**"An essay concerning subjectivity and scientific realism:
Some fancies on Sellarsian themes and onto-politics"**

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(Abstract)

I develop a framework for making visible the impacts that science has on human subjectivity, along with demonstrating how these transformations support the existing social order. In order to develop this framework, I critique the work of Wilfrid Sellars. Sellars is one of the few analytic philosophers of science who directly addresses the connections between science and subjectivity. What makes Sellars particularly interesting is the way he sought to preserve a strong conception of normativity alongside a quasi-eliminativist scientific realism. I set the stage for my critique of Sellars by contrasting two different accounts of subjectivity, one Cartesian, the other pragmatic. I argue in favor of the pragmatic because it completely grounds the subject in the world (a point with which Sellars basically agrees). I begin my critique of Sellars by explaining his scientific realism. This is then connected to his vision of the interconnections between science and subjectivity. I then argue that Sellars' scientific realism is fundamentally incoherent, which leads his system into nihilism. From this I trace out the role that science can play with respect to subjectivity in a nihilistic world. To partially counter this nihilism, I articulate an alternative to scientific realism that is based, in part, on my pragmatic account of subjectivity. I conclude by re-appropriating elements of Sellars' philosophy, routed through my alternative scientific realism, in order to complete the framework discussed above.

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Abbreviations

CP: Volume, Paragraph number	Charles Sanders Peirce *Collected Papers*
EPM Paragraph number	Wilfrid Sellars "Empiricism and the Philosophy of Mind" in *Science, Perception and Reality*
FMMP Part, Paragraph number	Wilfrid Sellars "Foundations for a Metaphysics of Pure Process"
L Page	Charles Sanders Peirce. *Pragmatism as Principle and Method of Right Thinking: The 1903 Harvard Lectures on Pragmatism*
MCP Page	Wilfrid Sellars "Metaphysics and the Concept of A Person" in *Essays in Philosophy and Its History*
P Page	Wilfrid Sellars "Phenomenalism" in *Science, Perception and Reality*
PSIM page	Wilfrid Sellars "Philosophy and the Scientific Image of Man" in *Science, Perception and Reality*
WP Paragraph Number	Friedrich Nietzsche *The Will to Power*

Chapter 1: Onto-politics

This is an inquiry into subjectivity and science. I am concerned with is developing two things. 1) An account of how science impacts subjectivity. This will involve several components. The first thing to do is develop a clear definition of subjectivity, since it tends to be a rather murky concept. The next item of business is the chart out the social power of science. With these two things in hand, I will be in a position to explain, in a general way, how science is used to transform subjectivity. Along with this will become a partial explanation of why science is being used in this way. 2) Produce is a normative position on how science and subjectivity should be connected. This centers around trying to understand what kind of discourses give the best representations of the human condition.

Science is everywhere. It is in the food we eat, the air we breathe, the water we drink. Science has immense power over the body. This is most clearly illustrated by the role that medicine plays in everyday life, but it also includes discourses like molecular biology, neurobiology, and physiology which give definitive accounts of how the body operates at different levels. The mind is also impacted by science. Again, neurobiology plays a decisive role here, as well as psychology. Both give representations of how the mind and/or brain the works, though in different ways. Science also presents us with an understanding of the physical world in which we live, be it through physics or ecology. In this way, science covers virtually every aspect of life.

This point is illustrated throughout the work of Bruno Latour and other writers in Science and Technology Studies (STS). Consider the opening pages of *We Have Never Been Modern* where Latour writes about going through a newspaper. In it, he finds stories about the ozone hole and heads of state, the AIDS crisis, computer chips, and so on. The lesson he draws from this is that culture and nature are becoming increasingly mixed up in what he refers to as "hybrids." While I would put this point a different way, one that avoids the pitfalls of his actor-network theory, he is certainly correct in pointing out that "knowledge, interest, justice, and power" are becoming intertwined in complex ways. (Latour, 1993: 3) The moral I draw from this story is slightly different. It has to do with the pervasiveness of science. Science runs throughout our politics, economics, and everyday life. Science has become part of the fabric of our very existence. The reason Latour finds so many "hybrids" in the newspaper is that science is everywhere.

Part of the reason for this pervasiveness is that science is the dominant form of knowledge in the West. This is not to say that science is absolutely unquestioned. The recent controversy over Intelligent Design in the United States illustrates the limits of science's dominance. Yet, in many other domains science is the measure of what is and how that it is. When the news reports on some scientific finding, it is taken by most as the Truth, the final word on the Real is really like. Science has a unique power to speak the Truth. Science is the only kind of discourse that is consistently perceived to give a definitive account of the way the world really is. This can be seen in numerous places. As Donna Haraway has argued, the gene is taken to be Life Itself.[1] Molecular biology is the gate-keeper of this knowledge. In this way, science is seen to be the Truth about the very nature of life, guardian of its secrets. Likewise, endless popular science books and magazines convey the discoveries of science to the masses. This phenomenon can even be witnessed in popular culture with television shows like "Myth Busters"

[1] In particular Haraway (1997: 131-72).

in which the hosts of the show use science and the scientific method to debunk various urban legends. Science is the arbiter of the Truth.

Behind this epistemic dominance of science lies the doctrine of scientific realism. In the philosophy of science, scientific realism is the position that the entities referred to in scientific theories actually exist. This is to say that theoretical entities like electrons, genes, and quasars are not mere calculation devices useful for navigating around the observable world, but instead are real things. The world is really made up of these things. Furthermore, science is the only way to reliably understand these entities, the Real. Yet, this doctrine is more than simple philosophy. As will be argued in Chapter 4, scientific realism is a cultural dogma, of which the debates in the philosophy of science are but its clearest manifestation. The notion that science is the only form of knowledge that gets at the Real is what supports the cultural position of science. Such a belief is necessary if science is to have such power over our lives. This is because without scientific realism, science would a collection of interesting facts about the world. If science did not "get at the Real," it is unclear why it is taken so seriously. Something more is needed to explain the central social significance of science and the concept of scientific realism does just that.

With scientific realism behind it, science becomes a source of power. The Truth, in whatever form it takes, has always had immense power over people in the West. Science is just another in a long line of Truth Speakers. These Truth Speakers have always commanded power over people, giving insights into the nature of existence, which in turn are dictates about how to live. Science continues this tradition. Given science's presumed objectivity and rationality and some of the tools it deploys to get at the Truth, science has a certain prestige among knowledges. This prestige grants it a cultural position above other knowledges. Because of this, science is in a position to control people's lives in ways that other knowledges cannot. Science has the power to structure lives and the subject's understanding of the world and the self. Science is a form of domination which is justified by the dogma that science is an accurate representation of the Real. What makes science unique is its hegemony over the Truth. It is in an increasingly culturally unassailable situation in which science is the only qualified entity to speak the Truth.

Given the role that science plays in contemporary existence, it is not surprising that science has a profound impact on subjectivity, how one experiences self, others, and the world. If science is the Truth, then it also provides a map of the correct way to see experience. Since science is an accurate representation of the Real, which means that those things that science talks about are what really constitute the world. For this reason, our experiences should reflect the insights of this way of seeing the world. In this way, science should play a significant role in the constitution of subjectivity, which is already coming into being, in precisely those places discussed above. Science gives the guide on how to perceive self, others and the world. For example, humans are genes that produce particular bodies. The mind is simply the firing of neurons. Objects are really subatomic particles bound together in curious ways. While few subjects really experience the world in this way presently, one is beginning to the see the outlines of such subjectivities. One encounters these ways of thinking in innumerable places: televisions, magazines, the doctor's office, school. Because of the predominance of science, it is only a matter of time before science has serious ramifications for subjectivity.

We quickly see that this essay will not be some mere exercise in metaphysics and epistemology. Instead, when we inquire into matters of subjectivity and science, we find that a whole range of social and political questions arise as well. While the epistemic and metaphysical matters are serious, they are not my only concern. In addition to questions about what is real and

what constitutes experience, there are also issues about the cultural power science possesses and where this power comes from. Furthermore, there is also a concern about how science is being used as a means of control. Who is doing this and why? From the simple question of how does science impact subjectivity, we find that we are discussing some of the central features of contemporary society.

Science must be seen as an embedded social process. This goes much further than the claim made by some philosophers of science that science is done by people and so is therefore social. This is true, but trivial. What we must recognize is that science is part of society. Science does not occupy some ethereal space beyond the everyday. Instead, science is woven into the fabric of our existence. This has two implications worth noting. First, that science fits seamlessly into society. The pronouncements of science do not come from on high, to then be diffused within society, but instead always already circulate within the social field. Second, that science is also impacted by society. The changes that occur within society affect science. Those sources of power in society that influence society also influence science. Science is a vital part of society and cannot be thought of as existing outside society. Science is one of society's driving forces, but not above it. In this way, any question about science necessarily implicates a whole host of other issues.

The idea of "onto-politics"

In order to bring these issues into focus, let me introduce the concept of "onto-politics." The basic idea behind onto-politics is that any exercise in metaphysics, i.e., questions of being and reality, is always also an exercise in politics. Ontology entails politics. This is because every attempt to map what the world consists of sets up limits and possibilities about what can be done in that in the world. Ontology establishes horizons of action. It administers what actions are possible and what are impossible. In this sense, ontology is a form of control, in that it lays out the bounds of reality consists of. If one looks at any ontology, one will find elements of power. Ontology is politics by another means. Furthermore, as ontology establishes politics, ontology also mirrors politics. The political possibilities of an age are recapitulated in its metaphysics. Every politics presupposes an ontology, an understanding of what the subjects in question are capable of. Yet, the concept of onto-politics goes further in proposing that politics is reified in ontology. So, onto-politics entails a double movement. In one direction, it moves from ontology to establishing a politics. In the other, it moves from politics to establishing an ontology.

Scientific realism is the sort of ontology that concerns me here. What are its onto-politics? At first glance, it might appear to have none, but this is misleading. In point of fact, scientific realism invokes both movements discussed above. There are two levels at which scientific realism establishes a politics. The first has to do with the epistemic authority of science. Because the entities referred to in scientific theories are what constitute the world, science becomes the only way to know the world. This is why science is the dominant form of knowledge in the West. This is political because it puts certain people in a position of power over others. Scientists, functioning as Truth Speakers, can control the actions and lives of the masses. Scientific realism establishes a hierarchy of knowers, with scientists on top.

Yet, there is a deeper way in which science affect politics. For reasons to be discussed in Chapter 6, the doctrine of scientific realism collapses into nihilism. This creates a rather brutal form of politics in which those with power can do whatever they like without any limits. Concepts like Truth and Justice become rhetorical gestures, used to sway the masses. There is a certain sense in which science loses its object of inquiry, the Real, because the Real is just

another failed attempt to make sense of the world, but the social power that science possesses does not dissipate in this nihilistic situation. Science remains a potent force. This means that science can be mobilized to whatever ends those with power want. Politics becomes a war of all against all, where the masses are mere pawns in a game between various people with power. These people with power seek to retain that power and extend their dominion, and science has proven itself to a valuable tool to that end. Science has become another means of domination.

Scientific realism also mirrors the politics of our day. There is no doubt some truth in Marx's claim that the mode of production structures our very existence.[2] While the relationship between base and superstructure needs to be understood in an anti-foundationalist way, the basic insight seems correct[3]. For this reason, our politics is dominated by capitalism, which is our mode of production. Capitalism is our way of life. Everything is a commodity to be bought and sold. Work is all but mandatory and virtually ever profession is subject to the logic of wage-labor. The market has gone global, extending to almost every corner of the globe. The state exists to further the interests of the bourgeoisie. From food to work to entertainment, no aspect of life is free from the effects of capitalism.

The ontology that scientific realism relies upon echoes capitalism. Under capitalism: "All fixed, fast-frozen relations… are swept away… All that is solid melts into air, all that is holy is profaned…" (Marx and Engels, 1848: 12) Everything is mobile, capable of being transformed, especially into a commodity. Everything can be manipulated. Nothing is fixed. There are basic building blocks that might be stable, but anything can be made out of them. Scientific realism commits us to ontology that does just this. Following Ian Hacking, the hallmark of a scientific entity's reality is that we can manipulate it.[4] Electrons, molecules, and genes can all be made to do remarkable things. The fundamental stuff of the world is thoroughly controllable. Given certain limits, scientists can do virtually anything with this stuff. Once the basic properties of an electron are understood, it can be used to perform any number of operations.

Scientific realism gives capitalism an ontology it can work with, that is: put to work. Capitalism requires us to see the world is controllable, something that can be dominated, turned into a source of profit. Scientific realism grounds this in the nature of reality. Scientific realism validates this manipulation through making it the very essence of matter. In this way, scientific realism justifies capitalism's exploitation of the world. Human beings are not above this either. The scientific image of humanity involves seeing humanity as a bundle of various non-observable entities (electrons, genes, neurons) bound together in a complex manner. Each of these entities can be manipulated, so human beings are fundamentally controllable as well. This allows for the conceptualization of humanity as something that can be exploited in the same way that the rest of the world is.

There is another way in which scientific realism reflects our politics. Woven into its very fabric is idea that only some people are capable of speaking the Truth. The division of labor is ontologized. Because the world really consists of these non-observable entities, only certain people can speak the Truth about them. The everyday world of tables, chairs and people is unreal. Only the world scientists manipulate qualifies as reality. Again, this works to capitalism's benefit. The reason for this is that it removes from questions about reality from the masses to the Truth Speakers. This makes resisting this Truth increasingly difficult because not

[2] See Marx and Engels (1998) for more on this, especially pages 47-51.
[3] See West (1991).
[4] For more on this, see Hacking (1983).

everyone can ascend to being a scientist, and hence be a Truth Speaker. Certain people are in charge and there is little that can be done about it.

It should be noted that in Chapter 7 I will develop an ontology of my own that is designed to avoid the pitfalls of scientific realism, especially nihilism. It is essentially a process ontology that emphasizes becoming over being. It has an onto-politics of its own. At first glance, it seems to be more politically progressive than scientific realism. This is for two reasons. First, it distributes the real across multiple levels, holding that the macroscopic as well as the non-observable worlds are both real. This sidesteps some of the problems of having Truth Speakers, since truth works at many different levels. Second, since everything is in flux, there is the possibility of change. Since nothing is fixed, everything can be transformed, perhaps one day for the better.[5]

Yet, we should regard this ontology as fundamentally dangerous, as any ontology is. This is because it leaves open the space to be co-opted by capitalism. Capitalism can work just as well with becoming as it can with being. As noted above, nothing is fixed in capitalism. In a certain way, by emphasizing becoming over being, this plays right into the hands of capitalism. On the other hand, such an ontology leaves open the possibility of resistance. Not even capitalism is permanent, even though it seems, and might very well be, unassailable.

Enter Wilfrid Sellars

What is necessary at this point is a specific target: someone or something that makes clear these issues. Since I am interested in developing a framework that can be used to understand the impacts of science on subjectivity, I will focus on the writings of Wilfrid Sellars. Sellars has the distinction of being one of the few philosophers of science who ever dealt with matters of subjectivity directly, though he never put the matter that way. While he was concerned with standard topics in the philosophy of science like explanation and scientific realism, he also devoted a considerable amount of his work to considering how science should be used to conceive of ourselves.

Sellars does not fit cleanly into the standard classification of philosophy. His work somewhat resembles that of analytic philosophy, especially in the precision of his language and concepts. He also engaged a large number of classic analytic philosophers throughout the course of his writings. Yet, his work has several distinctive features. First is his persistent interest not just with analysis, but with synthesis. He always had his eye on the whole. This in part explains his dialectical, elliptical writing style. Furthermore, Sellars had a consistent desire to engage the history of philosophy, especially Kant, which is rare in the analytic school. While his historical readings tend to be rather unorthodox, he saw the history of philosophy as something vital for doing contemporary philosophy. Lastly, there is an irreducible strain of pragmatism in his thought. Sellars was clearly influenced by Charles Sanders Peirce and admits as much. But he also seems to have reflected on the thought of John Dewey as well. There are certain motifs of pragmatism, like anti-foundationalism and an emphasis on consequences that recur frequently in Sellars' writings. The moral of the story is that Sellars is an iconoclastic figure cannot be easily classified in any standard way.

This is complicated by the fact that Sellars wrote on almost every topic, except political philosophy. While much of his career was dedicated to developing a philosophical understanding of science, he also dealt with matters like ethics and personal identity. As noted above, he always was interested in seeing how thing hang together. So it is unsurprising that he covered a lot of ground in his work. It is not infrequent that an essay of his will begin with

[5] For more on this line of reasoning, see James (1907), especially pages 606-19.

epistemology, but also touch on matters of metaphysics and ethics. Sellars was interested in developing a systematic philosophy that touched on everything and that is precisely what he did.

In the two following chapters, I will introduce a vital distinction for my project. The distinction is between: "acting-on-the-world" and "acting-in-the-world." Acting-on-the-world is the idea that the subject exists above and beyond the world and somehow acts on it. This is standard Cartesianism, which seems to dominate much of contemporary analytic philosophy. Acting-in-the-world holds that the subject is part of the world and acts within it. With some qualifications, Sellars falls into the acting-in-the-world camp.

> Sellars outlines a picture in which human subjectivities are treated as items within (and not set over against) the natural, material world. Humans are, in the picture Sellars wants to substitute for the traditional Cartesian view, natural organisms that learn to regulate their behavior by constructing ever more adequate representations of their world and especially of themselves. (DeVries and Triplett, 2000: xxxix)

This is the cornerstone of Sellars' philosophy: trying to understand how human subjectivity is part of the world. This goal is what makes Sellars so fascinating for my purposes. He comes close to articulating a coherent philosophy of acting-in-the-world, yet at a key moment Sellars endorses a rather extreme form of scientific realism that causes his project to implode. It is this implosion that I am interested in mapping out.

Given the rather sprawling nature of Sellars' work, it is necessary to center this discussion on one particular part. For this essay, the crucial part of Sellars is his distinction between the manifest and scientific images of humanity-in-the-world. Sellars claims that humanity is confronted by two images of itself: one derived from philosophy; the other, from science. Each purports itself to be a complete account of the human condition. What we have here are two very different visions of human subjectivity. Should the world and the self be understood in terms of things and persons or in the terms of the final ontology that science puts forward? The stakes here are high. As I will describe in Chapter 5, humanity first encounters itself in the manifest image. Humanity currently only recognizes itself in this image. The fundamental question here is: what becomes of humanity if this scientific image is the proper account of humanity-in-the-world?

There is a certain sense in which the scientific image *is* the proper image, but this is not the whole story. The reason for this is Sellars' scientific realism. Science describes reality. The entities referred to in scientific theories are real. The corollary to this is that the everyday world of observable things does not exist. Sellars is quite blunt about this, which will be shown in Chapter 4. The manifest image is descriptively wrong because it cannot explain itself. The scientific image explains why the objects of the manifest do the things they do. This is because the entities of the scientific image *are* real. Although science might not be able to explain everything within the manifest image at this moment, Sellars takes it as an article of faith that at some point, at the end of scientific inquiry, it will. Nothing will be lost in the scientific image. In which case, we can jettison the manifest image without worries, with one exception.

The manifest image does one thing the scientific cannot: it contains ethical discourse. Science is not normative. It tells us what is and can explain why particular events occur, but it can never tell us what to do. The manifest image does precisely this, through its framework of persons. What Sellars proposes is that this framework of persons must be joined with the scientific image in order to get a complete vision of humanity-in-the-world. This is what he refers to as "stereoscopy," a synoptic vision. In his own way, Sellars solves the problem of

subjectivity and science. He preserves what he feels to be the most important thing of the manifest image, the framework of persons, while maintaining the epistemic and ontological authority of science. Science gives the definitive account of human subjectivity, except when it comes to ethical and other normative matters. At that point, we must turn to the framework of persons.

But not everything thing is quite so sanguine with this resolution. There are three distinct points I will raise about Sellars' stereoscopy. The first, to be developed in Chapter 8, is that the scientific image cannot account for everything in the human condition. The scientific image only captures part of what it is to have an experience. Consider listening to a piece of music. Science focuses on how the instrument produces vibrations in the air, which stimulates the ear drum, firing nerves that are processed by the brain. Nowhere in this is any explanation of why the music is beautiful or why it affects us so deeply. The manifest image, perhaps imperfectly, can address these things. The scientific seems incapable of doing so.

Also important to Sellars' resolution is the concept of the person. I will argue in Chapter 5 that this concept is too narrow to really give a robust account of human existence. Subjectivity is more robust, because it is focused on experience. This point is important for two reasons. First, at this point in time, there are a plurality of ways to experience self and world. My account of subjectivity addresses this and celebrates it for reasons to be made clear in Chapters 7 and 8. "Persons" does not do this. Second, because of this plurality and the threat of something being left out of the scientific image, subjectivity gives a way to preserve this plurality. This is through holding that it is only by looking at the world through multiple perspectives that we can arrive at the truth. We need a multiplicity of subjectivities. The concept of the person is too focused on a particular sort of normativity to resist the onslaught of science.

The last point has to do with the onto-politics of Sellars' scientific realism. This is probably most pressing of my claims against Sellars. His realism exhibits all of the problems discussed above. The most serious is the way his realism collapses into nihilism. This leads to a whole of host of political and social issues. Because of his attempt to ground reality in scientific entities, everything loses its meaning. In this scenario science simply becomes a means for domination. Although science is epistemically vacuous, it retains its cultural capital to transform people's lives and subjectivities. Science becomes a tool for those with power to exert their will over the masses. This is the consequence of how Sellars divides the world into appearance and reality.

Two things should be noted before moving on. First, I take Sellars as an exemplar of a certain position. This position involves taking science as the best sort of human knowledge without exception. Sellars is interesting because he takes this idea to its logical conclusion: that observable entities do not exist, only non-observable scientific ones. Also, he is fascinating for how he tries to join the human dimension with scientific discourse. The importance he places on stereoscopy cannot be understated. Yet, my chief concern is about the onto-politics of scientific realism. For this reason, the precise details of Sellars do not concern me. Instead, what I am trying to do is follow out the basic drift of Sellars' thought to its necessary conclusion.

Furthermore, there are points where my interpretation of Sellars diverges from his intentions and spirit. The most obvious of these places is on the matter of which vocabulary to use to describe the human condition. I believe Sellars is committed to using a scientific vocabulary, although he seems content to use the vocabulary of the manifest image, even though it is fundamentally incorrect.[6] Sellars' position on this point seems incoherent. Part of this is

[6] Consider **P** 97 and **EPM** 41.

because I believe he fails to understand the normative force of the Truth. Because of the economy of Truth, which I will explain in Chapter 4, Truth exists to be applied to people and things. There is no "Truth-in-itself." Truth always needs to be used to some end. It does not exist outside of people's lives. Scientific Truth is no different from other sorts of Truths in this respect. It calls out to be applied. For this reason, once we have the scientific vocabulary and it is accepted as the Truth, it must be used.

Approach

In order to complete this project, I need three things. First, an account of subjectivity. Subjectivity is a phrase that is often used, but is rarely defined explicitly. This is frustrating. Because of this, it is important to clearly explain what I mean by the term. Second, a way of thinking about society. Given the way in which I chart out the impact of science on subjectivity it is necessary to have some sort of means of understanding the social dimensions of science. Third, a new vision of scientific realism. I am not simply interesting in mapping out the way science transforms subjectivity, but also in how the two should be connected. What is needed is account of scientific realism that avoids the problem of nihilism while allowing robust subjectivities to flourish.

Because of these three things I require, the theoretical apparatus I will be developing will take the form of *bricolage*, something made of whatever is at hand. Yet, more can be said about why I have staked out my position. First, negatively. My training is in Science and Technology Studies (STS), as well as philosophy. Unfortunately, there is little in STS that offers itself to this project on the first and second points. Little has been written on matters of subjectivity within STS, which seems to be a curious oversight. Part of it has to do with the way that STS came about. In the 1970s it was resisting the hold that the analytic philosophy of science had over epistemic matters of science. Most of the focus was on scientific practice. While absolutely ground-breaking, STS has remained mostly about practice. The emphasis has been on how science is constructed. Little work has been done on science constructs our conceptions of self and world.

For similar reasons, STS is of little help on the second front either. By focusing so intently on scientific practices, little has been done about how science impacts society. Even someone like Bruno Latour is lacking on this count. Latour gives a provocative account of how scientists, non-human actors, funding agencies and the like are bound together. Yet, he says little on how to map out how science changes society, except in a relatively narrow way. Furthermore, the way he attributes intentionality to non-humans is deeply problematic. It seems that everything is doing things deliberately, which makes little sense to me. This causes problems with respect to subjectivity as well. It appears that either everything has a subjectivity or nothing does. One thing that gets lost in his work is the distinctiveness of individual actors. Given the vision of subjectivity I develop in Chapter 3, this is something that should be preserved.

STS does have a lot to say on matters of scientific realism. Both Latour and Andy Pickering have addressed the topic head-on. I find Latour's work unappealing for reasons discussed above. Pickering is another matter. His work is actually fairly compelling. It is my hope that everything that I say about my successor to scientific realism is consonant with Pickering's realism, though I do not engage him directly. This is because my starting point for developing my successor is the notion of "acting-in-the-world." By beginning with the idea that the subject is a part of the world, I show what an anti-foundationalist scientific realism looks like. While I am sure that Pickering shares many of these philosophical commitments, the way I

approach the matter gives a fairly tight connection between my successor to scientific realism and my account of subjectivity.

