nesting principles, though seemingly designed to avoid counterintuitive implications of group consciousness, bring different counterintuitive implications in their train. For example, as Ned Block (1978/1991) argues against Putnam, such principles appear to have the unintuitive consequence that if ultra-tiny conscious organisms were somehow to become incorporated into your brain – perhaps, for reasons unbeknownst to us, each choosing to play the role of one neuron or one part of one neuron – you would thereby be rendered nonconscious, despite the fact that all your behavior, including self-reports of consciousness, might remain the same.

3. Dumbing Down.

As I mentioned at the start, if you're a materialist, you probably think rabbits are phenomenally conscious. And if you accept rabbit consciousness, you probably ought also to accept the possibility of consciousness in the Antarean equivalents of rabbits. On Antares, let's suppose, one species of antheads possesses human-like intelligence, while other closely-related species have broadly mammalian intellectual capacities. It seems plausible that whatever reasoning justifies attributing consciousness to rabbits similarly justifies attributing consciousness to the near kin of Antheads.

Now to the U.S.

4. A Telescopic View of the United States.

A planet-sized alien who squints might see the United States as a single diffuse entity consuming bananas and automobiles, wiring up communications systems, touching the moon, and regulating its smoggy exhalations – an entity that can be evaluated for the presence or absence of consciousness.

You might say: The United States is not a biological organism. It doesn't have a life cycle. It doesn't reproduce. It's not biologically integrated and homeostatic. Therefore, even accepting the relatively liberal views so far advocated regarding the types of structures that can house consciousness, there are good grounds for resisting the thought that the United States might be conscious. A further step is necessary.

To this thought, I have two replies.

First, why should consciousness require being an organism in the biological sense? Properly-designed androids, brains in vats, gods – these may not be organisms in the biological sense and yet are sometimes regarded by materialists as possible loci of conscious. Having distinctive modes of reproduction is often thought to be a central, defining feature of organisms (e.g., J. Wilson 1999; R.A. Wilson 2005), but it's unclear why reproductive mode should matter to consciousness.

Second, it's not clear that nations aren't biological organisms. The United States *is* (after all) composed of cells and organs that share genetic material, to the extent it is composed of people who are composed of cells and organs and who share genetic material. The United States also maintains homeostasis. Farmers grow crops to feed non-farmers, and these nutritional

resources are distributed with the help of other people via a network of roads. Groups of people organized as import companies bring food in from the outside environment. Medical specialists help maintain the health of their compatriots. Soldiers defend their compatriots against potential threats. Teachers educate future generations. Home builders, textile manufacturers, telephone companies, mail carriers, rubbish haulers, bankers, police, all contribute to the stable well-being of the organism. Politicians and bureaucrats work top-down to ensure that certain actions are coordinated, while other types of coordination emerge spontaneously without top-down control, just as in ordinary animals. Viewed telescopically, the United States is a pretty awesome animal.

Nations also reproduce – not sexually but by fission. The United States and several other countries are fission products of Great Britain. In the 1860's, the United States almost fissioned again. And fissioning nations retain traits of the parent that affect the fitness of future fission products – intergenerationally stable developmental resources, if you will.

On Earth, at all levels, from the molecular to the neural to the societal, there's a vast array of competitive and cooperative pressures; at all levels, there's a wide range of actual and possible modes of reproduction, direct and indirect; and all levels show manifold forms of symbiosis, parasitism, partial integration, agonism, and antagonism. There isn't as radical a difference in kind as people are inclined to think between our favorite level of organization and higher and lower levels.

5. What Is So Special About Brains?

According to materialism, what's really special about us is our brains. Brains are what make us conscious. Maybe brains have this power on their own, so that even a lone brain in an otherwise empty universe would have conscious experience if it were structured in the right way;

or maybe our consciousness issues not strictly from the brain itself but rather from a thoroughly entangled mix of brain, body, and environment (e.g., Hurley 1998; Noë 2004; Wilson 2004; Rockwell 2005). But all materialists agree: Brains are awesome!

Now what is so special about brains, on the materialist view? Why do they give rise to conscious experience while a similar mixture of chemical elements in chicken soup does not? It must be something about how those elements are organized. Two general features of brain organization stand out: their complex high order / low entropy information processing, and their role in coordinating sophisticated responsiveness to environmental stimuli. These two features are of course related. Brains also arise from an evolutionary and developmental history, within an environmental context, which may play a constitutive (and not merely a causal) role in determining function and cognitive content (Putnam 1975; Burge 1979; Millikan 1984; Davidson 1987; Dretske 1988, 1995; Wilson 2004). According to a broad class of plausible materialist views, any system with sophisticated enough information processing and environmental responsiveness, and perhaps the right kind of historical and environmental embedding, should have conscious experience. My central claim is: The United States seems to have what it takes, if standard materialist criteria are straightforwardly applied without post-hoc noodling. It is mainly unjustified morphological prejudice that blinds us to this.