The one canonical STSer that does address all three of the things I need is Donna Haraway. She gives a playful account of how science and society are bound up with one another. She has also dealt with scientific realism in a round-about way with her idea of situated knowledges.[7] Lastly, she leaves room for questions of subjectivity as well. That said, I have two reservations about Haraway. The first has to do with reliance on the concept of the cyborg. Cyborgs are fusions of human and machine. She dates the emergence of the cyborg as the beginning of the Cold War. The trouble with this perspective is that obscures the older connections between science, technology and humanity. There is a sense in which, beginning with the first use of tools and languages, we have always been cyborgs. What the Cold War marks is an intensification of these processes. The other concern is that I am interested in developing a systematic theory. Haraway operates on a site by site basis. While her readings of individual sites are very powerful, it is unclear how these connect together. Systematic theory offers a powerful tool for showing the deep connections between apparently separate spheres. It keeps an eye on the whole which gets lost in Haraway's work.

Because of the limits of the STS literature, I turn to philosophy. Both the pragmatic and continental traditions have a great deal to say on all of the matters that concern me. Let me group my concerns together. On the one hand, you have subjectivity and scientific realism, which are bound up together through my concept of acting-in-the-world. On the other, you have the concerns about science and society. Unfortunately, there is no single, pre-existing perspective addresses all these points, so it necessary to form a new position. The position that I stake out fuses American pragmatism to Foucault, Nietzsche, and Marx. Let me explain why.

Acting-in-the-world forms the backbone of this project. Pragmatism is an excellent example of this sort of philosophizing. By focusing on consequences, pragmatism grounds the subject in the world. Everything is the sum of the consequences that it produces. There is nothing more to a thing, including the subject. Everything is linked together through consequences. In this way, the subject is part of the same world as everything else. There is no outside space in which the subject exists. This has profound implications for both subjectivity and scientific realism, which will be demonstrated in Chapters 3 and 7 respectively. The linchpin of both of these is core idea of acting-in-the-world. In the case of subjectivity, this means that subjectivity has to be understood relationally, which is accomplished through a redefinition of experience. For scientific realism, we must understand the real in terms of those things that make a difference. It also entails focusing on becoming rather being. In this way, pragmatism provides two of the three things I need for this project.

The one thing that pragmatism does not address well is matters of power. Power is at the heart of my account of the social function of science, so I must look else where on this point. Luckily there is Michel Foucault. Foucault is decisive for this project. The way that knowledge and power are intertwined in his works gives me a framework for understanding how science impacts society. In both *Discipline and Punish* and the first volume of the *History of Sexuality*, Foucault demonstrates the different ways that knowledge is deployed to control society. These works were pivotal in the development of my perspective on science. Foucault's theory of power runs throughout this project, since it is among the most developed theories around.

[7] In her essay "Situated Knowledges" in Haraway, 1991: 183-201.

There is another way that Foucault has influenced my thinking. He, in his Nietzschian moments, sets the mood of this essay. For Foucault, power is everywhere. Domination is part of the fabric of life. As he notes:

> Humanity does not gradually progress from combat to combat until it arrives at universal reciprocity, where the rule of law finally replaces warfare; humanity installs each of its violences in a system of rules and thus proceeds from domination to domination. (Foucault, 1984: 85)

Contra both Marx and pragmatism, we will not arrive at some mystical point in our history at which everything will be made right. Instead, what we are faced with is an endless series of dominations. The tone of this essay is decidedly pessimistic. Science, when joined with capitalism, produces the most perfect system of control created so far. Science's capacity to speak the Truth gives it a nigh impervious cultural status that can mask the operations of capitalism. Furthermore, as mentioned above, science contains no explicit normative content. This means that science comes to colonize the way we speak of ourselves and the world, we run the risk of losing ethics and politics. This is exactly what capitalism needs, because we lose the capacity to critique capitalism. For these reasons, I take a rather dim view of our contemporary existence.

Nietzsche plays two roles here. One, already alluded to above, is his particular conception of nihilism. This plays a key part in my argument in Chapter 6. The other thing that Nietzsche opened up for me was the darker side of our concepts. When philosophers, in particular Sellars, tell stories about how philosophical concepts come about, they tend to be too earnest and straightforward. They are, to it put it bluntly, just unrealistic. What Nietzsche reveals is the violence hidden in our concepts. This is most clearly done in the *Genealogy of Morals*, where he exposes the power and domination that goes into the formation of something like conscience. This Nietzschian spirit runs throughout this project.

What is lacking from Foucault's genealogies is any sort of causal story about why these forms of power arise. Marx provides just the necessary story. By focusing on economics, in particular capitalism, Marxists are able to explain the phenomena explored by Foucault. For this reason, Marxism is central to the argument I develop here. In addition to Marx's texts, the Frankfurt School also plays a significant role. This is because philosophers like Herbert Marcuse, Max Horkheimer, and Theodor Adorno apply Marxist logic to the cultural sphere in a way that had not been done before. While they do not address science directly, their writings lay the groundwork for some of my thinking about how science is used to transform society.

Outline of the work

Chapter 2 begins by introducing my distinction between "acting-on-the-world" and "acting-in-the-world." Most of the chapter is dedicated to exploring the various aspects of acting-on-the-world. In order to map out the chief tenets of this position, I turn to the work of C. S. Peirce who outlined the defining characteristics of the Cartesianism that dominated philosophy in his day and still exerts an influence over the present. I show several of the dead ends and dilemmas that acting-on-the-world leads to, paying particularly close attention to the way in which it makes consciousness a total mystery.

The next chapter develops the other side of the distinction: acting-in-the-world. The goal is to articulate what an alternate world-view looks like. After briefly discussing the idea that humans are simply organisms trying to make their way through various environments, I turn to

Peirce's semiotics. While at first glance, a theory of signs might be an odd choice for unpacking how subjects act in the world, I will demonstrate that semiotics performs a curious leveling operation because everything occurs within one world, the world of signs. After this, I develop what subjectivity looks like in a world of signs. I propose that subjectivities are horizons of experience and in semiotic terms, this means that subjectivities are the mechanisms that we use to interpret experience.

With this understanding of subjectivity in hand, I turn to the philosophy of Wilfrid Sellars. This, along with Chapters 5, 6, and 8, forms the core of the work. Chapter 4 is split into two parts. The first is an attempt to get a handle on what Sellars' scientific realism entails. The second part involves an investigation into why his realism is appealing. I begin by showing the cultural force that science possesses. In order to explain this force, I propose a fable about Truth. In this fable our ancient ancestors are faced with a situation that has two components: the existential part, in which the world is found to be perilous, and the power dimension, in which the rulers want to retain their power. I propose that concept of the Truth deals with both of these because it gives a world in which everything is made right while endowing certain members the ability to speak this Truth allows the rulers to maintain their position.

I continue my examination of Sellars' philosophy in Chapter 5. I focus on developing an account of the manifest and scientific images of humanity-in-the-world. After exploring the salient features of each image, I show how subjectivity is smeared out between the two. My main concern is demonstrating the way in which the scientific image impacts subjectivity. The chapter concludes with an analysis of Sellars' concept of the person, which, as noted above, is crucial for his resolution of the problem of subjectivity and science. I find that the person leaves out important dimensions of what it is to be human. This sets up the point I make in Chapter 8 that science cannot be the final word on subjectivity, thus calling into question Sellars' resolution.

Chapter 6 is the crux of my argument and looks at the crucial flaw of Sellars' scientific realism. I find that the scientifically Real is an impossible object, because it must be somehow connected to the world of appearances while it is also absolutely divorced from it. When we realize this, we are forced into nihilism. We first discover that the world has no meaning inherent in it. Because we have given ourselves our value because of that external meaning, we lose all value as well. The rest of the chapter is devoted to tracing out the implications of this. I find that science does not lose its cultural authority even though it is epistemically vacuous. In this situation, science becomes a tool for domination. This chapter plays a game of "what if?" Specifically, "what if we take my interpretation of Sellars' onto-politics at face value? What becomes of the world and humanity's place?" This chapter arrives at some rather bleak conclusions about the human condition which I will temper somewhat given the last two chapters. Yet, my intent is not to say this is (exactly) the case, but rather what might be in Sellars' scientific realism was taken literally.

The task of Chapter 7 is to reconstruct scientific realism such that it does not fall into nihilism. I call this successor scientific surrealism. It is based around four propositions. The first is that inquirer is part of the world and does not exist above and beyond it. The second is that the real is composed of those things that we can coordinate our actions with. The third is that the real is very dense, it has many layers. Lastly, every existence is an event that occurs through time. Scientific surrealism avoids nihilism because it does not posit an external order to the world. Instead, it finds all the meaning it needs in the world.

Chapter 8 draws these various strands together. It has two main parts. The first consists of developing a schema for understanding how science impacts subjectivity. In the second, I introduce the concept of "dwelling." The fundamental question becomes "in which image, the expanded manifest or the scientific, should humanity feel at home in?" I argue for the expanded manifest image, an image that includes not just philosophy, but literature, religion and other humanistic discourses. This is principally because the scientific image does not give a robust enough account of the human condition, whereas the manifest image does. This is not to say that science should have no role in the constitution of human subjectivity, but that we should prioritize the resources of the manifest image before those of the scientific.

Chapter 2: Acting-on-the-world: The joys of neo-Cartesianism

Instead of wondering about the fundamental grounding of knowledge, *our* problem should be about how an organism survives within an environment. There are two reasons for switching questions. First, there is the clear failure of the Cartesian project. Although this project has failed, as I will defend below, the spirit of Cartesianism still haunts contemporary philosophy. Second, the new approach I propose overcomes some of the problems created by the Cartesian project. This chapter shows the basic assumptions of the Cartesian project and shows where it runs into difficulties. The following chapter develops a positive view of how we should understand subjectivity.

A fundamental assumption of this essay is that humans act *in* the world and not *on* the world.[1] Wherein lays the difference? Acting-on-the-world presumes that the subject is not (essentially) a part of the world that is being acted upon. This is to say that the subject's thoughts and experiences occur in a space outside of the world of physical things. The subject, who effectively exists in a different world, the world of the immaterial mind, somehow acts on the world of physical things. Acting-in-the-world presumes that the subject is a part of the world that is being acted upon. There is only one space in which everything occurs. The subject's thoughts and experiences exist in the same world as physical things. In this way, the subject acts in the same world as everything else.

There is another shift that occurs if one accepts this idea of "acting-in-the-world." Instead of focusing on the isolated "knower," the emphasis is on the "inquirer." Rather than being an isolated subject floating above the world, the inquirer should be understood as a flesh-and-blood organism trying to navigate through a complicated world. What is at stake is not certainty or some similar permutation, but survival. If the inquirer cannot find an adequate set of habits, which is what the end point is in the process of inquiry, that organism is not long for this world. Knowledge and belief are not understood as ends in themselves, but rather as means to establishing habits. This helps to keep the inquirer firmly grounded in the world, unlike what occurs in Cartesianism where the knower is divorced from the object of inquiry.

What is offered here and in the following chapter is an account of "acting-in-the-world." It is not a comprehensive argument against Cartesianism. Instead, it is a set of remarks designed to sketch out what such a worldview looks like. A consistent trouble that has haunted many philosophers, especially for the last hundred or so years, has been how to talk about "acting-in-the-world." The lack of a good way to speak of this has hampered many philosophers and produced much confusion. A classic example of this confusion is William James. Many have accused him of falling into some sort of relativism, epistemic and moral, if not ontological. James proposes that we should chose among things based upon the consequences. This appears to have a certain "if it feels good, do it" ring to it. Read from the perspective of the standard Cartesian mind/body dualism and subject/object split, this claim of relativism is no doubt true. What I propose is that James, along with Peirce, Dewey, Heidegger, Merleau-Ponty, Derrida, Foucault, and Sellars among others, is just writing from the other side of this "acting-in-the-world" divide. James assumes the perspective of "acting-in-the-world." I will do the same as well.

[1] I would like to thank Tom Staley for helping me articulate this distinction.

Traditions of subjectivity

Since "subjectivity" is a remarkably confusing concept, it is worthwhile making clear what I mean by the term. Let me start negatively. Subjectivity is not the epistemic position that a given claim is unsubstantiated because it is biased, personal and so on. This sense of subjectivity is usually contrasted with "objectivity." Objectivity in this sense usually has something to do with getting at the Truth, the Real or whatever. All things subjective are bad, while objectivity is good. While this has a part to play in the origin of where the contemporary senses of subjectivity come from, it is not what I mean through out this essay.

In contemporary philosophy there are two significant positive senses of subjectivity, which roughly map on to the split between analytic and continental philosophy. In analytic philosophy of mind, subjectivity has to do with consciousness and how things are experienced. The usual question is whether or not subjectivity is a part of the world or not. The problem as typically conceived is that cognitive science cannot understand the world of first-person experience since it involves the perception of homogenous color fields and intentions, which have thus far been difficult to incorporate into science. So the question arises as to whether a robust science can include such things. This is a problem if science is taken to be the first and last word about what exists, since it leaves subjectivity as an utter mystery. This problem will be echoed throughout the dissertation. A good example of this difficulty is Thomas Nagel's infamous essay "What is it like to be a bat?" to be discussed below.

The other sense of subjectivity comes from continental philosophy and postmodernism and focuses both on these matters of experience, along with more broad-based concerns of personal identity and autonomy. What makes these approaches distinct from the analytic conception is the tendency to emphasize the "constructed-ness" of subjectivity. Needless to say, this focus on "construction" brings in ethical and political concerns that are quite alien to the analytic conception. What is at stake is not "merely" the way experience is construed, but also the ends to which such constructions are aimed. Put differently, this approach emphasizes the ethical/political nature of constructing ways of being. This is probably most clear within feminist work on subjectivity.[2]

What should be clear is that the continental approach is a bit more radical than the analytic. This radicalness is not merely that it takes seriously the ethical and political dimensions of subjectivity, but it also involves a tacit rejection of the typical ontological reading of subjectivity. Instead of seeing subject and object as separated by (what is effectively) an unbridgeable gulf, the lines between the two are much more blurry.

How is it that philosophy has arrived at these two different senses of subjectivity? I believe the story begins with Descartes. In the *Meditations*, Descartes makes the initial split between subject and object that is now known and loved. On the object side, you had the world as calculable matter and on the subject side you had the *cogito* that was capable of willing and understanding, in addition to imaging and sensing. This split set up a discursive game in which it was assumed that only the subjective side could experience events in a robust sense (seeing the pink Kirby as a pink Kirby in all its cuteness), while the objective side corresponded to the way the world really is. The game was to figure out a way to connect subject to object in a sound manner, something that has yet to happen.

Something then occurred between the times of Kant and Marx, probably starting with Hegel: history became important. Instead of being a mere repository of anecdotes about the past, history took on a dynamic character. What is significant for this story is that human existence

[2] As examples, see Ebert (1996) and Grosz (1994).

became bound up with history. Different moments in history produced different sorts of subjects. This can be seen very clearly in the writings of Marx and Engels. As they clearly state in the *Manifesto*: "What else does the history of ideas prove, than that intellectual production changes its character in proportion as material production is changed? The ruling ideas of each age have ever been the ideas of its ruling class." (Marx and Engels, 1848: 29) While one does not need to be a historical materialist and endorse their claim about economics driving the history of ideas, they are clearly correct that the ideas that dominate an age have changed. This becomes rather obvious in Marx's account of property both in the *Manifesto* and in the *1844 Manuscripts*. The senses of property that dominated early eras have been erased by capitalism. What is left now is alienated, bourgeois property as opposed to the unalienated property of artisans and peasants.

Yet by 1900, whatever signs of this new importance of history there were in England were by in large lost. Although Kant and Hegel played significant roles in 19th Century English philosophy, starting with G. E. Moore early writings, there is a distinct move away from concerns about history and other issues raised specifically by Hegel. This might be best summarized by Bertrand Russell's claim that the history of philosophy begins with Frege. This goes some distance in explaining why the analytic tradition has retained such a relatively "old school" understanding of subjectivity while "continental" philosophy has embraced the lessons of Hegel, Marx and Nietzsche and produced a comparatively more radical approach to the subject. Analytic philosophy has essentially remained trapped within the problem of subjectivity that crops up with the work of Descartes. It still seeks to find a universal account of the subject, whereas continental philosophy has turned to a more historical, contingent vision of subjectivity.

The world according to neo-Cartesianism

In what follows, I give a brief overview of the basics of what I will refer to as neo-Cartesianism. Needless to say, it is quite debatable whether Descartes actually held this view. In all likelihood, he did not. Yet, something like what follows is a constellation of claims that have sprung from the discourse that Descartes initiated. As I will point to throughout, this constellation has dominated philosophy, especially within the English speaking world.[3]

What then constitutes this basic neo-Cartesian framework? Following Peirce, neo-Cartesianism seems to rest on four basic tropes:

> 1. It teaches that philosophy must begin with universal doubt…
> 2. It teaches that the ultimate test of certainty is to be found in the individual consciousness…
> 3. The multiform argumentation of the middle ages is replaced by a single thread of inference depending on inconspicuous premisses.
> 4. Scholasticism had its mysteries of faith, but undertook to explain all created things. But there are many facts which Cartesianism not only does not explain, but renders absolutely inexplicable, unless to say that "God makes them so" is to be regarded as an explanation. (**CP** 5.264)

Peirce then enigmatically states that "in some, or all, of these respects, most modern philosophers have been, in effect, Cartesians." (**CP** 5.265)

While it is arguable whether all modern philosophers have started with universal doubt, most have started with the spawn of universal doubt: the *cogito*. In some respect or other, all

[3] This line echoes that Rorty (1979), though it was largely arrived at through considerations of C. S. Peirce's work.

neo-Cartesian philosophers have assumed something like the *cogito* as being the starting point of their philosophical writing. Even in the present one can find examples of this in the philosophy of mind and in some strains of existentialism and phenomenology.[4] As discussed in Chapter 7, the way to address the problems of the first trope is to instead focus on a theory of *situated inquiry*.

Peirce's second and third tropes are perhaps a bit easier to see. For virtually all neo-Cartesian philosophers, human consciousness is where to look for certainty. All knowing occurs in human consciousness. As is made clear in Descartes' Fourth Meditation, knowledge is a proposition that relates together two clear and distinct ideas. Hume tacitly endorses such an understanding of knowledge as well. In the case of both philosophers, the mark of knowledge is certainty and certainty is only to be found in consciousness. Certainty is a property of judgments and judgments can only occur in the conscious mind. This ends up being rather problematic for the reasons that Hume exposes in the *Treatise*. According to Hume all that we can be certain of is relations between ideas such as resemblance, contrariety, quality and quantity. Any claims about the external world, let alone claims about the source of these ideas, cannot be philosophically substantiated. Descartes runs into similar problems. It is the existence of God that allows Descartes let the mind be the seat of certainty, because a good God would not deceive us by breaking the isomorphism between ideas in consciousness and the external world. Yet, if God is removed from Descartes' system, suddenly there is nothing to link mind and the external world. One appears to have fallen back into the situation Hume describes where knowledge of the external is impossible.

The way out of the problems posed by the second trope is three-fold. The first and most important is not fetishizing talk about knowledge. Instead, the units of analysis should be habits.[5] Second is to abandon the quest for certainty. This quest is what has driven much of philosophy: to find some immutable that is above the insecurity and instability of everyday existence. Last is to make clear the significance of community in the production of beliefs. All are easier said than done.

That philosophy since Descartes has been typified by following a single thread of inference should be obvious enough. Hume is perhaps the clearest example of this. He begins with the relatively innocuous claim that all ideas come from impressions, the seven philosophical relations and a bit about psychology and then suddenly we find that we cannot know causation or anything about ourselves. This trope should not be surprising given the prominence of foundationalism in modern philosophy. To caricature modern philosophy, the first move is to assume a foundation and then seek to demonstrate its implications. Hume is merely one example, where he begins the *Treatise* by assuming the distinction between impressions and ideas and that impressions must be the starting of point of all knowledge. This move also typifies most sorts of canonical empiricisms and rationalisms.

What is commonly left unexplained is the origin of the foundation, unless one seriously claims that "God makes it so" is an adequately explanation. For all that Descartes seeks to prove in the course of the Meditations, he ends up mystifying much. The mind/body dualism is just one such example. How exactly the mind, an immaterial substance, is intimately connected to the body, a material substance, remains inexplicable accept by appealing to God. Similar things occur in the case of Hume, which is made worse because Hume cannot fall back on God to get

[4] Consider the work of Sartre and Husserl as examples.

[5] I will discuss beliefs as well, but not in the sense relied upon by most philosophers, which seems to amount to propositions. Instead, following Peirce, a belief is a rule of action which establishes a habit.

out of trouble. As noted above, the source of one's impressions is a question that finds no answer.[6] Further, why it is that human psychology works the way it does for Hume cannot be adequately explained. All Hume can show is that the human mind operates in certain, definite ways. If we desire anything more, we will be sorely disappointed.

This ends up being one of the perils of foundationalism. While a philosopher might be quiet compelling in deriving the consequences of the foundation, the reasons for accepting the foundation itself are commonly lacking. Hume takes it as obvious that all ideas arise from impressions. For Descartes, the principle of causality, which is required for his first proof of God's existence to work, is simply "known by the light of nature." The trouble with first principles is that, much like the axioms of geometry, they cannot be proven. That is what makes them first principles. This usually makes the defense of first principles an appeal to intuition, which is a dicey business since not everyone shares the same intuitions. So, what is the centerpiece of most modern philosophies, the foundation, is something that cannot be defended in a thoroughgoing manner.

Acting-on-the-world

These tropes, in part, help to define what I refer to as "acting-on-the-world." What is missing from Peirce's critique of Descartes is one crucial dimension: that of acting-on-the-world. Think back to the mind/body split. This split ends up postulating two separate worlds: one of the mind, the other of the body and the rest of the external world. The subject becomes a disembodied observer looking over the world of material things. I refer to this as "acting-on-the-world" because the subject exists above and beyond the world and acts *on* the external world. The center of action, the immaterial mind, exists outside of the material world.

Acting-on-the-world is the standard Cartesian view of subjectivity. In Meditation I, Descartes doubts all that he can. Out of this process of universal doubt, he arrives at the conclusion in Meditation II that "'I am, I exist.'" (Descartes, 1641: 64) He then finds that this thing that thinks is "a thing that doubts, understands, affirms, denies, wills, refuses, and that also imagines and senses." (Descartes, 1641: 66) This list is less arbitrary than it might first appear since throughout the course of Meditations I and II, Descartes has performed most of these functions. Meditation I is a lengthy exercise in doubting and denying. In the course of Meditation II Descartes goes on to affirm that he exists. The two that appear the most problematic are sensing and imagining, especially because in Meditation VI he will go on to claim that neither are part of the *cogito*'s essence. As he notes: "I consider that this power of imagining that is in me, insofar as it differs from the power of understanding, is not required for my own essence, that is, the essence of my mind." (Descartes, 1641: 93)

All of this occurs without necessarily having a body. It is not until Meditation VI that Descartes recovers the body. Yet, when he recovers the body in that Meditation, we find that the mind and body are two very separate entities. The first difference is that the mind is an immaterial substance while the body is material. Because of this difference in substance, the body and mind might as well exist in totally different worlds. It appears that Descartes needs some sort of miracle to coordinate actions between body and mind since they are two different substances. This is not an insurmountable problem for Descartes since he has God ensuring that everything works properly. Yet, in a less theistic age, this becomes a serious source of trouble since many philosophers will not take God's existence as a given.

Given this, the Cartesian dualism is unstable. Descartes' failure to prove God's existence definitely leaves the dualist needing a minor miracle to connect mind to body (remember, they

[6] It should be noted that Hume does not even attempt to explain the origins of sense impressions.

are two radically different substances that are, effectively, incommensurable). One requires something like God's power in order to bridge these substances, yet we cannot appeal to such an entity with any certainty. A miracle is needed, in which case we need something to perform it.

This leaves three options, two of which are unappealing. The first is to embrace an idealism of one sort or another. This is the avenue taken by Berkeley and, effectively, Hume. For Berkeley, there is only mind and God. For Hume, there is only experience. Descartes ends up rejecting idealism because we commonly assume that there is an external world in a table-pounding sense and Descartes holds that God is not a deceiver. If we stick with theism, Descartes seems to have a good point here. If we take Hume's approach, we are left in a situation in which we can say nothing for certain about the external world.

Another avenue is to hold that there is only matter. The trouble with this approach is that it leaves human subjectivity a mystery. This has been a problem for philosophers of mind since its inception as a sub-field. The fundamental question is: "How can technicolor phenomenology arise from soggy gray matter?" (McGinn, 1989: 529) What is it about the brain that allows for rich phenomenological experience? If one's ontology consists solely of matter, then it is rather difficult to see how this world of experience arises. This mystifies human subjectivity because one lacks an account of how "soggy gray matter" can produce consciousness.

The instability of the mind/body dualism leads us into a trilemma. One the one hand, we can embrace the dualism, but we are left needing a miracle which does not appear to be forthcoming. Otherwise we are left to choose between idealism or materialism. Each of these has problems of its own which is further compounded by the fact that they are, in some sense, explanatorily indistinguishable. This is to say that they all end up looking the same when it comes to practical consequences, with the notable exception of whether there God exists or not. The situation as it stands is intractable. The past 350 years of philosophy serves as a testament to this fact.

I spoke above of a fourth option. This option is to recast the problem such that the mind/body dualism, and its associated trilemma, does not arise. One ends up in this intractable aporia because the problem itself is phrased incorrectly. The first mistake Descartes makes is to assume that universal doubt, which is what spawns the *cogito*, is possible. Regardless of whether later philosophers endorse the capacity for universal doubt, they have assumed the basics that Descartes proposed.

The problem of consciousness

It is when one turns to questions about consciousness that many of these problems come home to roost. Neo-Cartesianism mystifies consciousness because of the separation of mind and body. The experience of perceiving the world, seeing that the Kirby is in fact pink, is taken to be as something that occurs above and beyond the world, since the world is mere matter and its interactions. While we have a rather elegant account of how light rays bounce off of things and trigger cones and rods in the eyes, this does not address what it is like to see something as colored. This is commonly taken to be something irreducibly subjective, in that every perspective is unique and personal. Because of this, it is impossible to capture adequately what this sort of experience is like.

This all becomes clear in Thomas Nagel's classic essay "What Is It Like to Be a Bat?" In this essay, Nagel explores how the mind-body problem complicates consciousness. In fact, it is consciousness that makes the mind-body problem interesting in the first place. Because we experience the world in terms of a rich "technicolor phenomenology" it is Nagel's contention that it is difficult to image how science can capture what it is like to be a particular sort of being.

There is a certain intrinsic character to experience, the fact that it is felt, that appears irreducible. Furthermore, this irreducible core cannot be adequately captured in functional or behavioral terms. There is a certain *jene sais quoi* to experience.

To make this point clearer, Nagel asks us to consider the world of the bat. Bats perceive the world through sonar, emitting extremely high-pitched sounds inaudible to humans and then determining distance, size, texture and the like based on what is heard. This is rather alien to humans. While we possess an adequate scientific description of how this works, this tells us little of what it is like to experience the world as a bat. We might be able to imagine what it is like to hang around on the roof of a cave for most of the day, be nearly blind, and perhaps what its like have wings and fly. But this only tells us what it is like for a human to imagine life as bat. It tells us nothing about what it is like for the bat to experience its life. Its major form of perception is so qualitatively different from anything in human experience that it is impossible to know what its like to be a bat as the bat experiences its world.

Nagel's point in bringing up this case is two-fold. First, that there is some irreducible core to experience that is unique for every conscious being. There is a subjective dimension to experience, what it is like not just to process information in the ways that science describes, but to feel something as experience. Humans are perhaps unique in possessing languages that help to capture this subjective dimension, but this only works because the majority of humans share a frame of reference about what experience is generally like. To illustrate the limits of this, consider trying to explain to someone who is blind what it is like to see a color.

Second, science, in its present state, leaves out this subjective dimension. For all of its strengths, science cannot explain consciousness. The trouble is in attempting to reduce consciousness to mere matter and its interactions. At best, all the materialist explanations posed thus far only explain the mechanisms through which consciousness occurs. They leave out what it is to experience, to feel as a particular sort of being. Based upon the sciences thus far and extrapolating from here, a risky business, it cannot account for what it is like to be a bat or a human. Every attempt to do so either is talking about something else (something that can be totally captured in terms of behavioral or functional terms) or leaves out the precise thing that makes consciousness interesting, its subjective dimension.[7]

I suggest that this is the necessary terminus of acting-on-the-world. Because of the assumption that the mind occupies some space above and beyond the rest of world, consciousness becomes an utter mystery. There is no way to explain what its like to experience the world. Subjectivity has become something absolutely inexplicable. By assuming that the subject acts on the world, rather than acting in it, one is left in a situation in which the thing that most needs a convincing account, consciousness, is left ineffable. Nothing can be said about consciousness except that it appears to exist. Either one needs a miracle to explain how it is that the brain creates consciousness in all its irreducible wonder or one can claim that it does not actually exist. The trouble with the former is that the miracle does not appear forthcoming. As to the latter, consciousness seems to be very real and to say otherwise is counter-intuitive to say the least.

Acting-on-the-world is a philosophical position rife with problems. It mystifies consciousness. It requires nothing short of a miracle to explain how humans function in the world. Connecting mind and body together is an impossible task, at least without the help from a

[7] This is a very common theme within the philosophy of mind, especially in discussions of consciousness. For a general overview of the literature, I recommend Block, Flanagan, and Guzeldere (1997). For a bit on the history and a way of thinking out of the problem, see Midgley (2001), especially 81-153.

deity. The other options that acting-on-the-world leaves us with are equally problematic. Idealism in its Humean form tells us nothing about the world or the self. And materialism is faced with the daunting trouble of accounting for the mind. The obvious solution is to deny the chief tenets of acting-on-the-world. What this looks like is the matter of the following chapter.

Chapter 3: Acting- in-the-world: Semiotics and subjectivity

This chapter will attempt to fill out the notion of "acting-in-the-world." Central to this task is the idea that everything occurs within a common world. I maintain that, unlike acting-on-the-world where the knowing subject acts upon the world from outside of it, the subject is part and parcel of the world in a thoroughgoing way. Human thoughts and actions all take place in the same space. In order to develop this idea, I will engage in a set of exercises designed to change our frame of reference. The first is to decenter our thinking that consciousness is fundamental by focusing on organisms trying to survive in environments. The second involves Peirce's theory of signs, his semiotics. In talking about signs, we find a language that avoids the pitfalls of neo-Cartesianism. From here, I turn to developing an account of subjectivity that grounds the subject firmly in the world. Through this set of moves, we find that the subject is a part of the world and acts within it.

Organisms and environments

As was explained in the previous chapter, modern philosophy has taken consciousness as its starting point. Descartes simply began by trying to empty out the contents of his mind and proceed from there. Consciousness itself was never doubted. The trouble arises when one wants to move from consciousness to the world. As it turns out, it appears that it cannot be done. There is a sense in which Hume is right. If we start from a naïve definition of experience and take that to be the definition of consciousness, we can never *know* where experience comes from. For this reason alone, we should abandon the framework that takes consciousness as primary.

Instead, I propose that our frame of reference should be the organism trying to survive in an environment. Why? The utter failure of the neo-Cartesian project is reason enough. Furthermore, by changing to a different frame of reference, certain problems cease to be as dire.[1] There is a certain fruitfulness to this change which is the subject of this chapter. This fruitfulness arises from two sources. First, one no longer starts with consciousness, but instead builds toward it. That is to say that one does not begin with conscious experience. Rather, one looks at how an organism functions within an environment and then works toward explaining experience's role in the organism's life. Second, habits begin to take on proper significance. This is because habits, the ability to act with a minimum of reflection, are vital for survival. Without habits, an organism could not make its way in the world. For this reason it is necessary to examine is the role of habits in life. This moves discussions away from how to ground knowledge properly and towards matters of how habits are established.

As was noted above, this new frame of reference centers on an organism trying to survive in an environment.[2] The first thing to be noted is that organism and environment "are as strictly correlative as are brother and sister, buyer and seller, stimulus and response." (Dewey, 1978: 437) Where ever there is an organism there will be an environment and vice versa, though this will be in the technical sense of "environment" to be developed below.

Again, following Dewey, we should see that the organism and environment are bound together in a more complicated event that he refers to as life.

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[1] Namely that problem of consciousness. Though I do fear that the problem still lingers even in the frame of reference I propose. On the flip-side, I suspect that the problem is no longer insurmountable as it is with neo-Cartesianism. I will merely offer this as a promissory note for a later work.

[2] As it will turn out, for humans at least, it is never merely about *an* organism, but always a community of organisms.

> Life is a process which includes environment as well as organism within itself; if we are apt to connect life with the organism and not with the environment, this only means that its connection with the former is direct, and with the latter indirect, or by means of the organism. (Dewey, 1978: 437-8)

It makes little sense to discuss organisms without reference to their environments. Its environment is absolutely vital for the organism's survival. For this reason, Dewey puts organism and environment together under the heading of "life." The process of life takes into account both things. Both are necessary in order to understand what life is.

Now, not everything in the physical surroundings counts as part of the environment. "There may be much in the physical surroundings to which the organism is irresponsive…." (Dewey, 1978: 438) Instead, it is those things in the physical surroundings that impact the organism that define the environment. "Whatever affords it food, whatever threatens it, whatever protects it against menace, whatever operates as *signal* to direct it toward food or a mate, or away from an enemy, - such conditions are true constituents of its environment." (Dewey, 1978: 438. Emphasis mine) Those things that make a difference to the organism constitute its environment. If there is something that does not directly or indirectly influence the organism, it is not part of the organism's environment in this technical sense. Though, especially for more complicated organisms, putting clear limits on what counts as the environment will be difficult and subject to revision.

With Dewey's definition of life, we find that the line between organism and environment is blurry. The two are reciprocally related to one another. The processes that constitute the organism contain the environment. The environment is only what it is for some organism. For this reason, it is impossible to draw to sharp line between the two. Instead, we should see them for what they are: bound together in the process of life. Furthermore, the tools that an organism uses are also part of the organism because they are needed for the organism to make its way in its environment. Although the tool is part of the environment, the tool is also part of the organism due to its necessity. In this way, we should learn to expect that there is no sharp demarcation between organism and environment. The two flow into each other at various points.

What then is the philosophical significance of this discussion? The first thing to note is that this situates humanity within an evolutionary context. That is to say, that humanity is "natural existence" among others. Humanity is a particular sort of life, a combination of organism and environment. It is genealogically connected to other sorts of natural existences, other sorts of life forms. While there are clear differences between humans and other sorts of organisms, one can account for these differences through a careful reading of the evolutionary record.

This is philosophically significant because it helps to demystify humanity. Although naturalism has been all the rage for quite some time, there is still a lingering air of special creation associated with humans. This usually has to do with the problem of consciousness. Because philosophy starts with consciousness, it remains a mystery as to what its source is. On the one hand you have the rather cold world as described by science and on the other you have the buzzing, blooming confusion of experience. This implies some sort of qualitative, ontological uniqueness to humanity.

This claim to uniqueness can be sidestepped by changing frames of reference. Instead of starting with a certain limited definition of experience, one looks at organisms trying to survive in environments. One focuses instead on the behavior of the organism, how it tries to survive,

what resources it mobilizes in order to preserve itself better. As will be explained below, consciousness, in one sense of the word, is merely another tool that is used to help an organism survive in a sometimes unfriendly environment. Instead of beginning with consciousness and then wondering how it can be explained, try to think in terms of how one might explain the behavior of an organism. As it will turn out, the postulation of consciousness is remarkably useful for understanding certain sorts of behaviors.

Furthermore, this change in perspective helps to fill out this idea of acting-in-the-world. Instead of focusing on how consciousness connects to external world, our starting point shall be the organism trying to survive in its environment. This already presupposes a certain sort of being-in-the-world. That is to say that the organism already exists in the world. When the organism acts, it is acting in the world, in its environment. Anything the creature does is a part of the world, a part of life.

There is no mysterious space in which "the subject" exists. Instead, everything goes on in a common context, that of life. It is in this context that we should understand humanity. Humans are a set of organisms among many others. First and foremost, humanity is an organism trying to survive in a sometimes hostile environment, like any other organism. From here, we should go on to look at what makes humanity unique within the context of evolution. Consciousness does seem to make humans somewhat different from other organisms. Yet, following from the crypto-naturalism that has guided us so far, the emergence of consciousness should be seen as one possible evolutionary response to the environment, an adaptation.

We must refuse the urge to isolate the subject from the context of life. The failure of neo-Cartesianism is that it begins with the subject already divorced from the world. Because of this divorce, it can never be "reattached" to the world. Neo-Cartesianism separates the subject from life and then wonders why the external world is so hard to prove. We shall not make this mistake. Instead, we shall begin by assuming the subject is already part of the world as an organism. The question, which shall be the central concern of this chapter, is then what is the role of consciousness, and subjectivity more generally, in this world?

I will focus on the subject's side of the equation for most of this chapter. This is because I am interested in subjectivity, which has typically focused on the organism's side of the equation. That said, we must keep in mind what Dewey notes about Peirce's semiotics:

> Perception of "internal and "external" worlds is a matter of one and the same event.... And while Peirce uses the word "internal" to express the organism's part in this two-sided affair, it is equally true that the organism's side is "external" to that of the part of environing conditions in the common transaction. It all depends, so to say, on whose side we are on. (Dewey, 1946:147)

While I might focus on the organism's side, this is not done to the exclusion of environment. As with the definition of life discussed above, the line between organism and environment is blurry at best. It must be kept in mind that I am analyzing one side of a "common transaction."

Semiotics for beginners

In order to develop an acting-in-the-world approach to subjectivity, I will begin by exploring Peirce's four incapacities. These mirror the tropes discussed in the previous chapter. These incapacities are:

1. We have no power of Introspection, but all knowledge of the internal world is derived by hypothetical reasoning from our knowledge of external facts.
2. We have no power of Intuition, but every cognition is determined logically by previous cognitions.
3. We have no power of thinking without signs.
4. We have no conception of the absolutely incognizable. (**CP**: 5.265)

The place to begin is with the third incapacity, that we have no power of thinking without signs. My account of acting-in-the-world will center on Peirce's semiotics, theory of signs, because semiotics is one of those places where life gets complicated, philosophically speaking. 20th Century semiotics is a testament to how difficult language is to get a handle on. By focusing on signs, many of the traditional assumptions of philosophy are challenged. This is clearest in the case of structuralism and post-structuralism.

Given the history of semiotics, it should be unsurprising that the sign offers a way out of the perils of Cartesianism. What might be more surprising is that semiotics offers a plausible account of acting-in-the-world. For reasons to be made clear below, Peirce's semiotics offers just such an account. Part of this is because Peirce is concerned with more than mere signification. One of my most common complaints about semiotics is that it obscures the "blood and bone"-ness of life. Peirce escapes this by focusing on more than "mere" signification. Instead, semiotics is a way of thinking about being.

To clarify the basic concept of the sign, consider the following passage from Peirce's notes in "Some Consequences of Four Incapacities":

> a sign has, as such, three references: 1st, it is a sign *to* some thought which interprets it; 2nd, it is a sign *for* some object in that thought it is equivalent; 3rd, it is a sign, *in* some respect or quality, which brings it into connection with its object. (**CP**: 5.283)

Each of these references is part of the semiotic triad. This triad consists of a representamen, object and interpretant. The representamen is "something which stands to somebody for something in some respect or capacity." (**CP**: 2.228) The object is that thing the representamen stands in for, which can potentially be anything: a previous thought, an apple or a person. The interpretant makes the connection between the object and the representamen, determining in what capacity the representamen stands in for the object. In making this connection, the interpretant generates the representamen for the next triad and so on. Thus, we are forever caught up in semiosis. As Peirce himself remarks:

> But if the train of thought ceases by gradually dying out, it freely follows its own law of association as long as it lasts, and there is no moment at which there is a thought belonging to this series, subsequently to which there is not a thought which interprets or repeats it. There is no exception, therefore, to the law that every thought-sign is translated or interpreted in a subsequent one, unless it be that all thought comes to an abrupt and final end in death. (**CP**: 5.284)

It is at this point we begin to see the significance of Peirce's second incapacity, that we have no power of Intuition, where Intuition is a thought that happens completely spontaneously. Each sign flows into the next. There is no end to what Peirce refers to as "semiosis," the general

processes of signs. There might be interruptions to this train of thought, but this is usually explicable, based on external or unconscious factors.

Now, the status of the object is perhaps the most confusing part of the semiotic triad. Peirce does little to help ease this confusion. As he notes:

> For what does the thought-sign stand- what does it name- what is its *suppositum*? The outward thing, undoubtedly, when a real outward thing is thought of. But still, as the thought is determined by a previous thought of the same object, it only refers to the thing through denoting this previous thought. (**CP**: 5.285)

The object of the sign is bound up with its representamen and interpretant. When we take the representamen as standing in for the object, this already presupposes that we are interpreting the relation between the two. This interpretation will be determined by the previous semiotic triad.

> The thought-sign stands for its object in the respect which it is thought; that is to say, this respect is the immediate object of consciousness in the thought, or, in other words, it is the thought itself, or at least what the thought is thought to be in the subsequent thought to which it is a sign. (**CP**: 5.286)

There are two things going on in the passage. First, the representamen is interpreted as having a certain relation to its object. This relationship is not necessarily given, but is instead an active process of interpretation. These relations can be mobile, can change. Second, this thought is what occurs in the mind, though we are not immediately aware of it. To become aware of the thought requires another sign, which is an interpretation of the previous sign. This also means that through each triad, the sign can gain more information. I first see Kirby. I then think of Kirby as pink. I then think of Kirby as pink and then as a product created by Nintendo and so on. Here we see the way in which each thought interprets the previous thought. Through this process, the sign acquires more information that than it had before.

To help illustrate these rather confusing remarks, consider the following example that Peirce gives:

> Two men are standing on the seashore looking out to sea. One of them says to the other, 'That vessel there carries no freight at all, but only passengers.' Now, if the other, himself, sees no vessel, the first information he derives from the remark has for its Object the part of the sea that he does see, and informs him that a person with sharper eyes than his, or more trained in looking for such things, can see a vessel there; and then, that vessel having been thus introduced to his acquaintance, he is prepared to receive information about it that is carries passengers exclusively. (**CP**: 2.232)

In this instance, the initial object is the part of the sea the two men are looking at. The sign, "That vessel there carries no freight at all, but only passengers," draws attention to part of the object, something that the other man cannot make out. The first interpretation of the statement is that the first man has better vision. The next interpretation has to do with the nature of the vessel itself, that it only carries passengers. What occurs here is a transaction, Dewey's terminology rather than Peirce, between the two men about what the object of the sign is. It is only through the process of thinking, interpretation, that the other man comes to accept the statement about the

vessel. The first object is the portion of the sea they look at. From the statement, the other man draws a conclusion about the nature of that object.

Meaning arises out of this semiotic process. Meaning is never present within a sign. It is derived from later signs. This is not to say that all thought is meaningless. Instead, meaning arises from the relations of signs to each other. For this reason: "we may say that *meanings* are inexhaustible." (**CP**: 1.343) It is always possible for a new interpretation of a sign to arise. Put in a different way: "[a] sign is objectively vague, in so far as, leaving its interpretation more or less indeterminate." (**CP**: 5.505) On its own, a sign is vague because it needs to be interpreted. Yet, for many signs, what the interpretation should be is constrained by the meanings of other signs. It is through the open-ended process of semiosis that the meaning of signs is determined.

Still, more can be said of meaning. Take for example Peirce's symbols, which are linguistic signs or what are commonly called words. He notes: "the meaning of a symbol consists in *how* it might cause us to act." (**CP**: 5.136) So, the meaning of a word resides in what it leads us to do. This should not be understood merely in the sense of causing some mechanical motion. Instead, the "how" must "refer to a description of the action as having this or that *aim*." (**CP**: 5.136) I believe this point can be made clearer by showing the similarity between "meaning" and "means to do." Peirce makes this clear in the following way:

> In truth the only difference is that when a person *means* to do anything he is in some state in consequence of which the brute reactions between things will be moulded [in] to conformity to the form which the man's mind is itself moulded, while the meaning of a word really lies in the way in which it might, in a proper position in a proposition believed, tend to mould the conduct of a person into conformity to that which it is itself moulded. (**CP**: 1.343)

Unsurprisingly, there is little difference between "meaning" and "means to do." It is a matter of in which direction the action points: "internally" or "externally." Both are concerned with molding conduct, keeping in mind that the boundary between "internal" and "external" is not rigid.

Self as semiotic

What then is the status of the self in this regime of signs? Clearly, since humans must think in terms of signs, a human is "nothing more" than a sign or, better put, an assemblage of signs. Peirce himself draws this conclusion at the end of "Some Consequences." Peirce does not put too fine a point on it when he states: "Thus my language is the sum total of myself." (**CP**: 5.314) The words and other signs we use to conceive and describe ourselves are all that the self consists of. He further elaborates this point:

> The man-sign acquires information, and comes to mean more than he did before. But so do words. Does not electricity mean more now than it did in the days of Franklin? Man makes the word, and the word means nothing which the man has not made it mean, and that only to some man. But since man can only think by means of words or other external symbols, these might turn round and say: "You mean nothing which we have not taught you, and then only so far as you address some word as the interpretant of your thought." In fact, therefore, men and words reciprocally educate each other; each increase of a man's information involves and is involved by, a corresponding increase in a word's information. (**CP**: 5.313)

Signs, specifically symbols, grow, change. Through this process, the human-sign grows and changes as well. This process is reciprocal because, as each grows, it transforms the other. As new information is added to a sign, this increases the possible meanings that a human has access to. Likewise, as humans grow, the words they use can shift in meaning. In this way, words and humans "reciprocally educated" each other.

Now, what exactly does this mean that persons are assemblages of signs? One takes the body as an amalgamation of signs. Each feeling, be it a pain in the foot, the feel of the keyboard on the fingers or the mushy set of sensations associated with love, is a set of signs of different sorts. These various signs fit together to form what Peirce refers to as an argument. In its simplest form, an argument is a set of propositions, signs that lead to a conclusion. Now, given the "objective vagueness" of signs, what the conclusion should be tends to be an open question. In logic, we can usually figure out what the conclusion ought to be and how it follows from the premises. In poetry, which is another of Peirce's examples of an argument, the intended meaning can be much more indeterminate. This should not take away from the basic idea of argument as a set of signs that somehow fit together to make a whole, a conclusion of sorts.

For Peirce, the idea of microcosm/macrocosm plays out a number of times, since everything is the working out of his three categories. So, the same logic applies to the universe should play out at the level of the individual.

> The universe is a vast representamen [Sign], a great symbol of God's purpose, working out its conclusions in living realities. Now every symbol, must have organically attached to it, its Indices of Reaction and its Icons of Qualities; and as such part as these reactions and these qualities play in an argument, that they of course play in the universe, that universe being precisely an argument…. [T]he Universe as an argument is necessarily a great work of art, a great poem, - for every fine argument is a poem or a symphony, - just as every true poem is a sound argument. But let us compare it with a painting, - with an impressionist seashore piece, - then every Quality in a premiss [sic] is one of the elementary colored particles of the painting; they are all meant to go together to make up the intended Quality that belongs to the whole as a whole. (**L**: 201)

There are several things to note about these passages. First, one can begin to see the role that God plays in Peirce's metaphysics. As will be problematized in Chapters 6 and 7 this idea that the universe is the working out of God's purpose is just another variation on foundationalist themes which cannot be sustained philosophically. Yet, the idea of process here is significant. That the universe is an on-going project is an idea that will be retained throughout this essay.

If we keep this idea of the universe-as-argument in mind, the self becomes a sub-argument, because the self is part of the overall whole. The self is an amalgamation of signs brought together into a (hopefully) coherent whole of some sort. What sort of whole this is I will leave open-ended, since there are many sorts of wholes. Part of this is a question of aesthetic sensibility. Peirce seems to have in mind a painting by Monet or a symphony by Brahms. I instead will propose that one should think in terms of more contemporary artists like Alfred Schnittke or Rene Magritte as examples of how to conceive the self in these wacky post-modern days. Both of the artists use juxtapositions of different ideas to create to a beautiful whole. At least in the present, the self seems to involve a wide variety of elements that come together,

sometimes in a dissonant manner.[3] Fashion, work, religion, among other things, all come together to produce vastly different sorts of selves. These elements, while lacking homogeneity, still can work well as a whole.

Regardless, the self should be thought of as an assemblage of signs. The words and other signs one uses to conceive of oneself are all that the self consists of. These signs are brought together in the form of an argument, though with one crucial difference from more traditional understandings of the term. Unlike a logical argument or a poem, the self-as-argument is unfinished. Its conclusion is always coming into being. There might be pauses in the story, but it still develops until the time of death.[4] The signs that constitute the self change over time. New signs are added and old ones are lost. Meanings are transformed over time. Because of the nature of semiosis, everything about the self is constantly changing.

The socialness of the self

The self is social all the way down for Peirce. This plays out in several directions. First, Peirce's work seems to echo, if not prefigure, the literature on the "social construction of the self" pioneered by Royce and G. H. Mead.[5] I will leave this angle untouched. Instead, I will focus on the socialness of language itself. If, following the later Wittgenstein as well as Sellars, we agree that language is fundamentally a public phenomenon, an intersubjective achievement, and then the self itself is a public phenomenon as well. Furthermore, the self is dialogical. It is both distributed both through society and "internally."

Language is fundamentally an intersubjective achievement. This is to say that language is a social function. Without a community of some sort, there could be no language. Think back to Wittgenstein's *Philosophical Investigations*.[6] One of the lessons that is continually hammered home throughout is that language is a public phenomenon. There are no private languages. Language must be something public; there simply is nowhere else for it to be. The implication of this is that communities are necessary in order to gain a language. One must be a part of a social group to develop the ability to use language. It is through training that we learn what words mean and how to use them to achieve our goals. Without this sort of discipline we cannot develop anything like a robust language. This also means that complex thoughts are also an intersubjective achievement. The reason for this is that complex thought must occur in symbols and the meaning of these symbols is only arrived at through social processes.

To put a pragmatic spin on these musings, language is a way of coordinating actions. First with others, then within the self (since there can be no self without others). Language is a way of coordinating actions because it allows two entities to know what the other is doing or planning on doing. Through the use of gestures and words, one agent can inform the other of things. In this way, the agents can direct each others' actions. This probably first began with coordinating actions with others because the agent already knows, in some broad sense, what it will do, since it is acting on habit. Only later, and perhaps secondarily, does the agent use language for coordinating its own actions with itself. Although language has developed many other applications, coordinating actions is at its heart.