Consider, first, the sheer quantity of information transfer among members of the United States. The human brain contains about 10^{11} neurons exchanging information through an average of about 10^3 connections per neuron, firing at peak rates of once every several milliseconds. The United States, in comparison, contains only about 3×10^8 people. But those people exchange a lot of information. How much? One might begin by considering how much information flows from one person to another via stimulation of the retina. The human eye

contains about 10^8 photoreceptor cells. Most people in the United States spend most of their time in visual environments that are largely created by the actions of people (including their own past selves). If we count even 1/300 of this visual neuronal stimulation as involving the relevant sort of person-to-person information exchange, then the quantity of visual connectedness between people is similar to the neuronal connectedness within the human brain (10^{14} connections). Here's another way to think about the issue: If at any one time $1/300^{th}$ of the U.S. population is viewing internet video at 1 megabit per second, that's a transfer rate between people of 10^{12} bits per second in this one minor activity alone.

A more likely source of concern, it seems to me, is that the information exchange among members of the U.S. population isn't of the right *type* to engender a genuine stream of phenomenally conscious experience. For consciousness, there presumably needs to be some organization of the information in the service of coordinated, goal-directed responsiveness; and maybe, too, there needs to be some sort of ability of the system to monitor itself in a sophisticated way.

But the United States has these properties too. The United States is a goal-directed entity, flexibly self-protecting and self-presenting. The United States responds, intelligently or semi-intelligently, to opportunities and threats – not less intelligently, I think, than a small mammal. The United States expanded west as its population grew, developing mines and farmland in traditionally Native American territory. When Al Qaeda struck New York, the United States responded in a variety of ways, formally and informally, in many branches and levels of government and in the populace as a whole. Saddam Hussein shook his sword, and the United States invaded Iraq. The U.S. acts in part through its army, and the army's movements involve perceptual or quasi-perceptual responses to inputs: The army moves around the

mountain, doesn't crash into it. Similarly, the spy networks of the CIA detected the location of Osama bin Laden, whom the U.S. then killed. Is there less information, less coordination, less intelligence than in a hamster? The Pentagon monitors the actions of the Army, and its own actions. The Census Bureau counts us. The State Department announces the U.S. position on foreign affairs. The Congress passes a resolution declaring that we hate tyranny and love apple pie. This is self-representation. Isn't it?

I am inviting you to conceptualize the United States as a planet-sized alien might – to evaluate the capacities and behaviors of the United States, conceived of as a concrete, spatially distributed entity with people as some or all of its parts – that is, as an entity within which citizens and residents play roles somewhat analogous to the roles that individual cells play in your own body. If you are willing to jettison contiguism and other morphological prejudices, this is not, I think, an intolerably radical perspective.

Maybe the actions, attitudes, and representations of the United States are ultimately reducible to the actions, attitudes, and representations of U.S. citizens and residents, in some complex combination. On that issue I take no stand. (What does "reducible" mean?) All that is necessary for this part of my argument is that the United States actually engages in actions, actually adopts attitudes, and actually formulates representations, whether reducibly or not, of at least a mammalian level of sophistication. Perhaps, too, all your actions, attitudes, and representations are in some sense reducible to other things; few philosophers conclude that this makes them unreal. My argument does not turn on irreducibility or explanatory necessity. Rather, my thought is this: What is it about brains, as hunks of matter, that makes them special enough to give rise to consciousness? Looking in broad strokes at the types of things materialists tend to say in answer – things like sophisticated information processing and flexible, goal-

directed environmental responsiveness, things like representation, self-representation, multiply-ordered layers of self-monitoring and informational-seeking self-regulation, rich functional roles, and a content-giving historical embeddedness – it seems like the United States has all those same features. In fact, it seems to have them in a greater degree than do some beings, like rabbits, that we ordinarily regard as conscious.

What could be missing?

6. Three Ways Out.

Let's briefly consider relatively conservative views about the distribution of consciousness in the universe, to see if they can provide a suitable exit from the bizarre conclusion that the United States is literally conscious.