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[3] Though just because something is dissonant does not exclude it from being beautiful. See the works of the Second Viennese school or the American abstract expressionists as examples.

[4] Even in death, the argument is incomplete, because others still have a part to play in how the subject is remembered.

[5] This can be seen in chapter 1 of my M.S. Thesis….

[6] See Wittgenstein (1958) for more on this.

As to the self, this means that the signs that are used to cognize the self, to "construct" it (so to speak), are fundamentally the stuff of the community. While we might be able to take things as a sign without being a member of community, higher level signs that Peirce sees as so significant for the self would not be possible. This is because those more complex signs can only be realized through a community. As was noted above, the self is an argument, which means in Peirce's typology of signs that it is a symbol or words in a more conventional sense. The self is a mess of symbols. While Peirce never makes the point explicitly, it is clear from what has been said above that symbols must be community creations. The reason for this is that symbols are the only signs that are truly dynamic. The source of this is the fact that they are used as a common currency among subjects to coordinate actions. When symbols are used as a common currency, they can be transformed, which is what makes them dynamic.

Because of the socialness of language, the self is also social in a thoroughgoing way. Without society, there could be no self. There are two reasons for this. First, all of the means through which we conceive of the self are intersubjective achievements. Second, it is only through being a member of a community that we arrive at the ability to use language. The practical import of this is that the self is distributed through society. The self is not neatly localized exclusively in the head or in some otherworldly space. Instead, the self is realized through social interaction. It exists because of this sort of interaction. The self is distributed through society. This means that the self only begins its existence in relation to other selves. It is through the acquisition of language that we arrive at a self.

Furthermore, the self is dialogical. This is to say the self is distributed across time. The active part of the self engages with previous selves. As Peirce explains:

> Two things here are all-important to assure oneself of and to remember. The first is that a person is not absolutely an individual. His thoughts are what he is "saying to himself," that is, is saving [sic] to that other self that is just coming into life in the flow of time. When one reasons, it is that critical self that one is trying to persuade; and all thought whatsoever is a sign, and is mostly of the nature of language. The second thing to remember is that the man's circle of society (however widely or narrowly this phrase may be understood), is a sort of loosely compacted person, in some respects of higher rank than the person of an individual organism. (**CP**: 5.421)

The first point is not surprising, given Peirce's Second Incapacity. Because each thought is determined by the previous thought, the self must be distributed through time. It is always in the process of becoming. The self is "internally" social. The active part of the subject engages with previous selves to produce itself anew. The self is always in a process of dialogue both with itself and with others.

The upshot of the second point is that society is also somewhat like a person. This has several implications. First, society, like the self, is also always becoming. It shifts and changes over time. It is not fixed eternally. Implicit within this is the idea that the subject can in fact change society. Second, and perhaps more interestingly, society is an amalgamation of signs. It too is an argument. This means that we have signs upon signs, all brought together in a variety of ways. While society is not localized in the way that the self sort of is in a body, it is manifested through those individuals. Yet, it also has a semiotic existence above the level of the individual. The social exists as a background of signs to be drawn upon.

Semiotics and the body

This discussion has been too far removed from the body, which serves as the point at which the self is grounded. So far at least, it appears that one must have a body to have a self. For this reason alone, we should take the body seriously. We exist as embodied beings. This point goes deeper than the Cartesian claim that we are minds that happen to be connected to bodies. Instead, we should see corporeality as something central to being human. We experience and interact with the world through our bodies. We also experience the body as part of the self. It is part of who we are, not some mere supplement.[7]

The body is also a set of signs. The feelings and other perceptions associated with the body are all signs. This is because these things are taken to be signs about processes the body undergoes. The rumbling in one's stomach is a sign that one is hungry. These signs are always open to interpretation, or might leave us at a loss as to what the correct interpretation is. Every experience of the body is a semiotic phenomenon. In this way, the body is a set of signs. These signs form a system of sorts, in that they fit together in a relatively tight-knit manner. The signs associated with the feet connect together with the signs associated with the legs and so on. Then one has all of the internal organs that also are bound together in various ways. This system is experienced as a web of signs that stand in for the various parts of the body. The object is the body, or one of its parts or processes. The representamen is the particular perception about the body, while the interpretant is what we make of that perception.

Semiotics makes another appearance with respect to the body as well. The body is also a mass of habits. These are actions taken with little or no thought. They are just executed. The whole of habits is intimately linked to semiotics. What causes one to act on a habit is the appearance of a certain sign. Furthermore, the end result of the habit also produces another sign, a sign that the given action was successful or unsuccessful. To put the matter curiously, a habit is an interpretation.[8] Given that meaning is action for Peirce, this is less strange than it might sound at first. The meaning of a sign is what actions it leads to. A habit is, in part, the same. Part of what defines a habit is how it causes us to act. In this way, we can think of habits as well disciplined interpretations. They are interpretations that we execute in the same way given similar initial conditions.[9]

This embodiment does put limits on the self. Because of the limits the body imposes, we cannot construct the self whole-cloth. We are constrained by the shape and appearance of the body, as well as what the body can do. While some of these limits can be transcended through work, the body still grounds the self. It is through the body that we are part of the world. The body is place from which we relate to everything, be it "external" or "internal." The body is not a mere accident that happens to be associated with the mind, but rather the starting point of our very being. Without a body, there can be no self. In this way, we always live as embodied organisms.

The subject as natural existence

Despite these claims about the socialness of the self and the significance of the body, we appear to be left with a problem: that the core of the inquirer is still acting on the world. This is because the subject still appears to be something that exists over and above the world. It is not

[7] For more on this line of argument, see Merleau-Ponty (1962) and Elizabeth Grosz (1996).

[8] This should make sense because both habits and interpretants are Thirds according to Peirce, instantiations of laws.

[9] It is at this point that we see how the mind/body problem is avoided. As I will discuss in Chapter 7, habits presuppose a connection to the world, as well denying any split between mind and body. Instead, mind, body, and world are united together in a whole.

yet clear why the subject should be considered a part of the world. It could just as easily be the most remote incarnation of the *cogito* that has been postulated so far. Some subject that hangs above the world, interpreting sign after sign.

In order to counter this interpretation of the subject, let me turn again to Dewey's essay on Peirce's theory of signs. Dewey notes that Peirce:

> completely repudiated the notion that language is a *tertium quid* in which something called thought is expressed or clothed. With this repudiation goes the denial that the names *Self, Mind, Knowing Subject, Person* as user of signs apply to anything except a particular sort of natural existence, or "thing," which can be *known* only through and by means of the best knowledge we have of other "things," physical, biological, and socio-cultural. (Dewey, 1946: 152. Emphasis original)

The case that thought is dependent on language has been made above implicitly. For those who remain unconvinced, I recommend rereading Wittgenstein's *Philosophical Investigations* or perhaps Sellars' "Empiricism and the Philosophy of Mind." What remains mysterious is why it is that Peirce's claim that all thought is dependent on signs requires that we think of the Self as a natural existence and how the Self should be regarded as a natural existence. Let me deal with each issue in turn.

As has been pointed out throughout this chapter, language is a prerequisite for thought. This runs counter to the dogma alluded to in the previous chapter that language is merely a vehicle for thought, something optional. The dogma fits nicely with the idea that the subject floats above the world. This was because language, especially the written word, has been associated with the body. The subject is this disembodied entity that hovers outside of the everyday world of bodies. If the subject *must* use language in order to think, this would ground the subject in something other than itself.[10]

Yet, how is it that Dewey can claim that taking semiosis seriously means that the subject is a natural existence? Begin with the socialness of language. If language is a thoroughgoing "social" construct, that means that the user of the language is also thoroughly social (assuming that language is necessary for thought). The subject, the language user, is a product of the language using community. Without this community, the subject qua subject would not exist. This is significant because the subject is grounded in the community, other organisms. These other organisms, along with the surrounding environment, help to define what the subject is.

Furthermore, habits presuppose a connection to the world. Habits are the boundaries between organism and environment. It is the point where the two meet and transact. When acting on a habit, no distinction is made on the part of the agent between itself and the environment. Instead, the agent simply acts. The division between external and internal is made later, through inquiry.

If all of this is true, then how are we to know the subject? Through the only means available for understanding a natural existence: physical, biological, and social-cultural inquiry. Remember Peirce's first incapacity: that we have no power Introspection. Instead, all knowledge of the internal world is derived from hypothetical reasoning about the external world. Put differently, all that we take to be part of the "internal world" is really part of the world in general. This means that the only way we can understand the subject is through the same means that we understand any other natural existence, through inquiry, including scientific thought.

[10] For more on this, see Derrida (1998).

The sort of reasoning we use to understand physical, biological, and social existences is the same sort we use to understand ourselves. If Peirce is correct that there is no power of Introspection, then these are the only resources available in order to "know" the subject.

Subjectivity: Horizons of possible experience

These suggestions help to "naturalize" the subject. They imply that the subject is a natural existence, one sort of organism among many others. The final move I will make is regarding subjectivity. This should be the final piece of the puzzle in order to show the way in which the subject is a natural existence.

Simply put, subjectivity is a horizon of actual and possible experience. It is the structure through which experience is made sense of. Subjectivity marks the boundaries of possible experience of the world, including the self. It is both actual and possible experience precisely because subjectivity is the limit of experience. Subjectivity is the malleable framework that we use to process experience. This also includes the limits of experience because some things will fall outside of this framework. It must include possible experiences because our structures are prepared, albeit sometimes inadequately, to handle any sort of "normal" human experience.

In order to fill out this definition of subjectivity, it is important to first understand what is meant by experience. First off, experience is not the atomic-sense data of canonical empiricism. Given the discussions above, it should be clear that such a foundationalist construal of experience falls into the definition of subjectivity I have already rejected. Additionally, this traditional account of experience only captures half of what is going on in experience.

What must be kept in mind about experience is that it is a "double-barreled" word. That is to say "that [experience] recognizes in its primary integrity no division between act and material, subject and object, but contains them both in an unanalyzed totality." (Dewey, 1925: 8) When we experience something, there is no division between the subject and object. There is only experience. This is simply to reiterate a point made above, that the distinction between external and internal is an artifact of inquiry. In this way, experience involves both the thing experienced and the subject undergoing the experience. Experience is fundamentally relational in that requires both the thing and the subject.

Perhaps an example will help. Consider playing a sport like soccer. I am on the field, playing one of the full-back positions. The other team is thundering down the field. It is my job to prevent them from scoring and get the ball as far away from me as possible, hopefully back to where my team has a chance of scoring a goal. Once I see the hoard of people coming my way, we are dealing with pure experience. I am doing things. Lots of things. Running. Hearing my teammates yelling. Hearing the other side yelling. I am also moving. As the ball comes into range, I go after it. I attempt to kick it away from the other team. Their forward will attempt to dodge my attempts to kick the ball. If I'm lucky I might actually make contact with it. If I'm really lucky I might be able to get it to where one of my teammates is running to or it least kick it out of bounds in such a way that it puts my opponents at a disadvantage (I didn't say I was particularly good at soccer).

In this example, I am doing all sorts of things. Running, figuring out where the ball is, what the opposing team is doing, what my team is doing, responding to calls from my teammates, more running, kicking. Throughout this whole series of actions, I am doing these things, but not engaging in any sort of reflection. This is experience in a fairly pure form. I am operating on habit and reflex almost exclusively. This goes so far that sometimes when one of my teammates calls out "Andrew, over there" (and not simply "over there"), I have to reflect on what is said. This is death, because I have to think what "Andrew, over there" means. I do not

simply react to the command. I have to actively process it. By the time I consciously realize what the meaning of the statement was, a goal has scored.

Now that the action has moved upfield from me, I can *finally* actively reflect on what just happened. I realize that one of my habits was disrupted when I heard my name called. Up until that moment, I was acting purely on habit. I learned a bit about playing soccer years ago in summer soccer camps during elementary school. All the various drills we had to perform were about developing habits. These were put into play, so to speak, in scrimmages and actual matches. The habits were built up in the drills or when my best friend and I would go home and continue playing with the ball. These habits were extended when we played against each other and others. In the drills, we learned the basics of how to move, how to run, how to kick the ball. As one quickly discovers, developing these habits is important but it is limited. To be a good player, one also needs to know how to put them into action in "real time," when there are opponents and friends moving all around and you're moving too. This requires additional kinds of training, additional habits. Having not played in a decade and a half, my battery of habits is more than a bit rusty.

There are a number of lessons to take away from this example: First, there is something important about how experience works here. This experience consists of transactive doings. Unlike Hume's impressions (the limits of his understanding of experience), this is not passive at all. I play a very active role in "constructing" this event. As I'm running from one place to another, the opponent with the ball changes her direction, which leads my teammates to do the same, then I follow suit, the opponent responds, and so on. This no doubt captures part of what Dewey means when he states that experience makes no distinctions between subject and object, act and material, and so on.

This example of playing soccer, as well as most sports, gives a clear example of what Dewey means by experience. It is "clear" because for long stretches of time, active (i.e., non-habitual) reflection upon the changing situation tends to disrupt one's ability to succeed in the game. Instead, we are constantly doing things based upon of habit. These habits bring together materials and actions into a whole. On a good day when I am dribbling the ball upfield, the ball functions as an extension of me. While I have habits that specify the spatiality of my body and the ball as well, when I am running upfield with the ball we are acting as a unit. I do not distinguish, outside of acquired habits, between myself and the ball.

Now, what is it to say that subjectivity is "the horizon of experience?" Since experience itself makes no demarcation between subject and object, these are "categories" that are read into our experience. It is precisely these categories through which experience is read, reflected through, that I propose constitutes subjectivity. Why?

As was seen in the brief review of subjectivity, experience is at its core. What becomes interesting is the means through which experience is conceptualized. This is because experience must be thought through some sort of framework. What will mark the differences between individuals will be the varieties of sorting mechanisms used to create experience. These mechanisms I will refer to as subjectivity. In its purest form, experience can be rather confusing, because there can be so much going on. Part of what is going on with subjectivity is filtering out signal from noise. Subjectivity focuses us on particular aspects of our experience. It makes certain aspects important and others something to be ignored.

We can paint in broad strokes some of the categories through which experience is created. We might, following James and Sellars, refer to these as common sense, because they

form the shared background that runs through many, if not most, cultures. James sketched a rough and ready list that includes the following categories:

> Thing;
> The same or different;
> Kinds;
> Minds;
> Bodies;
> One Time;
> One Space;
> Subjects and attributes;
> Causal influences;
> The fancied;
> The real. (James, 1907: 561-2)

While this list might appear *ad hoc*, it does seem to cover most of the bases of a traditional, general construal of subjectivity. At least within the Western philosophical tradition, we tend to conceptualize the world in terms of one space and time. We break down objects in a variety of ways that include same and different and subjects and attributes. There is also a nasty tendency to demarcate the world into minds and bodies, which is something we should resist, at least in a naïve form. What is nice about this list is that it lacks a certain systematicity. This exposes its origin.

What James is quite blunt about is that these categories are not natural, in that humanity has not always had them. Instead, James spins a fable in which they were first proposed by distant ancestors as ways of navigating the world. Because of their success in allowing humans to move through the world, they gradually became accepted by members of the community. Since this happened so long ago, it feels as if these categories have always been there and perhaps have a transcendental status, such as Kant proposed. Yet, following the logic of this chapter, what we find is that these categories were produced. Humanity made them as ways to make sense of experience. Their success points to something valuable about them. But this does not mean that these categories have always been there.

Yet, this only takes us part way into my account of subjectivity as a horizon of experience. While common sense might mark the large-scale categories through which experience is conceptualized, there are other categories that must be taken into account as well. One might call these other categories "markers of difference," because they are the signs through which members of a community are differentiated, categorized and treated. Among these markers we should include: race, class, gender, sexuality, ethnicity, religion, age and so on. Each of these markers, in its own way, influences subjectivity. Depending on one's relationship to the mode of production, the way that work (among other things) is experienced will differ. The way that the subject is sexed has a great effect on the way the world and self are experienced. One example is whether the body is experienced as an active subject or passive object.[11] The other markers produce different effects.

The central claim here is that, based on relationships to these markers of difference, humans have different ways of categorizing experience. Put baldly, the experiences of an upper-

[11] Given this, it should also be clear that what is "common sense," even in a Jamesian sense, will vary. The case is clearest with gender.

class, African-American woman are typically processed differently than those of a lower-class, white man. The differences will appear in the sorts of relationships one takes with both the world and the self. For example, something that one subject takes as odd, a call for inquiry, might not faze another. This has to do with the way that experience is made sense of: what is taken as significant or insignificant. Two subjects might have similar experiences, but draw very different lessons from those experiences. This marks a difference in subjectivity.

There are two lessons to be drawn from this discussion. First, horizons of experience are malleable. This means that they are both developmental and subject to change. They are developmental because we must be conditioned by experience or trained to experience the world in certain ways. Subjectivities are acquired. They are subject to change because they are acquired. As one grows, one learns to perceive the world and the self in different ways. This means that our horizons of experience can be transformed. This can range from the trivial, learning how to taste and talk about wine properly, to the profound, seeing one's body as active rather than passive. This tends not to be an easy process, but it can be done. It is not easy because subjectivities amount to being something like mental habits, something usually done with minimum of active thought. Like physical habits, mental ones can be also hard to change once acquired.

Second, subjectivities are both social and individual. They are social because they require other subjects to be acquired. In order to learn common sense, the subject must learn it from others. Common sense is a production that must be acquired from being part of a social group. Furthermore, the markers of difference are all thoroughly social. One develops a relation to them only though membership in a society. That said, subjectivities are also profoundly individual, precisely because they are social. Because no individual occupies the same position within a society, there is little reason to anticipate that all subjectivities will be the same. Each individual's relationship to the resources through which subjectivity is constructed will be different. While there might be common themes that run throughout subjectivities, there is also the space for serious differences. These differences are manifested at the level of the individual.

Lastly, there is a common world that is both being experienced and that experience occurs in. What subjectivities amount to are perspectives of a shared world. This is because experience contains both the subject and the object. That an individual subject has a particular perspective on the objects of the world does not mean that this world is shared. In fact, it is because of the perspectival nature of experience that there is a common world. We each have a subjectivity that can be talked about and shared with others. The socialness of subjectivity presupposes a common space in which experience occurs because there must be something that subjects are experiencing. This thing is the world in which all experience occurs.

At last… acting-in-the-world

How does all this get us to acting-in-the-world? The place to begin is with semiotics. One of the useful things about Peirce's semiotics is that, much like experience, it brings together subject and object. The distinction between subject and object is actually a product of interpretation. When we think, which must be done in signs, we are linking together the object of the sign with the interpreter, the subject. It is only through later acts of interpretation that one makes the distinction between object and subject. It is something that is read into the sign. This act of parsing things into subjects and objects is an act of inquiry. It is performed on a particular sign. If we consider the sign as a unit, we see that there is actually a tight connection between object and subject. In neo-Cartesianism, there is a mystery about how the knowing subject connects to objects to be known. Within Peirce's semiotics, we find that this problem is

wrongheaded because his very definition of the sign presupposes an intimate link between the two.

Here we begin to see the outlines of acting-in-the-world. No longer do we need to worry about how to connect the object and subject because we have found a frame of reference, semiotics, which brings them together. This starts to get the subject back into the world. The reason for this is that semiotics denies the radical split between subject and object. Instead, the two interact with each other constantly. The mark of this interaction is action. Remember, the meaning of a sign is the actions that result from it. These actions occur in the world. Through the process of thinking, which brings the subject and object together, we perform an action, which is some sort of sensible result, another sign. This process occurs within the same space since everything involved is simply a sign. The sign functions as a common denominator to keep everything in the same world.

In this way, humans act in the world. Everything a human does happen within one world. This world, as we shall see in Chapter 7, is a very complex place. By focusing on action, we see the way in which object and subject are bound up with one another. Oddly enough, this semiotic frame of reference helps to make this more obvious. Semiotics gives us a way of bringing together subjects, objects, and actions into one space. By performing this move, we find that there is only one world in which everything occurs. This also prevents the set of moves that allow for neo-Cartesianism. This is because neo-Cartesianism relies on an unbridgeable gulf between subject and object. Neo-Cartesianism ends up with two distinct worlds and many mysteries. Once we find that subjects and objects are brought together all the time, many of these mysteries dissipate.

One example of this is that we can account for subjectivity being a part of the world. Subjectivity is simply the battery of interpretations, many largely habitual, that we bring to signs. Subjectivity consists of the habitualized set of meanings we derive from particular signs. These are interpretations that have become habits, actions performed with little or no thought. This grounds subjectivity in the world because it is clearly part of semiosis. By being a part of the semiotic process, subjectivity is part and parcel of our very complicated world.

Chapter 4: The what and the why of scientific realism

This chapter has two goals. The first is to develop an account of Sellars' scientific realism. This involves exploring what the basic claims of scientific realism are, then exploring the distinctive variety that Sellars proposed. The second goal is to explore the genesis of scientific realism. The central question is "what is the appeal of scientific realism?" I locate this appeal in a desire for a foundation on which knowledge and existence can be based. We find that scientific realism is just an extension of the impulse towards foundationalism.

What is scientific realism?

Before going further, it will be helpful to fill in some of the back story about scientific realism. Richard Boyd claims that most variants of scientific realism rely on four claims:

> (i) "Theoretical terms" in scientific theories (i.e., nonobservable [sic] terms) should be thought of as putatively referring expressions; scientific theories should be interpreted "realistically."
> (ii) Scientific theories, interpreted realistically, are confirmable *and in fact are often confirmed* as approximately true by ordinary scientific evidence interpreted in accordance with ordinary methodological standards.
> (iii) The historical progress of mature sciences is largely a matter of successively more accurate approximations of the truth about observable and unobservable phenomena. Later theories typically build upon the (observational and theoretical) knowledge embodied in previous theories.
> (iv) The reality which scientific theories describe is largely independent of our thoughts or theoretical commitments. (Boyd, 1991:195. Emphasis original)

Let me deal with each of these claims in turn. First, what is it that we are interpreting realistically? "Theoretical terms."[1] Traditionally, these are taken to be nonobservable entities. Examples of theoretical terms include genes, molecules, and electrons. Nonobservable entities in theories refer to things that cannot be observed at the macroscopic level. These are entities that often require some sort of apparatus, intervention, in order to be perceived. It is because of their unobservable status that the objects these terms name are under dispute in the first place. If they could be perceived without the aid of some sort of intervention, then we would simply be back to the idealist/realist dispute.

So, one of the central claims of realism is that we should understand these peculiar terms as actually referring to things in the world. This means that the scientific realist holds that genes, molecules, and electrons are, in fact, really real. They exist. The world is actually made up of genes, molecules, and electrons.[2] So, in much the same way that the sentence "the Kirby sits on the desk" refers to the fact that the amorphous, pink, creampuff resides on my desk, the same can be said about theoretical sentences regarding electrons and the like. A sentence like "the electron

[1] It should be noted that the line between theoretical and observational terms is rather murky. For more on this point see Spector (1966a, 1966b).

[2] Whether there is anything but, say, electrons, is another question entirely. One that will be returned to below. But the degree zero form of scientific realism I am introducing here simply holds that these nonobservable entities do in fact refer to actual things. It should also be noted that many scientific realists will hold that those fundamental entities for which there is best evidential support are the real. At this point in physics, there is good support for hadrons and leptons, but much less so for strings.

tunneled through the energy barrier" refers to an actual situation in the world in which an electron appears on the other side on a finite energy barrier. The sentence refers to some particular state of affairs in the world.

Next, these theoretical statements are confirmable. This means that somehow or other, these statements can be shown to be correct or very likely to be so. In point of fact, it is not merely that these statements can be confirmed, but are confirmed all the time by ordinary scientific evidence. Needless to say, how this occurs is a complex matter and seems to boil down to serious questions about scientific practice.

Third, the history of science is the history of increasingly accurate approximations to the Truth. The standard realist view is that science is a cumulative endeavor. Mature sciences like chemistry and physics build off of previous findings. There is a linear progression to science where knowledge is moving ever closer to the Truth. Given sufficient time, science will arrive at the Truth: an accurate depiction of the Real.

Lastly, the Real is independent of our theoretical commitments. There is a world that is being described by science that exists independently of our theories about the world. Regardless of whether scientists have known about electrons or not, they have always existed since shortly after the beginning of the Big Bang. Furthermore, the properties of electrons do not depend on our theories about them. They exist "in themselves" regardless of what we think about them.

Sellars' scientific realism

Sellars' scientific realism is a variation on the themes discussed above. As will be demonstrated, he accepts all four of these claims. Yet, he takes these points in a more radical direction. This can be seen in what is referred to as his *scientia mensura*:

> But, speaking as a philosopher, I am quite prepared to say that the common sense world of physical objects in Space and Time is unreal - that is, that there are no such things. Or, to put it less paradoxically, that in the dimension of describing and explaining the world, science is the measure of all things, of what is that it is, and of what is not that it is not. (**EPM** ¶41)

Science is the measure of all things. Science tells us what exists and does not exist. Only those things endorsed by scientific theories are really real. Everything else is illusion.

Sellars accepts a strategy that might be called, following Gary Gutting (1978), "radical replacement realism." This follows the basics of "replacement realism" which holds that the physical thing framework is fundamentally misguided. It is common practice to assume that physical things are real. What replacement realism proposes is that while we interact with physical things, what is in fact real are the particles that make up physical things.

Radical replacement realism, which provides the best description of Sellars' scientific realism, goes further. In addition to claiming that talk about macroscopic physical objects should be reformulated in such a way that it makes plain what is real are theoretical entities, it proposes that talk about private episodes (i.e., thoughts) should also connect fundamentally to scientific languages. This is because, if science in fact does give the only adequate account of the world, then the framework of thoughts is misleading and should be replaced with a scientifically correct way of speaking.[3]

Furthermore, Sellars endorses the idea that science will eventually be unified. This is to say that everything will boil down to subatomic physics. There are no genuinely, or radically,

[3] The implications for this regarding subjectivity will be developed in the following chapter

emergent levels in nature. Instead, everything is basically leptons and hadrons (or perhaps strings depending on where physics takes us) arranged in ever more complicated forms. A molecule is merely a place holder for certain types of sub-atomic particles united in a particular sort of way.

Clearly Sellars' scientific realism is a very radical position. The claim that the familiar world of objects existing in everyday Space and Time does not in fact exist is a bit of a hard pill to swallow. Yet, Sellars is quite clear about this: "On the view I propose, the assertion that the micro-entities of physical theory really exist goes hand in hand with the assertion that *the macro-entities of the perceptible world do not really exist*." (**P** 96. Emphasis original) This means that the world we dwell in, that of tables, chairs and people does not exist. Instead, all there is consists of micro-entities aggregated together in a variety of ways.

The full radicalness of this position becomes clear when we turn "inward." Much in same way that there are no chairs in the world, there are no "thoughts" and "feelings" (in a loaded sense of the terms). Instead, there are the firings of particular nerves. The subject is merely a bundle of micro-entities bound together in complex ways. Humans are fundamentally mistaken in thinking that there is something unique or irreducible about experience. Instead, pain is only the firing of certain sorts of fibers that cause certain sorts of reactions in the brain. Consciousness in a conventional sense has no place in the world since it cannot be described by science. Since science is the measure of what is and is not, consciousness cannot be "a part of the world."

Another part of Sellars' scientific realism involves falling back on a particular bit of Kantian metaphysics. As is frequently rehearsed, Kant distinguishes between the phenomenal and noumenal worlds. The phenomenal is the everyday world of experience and the noumenal is the source of those experiences. The phenomenal is, in a certain sense, unreal because it is not the source of things-in-the-selves, the inhabitants of the noumenal realm. The phenomenal world is only appearances. Sellars accepts this distinction, but with a crucial difference:

> It commits us, in short, to the view that the perceptual world is phenomenal in something like the Kantian sense, the key difference being that the real or 'noumenal' world which supports the world of appearances is not a *metaphysical* world of unknowable things in themselves, but simply the world as construed by scientific theory. (**P** 97. Emphasis original)

The noumenal world is not unknowable as Kant proposed. Instead, it is "simply" the world as explained by science. Remember, what is at issue in scientific realism is the status of nonobservable entities. An electron can never be seen by the naked eye. Yet, these entities explain the phenomenal world of experience. They support such a world. In which case, they are not bad candidates for being the "things-in-themselves" because they do in fact explain why it is the world of experience behaves in the way it does.

Lastly, one must keep in mind that science is a social process. Sellars only makes this point implicitly, but it is clear that he holds something like this position given the significance of Peirce in his thought.[4] As Peirce notes:

> The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you. Thus, the

[4] See Burian (1979) for more on the significance of Peirce for Sellars' realism.

> very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of definite increase of knowledge. (**CP**: 5.311)

Because the scientifically Real is nonobservable, there is a serious problem of "knowing" when inquirers have arrived at the correct answer. Peirce's ingenious solution to this is to propose what is commonly referred to as "the end of inquiry." This is, as its phrase implies, the point at which inquiry is terminated because there are no more questions to be raised.[5] At this *mystical* point, one has arrived at the Truth: an adequate representation of the Real. Because inquiry must be concerned with real questions, there are no more questions to be asked. One knows that one has arrived at the Truth.

Through repeated experimentation, discussion and the like, science is moving closer and closer to the Truth. When discussion finally stops, one has arrived at the Truth. Inquiry has gone far enough. One knows what the noumenal realm consists of. This is "independent of the vagaries of me and you" because of the process. Scientific inquiry itself removes the vagaries.[6] The checking and double-checking of results eliminates such "subjective" biases. It is the communal nature of science that allows for the end of inquiry. Put in a very different way, it is the social nature of science that guarantees its objectivity.[7]

What we have here is a community of scientists working together to understand the way the world works. When the community reaches a certain point, that work will be accomplished: they will have arrived at the Truth. At this point, the noumenal world will be understood adequately. Then it is a matter of reconstructing our worldview such that it matches this correct depiction of the Real. This will involve the giving up of certain cherished notions about the way the world is (i.e., objects existing in Space and Time).

The failure of instrumentalism

How can Sellars maintain this position? Part of it involves an *article of faith*, never adequately defended, that the *scientia mensura* is true. One might appeal to the explanatory success of science as one of its virtues. Yet, it seems like this is a tough case to make without begging the question. This is perhaps because we lack an adequately "objective" account of what explanatory success consists of and in attempting to make the argument for science, one would be assuming the processes that science already uses. While such a move might be philosophically problematic, it can be explained psychologically.

Yet, if one accepts the *scientia mensura*, then Sellars has a fairly compelling argument for his scientific realism. This is based on a simple process of elimination. There are two principal options. On the one hand, you can be a realist about scientific entities. On the other, you can deny the reality of scientific entities. As we shall see, there are some serious problems with the framework that denies the reality of scientific realism. Since this is the case, scientific realism must be true.

As alluded to above, not all philosophers of science endorse scientific realism. Many of them end up as anti-realists. The most prominent sort of anti-realism is instrumentalism. Instrumentalism claims that scientific theories form an auxiliary framework to that of everyday experience. That is to say, the world of common sense (i.e., the manifest image) is

[5] For more on Peirce's theory of inquiry, see Chapter 7.
[6] See Peirce's "Fixation of Belief" for more on how this occurs.
[7] Yes. This is very sociologically naïve.

fundamentally real while scientific entities have a second-class status. Such entities are used to predict the behavior of macroscopic objects.

There are at least two intuitions that instrumentalism plays upon. The first is that macroscopic objects are, in fact, real. Since humans "dwell," so to speak, in a world of physical things existing in Space and Time, it makes a certain sense that these physical things exist in a robust sense. To claim otherwise, at least in a reductionist way, runs counter to how humans commonly navigate through the world. What this presumes is a certain ostensive tie between the language we use and the phenomenal world. That is to say that the words we use directly link to objects in the world.

The other intuition is much more skeptical. The whole reason there is a dispute between realism and anti-realism is that the vast majority of scientific entities are non-observable. That is to say, these entities cannot be seen directly. Instead, an entity like a strand of DNA is postulated, based upon previous theories, inductions and experimental results. Yet, it is impossible to see DNA without the aid of microscopes or other interventions. This problem has led a number of philosophers of science to be hesitant to endorse their existence *in toto*, not as a the scientific realist might by withholding judgment until better evidence arrives, but that such entities exist at all. Given the presumed self-evidentness of the macroscopic world and the rather complicated means used to find microscopic entities, there is a certain appeal to holding that scientific entities are merely calculation devices to predict how macroscopic objects will behave.

Yet, Sellars claims that the presumed ostensive tie to entities of either the physical thing or sense impression frameworks is simply a return to the Myth of the Given. What is this Myth? In "Empiricism and the Philosophy of Mind" Sellars develops a devastating critique of foundationalist epistemology by going after what he refers to as "The Myth of the Given." While the Given has many forms, "[t]he broadest characterization of the given is that it is an element in experience that has positive epistemic significance in virtue of the occurrence of that experience." (DeVries and Triplett, 2000, xxv) As Sellars notes, many things have been taken as a Given: "sense contents, material objects, universals, propositions, real connections, first principles, even givenness itself." (**EPM** ¶1) Both classical rationalism and empiricism have relied on Givens. From rationalism, we have those things known by Descartes' light of nature. On the other side, we have Hume's impressions. Sellars remarks that "few, if any, philosophers have been altogether free of [the Given]; certainly not Kant, and, I would argue, not even Hegel, that great foe of 'immediacy." (**EPM** ¶1) There are two questions that follow from this: first, why have philosophers been so drawn to Givens? Second, what is the problem with Giveness? I will deal with each in turn.

A Given has a special epistemic character. It is a form, generally, of non-inferential knowledge. Put crudely, the Given is just there. Consider Hume's impressions. These are the starting point for all knowledge. On Hume's account, having sensory impressions involves no inferences. The appeal of a Given is that it is (generally) taken as a foundation for certain knowledge. Assuming that the Given is, in fact, *the Given*, it will yield indubitable knowledge. Here the example of Hume breaks down a bit, since his quest begins as one of finding out just what can be known given impressions and he ends up with very little. Descartes might work better. In the *Meditations*, there is a class of things "known by the light of nature." This knowledge is strictly non-inferential. It is simply by the light of nature that the principle of causation, one of Descartes' examples, is known to be the case. Descartes inspects the contents of the mind and finds the principle Given to him. From this Given, Descartes can fulfill his promise of establishing something "firm and lasting in the sciences." (Descartes, 1641: 59) The

light of nature opens up the possibility for certain knowledge. Virtually all the Givens that philosophers have relied upon function in an analogous way: they are foundations for developing some sort of certainty.

The trouble with Givens is that they must be two things at once. On the one hand, they must be non-inferential, since they need to be connected to something that is above the fray of inference to grant the desired sort of certainty. On the other hand, Givens need to be connected somehow to something inferable because they need to the source of knowledge, which is a matter of inference. Unfortunately, this requirement of being somehow inferable undermines the very possibility of the Given. The reason for this is that it leads to an incoherence in the concept of the Given. The Given must be both inferable and non-inferable simultaneously: non-inferable because it needs to be indubitable; inferable because something needs to be done with it. Yet, the epistemic system has been operationalized such that it needs to be one or the other, not both. For this reason, the Given is fundamentally incoherent.

Instrumentalism ends up relying on an ostensive tie between words and things. That is to say that there is a special connection between words and macroscopic objects. These signs obviously point to their objects. It is Sellars' claim that this falls back on some sort of Giveness. Why? To claim this sort of ostensive tie presumes a certain non-inferential character about their use. It is not a matter of inference that when I use the word "cat" that it clearly picks out cats in the world. There is no reasoning involved in this. Yet, these words with this sort of special connection to things are the fodder for inference. Here we begin to see the trap of Giveness. By being inferable, these words lose their epistemic weight because they no longer have their ostensive tie back to the object. They become just another tool of inference. In this way, instrumentalism falls back on Giveness and arrives at the same troubles every other Given has.

Because of the failure of instrumentalism, Sellars holds that one must be a scientific realist. There is no other intellectually respectable option. As we shall see in Chapter 6, not everything is quite so sanguine with scientific realism. In fact, there is another option, which Sellars simply dismisses, that involves holding that both macroscopic and nonobservable entities are real. This gets around the rather messy problems of Sellars' scientific realism, while preserving intuitions about the reality of the macroscopic world. This option will be developed in Chapter 7.

The cultural dimensions of scientific realism

Science is one of the aspects of modern life. One can see it advertised on television and discussed in newspapers and magazines. Science is present in almost every facet of life. We find it in food and medicine, computers and automobiles, virtually everywhere. Yet, the force that the dictates of science have in everyday life cannot be explained merely by the philosophical, epistemic and ontological, dimensions of science. This is because this philosophical dimension is too removed from actual practice to explain the cultural significance of science. Even if we accept the *scientia mensura*, what remains a mystery is the story of how science comes to have such power over modern life. Simply saying that science is developing an adequate representation of the Real should not be enough to explain the ways in which science dominates life. What is needed is a story of how it is that science, regardless of its ontological import, is invested with socio-cultural power.

Within the West at least, there is a peculiar economy to Truth. The origin of this economy of Truth is a matter I will deal with shortly. The first thing to note is that:

> Each society has its régime of truth, its 'general politics' of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each one is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts. (Foucault, 1980: 131)

The general claim is that all societies have a means of determining what counts as Truth. There are particular mechanisms in place to determine whether a particular statement is "true" or "false." Furthermore, there are procedures and persons in place to make these determinations. There is an economy that has developed in order to produce the Truth.

Regardless of whether scientific realism is "true" or "false," science is made to function as the Truth. At least within the economic North, science is the arbiter of Truth. It is science that, within the West, that is charged with determining the Truth of particular statements. If something has been proven by science, then it is regarded as True. If something has not met scientific muster, it is not regarded as part of the Truth.

> 'Truth' is centered on the form of scientific discourse and the institutions which produce it; it is subject to constant economic and political incitement... it is the object, under diverse forms, of immense diffusion and consumption... it is produced and transmitted under the control, dominant if not exclusive, of a few great political and economic apparatuses (university, army, writing, media); last it is the issue of political debate and social confrontation ('ideological' struggles). (Foucault, 1980: 131-2)

That science is the dominant form of Truth should not be a question. Furthermore, it should be clear that contemporary science is driven in part by economic and political concerns. There are a limited number of people who can speak the Truth. As Foucault notes, these tend to be isolated in the university, military, and media.

Because science is the arbiter of Truth, there is an implicit normative claim at work here: one must follow the Truth. Science is not merely a repository of facts, but is also a way to live. One must prostrate oneself before the Truth. One must live according to its dictates. One's life must be lived according to the Truth. This is not to say that science prescribes ends, goals as to what the good life consists of. Instead, science presents itself as the definitive set of means for accomplishing the goal of living the good life.

Science is saturated with the workings of power. Science has become one of the dominant sources of cultural power in the West. Again Foucault:

> We should admit... that power produces knowledge (and not simply by encouraging it because it serves power or by applying it because it is useful); that power and knowledge directly imply one another; that there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations. (Foucault, 1975:27)

Knowledge and power produce each other. Knowledge opens up new horizons for power to operate in, while power reinforces knowledge. "'Truth' is linked in a circular relation with systems of power which produce and sustain it, and to the effects of power which it induces and which extend it." (Foucault, 1980: 133) Knowledge, the Truth, is always bound up with power.

Science is the dominant form of knowledge in the West. It is because of the intermingling of knowledge and power that science has such a hold over our lives. Science helps to construct our bodies, provides metaphors for our existence, guides how we treat ourselves and how we should view others, etc... Science helps to construct the world we live within. It is one of our guiding forces, in that science is vital for navigating through the world.

Throughout these webs of power/knowledge complexes is scientific realism. The assumption that science gets at the Truth is what sustains these complexes. Without this claim, science would be a mere repository of interesting facts. With this claim, it controls our lives. This cultural dimension of scientific realism helps to reinforce the hold that science has over our lives. The idea that science is the measure of what is and is not, that science adequately depicts the Real, that science is the Truth (or at least will be), supports these power/knowledge complexes. It gives the complexes their normative force.

A fable about Truth

How did this situation come about? How is it that power and knowledge became so intimately intertwined? What I will venture here is a Wilfrid Sellars meets Friedrich Nietzsche style fable that attempts to explain how power/knowledge complexes came about and laid the ground-work for scientific realism to ascend to its cultural role.

The existential situation

The first thing to note is that the world is a precarious place. From the greatest to the least things, nothing lasts forever. As usual, Hume goes straight to the heart of the issue: "Nothing in the world is perpetual. Every being, however seemingly firm, is in continual flux and change: The world itself gives symptoms of frailty and dissolution…" (Hume, 1987: 597) Everything from you and me, endless loves, this planet (and in turn the stars themselves) will end. Even the universe itself will either break-down or implode, if modern astrophysics is to be believed.[8] As Emerson remarks "There are no fixtures in nature. The universe is fluid and volatile. Permanence is but a word of degrees." (Emerson, 1990: 189) Nothing in the world of appearance is beyond the reach of time and in time, everything will decay. Even those things which seem to last forever will go away.

Furthermore, the world can be a rather uncertain place. While at a very local level, we can anticipate that an apple will fall if dropped, after Hume we cannot fully guarantee this. In addition, much of human life is "up for grabs." That is to say, even the best laid plans can come apart. There is wisdom in the old Greek expression "Count no man happy until he is dead." (Quoted in Dewey, 1940: 98) It is only in death that the uncertainty of life ceases for the most part for any particular human being.

The power situation

Our early ancestors did not exist in a vacuum. They had a social structure all their own. One might imagine two distinct classes within such an early society: the ruler and the ruled. For whatever reason, physical strength, know-how, special access to resources, etc., one group is in a position of power over the rest. One might further imagine that this is reinforced through some legitimate recourse to violence or the like. Regardless, one group has power over another.

It is reasonable to expect that once the rulers have power over the ruled, they would like to retain that power. So, the question then becomes, how does one deal with the existential situation, the precariousness of life, given this boundary condition? That is to say, how do the rulers offer a solution to the existential situation without relinquishing their power?

[8] This sort of claim is discussed in virtually every mainstream popular physics boor or television show.

A foundational response

The problem is solved by appeal to some sort of higher power or order that can guarantee stability and certainty in this world. The goal is to offer some sort of *comfort* to those living in a perilous world.[9] This postulated power or order is supposed to explain away the precariousness and uncertainty of the world. What once was random noise or otherwise inexplicable now has its place. Furthermore, there is a feeling of permanence. While the world may wither and disappear, this higher order or power will remain. The dangers of the world of appearances can be side-stepped through such a postulation.

A partial list of concepts used to achieve this comfort might include "*eidos, arche, telos, energia, ousia*, (essence, existence, substance, subject) *aletheia*, transcendentality, consciousness, God, man, and so forth." (Derrida, 1978: 279-80) What is advantageous about each of these concepts is that they escape, each in their own way, the uncertainty and precariousness of the world of appearances. Probably the clearest example of this is God. God "exists" before the world and after it. God is what brings the world into existence and gives order and meaning to the events in the world. God can play this role by being an infinite "being" that exists both outside of the world of appearance and within it. The death and decay of this world can be tolerated because of the promise of another world that is free from such troubles.[10]

Let us call this move a foundation, or an *arche*. Within epistemology, there is a frequently used trick that is referred to as "foundationalism." The basic move of this trick is to postulate some indubitable foundation that becomes the source of knowledge. A usual example would be sense impressions. As was discussed above, Hume postulated non-inferential sense data as the starting point of knowledge. These sense impressions are what all knowledge are based on. They are foundational in that they are the certain base of all knowledge.

Now this sort of epistemic foundationalism is a species of what I will refer to as "metaphysical foundationalism."[11] It is foundationalism in that it seeks to base something on a firm and lasting foundation, but it is metaphysical in that it no longer deals merely with knowledge, but the whole of existence. While God or the subject might play an epistemic role, and even a foundational one, there is more at stake here. The goal is to explain all of existence. The goal is to make sense of the whole world of appearance.

This foundationalism fulfills the desire for security by bringing order to the world. This satiates the need for certainty and security by giving a reason to the world of appearance. What once was mere accident or the whims of other persons is given a reason, an explanation. Furthermore, this is no mere explanation, but a "global" explanation. It at least attempts to bring order to the whole of experience, not mere parts of experience.

This set of moves is made very clear in Descartes' *Meditations*. After Descartes has finished "doubting everything," it is necessary for him to begin digging himself out of the holes he had created for himself. In order to do this, he "proves" the existence of God. If one takes Descartes' goal as "to establish anything firm and lasting in the sciences" (Descartes, 1641: 59) then God is the only game in town, so to speak. Since Descartes wants something certain, God, being infinite, omnipotent, omniscient and the like, is a good concept to use to found a certain science.

Clearly, each of these *foundations* makes "philosophical" claims and should be taken seriously as such. Yet, each of the concepts goes beyond the metaphysical, in that the

[9] This account largely follows that of Dewey (1929).

[10] This is not to imply that all philosophers who have invoked God use the concept in the same manner.

[11] I thank Mark Gifford for forcing me to deal with potential confusions on this point.

metaphysical alone cannot account for the existence of these concepts. The first question is "why engage in metaphysics at all?" The need for a metaphysical foundation cannot be explained within metaphysics. There is something more going on than mere metaphysics and epistemology. This "something more" is the psychological. The domains of inquiry already require that one agrees that there is a *desire* for some sort of certainty.

It is this desire for certitude that means that something more than simple metaphysics is involved. There is also a psychological dimension to these foundations. It is a yearning that seems to drive the philosophical dimension, in that without such a need for certainty, there would be no reason to seek some sort of foundation above and beyond the world of appearances. The origin of metaphysics itself arises out of this desire to bring a certain sort of order to the world.

Of course, it is this desire that creates the distinction between appearance and reality. It is only because of the desire for a distinct kind of certainty that one even is tempted to postulate a distinction between the world of appearance and the world of the Real. Without the urge to create an order outside of the world of appearance, there might still be a meaningful distinction between the Real and the apparent, but it would no longer be metaphysical. Instead, it would be a distinction made by the inquirer about what holds up under scrutiny. We no longer have the "Real," but instead the "real." This real would be much more limited in character because it would hinge on the context of inquiry.

There is a different approach to bringing order to the world that has not been discussed thus far: the technological. This attempts to bring order to the world by reshaping the world itself. Needless to say, there are limits. One might not be able to redesign the laws of physics and chemistry. Yet, once one has an understanding of these processes (and not even a "scientific" understanding) the world can be rearranged such that it might make life less precarious.

It should be clear that this is very different way of establishing certainty in the world. While more limited in scope, it does have the advantage of achieving "real" results as opposed to the more metaphysical approach. By focusing energy on the "world of appearances," one can deal with a certain range of problems having to do with everyday life. One makes gadgets and the like to deal with particular problems. The trouble with this approach is that it leaves the larger existential questions unanswered.

Curiously, this technological aspect of human life was denigrated for ages by Western philosophy. One can see this most clearly in Aristotle, who made the famed distinction between *epsiteme* and *techne*, in which *techne*, hands-on knowing, is always subservient to *episteme*, or theoretical knowledge. Part of this has to do with peculiar turning away from the world that is the hallmark of Western philosophy. Because *techne* is limited in scope, it is "clearly" an inferior way of knowing. The best path to knowledge is that which turns away from the world of dirt and grime and towards the world of the ideal. Of course, this is just another recapitulation of the appearance/reality distinction discussed above.

Enter the "Truth speaker"

It should be clear enough that the psychological peculiarity discussed above produces the philosophical dimension of scientific realism. This is because the psychological desire for stability and security creates epistemology and metaphysics. The search for some *arche* above and beyond the world has been the hallmark of Western philosophy. The philosophers' search for the immutable is produced by this psychological desire. Without this desire, there would have been no reason to search for such a foundation. One would accept the flux of life as just

part of the conditions of life: nothing more and nothing less.[12]

To return to the narrative of the fable I am developing, the need for a secure foundation has created a need for "Truth Speakers." If one is going to engage in a quest for certainty, one needs a group of people qualified to speak the Truth. This is because one needs to have people who "know" what the Truth is. Since one is dealing with nonobservable phenomena, one needs "experts" (for lack of a more loaded term) to determine what is Real and what is not Real. How these experts work is a matter of empirical observation. But the general lesson is that if one is going to postulate an other-worldly realm, one needs to have some sort of means of accessing it. Now, because of the needs of power, namely the need to retain power, there should be a limited number of these Truth Speakers. Not everyone should have access to the Truth. Otherwise, everyone would be in a position of power. Given the interests of the ruling class, this situation would be unacceptable.

One now begins to see the outlines of Foucault's power/knowledge complexes. One has established a group of people who have the ability to speak the Truth. This puts those people in a position of power above others in the society. The Truth Speakers have access to a sort of knowledge unavailable to others. This allows them to structure the actions of those without the Truth. They are in a position to dictate what actions are acceptable and unacceptable, at least within certain arenas. Access to the Truth allows for a certain sort of power over those without access. By creating knowledge about the Truth, its speaker can control actions of the ruled. This knowledge has a special character because it is the Truth. It is imperative that it be followed since it is the Truth.

The end of this fable comes with arrival of the Truth Speaker. The creation of the Truth speaker deals with the psychological desire for stability and security by postulating a realm above and beyond the world. This realm of the Real helps to explain away the chaos of the world and brings some order to order to it. Yet, the Truth speaker has a vital role to play in the regulation of society. The Truth Speaker regulates access to this realm and creates the conditions through which members of the society can access it themselves. Through this regulation, the Truth Speaker is in a position of power over those who desire the Real. The Truth Speaker controls the actions of the ruled because the Truth Speaker dictates who accesses the Real. Only certain sorts of actions are permitted since the Real is something above and beyond the world of appearances. The Real requires a certain sort of knowledge in order to be accessed. It is the Truth Speaker who controls this. One can see this sort of pattern emerge in many religions, where only certain members of a given society have access to the realm depicted by the religion.

Given my Marxist sympathies, I will postulate that this realm of the Real exists to benefit the ruling class. It helps to guarantee their power. This is because the Real and its gatekeeper, the Truth Speaker, keep the ruled in line.[13] Since the Real gives comfort to the ruled, one does not want to transgress it. The Truth Speaker initially exists to support the ruling class by only allowing a certain range of actions to be permitted. These actions should not run counter to the interests of the ruling class for it is they who have granted power to the Truth Speaker. The Truth Speaker relies on the ruling class for its livelihood. In this way, the Real is a tool of ruling class, an additional mechanism though which they exert their power. By having a realm that is inaccessible to most, but that is desired, the ruling class has a remarkable instrument for domination.

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[12] Again, see Dewey (1929), especially pages 1-21.