One way out of this conclusion is to adopt eliminativism about consciousness. Maybe the United States isn't conscious because *nobody* is conscious – not you, not me, not rabbits, not aliens. Maybe "consciousness" is such a corrupt, broken concept, embedded in such a radically false worldview, that we should discard it entirely, as we discarded the concepts of demonic possession, the luminiferous ether, and the fates.

I won't discuss eliminativism today, but I hope you'll agree it's a radical solution, at least as folk psychologically bizarre-seeming as literal group consciousness.

Here's another way out: Argue that consciousness is rare, so that really only very specific types of systems possess it, and then argue that the United States does not meet the restrictive criteria. Setting aside specifically *neural* criteria, which I'll discuss shortly, the most commonly endorsed version of the extreme sparseness view is one in which *language* is required for consciousness. Thus, dogs, wild apes, and human infants aren't conscious. To a dog, all is dark

inside, or rather, not even dark. This view is both radically counterintuitive and, I suspect, a gross overestimation of the gulf between us and our nearest relatives.

However, it's not clear that we get to exclude the consciousness of the United States by restricting consciousness to beings with language, since the United States does seemingly speak as a collective entity. Its linguistic threats and self-representations, interpreted as such by other nations, influence the behavior, both linguistic and non-linguistic, of those other nations. If the materialist is to deny U.S. consciousness on the grounds of general commitment to the sparseness of consciousness in the universe, then even more severe restrictions are required, or at least different ones. Perhaps phenomenal consciousness requires the ability to self-report the existence of phenomenal consciousness? Then even four-year-olds might not have it.

A third way out is to assume that consciousness requires *neurons* – neurons clumped together in the right way, communicating by ion channels and all that, rather than by voice and gesture.

This view gains intuitive support through examples from Ned Block (1978/1991) and John Searle (1980, 1984). Suppose we arranged the people of China into a giant communicative network resembling the functional network instantiated by the human brain. It would be absurd, Block says, to regard such an entity as conscious. Similarly, Searle asserts that no arrangement of beer cans, wires, and windmills, no matter how cleverly set up, could ever house a genuine stream of conscious experience. According to Block and Searle, what these entities are lacking isn't a matter of large-scale functional structure of the sort that reveals itself in patterns of input-output relations. Consciousness requires not that, or not only that; consciousness requires human biology.

Or rather, consciousness, on this view, requires something *like* human biology. In what way like? Here Block and Searle aren't very helpful. According to Searle, consciousness could arise from completely different biological mechanisms than what we see in humans. But what mechanisms could do this and what mechanisms could not, Searle makes no attempt to adjudicate, instead gesturing hopefully at future science.

From a cosmological perspective it would be strange to suppose that of all the possible beings in the universe that are capable of sophisticated, self-preserving, goal-directed environmental responsiveness, beings that could presumably be (and in a vast enough universe presumably actually are) constructed in myriad strange and diverse ways, somehow only we with our neurons have genuine conscious experience, and all others are mere automata there is nothing it is like anything to be. Contrary to the "Copernican Principle" of cosmological method, this view would suggest that we, as the sole possessors of consciousness, are in a uniquely favored position in the universe. How lucky we are! (The other beings, I suppose, only *say* they're lucky, or only emit noises that we would mistakenly regard as having that semantic content.) For this reason, it seems not only unintuitive but also scientifically unjustified to suppose that conscious experience requires Earthly biology. It would be like supposing that life requires Earthly nucleotides.

If they're to avoid un-Copernican neuro-fetishism, the question must become, for Block and Searle, *what* feature of neurons, possibly possessed also by non-neural systems, gives rise to consciousness? In other words, we are back with the question of what is so special about brains – and the only well-developed answers on the near horizon seem to involve appeals to the sorts of features that the United States has, features like massively complex informational integration, self-monitoring, and a long-standing history of sophisticated environmental responsiveness.

7. Conclusion.

In sum, the argument is this: There seems to be no principled reason to deny entityhood, or entityhood-enough, to spatially distributed but informationally integrated beings. So the United States is at least a *candidate* for the literal possession of real psychological states, including consciousness. Once we view the United States in this way, the question then becomes whether it meets plausible materialistic criteria for consciousness. My suggestion is that if those criteria are liberal enough to include both small mammals and alien species that exhibit sophisticated linguistic behavior, then the United States probably does meet those criteria. The space between us is an airy synapse.

If the United States is conscious, is Apple Computer company? Is an aircraft carrier? Where does it stop? Is dissolution murder? I have to confess that I don't know. In fact, I don't even know whether I have presented an argument in favor of literal group consciousness or instead a challenge to materialism or instead a reductio of the enterprise of armchair metaphysics about consciousness.

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