[13] One might imagine that after a few generations of this set up, the rulers as well would accept the word of the Truth speakers.

Scientific realism at last

Scientific realism is just a continuation of this psychological peculiarity. Scientific realism is merely another attempt at finding an *arche* above and beyond the world. It fits the same general pattern described above. It postulates a Real world divorced from that of appearance. It then tries to explain away the chaos of the world by appealing to this Real world of scientific objects. One can see this quite clearly in the discussion of Sellars' scientific realism above. The world of appearances is reduced to a mere phenomenal realm to be explained by science. The laws of science are transcendent. They should explain everything in the world of appearances and link those phenomenal objects back to those things that are truly Real.

Scientific realism plays a similar psychological role to that of God or the transcendental. Its purpose is to bring a strange comfort to those who hold it: A sense of security and certainty. While the world of appearances might be a complex, insecure place, this instability can be accepted because of a firm belief that the laws of science will one day account for such erratic behaviors. This holds for the falling of apples from trees to human behavior to motion of the stars. The laws of science, if traced back far enough and in the correct way, are immutable.[14] It is only our understanding of them that is flawed. Yet, if Sellars is to be believed, one day those laws will be known. At that mystical time, the world will have its explanation. All will be made right, that is, will be understood, "in the long run."

Needless say, as society has become more complex, these power/knowledge complexes have become more sophisticated. One is now faced with a situation in which power/knowledge complexes dominate many aspects of everyday life and these complexes, more than occasionally, come into conflict. We see that instead of there being one Truth Speaker, there are many, perhaps too many. Furthermore, we find that there is no longer a single ruling class. Instead, there are countless sites of domination. One cannot look for a single seat of power. This complicates matters greatly because one cannot find any single individual responsible for the situation.[15]

Scientific realism plays its role in regulating some of these complexes. The assumption that science is the best explanation of phenomena supports the cultural position of science. Without this dogma, science would merely be another form of knowledge. With it, science has ascended to being the premier way of knowing the world. This allows science to operate as a form of power because scientific realism gives science its authority. Scientific realism is vital in attempting to explain the cultural power that science has. This assumption is necessary for understanding why it is that science is such a dominant force in this present day and age. It is key because it allows science to be the principal form of discourse that gets at the Truth. This then reinforces science's status as power/knowledge complex.

How this came to pass is a long story, one which I will not venture even a potted history. With the advent of Science and Technology Studies, we begin to get glimpses of how this transpired. What STS has done is map the means that have been used to make science the premier form of knowledge. This is a story that is at once epistemic, metaphysical, sociological, economic and political. Scientists have assumed the role of Truth Speakers. How this came to be is not simply a matter of people realizing the Truth that science speaks. Instead, it was a very

[14] While the universe and all its laws have arisen out the Big Bang, but the unfolding of this event and the laws themselves follows a certain definite pattern.

[15] That said, in Chapter 8, I propose that much of the trouble with the current situation is with capitalism. But even in this case, one cannot find a single agent or group that is responsible. Instead, we are dealing with rather complicated systems of domination.

messy matter involving most every dimension of human existence. Many peculiar things occurred between the start of the 17th century and the present moment that allowed science to become what it is. In keeping with one of the themes of this essay, it was not necessary that science would ascend to its present status. Rather, it was a long series of contingent events that led to science's power to speak the Truth.

Yet, for all that STS has done intellectually, it has had little impact on the day-to-day practice of science. Despite 30 years of rather serious critiques of science, science is still the dominant form of knowledge. STS has been relentless in exposing the constructedness of scientific practice.[16] Part of the reason for this lack of impact is the nigh impervious cultural position that science occupies. It is rather difficult for a group of relatively marginal scholars to take on a behemoth. This also means that if one is seriously interested in challenging the cultural hegemony of science, one needs to shift tactics. The work that STS has done is invaluable, but something more is necessary.

[16] Whether STS has really aimed a thoroughly critical project is an open question. SSK seems to be have been less interested in transforming science than understanding it. Feminist science studies and various cultural studies of science scholars generally appear to be more focused on critiquing science.

Chapter 5: Images of science, subjectivity

This chapter develops Wilfrid Sellars' account of the two images through which humanity conceives of itself. I begin with a review of the components of the manifest image, paying a lot of attention to Sellars' concept of a person. I then develop the scientific image and introduce Sellars' stereoscopy, which is his attempt to bring to bring the two images together. The rest of the chapter is dedicated to exploring the ways in which subjectivity is smeared out between these images. This is to say that subjectivity participates in both images. Also explored is the impact that the scientific image has on the subjectivity.

Before going on to the content of these images, it will be useful to note the status of the images in Sellars' philosophy and its relation to subjectivity. The word "image" is usefully ambiguous. Sellars' implies two different meanings. First, image:

> suggests the contrast between an object, e.g. a tree, and a projection of the object on a plane, or its shadow on a wall. In this sense, an image is as much an existent as the object imaged, though, of course, it has a dependent status. (**PSIM** 5)

The other sense of image is of "something imagined." Sellars proposes that this sense of imagined is along the lines of "conceived." The thing conceived may or may not exist.

Sellars' construal of "images" is useful for understanding subjectivity because what each image captures is a significant part of how one conceptualizes human subjectivity. Clearly, the scientific and manifest images are abstractions, but they do represent important strands of constituting humanity-in-the-world. While I develop my appropriation of the images in Chapter 8, it worth noting here that there is something to how Sellars bifurcates human subjectivity. Two of the major ways of approaching subjectivity are through philosophy and science. Sellars represents both in an interesting way.

The manifest image

As Sellars described the manifest image later in his career, it "is primarily a world of things and persons. Things belong to kinds which are characterized by clusters of powers, capacities, dispositions and propensities, or… causal properties." (**FMPP** §2¶2) We shall have more to say about persons later on, but they can be described as logical and ethical beings. The manifest image, as it presently exists, is principally about these two classes: things and persons.

It is in the manifest image that humanity first comes to conceive of itself as human. This is to say that it is in the manifest image that humanity comes to recognize itself as a certain sort of being with certain sorts of powers. There is a laundry list of things involved with this manifest image and how it makes humanity distinct, but the most significant is that humans are persons. Humanity is unique because humans are intentional beings, which will lead to a host of complications later on.

One might think of the manifest image as a humanistic, or perhaps "common sense," conception of man-in-the-world. Hinging on one's construal of common sense, this would be correct. The manifest image involves a world of things, persons, colors, emotions, aesthetic judgments, ethical values and the like. It is the sort of image that says that when I look at the pink Kirby on my desk, the pink is in the Kirby.[1] This world also involves various sorts of

[1] This is opposed to the more scientific account that reads the pink as being a matter of light reflecting off of the doll and interacting with certain rods and cones in my eye, and so on.

value judgments like "the pink Kirby is cute" or "violence to stuffed animals is morally wrong." Furthermore, I, as a person, am capable of thinking about certain sorts of intentional statements about all kinds of stuff, while the pink Kirby is not. That is to say that there is a fundamental difference: I am an intentional kind of being; Kirby, while both cute and pink, is not.

This way of conceptualizing persons is a relatively recent development. In what Sellars refers to as the original image, everything was considered a person. The original image was a buzzing, blooming confusion in which everything was regarded as an intentional being. So, being a tree was regarded as just as much a way of being a person as being human. There might be different sorts of persons, but each being was a person none the less.

The methodical hallmark of the manifest images is that it is based on a set of categorial and empirical refinements of the original image.[2] As humans move through the world, modifications are made to the image based on something like the processes of induction. There are progressive moves to limit those things that once counted as persons in the original image. Based upon experiences, repeated on the order of generations at some points, those things that once counted as persons (such as trees) become progressively truncated until they are merely things. At some point in the past, a tree's limb dropping was an intentional act on the part of the tree. Now, especially when talking to most philosophers, a tree limb dropping is usually explained through some sort of "folk" physics and biology.

Now these refinements, as mentioned above, come in two flavors: categorial and empirical. Categorial refinements involve limiting the sorts of beings that count as persons and things. The history of the tree is a story of winnowing away what counts as a person, while further specifying the attributes of both persons and things. Then there are the empirical refinements. Sellars does not have much to say about these, but what I take him to mean is that these involve refinements about how one makes one's way around within the image. As Sellars notes: "I mean the sort of refinement which operates within the broad framework of the image and which… adds to and subtracts the contents of the world as experienced in terms of this framework and from the correlations which are believed to obtain between them." (**PSIM** 7) That is to say that this sort of refinement involves placing the contents of the world into the categories of things and persons.

Sellars held that most of the work to refine the manifest image has occurred through perennial philosophy, from Plato up through recent Anglo-American philosophy (especially the "ordinary language" crew) and Continental philosophy (one might imagine he has phenomenology and existentialism in mind). His reading of the history of philosophy (in this case) is as a progressive set of refinements to this image. This involves not just limiting what counts as part of the manifest image, consider the move from Heraclitus' comment about Gods in his kitchen to Aristotle's metaphysics to Descartes', but specific ways of going about within the image. While clearly implied within Sellars' PSIM, he does not develop this latter concern much at all. It should be clear that both of these categorical and normative questions dovetail. The ways in which Descartes delimits the contents of the manifest image will bind the ways in which man can navigate through the world. This in turn can be compared to whatever Hume

[2] This is significant because there is a rhyme and a reason to the manifest image and its articulation. While the manifest image is not scientific (for reasons developed below), it is reasonable in that there are practices that define how it should be changed.

does to the manifest image and how persons work within it.[3] Probably a clearer case is that of Kant, who sets up very strict limits on the manifest image and how it is persons cognize themselves in the world. Yet, if one assumes a somewhat intimate connection between the *Critique of Pure Reason* and Kant's ethical writings, it is patently obvious that his construal of the manifest image on a large scale has *serious* ramifications about how we should act within that image.

Persons

I have been quite coy so far in laying out what exactly a person is. It is now time to do just that. The first thing to note about persons is that: "According to this tradition it is the same thing, a *man*, or as we now say (since the equality of the sexes has moved into the higher levels of ideological superstructure), a *person*, which both thinks and runs." (**MCP** 214) For this reason, when one speaks of a person, what one is referring to a single logical subject that brings together both the body and mind. Put differently, a person is a material body with the additional capacities to think and act intentionally.

This helps to overcome lingering Cartesianisms that typically claim that a person is a composite entity, a body which runs and a mind that thinks. Following the Aristotelian strain in Sellars, it is one "thing" that both runs and thinks: a person. This more holistic approach works well with Sellars' project of accounting for human subjectivity as part of the world in an intersubjective kind of way. Instead of postulating a mind that exists apart from the world, it is a part of the world.

There are two main dimensions to what constitutes a person: the metaphysical and the normative/ethical. Needless to say, these are interrelated, though the exact way will need to be elucidated. The essential metaphysical claim is that a person is a "single logical subject." The core of the normative claim is that a person is conceived of "as a being with which one is bound up with a network of rights and duties." (**PSIM** 39) When we talk about someone being a person, in a technical sense, we mean that the subject is related to others through a web of obligations. These rights and duties help to constitute our very conception of a "person."

I will focus entirely on the normative dimension of personhood. As Sellars notes "A person can almost be defined as a being that has intentions." (**PSIM** 40) In this context an intention is understood as a "thought" of the sort that claims that one should or should not do action of a kind A in circumstance of kind B. Persons are the only kind of beings that have intentions and for this reasons, intentions are one of the hallmarks of personhood. How does Sellars arrive at this conclusion? The first point Sellars makes is that to imagine a person is to imagine that the being is a member of a self-identified community. This is to say a community in which its members identify themselves as being members of that community. What is significant here is that the community defines itself explicitly or implicitly as being a community, a group that is bound together by a certain set of norms, rules and obligations. It should be noted immediately that "An individual may belong to many communities, some of which overlap, some of which are arranged like Chinese boxes." (**PSIM** 40) The communities that persons belong to have grown and changed over time. "Once the primitive tribe, it is currently (almost) the 'brotherhood' of man, and is potentially the 'republic' of rational beings (cf. Kant's 'Kingdom of ends')." (**PSIM** 39) Sellars is probably correct that the tribe is the most

[3] I will simply point the reader to Hume's discussion of personal identity in Book I of the *Treatise* as well as his articulation of the will in Book II and then contrasted with the conclusion of Book I. What personhood means at the end of that is a bit interesting.

basic community and one that has not entirely been outgrown.[4] Between the tribe and the Kingdom of Ends, there are many other communities that persons belong to including professions, sports clubs, hobbies and the like.

What then is the significance of the community? By being a member of a community, one is inculcated into the norms and rules of the community. In order to be a member of a community, one must learn the language-games that define that community. Otherwise, it is hard to imagine in what sense "one belongs to the community" if one cannot be (potentially) an active member of the community. This allows Sellars to claim "the fundamental principles of the community, which define what is 'correct' or 'incorrect', 'right' or 'wrong', 'done' or 'not done', are the most general common *intentions* of that community with respect to the behaviour of members of the group." (**PSIM** 30) The community is defined by the intentions that are shared by the members of the community. These intentions will delimit what actions are acceptable or unacceptable by members of the group.

At this point it is important to introduce the distinction between community and private intentions. As Sellars notes:

> "Community intentions ('One shall...') are not just private intentions ('I shall...') which everybody has.... There is, however, a logical connection between community and private intentions. For one does not really share a community intention unless, however one might rehearse it, it is reflected, when relevant, in the corresponding private intention." (**PSIM** 40f)

Intentions, for the most part, start with the community and move to the private. To take a trivial example, the community intention of "One shall not kill" comes first. This is because the community decrees that something is right or wrong and then the intention is reflected in the behavior of individuals. The individual is said to share the intention when it incorporates the community intention into its practical reasoning and operates on that intention. All things being equal, the mark of this will be the actions of the subject.

In order to make this clearer, consider the example of a baseball team. A baseball team clearly fits the definition of community because it is a group that is self-consciously aware that it is a group. Furthermore, it is held together by a web of norms, rules and obligations among the players. These rules will include those that define the relationship between players on the same team and on the opposing team. The norms are first agreed to by the community as a whole. Then, these intentions will be seen in the actions of the baseball players. It is the intentions that the baseball players share that define them as baseball players. It is because they share these norms, rules and obligations that they form a community, the baseball team. In this way, the community has a life of its own above and beyond that of its individual members.

What should be clear from this discussion is that the community in large part defines what constitutes a person. The community is responsible for determining what duties and obligations the person should follow. The intentions in turn construct the subject as a person, a bearer of intentions. Change these intentions and you end up with a different sort of person, along with a different community. It is the community that defines what the limits of the person are. The community and persons are mutually dependent. The one requires the other for its existence. The community needs persons, and not merely members, because something must manifest its intentions, while the person is determined by the community. The ethical conception

[4]For more on this point, see Glover (1999), especially pages 119-152.

of the person is wholly dependent on the communities to which it is a member, to which it belongs.

The scientific image

Now to the scientific image. This is the image of humanity-in-the-world derived from all of the sciences that have something to say about humanity-in-the-world. "There are as many scientific images of man as there are sciences which have something to say about man." (**PSIM** 20) Molecular biology deals with how the interplay of DNA, RNA, and other cellular machines produce life. Chemistry explains how it is our wonderful stomachs break down food, never mind the achievements of biochemistry. Atomic physics gives a very refined analysis of the very "essence" of these more complicated superstructures. The neurosciences inform us as to how the brain processes information. The list can go on from there.

Needless to say, as it stands presently, a complete scientific image of humanity-in-the-world is little more than a promissory note. Many of these sciences, especially biology, are just beginning to understand the mechanics of how humans exist in the world. While the Human Genome Project has mapped the human genome, much of the interesting work of putting such knowledge into motion remains to be done. Then there is the more daunting matter of "unifying" the sciences, showing how everything in the universe boils down to physics, which Sellars assumes is possible.

While the scientific image is incomplete, assuming no major conceptual revolutions, its trajectory is clear enough: a view of the world that starts with particles (and perhaps forces) and works towards more complex amalgamations of particles. One begins with physics, moves through chemistry and biology and arrives at the observable world. This clearly implies that Sellars ends up subscribing to the dogma that science is fundamentally reductionist. This will have serious consequences later on.

Furthermore, one of the distinctive moves of the sciences is the postulation of unobservable entities. As is traditionally rehearsed by philosophers of science, entities like electrons, molecules and DNA are nonobservables, because they cannot be seen unaided. At their most basic, the scientific image relies fundamentally on quanta that, as it turns out, behave very oddly. Unlike the manifest image that tends to rely on some sort of continuity, this scientific image is fundamentally particulate. The essential stuff of the universe includes electrons, quarks, and smaller entities that are bounded in some sense or other.

Now clearly something else has to be involved with the scientific image, because the postulation of nonobservable entities has been done by many philosophers. As we have witnessed, this is one of the key moves of foundationalism. Nonobservable entities have been used countless times in countless places to explain the goings on of observables. So what makes science different? Part of the answer no doubt is that science has ways to manipulate these nonobservable entities. Genes can be mapped, extracted and plunked into other beings with relative ease. Electrons and other subatomic particles can be made to dance in remarkable ways. Chemists rearrange molecules on a regular basis. Yet, this claim can only go so far. Many discoveries within the history of science did not rely on the postulation of nonobservable entities.

Something else must be at work here. One of the great successes of the sciences, especially physics, has been the application of mathematics to the natural world. Sellars does not address this directly in his writings, which is disappointing. Yet, the application of mathematics seems to be one of the hallmarks of the physical sciences. This mathematization of the world appears to be one of the other chief differences between the scientific and manifest images.

While mathematics is obviously used within the manifest image, it is not used to explain the behavior of things in the way that physics does.

There are three principle areas where the scientific image clashes with the manifest. First, the discreet nature of these basic particles based on contemporary physical theory runs counter to the homogenous nature of our experience of objects in the manifest image. While objects are bounded, when we look at a red color patch, the whole object invokes the experience of red. The rather discrete objects of scientific image do not exhibit this sort of homogeneity. In time, physical theory might be able to account for this homogeneity though it remains unclear how based on present understandings of the world.

Second, the world as depicted by quantum mechanics is essentially "strange" compared to that of the manifest image. Electrons have a tendency of doing odd things that could not happen at the macroscopic level. Tunneling is a relatively clear cut example. Given a finite energy barrier, there is a non-zero chance of finding an electron on the other side of that barrier. This is kind of like hitting a tennis ball against a wall and there being a chance of finding the ball on the other side.

Lastly, each of these images purports itself to be a complete description of humanity-in-the-world. So, how do we choose between them? On the one hand, the answer is easy: go with the scientific image. Why? The manifest image cannot explain itself. On the other hand, the scientific image explains why things in the manifest image do the kooky things they do. Once complete and unified, the scientific image will offer an explanation of most everything within the manifest image. It will explain why tree limbs fall, why electrons behave the way they do, and why baldness is hereditary. While the manifest image does give an account of some of these things, it does not explain them. The scientific image does.

Sellars' stereoscopy

So why not just jettison the manifest image altogether? For the most part and despite practical concerns, the scientific image can actually replace the manifest without loss according to Sellars. Yet, there are aspects of the manifest image that should be preserved, specifically persons. While the scientific image does offer a complete explanation of humanity-in-the-world, it does not tell us what to do in the world. There is no (explicit) ethical content to the scientific image. For this reason, the two images need to be wedded together via what Sellars refers to as stereoscopy. Both images need to be juxtaposed with each other to get a full account of humanity-in-the-world. The chief task is joining the concept of persons with the scientific image. How is this to be accomplished?

As was noted above, there is no explicit ethical content within the scientific image. Ethics is largely a manifest image phenomenon. Ethics and talk of persons cannot be reduced down to the scientific image. Duties are not the sort of things one finds in the scientific image. While one might be able to generate an empirical account of what duties people follow, this account will lack the reasons for which people are bound by those duties. Science does not have a way to talk about good duties and bad duties. It can only describe those duties, not command, give reasons for them. Harkening back to our discussion of communities, science might be able to describe what a community consists of, but it lacks the power to fully account for the role of community intentions.

For this reason, persons have a life of their own so to speak. Persons qua persons, including their duties, exist outside the world of scientific entities, in what Sellars refers to as the logical space of reasons (though this is still part of the world). It should be remembered that the province of science is explaining and describing the world. It gives no place for saying what

should be the case. One should not derive an ought from an is. Just because something is the case, does not mean that ethically speaking it should be the case. For this reason, ethical discourse has a place that is independent of scientific discourse. Ethical discourse cannot be reduced to the scientific image.

Because of this, as well as other reasons, Sellars claims that we must bring together the two images. Let each image do what it does best. The scientific image describes the world, and humanity's place in it, better than the manifest, so let the scientific image do all the explaining and describing. The manifest image gives an account of normativity that the scientific image cannot, so the manifest image is responsible for telling us what we should do. In this way, the two images need each other. The manifest image is supposedly an inadequate explanation of the world, so it requires the scientific. The scientific image lacks normativity, so the manifest is necessary. The two images need to be joined together in order to get a complete account of humanity's existence in the world.

Subjectivity and the images

As was noted above, subjectivity is smeared out between these two images. While we might first come to cognize ourselves as part of the manifest image, the resources used to "construct" our subjectivities belong to both images. Both images help to construe how the subject conceives of itself.

As will be remembered, subjectivity is a horizon of possible experience. Subjectivity involves the ways in which experience is filtered. This involves a multitude of categories like subject/object, real/apparent, time, space and the like. We first come to cognize ourselves within the manifest image, but, following the general drift of our discussion of subjectivity, this is a contingent fact about human existence. We might also come to recognize ourselves through the scientific image. In fact, this is in part the case now. Consider the role that science, medicine and technology play in child rearing.

Because they are historical entities, subjectivities are malleable. They change overtime. As was alluded to before, the subjectivity of a 13th century artisan is rather different from a contemporary factory worker. Something as "simple" as love changes over time as well. The idea of romantic love as is experienced now is a rather recent invention, dating from the 18th century.[5] The resources through which subjectivity is realized come from a multitude of sources like religion, economics, philosophy, and literature.

Science plays in significant role in the realization of subjectivity in the present. Science is the dominant form of knowledge today and, as was discussed in the previous chapter, plays a major role in contemporary life. Science is *the* arbiter of Truth in contemporary life. What science says is the Truth. So, it should come as little surprise that science has much to say about how to cognize the human condition. One can find any number of cases to illustrate this claim. I will limit myself to three examples.

The first comes from the discourse of contemporary biological psychiatry on psychotropic medications. The status of the subject in this discourse is rather peculiar. There is little discussion of how psychotropic drugs make the patient feel. Instead, the focus is on the actions of the drugs on the brain. There are extensive discussions of side-effects of these drugs, but these discussions rely on relatively operationalized criteria. The bulk of this discourse is concerned with examining how the brain functions, where it is operating pathologically and how to correct it, generally through medication. There is also a role for genetics here, which is involved in exploring the inheritability of mental illness and how this plays a part in how the

[5] For more on this see Giddens (1992).

brain works. All in all, the subject is portrayed as an amalgamation of nonobservable entities that interact in a variety of ways. Matters of the phenomenology of mental illness are left to more psycho-social psychiatrists, a group that has increasingly less power within the community.

This has important ramifications for subjectivity. Since the subject is depicted as a mass of nonobservables, the phenomenological dimensions of its illness are only dealt with in operationalized terms. This leaves out, and treats as relatively unimportant, some of what it is like to be someone with a mental illness. The patient, in some sense, is reduced to its brain, genes and a set of well-defined observable characteristics that correspond to actions of the brain and genes. Its subjectivity, its horizon of experience, is transformed into something scientific, calculable. What defines the patient's subjectivity is this set of nonobservable entities and their associated properties.[6]

A second case is provided by Foucault's important work on sexuality. What Foucault maps out in the first volume of the *History of Sexuality* is the way in which sexuality became something to be understood and manipulated scientifically. This amounts to positing an essence to humanity: that humans are essentially sexual beings. This means that humans are fundamentally beings with a particular sort of sexuality. The only way to comprehend this sexuality is through science. Of course, what science is really up to is the production and manipulation of these sexualities. Science is actually involved in the creation of sexuality itself, through operations of power/knowledge complexes. In this way, the subject is manipulated so that it desires to know about its sexuality through the best means possible: science.

While Foucault eschews discussions of subjectivity directly, which makes sense given his rejection of phenomenology, subjectivity is implicated. This is because what is at stake here is how humans conceive of their experience. At work within these discourses is a new way of viewing humanity as sexual beings. With the emergence of these discourses, we find that sexuality becomes the hallmark of human existence. This means that experience is filtered through the lens of this sexuality. Everything becomes about sex. Furthermore, the subject is made to have an intense desire to understand its sexuality, a desire which only science can fulfill. Science becomes necessary for comprehending one's own subjectivity.

As a last example, consider the stars and our relationship to them. To illustrate this, I will contrast two poems. One is about the stars in general and the other about our star, the sun. First, Matthew Arnold's "The Philosopher and the Stars":

> And you, ye Stars!
> Who slowly begin to marshal,
> As of old, in the fields of heaven,
> Your distant, melancholy lines –
> Have you, too, surviv'd yourselves?
> Are you, too, what I fear to become?
> You too once liv'd –
> Your too mov'd joyfully
> Among august companions
> In an older world, peopled by Gods,
> In a mightier order,
> The radiant, rejoicing, intelligent Sons of Heaven!
> But now, you kindle

[6] For more on this point, please see Garnar and Hardcastle (2004).

Your lonely, cold-shining lights,
Unwittingly lingerers,
In the heavenly wilderness,
For a younger, ignoble world,
And renew, by necessity,
Night after night your courses,
In echoing unnear'd silence,
Above a race you know not,
Uncared and undelighted,
Without friend and without home,
Weary like us, though not
Weary with our weariness. (Arnold, 1998: 73-4)

In this poem, we find an eloquent description of one approach to the stars within the manifest image. Arnold's philosopher sees himself in the stars, at least in part. The motion of stars are seen as a tiring cycle, one with which the philosopher can empathize (though the source of the weariness is rather different).

For my purposes, what is most important in this poem is that Arnold represents a world that is "lived in" so to speak. Everything is rich with metaphorical significance. The world is seen as a place in which one might potentially relate to everything else. While Arnold might anthropomorphize the stars more than others do, this is a very rich slice of the manifest image. This is because Arnold is describing a world of things and persons (though the line between them might be wobbly). The stars are seen as having a meaning echoing parts of the human condition. The world as Arnold depicts it is rich with meaning.

As a contrast to Arnold's poem, consider the lyrics of the science education song by Hy Zaret and Lou Singer, entitled "Why Does the Sun Shine? (The Sun is a Mass of Incandescent Gas)." The song was made popular by They Might Be Giants performances and recordings, the latter of which is widely available.[7] Now rarely has science been more lyrical (at least in the 20th Century). Furthermore, the processes described in the song do seem to be accurate representations of the astrophysics behind the sun. This song captures the scientific image of the stars perfectly. The stars are not objects from which we can empathize with about weariness. Instead, stars are nothing more than a set of nuclear reactions.

Now what does this have to do with subjectivity? It should be remembered that subjectivity is not merely about experiencing the self, but also others and the world. What is contrasted in these two lyrics are two different ways of experiencing the world (and hence the self). Arnold's depiction involves a world rich with metaphorical meanings, even if those meanings are melancholic. Zaret and Singer's lyrics focus on the mechanisms through which the sun produces light. While this process is rather elegantly captured, it lacks the humanistic richness of Arnold's poem. This is to say that Zaret and Singer's lyrics lack a certain human element. One cannot dwell comfortably within them.

Furthermore, each poem has certain other implications for subjectivity. Arnold's poem presents a world in which the subject is at home. The subject is grounded in a world of relations to itself and other things. There is a rich relationship between the stars and the philosopher of

[7] I recommend They Might Be Giants live performance of this as captured on *Severe Tire Damage* (Restless Records, 1998) as opposed to the maxi-single "Why Does the Sun Shine?" That said, the maxi-single is easily available through iTunes.

the poem. This relationship is centered on the peculiar empathy that exists between the philosopher and the stars. The star can be related to as another existential being, another event. Because of this, the subject should also be seen as an existential event: a process of coming to be. The subject is a complex web of relations, to itself and to others and other things. In this web of relations, anything can be a call to reflect on the process of coming to be. The stars offer on such occasion. The subject is formed out of these relations. This is significant because the subject only comes to be through its relations to others. The subject is constituted by the richness of these relations.

This richness is lacking in Zaret and Singer's lyrics. This is because all there is are particulate things, call them "atoms." The universe is nothing more than different amalgamations of atoms in curious formations. By parity of reasoning, the subject is nothing more than a different sort of formation of atoms. All the subject consists of are these atoms. Much in the same way the sun is merely a ball of gas that performs various sorts of nuclear reactions, the subject is a "meat machine" formed out of biological processes.

Now, this is not to say that there can be no relations between the star and the subject, but the sorts of relations will be very different. These relations are channeled through the languages of science. Both the star and the subject are existential events, but they are fundamentally understood in a scientific light. The multiplicity of relations is reduced to one sort: that of science, the language of atoms, DNA and chemical reactions. The principal way that the star and the subject relate to one another is as amalgamations of scientifically understood entities. This is a much more limited sort of relation. No longer are the stars a source of reflection about a generalized existential condition. Instead, they are reduced to objects requiring explanation along the lines of "how did Nature do that?" This is the principal state that such objects are supposed to elicit. They are stripped of their other qualities. They are reduced to mere scientific entities.

This has important ramifications for subjectivity. The subject has been reconstituted in terms of scientific discourse. Hence, its subjectivity is also reconstituted along the lines projected above in our discussion of biological psychiatry. Subjectivity becomes something different, something scientific. The categories discussed in Chapter 3 become reconstituted in scientific terms. The ways of experiencing the self and others are transformed into something scientific. The self is changed from the lived-in body to a mass of atoms with the capacity for motion. Thoughts and feelings are transformed into the firings of nerves. Everything, every experience, is changed into its scientific counterpart.

Such a transformation produces a change in possible meanings. The languages of science are very well-disciplined languages. The vagueness that haunts "ordinary language" is stripped away through training. This limits the sort of relations that can be formed in a scientized language. This is because the vagueness, the slipperiness, which allows for the relations like that between the star and the philosopher is (ideally) eliminated. Every word should have a very limited, well-disciplined interpretation. This sort of discipline channels the sorts of meanings that subjectivity can take on. This is not to say that subjectivity should be undisciplined. Discipline is important and probably even necessary.[8] But what makes this peculiarly scientific discipline so troubling is that it seeks to eliminate play by appealing to the Truth. Science is not unique in this goal, but given its cultural capital discussed in the previous chapter, science has a particular force that might be unique in the long history of dominations.

[8] I have developed this point in Garnar (2006).

More than mere persons?

Let us return to the concept of the person. There are two separate questions that face us at this point. First, given the appropriation of subjectivity by science, is the concept of the person enough? Second, what is the fate of the person, given scientific realism? I will address the second question in the next chapter.

What does the first question mean? It wonders whether the concept of the person is a robust enough concept to hold off the onslaught of science. What Sellars does is to carve out a unique space for ethical and logical discourse outside of the imperialism of science. The lingering question is whether this space is robust enough. Specifically, does the concept of the person capture enough of what it is to be human? This question is compounded given the hegemony of scientific discourse over other approaches to these matters.

My suspicion is no. What I will offer here is a brief suggestion on why the concept of the person is too limited. The first thing to note is that the concept of the person is an abstraction. This is to say that the concept is something extracted from "lived reality." It is an idealization of parts of human existence. Simply put, only a philosopher might live life as a person, a bundle of duties and obligations. For most people, I believe it is safe to say that they conceptualize themselves rather differently. This is not to say that duties and obligations are not important. Instead, it is to say that duties and obligations arise out of more primary relations between people. These relations are the stuff that people use to first conceive of themselves.

This is contrasted with subjectivity. Subjectivity is all about "lived reality." It is about experience in all of its multiple forms. Subjectivity is concerned with the way the world and the self are experienced. This is about "lived reality" because subjectivity is concerned with the ways through which experience happens. It involves a way of going through the world. While subjectivity itself is an abstraction of sorts, it is still nearer to the bone than the concept of persons.

What we have here are two very different concepts. While both concepts are abstractions, they are abstractions in different ways. Subjectivity attempts to explain in a pseudo-systematic manner the ways in which experience is understood. On the other hand, personhood is an ethical, and in turn logical, concept concerned with a way of going through the world, though in a very different sense. Subjectivity is about navigating through experience. Personhood is more "second order." That is to say it involves reflections on practice rather than the practices themselves.

Back to the fundamental question: does personhood capture enough of what it is to be human? No. How come? It hinges on this matter of lived reality. Personhood does not so much describe lived reality as extract and reify particular aspects of lived reality. As noted above, the concept of the person focuses on the ethical and logical dimensions. Furthermore personhood is not concerned so much with matters of lived reality as the right way to move through the world. This is important, but does not go far enough given what I am concerned with.

Part of the question is "what is a robust enough account of what it is to be human?" In a certain sense, an absolute account of this is impossible. This is because such an account would need to be the thing itself which is impossible given the complex fluidity of experience. This is part of the reason my account of subjectivity focuses on categories more than anything else, which is why subjectivity is an abstraction. Subjectivity cannot, in a certain sense, be the thing, experience, but it might possibly be an account of the structure through which experience is understood, made sense of. Still, given these qualifications, what is a robust enough account?

A robust enough account will give a strong sense of what it is to be human, or better put, what it is to be that sort of human. While one might need a way in to what it is to be human, i.e., be human and/or speak a language, what I am looking for is a way of describing what it is to be a certain sort of human. A "robust enough account" should explain what goes into being a certain sort of human being. This sort of account should account for what it is like to be a certain sort of subject in the world, perhaps somewhat like what Thomas Nagel is looking for. Such an account should explain how one goes through the world as a human being.

Subjectivity does a better job at this than personhood. Subjectivities, albeit subtlety, can be different. As was discussed in Chapter 3, the subjectivity of a white male office worker is different from the subjectivity of a Chinese female sweat laborer. With time and effort these differences can be made clearer and understood. One can reach some sort of understanding about what it is to be a different sort of subjectivity. Furthermore, subjectivity has experience at its core. By incorporating experience, subjectivity can account for the ways in which different subjects make their way through the world.

It is murkier as to whether the concept of the person can accomplish this. The concept of the person, as I have reconstructed it from Sellars, lacks some of the flesh and blood that the concept of subjectivity has. That is to say, it is just abstract enough to perhaps capture a certain essence of what it is to be human, i.e., to be human is to be an intentional agent, but it is unable to fully articulate what this *feels* like. Subjectivity comes *closer* on this mark because it concerned fundamentally with experience.

Furthermore, the ideal that Sellars seems to be shooting for in his account of personhood is a unity. As will be remembered, in the original image, there was a plurality of ways to be a person. As the image has been refined, the concept of the person has been truncated. Various other ways of being a person have been excluded. The goal appears to be a single account of what it is to be a person. This would then be an essence of what it is to be human. As far as an ethical theory goes, this is perhaps laudable. The postulation of some sort of personhood is a useful tool in order to explain why killing other human beings is ethically unacceptable. Of course, one should be careful of what is left out in such accounts of being a person. One example would be gender. As a number of feminists have argued, gender is not a mere accident that "happens" to a person, but something that is woven into the essence of one's subjectivity.[9] If this is the case, then something serious is missing from Sellars' account of personhood.

Yet, as an account of acting-in-the-world, such an essentializing approach seems to be lacking. There is a multiplicity of subjectivities and this is something to be celebrated. While certain subjectivities that are bound up with oppression are something to be transcended, there is no *a priori* reason to prefer a monolithic account of subjectivity to a vast plurality (which will be one of my worries about science and subjectivity developed in Chapter 8). In fact, just the opposite is the case. Because the world is a rich, varied and complicated place, there is no reason to expect that there is one perfect or correct way to experience it. So, we should encourage this multiplicity of perspectives.

For these reasons, when attempting to account for the ways in which humanity moves through the world, the concept of subjectivity is preferable to person. Subjectivity is closer to human experience, which allows it better describe the actual ways in which humanity exists. The concept of the person might have uses within ethics, but as an attempt to develop a robust account of human existence, it fails because it does not address experience in any direct manner. Subjectivity meets the criteria better and for this reason is should be used.

[9] For example, see Judith Butler (1999).

Chapter 6: Scientific realism, the will to know and nihilism

This chapter critiques the concept of scientific realism. It begins with a demonstration of a crucial flaw in the concept. It then traces out the consequences of this flaw, by showing how scientific realism naturally falls into the trap of nihilism. This has serious implications for subjectivity. Subjectivity becomes unhinged, meaning that it no longer has a meta-narrative to fall back on to make sense of itself. Furthermore, the subject is at the mercy of those with power. This leads to a problematic situation in which subjectivities are used as tools of oppression.

The Problem

As discussed in Chapter 4, scientific realism is a particular instantiation of foundationalism. This is to say that the scientifically Real ontologically supports the world of experience. It is the scientifically Real that gives meaning to the world of appearances. Scientific realism functions as a foundation for the world of the everyday. Without the scientifically Real, the everyday world would have no meaning. Scientific realism explains (away) the world of appearances. The world of appearances requires some sort of grounding, both epistemic and metaphysical, because it is unstable and uncertain. Scientific realism is just one sort of grounding in a long list of attempts to guarantee some sort of stability and security in existence. This is accomplished by founding the world of appearances on something more certain, in this case the scientifically Real.

Yet, all is not quite right with this system in which the noumenal supports the phenomenal. The scientifically Real is asked to be two things at once: a part of the system while being apart from the system. It must be both of these in order to successfully function as a foundation. Yet, as we shall see, this ends up creating an irreconcilable difficulty.

The reason the scientifically Real must be apart from the system should be relatively obvious. If the Real were strictly contained within the world of appearances, it would lack the ontological status to guarantee the sort of security desired. The Real would be another aspect of the phenomenal realm. Instead, it is only by being outside the system that the Real has the ontologically authority to be what really exists. Given the way that the phenomenal world is cashed out, it cannot be the Real. First, Sellars holds that the phenomenal realm is fundamentally unreal. "On the view I propose, the assertion that the micro-entities of physical theory really exist goes hand in hand with the assertion that *the macro-entities of the perceptible world do not really exist*." (**P** 96. Emphasis original) The phenomenal realm is explained away by the Real. For this reason, the Real must exist to support the world of appearances.

Yet, the Real must also be a part of the system. Why? Because without a strong connection relating the world of appearances and the Real world, the Real world cannot support the phenomenal. If there is no connection between the two worlds, the Real might as well not exist. If the noumenal world is to play some sort of causal role with respect to the phenomenal, there must be some sort of connection between these two orders. There must be a bridge between the phenomenal world and the noumenal for this system to work.

Unfortunately, this bridge cannot exist, unless there is a miracle. The outlines of this case have been made above. Since these realms have to be articulated in such a way that they can never meet, it is difficult to imagine how they could connect. Essentially by definition, the phenomenal and noumenal have been designed not to overlap with each other. This is the only way that the noumenal world can guarantee the sort of security and certainty that is desired. But

there must be some sort of bridge between these two worlds, otherwise the noumenal is essentially unuseful as an explanatory device. Yet, it seems a miracle is necessary to bridge these two incommensurable worlds because they have been so cleanly demarcated.

It is not immediately obvious based on Sellars' writings as to what constitutes such a bridge. No doubt part of the answer lies with the notion of correspondence rules. The classic account of correspondence rules holds that they are the bridge between the observation language and the theoretical language. Not surprisingly, Sellars puts his own unique interpretation on the concept. Instead of the classical account of correspondence rules, Sellars in essence proposes that correspondence rules are redefinitions. These rules are not a matter of connecting different levels together. In point of fact, Sellars denies the very idea that there are different levels to connect. Instead, these rules are about redefining things in the phenomenal world. We might refer to a chair as a chair, but it is *really* an amalgamation of subatomic particles. These rules are redefinitions in that they redefine things of the phenomenal world in terms of scientific entities because those macro-entities really are nothing but those collections of scientific entities.

Yet, it should be clear that these correspondence rules as Sellars construes them cannot be the bridge between the phenomenal and noumenal realms. This is because the rules already presuppose the reality of the scientifically Real. To claim that these correspondence rules are the miraculous bridge between these two worlds is to beg the question. What Sellars is attempting to do is ground the world of Appearance in the world of Real. Yet this already presupposes that the scientifically Real is the really Real. For this reason, it is difficult to see how correspondence rules function as redefinitions.

Another avenue one might take is to look at scientific practice itself as being the bridge. Yet this approach runs into two different sets of problems. On the one hand, for every realistic interpretation of scientific practice, one can propose an equally viable instrumentalist interpretation. While we have witnessed the demise of instrumentalism in Chapter 4, it is worth keeping this antinomy in mind here to keep one honest. Despite Sellars' rather convincing argument against instrumentalism, one can always provide an instrumentalist rejoinder to the realist position. Conventional realism and instrumentalism are forever bound-up with each other. This is significant because, despite Sellars' claims to the contrary, the specter of instrumentalism is ever present. The basic reason for this is that is seems that one is forever stuck in the phenomenal world. This is because even when one is "doing science" one is still bound up in the world of appearances. The entities that are under investigation are always mediated by sense experience at some level. There are reasons why they are referred to as "nonobservables." Because these entities are unobservable, one always risks the skeptic's claim that one is not penetrating the secrets of nature, but is still navigating through the phenomenal. The scientifically Real never directly presents itself in experience as part of the phenomenal world. It only leaves signs that can be read in many ways (conventional realism and instrumentalism being two obvious possibilities).

For these reasons, it is not at all obvious how one connects, bridges, the gap between the phenomenal and noumenal. It does appear that it requires something inexplicably wondrous. The fundamental problem is that the noumenal realm must always be kept pure, divorced from the phenomenal, if it is to support the phenomenal. If the noumenal is to ground the world of appearances, it must keep itself separate from that world. Otherwise the noumenal is just reduced back to the phenomenal and therefore cannot support it.

This dilemma seems intractable. On the one hand, the scientifically Real must be kept separate from the world of appearance. On the other, it must be connected to that world. Yet,

each of these positions prevents the other from taking hold. The idea of the scientifically Real being a foundation is incoherent. The Real must be two opposed things simultaneously.

This situation leaves the scientific realist in an awkward position. The foundation that Sellars relied upon cannot be sustained. The realist is then faced with a choice: either to continue to embrace the doctrine even though it is "irrational" or abandon the quest for certainty. Neither option appears to be overly attractive. I will deal with the abandonment of the quest for certainty in the following chapter, though it should be immediately obvious that such a move runs counter to the psychology of Western metaphysics.

There are two concerns with continuing to embrace scientific realism. The first is that it seems to become an article of faith. Philosophers pride themselves at being rational and logical. Yet, holding onto the doctrine of scientific realism in the face of the incoherence discussed above seems rather irrational. To hold the doctrine runs counter to much of the rhetoric of philosophy, though perhaps there is a certain honesty in admitting that it is irrational to hold this.

The second issue concerns subjectivity and, in turn, personhood. As we shall see, continuing to hold on to this incoherent article of faith leaves subjectivity in a perilous place. The danger is that this situation leads to a sort of nihilism. This is because the subject is left hanging. The subject's existence is supposed to be grounded in the scientifically Real, yet the Real is, at best, irrelevant because it is by definition beyond reach of the subject, if it can be said to be at all. This situation strips the world of the subject of meaning. Let me explain.

What is nihilism?

Before going further, it will be helpful to review the essentials of nihilism. According to Nietzsche, the basic idea behind nihilism is "*That the highest values devaluate themselves*. The aim is lacking; 'why?' finds no answer." (**WP** 2. Emphasis original) It denotes a lack of meaning. The aim, unity and truth of the world are lost. One can no longer find answers to the question of "why." Life, the universe and everything are pointless. There is no meaning.

Let us follow Nietzsche's account of the psychology of nihilism. He notes that "Nihilism as a psychological state will have to be reached *first*, when we have sought a 'meaning' in all events that is not there: so the seeker eventually becomes discouraged..." (**WP** 12. Emphasis original) This stage is arrived at when one realizes that the order or meaning sought in the world is an illusion; meaning is something that has been manufactured. This leads to a certain sort of *disappointment* on the part of the subject because the value, meaning or order sought in the world is absent. It fosters discouragement because the subject desperately wants there to be an order in the world, but finds that there is not one.

The next stage of nihilism is arrived at:

> when one has posited a totality, a systemization, indeed any organization in all events, underneath all events, and a soul that longs to admire and revere has wallowed in the idea of some supreme form of domination or administration… At bottom, man has lost the faith in his own value when no infinitely valuable whole works through him; i.e., he conceived such a whole in order *to be able to believe in his own value*. (**WP** 12. Emphasis original)

There are two things at work here: an order to *all* events and a "soul" that admires this order. We have met both of these before. The former is what was referred to as a "foundation" in Chapter 4, while the latter is the disembodied subject that seeks to know the foundation, introduced in Chapter 2.

What occurs in this second stage compounds the first. The first stage simply amounts to a certain disappointment in the fact that there is no over-arching meaning to existence. In the second stage, this turns back on the subject. Since the world itself contains no meaning, no value, the subject is also void of any meaning. The subject is construed such that it only has a value because the order works through it. Once this order is taken away, the subject is left hanging. This strips away the meaning that subject's existence has. The subject's existence no longer has any purpose, any aim. The subject is left to wallow in a meaningless, indifferent cosmos in which the subject has no point.

Thus far we have denied meaning to the cosmos writ large and to the subject itself. Lastly, there is:

> to pass sentence on this whole world of becoming as a deception and to invent a world beyond it, a true world. But as soon as man finds out how that world is fabricated solely from psychological needs, and how he has absolutely no right to it, the last form of nihilism comes into being: it includes disbelief in any metaphysical world and forbids itself any belief in a *true* world. (**WP** 12. Emphasis original)

The first two stages of nihilism are relatively dire. They involve the realization of the pointlessness of existence, both in the form of the cosmos itself and the subject. Now, this is part of the very existential situation in which the idea of a foundation arises. The chaos and uncertainty of an indifferent world has lead to humanity proposing a wide array of foundations to bring order and stability to the world of appearance, becoming. And it should be kept in mind that, as was argued in Chapter 4, the postulation of such a foundation is done out of "psychological needs." Yet, this foundation, this order, is itself meaningless, which leads to a devaluing of the subject itself. The foundation is simply fabricated out of a variety of human needs and dispositions. But this game of foundationalism always collapses in on itself. The game has two possible outcomes: the realization of the first and second stages of nihilism or the postulation of a new foundation. Thus far, most of Western philosophy has been the story of the replacement of one foundation by another.

What occurs in this final stage is noticeably different from the gloom and doom of the first and second stages. This final stage is actually therapeutic. This final stage seeks to eschew the move to postulate an order, a foundation, to the world. This entails an acceptance of the world of becoming for what it is: unstable and uncertain. One tries to stop playing the foundationalist game altogether. Here I read Nietzsche's use of the word "metaphysical" in a pejorative sense. When he writes of "any metaphysical world," he means any world above and beyond that of the world of experience. The True world is that world which is divorced from the world of appearance. The True world is that world postulated by the foundation, be it the realm of God (i.e., Heaven) or the world of nonobservable scientific entities. What this final stage of nihilism requires of us is to avoid recourse to such foundations. It is therapeutic in that it cautions us against falling back into old habits that will lead back to the first and second stages of nihilism. This final stage encourages us to embrace the world of becoming in all its glory, and as the only world to which we have any recourse. The final stage is about *overcoming* foundationalism.

The collapse of scientific realism into nihilism

I realize I have made number of rather bold claims above. It is now time to start making good on them. This section will demonstrate that the incoherence discussed above with respect

to scientific realism catapults into the first stage of nihilism. From there it is a matter of showing how one makes the transition from the first stage of nihilism to the second. After this, I will engage in a digression on the wider implications of this situation with respect to subjectivity writ large. I will leave to the following chapter the more daunting task of embracing the therapeutic side of this nihilistic situation.

So, to begin with, let us remember that the trouble with the scientifically Real is that it must be two things at once: a part of the system and apart from the system. Yet, the system has been operationalized in such a way that this cannot be. The Real must be one or the other. Not both. This is because the Real cannot simultaneously be both part of the world of appearances and divorced from it. The Real must be absolutely divorced from the world of appearances in order to guarantee itself as a metaphysical foundation. Yet it somehow must be a part of this world in order for it to be of any relevance to this world. This is incoherent.

What are we to make of this situation? The first thing to note is that because of this situation, the doctrine of scientific realism is itself contradictory. It relies on a foundation that cannot be. The scientifically Real cannot simultaneously be both a part of the system and apart from it. This means that the doctrine of scientific realism is fatally flawed. It centers itself on something that makes no sense. The scientifically Real is inherently contradictory. It cannot be made sense of while still remaining a foundation.

This situation creates a trilemma. One possible response is to simply accept scientific realism as it stands with all its inherent flaws. The trouble with this response is that it reduces scientific realism to an article of faith; something merely to be believed in without any rational justification. Much like belief in God, one must simply take the leap of faith and believe. This strips scientific realism of its philosophical character. It moves scientific realism into something more fundamentalist. It becomes a dogma that cannot be questioned. It shuts down the possibility of discourse.

Another response is to simply find a new foundation. This might be easier said than done. At least to my mind, few options seem open at the present. One possibility might be to go back to a more theological foundation like that of God. But this possibility seems rife with problems. First is the ever present threat of fundamentalism. Second, Nietzsche has already exposed the ways in which such an approach leads into the problem of nihilism. Another avenue might be to return to phenomenalism and instrumentalism. The trouble with this option is that it falls into the Myth of the Given which Sellars so brilliantly deconstructs. I will propose that no foundation is in fact tenable. Every foundation proposed thus far falls into the trap discussed above with respect to scientific realism. The works of Sellars and Derrida are a testament to this fact.[1]

The last response is to recognize that scientific realism is another in a long line of misguided human fabrications. It is to realize that scientific realism is simply another attempt at giving a meaning to the world that does not work. Scientific realism is a doctrine designed, albeit strangely, to give a certain kind of comfort to humans. Sadly, like every other previous doctrine, it fails to do so. While it starts off looking promising, it ends up in an insurmountable contradiction. Scientific realism seeks to bring order to the uncertainty and instability of existence, but cannot do so given its fundamental flaws. Given the rather serious troubles with the first two options, this seems to be the only possibility left.

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[1] For Sellars on epistemic foundationalism, see "Empiricism and the Philosophy of Mind." For Derrida on metaphysical foundationalism, see any of his writings, but in particular *Of Grammatology* and "Structure, Sign, and Play in the Discourse of the Human Sciences" in Derrida (1978).

Where does this leave us? In the first stage of nihilism. The realization of scientific realism's failures leads us to a profound discouragement. Why? Because we have tried to find a meaning in existence that is absent. No matter how hard we try to find such an order or value, it is not there. Given the long line of failures at doing so, we are right to be discouraged, disappointed. This activity seems pointless. In fact, it is pointless. One will never be able to find some overarching meaning to the world. Any attempt to do so will end in contradiction. Given this fact, much of the history of Western philosophy merely boils down to an absurd search for an absent meaning.

So we are now faced with a situation in which we realize that the world has no inherent value or order. It has no aim. The question of "why" has no answer. This strips the world of meaning. Existence as such no longer has any point to it. If we are honest with ourselves, we must admit this.

Of course, if we do admit this, then, by all rights we should be discouraged. We have finally admitted that the philosophical quest for a foundation beyond the world of experience is a self-defeating enterprise. All of the beautiful systems that philosophers have developed are nothing but deceptions if interpreted as ways of avoiding the meaninglessness of existence as such, the big picture. To say that this is disappointing is probably an understatement. The enterprise itself is fundamentally futile. Yet, we are only at the first stage of nihilism. Things are about to get worse.

Meet *homo epistemologicus*

Theological foundations tend to be much more explicit in terms of giving humanity a role to play in the world. Because the deity creates the world, it is relatively clear what role humanity has in the world. Since teleology was one of first things to go in the "Scientific Revolution," it is unsurprising that stories about God giving humanity a purpose or meaning have tended to disappear. Yet, I will claim that something akin to this story does become reinscribed within Sellars' scientific realism. Remember that Peirce's views had a rather significant role in Sellars' realism. As discussed in Chapter 4, Peirce proposes a model in which science approximates the Real as inquiry proceeds. Given a long enough time and enough inquirers, the Truth will be arrived at. This Truth is a representation of the Real. As I also noted, later in his life, Peirce gave this story a quasi-metaphysical/cosmological dimension in which the entire universe is moving towards a certain sort of order. While perhaps a strange proposal, it helps to get Peirce out of several potential problems. In both the early and late Peirce, humanity is given a meaning, a purpose, through this narrative. It seems, at least in part, that humanity's purpose is to inquire into the order of things and discover what is really Real. Early in Peirce's thought this seems to be a claim about human nature. Later, it is very nature of the universe itself.

Sellars seems to retain the basics of Peirce's story while rejecting the quasi-metaphysical/cosmological dimension. Sellars relies on a story in which, through scientific inquiry, humanity is producing better and better approximations of the Real and will one day arrive at a theory that is a reasonably accurate representation of the Real. Clearly, Sellars does not ontologize this story, though it does appear that Sellars agrees with the earlier Peirce that this is part of human nature.

This claim about human nature is significant because it appears to reinscribe a *telos* into the world. It is humanity's "fate" to inquire into the inner workings of the world. This drive, this will to know, is a necessary part of human existence. The will to know is taken to be one of the defining characteristics of what it is to be human. Humanity is fated to try to know the order of the world. Sellars seems to take this for granted.

Yet, it is unclear what sort of claim about human nature this is: descriptive or normative. Is this merely a bit of philosophical anthropology? Or is it a claim that humanity should engage in such practices? I propose that it is both. On the one hand, it seems that Sellars is primarily reporting the fact that humans have this strange will to know. On the other hand, there is a current that runs throughout Sellars' work that implies that inquiry is something that one not just happens to engage in, but in fact *should* actively pursue. Not to inquire is tantamount to turning one's back on human nature, or perhaps even destiny. It is not merely the case that humans inquire, but it is clearly assumed that humans should inquire. Sellars never problematizes the will to know. It is always assumed that humans have a natural desire to inquire and that this desire should be encouraged. "One must seek the truth. Not to do so is to not be fully human."[2]

Let us give this pathetic little creature a name: *homo epistemologicus*, the knowing human, a creature defined by this will to know, a being whose sole purpose is to unlock the secrets of the universe. The principal purpose of this strange little thing is to know. To know everything it can, be it the workings of the stars or its own mind. What drives this creature is the desire to know as much as possible. Its only reason for being is to comprehend the order of the world. This will to know is part of the fabric of its existence. This is not mere, idle curiosity, but all-powerful drive.

Now *homo epistemologicus* is the necessary corollary to the scientifically Real. We have already assumed the existence of the scientifically Real, an over-arching order to the world. Yet this order is nigh useless unless there is a being which can fathom its workings. This is because, by parity of reasoning, if there is a known, there must be a knower. Given the nature of this order, it is necessary that a being exists to comprehend it. The scientifically Real begs to be known and *homo epistemologicus* fulfills this need. The Real begs to be known because the concept of it has been structured such that it is to serve as an ordering principle to the world. As witnessed in Chapter 4, the concept has evolved to fulfill certain needs of humanity. For this reason, it is vital that there be something to know this order.

The death of *homo epistemologicus*

We saw above how the inherent contradictions of scientific realism led to the first stage of nihilism. It is now time to show how the first stage leads us into the second. In part, it is the very will to know that causes us to arrive at the first stage. The incessant drive to understand the world leads us to realize the fabricated nature of the scientifically Real. The will to know uncovers the ways in which this foundation has been made. In asking questions about this order, *homo epistemologicus* discovers that the scientifically Real is nothing more than an incoherent artifice. By constantly asking such questions the will to know consumes itself because it will never find the final answers it is looking for. At bottom, the question of "why" will never have an adequate answer.

After *homo epistemologicus* has arrived at the first stage, it begins to realize that, much like the rest of the world, it has no value. The whole purpose of *homo epistemologicus'* existence is to understand the mysterious workings of the world. But through trying to divine these secrets, it discovers that there is no over-arching order or aim to the world. The world simply is what it is: a meaningless set of events.

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[2] The naturalization of the will to know does help explain some of the resistance to Science Studies among philosophers and other x-ers of science (perhaps scientists themselves). On a crude misreading of Science Studies, it appears that STSers are epistemic relativists, if not nihilists. Because of this claim about human nature, to be perceived to be challenging the epistemic authority of science seems to reject a significant aspect of being human. Actually, such (mis)readings might imply that one is rejecting the purpose of human existence: *to know*.

Because of this utter meaninglessness, *homo epistemologicus'* value becomes threatened. The order of the world was the source of its value. There are two reasons for this. First, what gave *homo epistemologicus* its meaning for living was the order of the world. Its sole aim was to penetrate these secrets. As was noted above, to question the will to know is to undermine humanity's purpose. The will to know the order of the world granted a purpose to these strange little creatures. In an otherwise chaotic and unstable cosmos, seeking after knowledge endowed humanity with an aim, a goal: to find the hidden order that guides the world.

Second, it should be remembered that this order, and not simply the world itself, and the subject that seeks to know it are correlative. That is to say that they go hand in hand; one cannot have one without the other. Put in a way different from above, there is a certain sense in which each creates the value of the other. The order of the world creates the value of *homo epistemologicus* because it is *homo epistemologicus'* purpose to seek out that order. Yet, if what I have said throughout this essay is correct, it is humanity, in the guise of *homo epistemologicus*, which generates the very concept of this order. In this way, the value of each depends on the other. They are reciprocally related to one another.

Accordingly, if the value of one is undermined, the other must fall as well. These values are intimately bound up with each other. Each produces the other. Because of this, when *homo epistemologicus* realizes that the order of the world is absent, that which gives a value to the world, this necessarily entails that its own purpose is also undermined. *Homo epistemologicus* loses faith in its own value. Its value, which it was so certain was there, is lost as well. It needed this order to be able to have a value at all. *Homo epistemologicus* required that this order work through it, in the form of the will to know, in order to make existence bearable. Without this order working through the subject, being had no point, no aim to it. For reasons discussed in Chapter 4, humanity could not accept this. So it fabricated foundationalism as way of fending off this void.

But this was for naught. This void returns to humanity again when the will to know discovered that foundationalism was just another artifice. When this discovery was made, the first thing to go was the meaning of the world. Next, humanity found that its own value, through assuming the role of *homo epistemologicus*, was also absent. This creates a crisis for humanity, a crisis which I have referred to as nihilism. All value is stripped from the cosmos, even the value of humanity itself. One can no longer find a point, an aim, a meaning, an over-arching order in anything.

This goes beyond the mere, profound discouragement of the first stage of nihilism. This is an almost total nihilism. Now things are truly ugly because nothing has a meaning anymore; there is no point. There is no need to search for the order to the world since there is no over-arching order to be found. Seeking the Truth of the world is a pointless task because there is no Truth. This leaves us in a situation in which everything is stripped of value. Truth, God, Knowledge, the Real, Justice are all meaningless terms.

All we are left with is rhetoric upon rhetoric, power upon power and violence upon violence. Along with the content of conventional epistemology and metaphysics, ethics and politics are also gutted. Normativity loses its meaning as well. This is because most conventional understandings of normativity require some sort of ideal to which the present situation can be compared to and corrected. But these ideals fall by the wayside along with everything else in this nihilistic situation. These ideals are just another way of trying to find value in the world. For this reason, discourses like ethics and politics lose their footing. Such discourses require these sorts of ideals in order to function.

This lack of normativity puts us in a situation in which power and violence can exercise themselves freely. They are no longer guided by ideals like Truth or Justice. These terms are reduced to mere rhetorical devices. While the value of such terms has been gutted, they still can play important roles in attempting to sway people. Not everyone is fully aware of their vacuity. These concepts can still be made to look relevant. But this is mere window-dressing, a trick to appeal to the herd.

What such rhetorical appeals to Truth and Justice mask are the workings of power and violence. Power and violence perform whatever operations they are called upon to do. They simply function at the whims of their masters. While those with power and access to violence might need to be cautious about the use of them, this is a strictly practical matter: something like etiquette in the war of all against all. But there is no legitimating the use of power and violence and there is no more legitimate use of them. There are no limits that can be imposed on this exercise.

In such a situation, *homo epistemologicus* might still have a function, but this is a necessity of those with power. Keeping the guise of *homo epistemologicus* around as a regulative ideal is perhaps useful because it can serve as a tool for keeping those who are unaware of the direness of the situation in check. By cultivating the will to know, people can be distracted by endeavors like science instead of interfering with those exercising power and violence. Instead of exposing the workings of power, such individuals are consumed by a desire to know the "important things."

Except for this peculiar role, it is safe to say that *homo epistemologicus* has died. *Homo epistemologicus* suffers much the same fate as concepts such as Truth, Justice and the Real. In fact, it because of the gutting of these concepts that *homo epistemologicus* has died. As was discussed above, the knower and the known go hand in hand. Their fates are tied together. If one is found meaningless, the other will be too. So, with the demise of these ideals as real forces, we also witness the death of the being that sought to know them. Good riddance.

W(h)ither subjectivity(?)

What conclusions does this situation lead us to with respect to subjectivity in general? As we saw in Chapter 5, the scientific image threatened to swamp out the manifest image. As was seen in the three examples discussed there, in a variety of ways, the scientific image is appropriating subjectivity. This leads to a thoroughly scientized account of subjectivity in which experience is understood in terms of scientific processes and entities rather than in more "humanistic" terms.

Sellars was able to sidestep this threat to "man-in-the-world" by arguing that what causes the threat is, in essence, a category mistake. Sellars' solution was to argue that the manifest and scientific images were engaged in two different functions. The scientific image is a description and explanation of the world, while the manifest image is essentially normative, dealing with persons. In Sellars' stereoscopic synthesis of the two images, the manifest image does not try to explain the world. Instead, it lays the groundwork for what should be done. It is this normative vision of "man-in-the-world" that needs to be wedded to the scientific image. Put in slightly different language, one should not derive an "ought" from an "is."

Yet, what we found was that, as it stands in Sellars' philosophy, this resolution was too limited. This was because Sellars focused on the concept of person as the thing to salvage from the manifest image. As I argued there, "person" simply does not capture enough of what it is to be human. While person might be a useful category in terms of ethics, as an account of human subjectivity it is severely lacking.

Since this is the case, we are faced with a rather serious question. What is the fate of subjectivity in this world of total nihilism? There seem to be two parts to this question. The first deals in general with the plight of subjectivity in a nihilistic world. The second involves the specific matter of how subjectivity is affected by science in such a world. Let me deal with each matter in turn.

The place to begin is with our discussion of foundationalism in Chapter 4. As will be remembered, the reason the foundation was fabricated in the first place was to deal with aspects of the existential situation. It was to assuage the feeling of insecurity in a chaotic world while also seeking to guarantee the status of those in power. What we have seen in this chapter is something additional: the production of a subject that goes hand-in-hand with the foundation. This is unsurprising. If one has postulated a foundation which seeks to deal with the existential situation, one also needs a being that this is a foundation for. The foundation is designed to fulfill certain needs. Because of this, one also produces a subject whose needs are being fulfilled. In the case of scientific realism, this amounts to the supposition that there is the scientifically Real along with *homo epistemologicus*, the being whose essence is to know the Real. The foundation is a tool of sorts; it is made with particular goals in mind. The foundation must be relevant for a certain sort of being. For this reason, it also constructs its user. The user of the foundation, the subject, is not a given. Instead, the subject must be made.

The exact details of what goes into this subject do not need to concern us here. What is worth noting is that in this construction of the subject is a peculiar desire: a desire for the foundation itself. The subject has been cultivated in such a way that it *needs* the foundation to feel secure. It must have the foundation or it is thrown back into the existential situation and its unpleasant consequences. There is a very pressing need to have the foundation in order to avoid the feared instability and uncertainty of the world. This desire is produced by design. By fostering this desire, it helps to secure the status of those in power. This is because the desire for a foundation keeps the subjects in line. It keeps them from asking too many questions as well as serving as a disciplinary mechanism.

What is curious about this desire is that it does not seem to matter so much what the foundation is, so long as there is a foundation. To be sure, switching from one foundation to another might not be a pleasant business. This is because, as has been alluded to throughout, different kinds of foundations presuppose different sorts of subjects. Changing foundations entails a change in subjectivity. But what seems relatively constant throughout the history of Western philosophy is this desire for some sort of foundation. As a general rule, the subject has been constituted such that it requires a foundation to feel complete. The subject needs a foundation, perhaps any foundation. The foundationalist game has been played long enough that the desire for a foundation has become "naturalized."

It should now be clear where this is going. This world of total nihilism undermines not just this or that foundation, but the possibility of foundationalism itself.[3] Nihilism begins with the thought that a particular foundation is a fabrication. It grows from there to realization that all foundations are mere artifices. In this way, total nihilism consumes the possibility of any foundation at all. We realize that we are doomed to total failure. Any foundation will be found to have the same basic problems we have discussed throughout this essay. Yet, as was discussed above, total nihilism goes further. It is not simply a disappointment in the fact that these objects

[3] I would like to be able to show that scientific realism is the final outcome of foundationalism. That is to say that, after scientific realism has been debunked as another fabrication, there will be no more foundations. Yet, I am not sure this is entirely the case.

of human inquiry are indefensible, unworkable. Total nihilism undermines the value of the subject as well. This is where things begin to get interesting.

Subjectivity does not disappear in total nihilism but it is transformed. Foundations play a peculiar role in subjectivities. Foundations serve to ground particular subjectivities. This is to say that foundations help to bring order to the horizon of experience. This is a sort of meta-order. There can be meaning and order within a subjectivity, even without a foundation.[4] What the foundation does is to give a meaning to this order above and beyond what is implicit within the subjectivity itself. Specifically, the foundation can give an external purpose to the world of experience. In the case of *homo epistemologicus*, the scientifically Real endows the subject with a meaning. The subjectivity becomes structured in a particular way through this strange pursuit of the Truth. In concrete terms, this means that the life of the subject, its subjectivity, is all about this quest to find the order of the world. *Homo epistemologicus'* experiences are constituted in such a way that they are made sense of through the goal of searching for the Truth. In this way, the scientifically Real grounds the subjectivity of *homo epistemologicus*. The scientifically Real helps to give an overall meaning or purpose to that subjectivity.

In this world of total nihilism, the subject realizes its groundlessness. There is no external order that works through it. Yet, at least initially, the subject still has the desire for a foundation. This leaves the subject in an awkward position. It both wants the foundation but realizes its impossibility. As was discussed above, this leaves several possibilities. The first is to cling tenaciously to a foundation in spite of the evidence against it. I will refer to this option as fundamentalism. The other is to work through this desire and accept the degree to which it is a fabrication as well.

What does this mean with respect to subjectivity? First, the groundlessness. While there might be a meaning internal to experience, the large scale structures that grant an external meaning to the subject are erased. Put in semiotic terms, particular signs still have a meaning, still have interpretants. But the narratives that these meanings are understood through have been dismembered. A final interpretation of these particular signs is lacking. It is a final interpretation that the foundation offers. This means that the foundation shuts down the multiplicity of interpretations that any sign can offer. The dream of the foundation is that every sign should mean exactly what it means. There is no play in language. With the foundation gone, chaos reigns. No final interpretation, no over-arching narrative or order, is available. This chaos unhinges subjectivity. The large-scale structures that help to endow subjectivity with meaning are removed. Particular experiences might still have a local meaning, but the whole no longer makes any sense.

This situation can produce a certain sort of angst, a feeling of profound uneasiness. Things no longer have a place. Potentially, nothing feels right. The old ways of conceptualizing the self and others lose their force. This is because the old ways are revealed to be fabrications. While subjectivity might be a fabrication, it is still in some sense necessary. We are at a point where some framework of understanding self and world is needed. Yet these horizons are arbitrary. There is no rhyme or reason to them. This realization can produce angst because everything that one knows is called into question. Everything is, potentially, unhinged.

Subjectivity is no longer grounded in anything. This groundlessness is the source of angst. What compounds this angst is the desire for a foundation. Subjectivity has been disciplined such that it calls out for a foundation. Yet, the subject realizes that no foundation is possible. Despite knowing that foundationalism is a dead end, there is still part of the subject

[4] This is a point I will return to in the next two chapters.

that finds a foundation necessary in order to feel complete, to feel like it has a purpose. This further bit of knowledge only makes the angst worse. The subject is aware that its subjectivity is an arbitrary fabrication, yet still yearns for the lost, impossible order.

As was noted above, there are two possible responses to this general situation. The first I referred to as fundamentalism. This amounts to denying the problem. Instead, the subject finds a foundation and clings to it tenaciously. Any attempts at criticism are largely met with *ad hominum* replies. The trouble with this approach is that it shuts down the possibility of discourse. Inquiry about the nature of foundation itself is closed off. Such questions amount to heresy. Inquiry is restrained to a narrow set of acceptable questions. Anything else is forbidden. This boils down to a sort of intellectual totalitarianism. If one is cool with this, fine. Just admit it.

The second option is clearly more difficult. It involves accepting this groundlessness and moving on. What is most important here is the losing the desire for a foundation in general. This desire is the central problem. Hence, overcoming it is the principal task. Perhaps the first step in this process is realizing that there is meaning enough in the world already.[5] Yes, there is no over-arching meaning to the world. But there are local meaning systems. There is a bustling world of interpretants all around us. We can develop sustained meanings across time, though there is not a final interpretation to be had, an end to semiosis. Everything becomes events distributed through time. Put very differently, meaning becomes a project, something to be worked at and on. The full implications of this statement will be unpacked in the final two chapters.

Science and subjectivity

It is now time to pick up a strand of this argument that was dropped: how is subjectivity affected by science in this nihilistic world. Let me temporarily bracket my claims about how to deal with nihilism, for initially this will complicate matters too much. It is at this point that we need to take seriously my claims that this totally nihilistic world involves domination upon domination without end. Let me explain.

As discussed above, power and violence can operate freely, without restraint, in this nihilistic world. The narratives that legitimate the use of power fall by the wayside, though power's operations remain intact, if not amplified. There are no limits that can be placed on those with power, except concerns about running afoul of others with power. Furthermore, concepts like Truth and Justice are reduced to mere rhetorical devices. These concepts can be mobilized to move people who are not fully aware of the direness of the situation. What this amounts to is a world of endless domination.

At this point, science enters into the equation. The first thing to note is that, along with that list of hallowed concepts, the epistemic force of science has also been dismantled. This means that we should no longer regard science as the greatest form of Knowledge. This goes further than a claim that science is just one sort of belief. Instead, I am claiming that everything associated with science, as well as Knowledge, is doomed to failure. Science, as a form of Knowledge, is about getting at the Truth. But we now realize that the Truth is a mere fabrication. Hence, what science is pursuing is not really there in a certain sense. Put bluntly, science cannot get at the Truth, because there is no Truth.

This is why science is doomed to failure, at least in the sense of trying to be an accurate depiction of the Real. Science is seeking something that has always been absent. It should be

[5] If we take seriously my proposal of acting-in-the-world, then meaning must be in the world in some sense of the term. To say otherwise is to endorse acting-on-the-world.

remembered that science is about divining the secrets of that *other* world, the Real world. Yet, that other world is a fiction. So, in a curious sense, there is nothing *there* to have Knowledge about. For this reason, science is epistemically vacuous. Science is not unique in this because any attempt to predicate Knowledge on the Real world will fall into the same trap.

If this were the case on its own, there would be no specific problem about science and subjectivity in total nihilism. I could just repeat what was discussed above about the angst produced by the subject's groundlessness and be done with it. Science would just be another of those narratives that tries to give an over-arching meaning to the world and fails. We feel a profound sense of uneasiness and move on. End of story. But things are not quite so simple.

Science, as a cultural institution, has enormous power. Science is the great Speaker of the Truth. It is because of this that science has so much power. The ability to speak the Truth entails power for the reasons discussed in Chapter 4. In concrete terms, this power amounts to the capacity to shape lives, policies, and cosmologies among other things. Science's power operates from many points: the political and legal systems, universities, the doctor's office, the culture industry, and so on. We have already seen three examples of this in Chapter 5. Each of those examples illustrates the ways in which science shapes human existence, be it through biological psychiatry, scientific discourses on sexuality or catchy pop songs designed to indoctrinate the youth. These are specific examples of the power that science has.

This power does not disappear with the realization of total nihilism. Truth still has a certain rhetorical force. Truth can still produce certain affects on subjects. These claims to be speaking the Truth still entail the workings of power. Science might be epistemically vacuous, but it still retains its cultural position. Science has become thoroughly enmeshed in everyday lives. Perhaps put too strongly, science is a dogma that we cannot do without. Because science has become such an integral part of everyday life, its cultural force is not something that is easily vanquished. We have been so disciplined to accept the Truth of science that, regardless of its epistemic import, it is daunting to imagine a world without such Truth. This, in essence, is the current incarnation of the desire for a foundation. We crave someone that speaks the Truth, who can both give an over-arching order to the world and make some sort of existential sense of the world's instability and precariousness. Science still fulfills this role even though we have good reason to be suspicious of science.

We find that science occupies a curious place in the world of total nihilism. On the one hand, science has been stripped of its privileged epistemic place. On the other hand, science remains a potent cultural force. Despite our epistemic concerns, the institutional setting of science does not change. Its power still flows through numerous spaces. Science is still, effectively, the measure of what is and what is not. Because of this, even if we make our peace with our groundlessness and try to move on, science remains a problem in a sense to be developed below.

There is one last complication worth mentioning. Throughout this essay, I have referred to "science" as if it was one thing. As admitted in Chapter 1 this is not the case. There are a vast number of sciences, covering many different domains of things, employing vastly different methodologies and other tools. Science is fundamentally disunified. So, to speak of "science" as an organized body of knowledge, and domination, is problematic. This takes on a special significance in this context.

This disunity means that there is no seat of power. There is no central headquarters from which the power of science operates. Instead, this power operates from many nodes, many different places. Science's power is disseminated from a wide variety of institutions. One

cannot find a single office from which this power emanates. It is diffused throughout society. This means that any struggle against science's hegemonic power is not concerned with a single entity, but as many sources as there are sciences and persons that use them.

This is the necessary background in order to account for the problem of subjectivity and science in a nihilistic world. First, what concerns us here is not so much the angst discussed above, i.e., our response to a generally nihilistic problematic. Instead, the central matter to deal with has to do with what I referred to as the institutional situation of science. As it will turn out, this has a great impact on the formation of subjectivities.

The materials from which subjectivities are produced come from any number of sources. A list might include: markers of difference (race, gender, class for example) that arise from social position, education in its diverse meanings, religion, organic factors, geography. These various materials overlap and can be in tension. I never said the way we experience the world and ourselves is necessarily free of contradictions. Subjectivity is fundamentally a *bricolage*, an assemblage made from materials at hand. There need not be a rhyme or reason to its structure. Part of the angst that nihilism causes results from the realization of this.

Furthermore, the production of subjectivity is shot through with power. Not to put too a fine point on it, there can be no subjectivity without power. The works of Michel Foucault make an adequate case for this point.[6] But simply put, without discipline and proper training, two particular kinds of power, we cannot acquire language, which was seen to be a central aspect of subjectivity in my account. Following Foucault, it is important to keep in mind that power is not essentially prohibitive. Instead, power can be productive, by channeling actions in particular directions. Subjectivity is a prime example of this sort of productive power.[7]

Based on Chapter 5, science clearly should be on the list of materials used in the production of subjectivities. Science, in its multitude of instantiations, provides fertile ground for the cultivation of subjectivities. What it promises is the realization of a subjectivity that is in line with the Truth. Science provides the correct set of categories through which self and world should be conceptualized. Since science is the last word about what is and how it is, science, in effect, is also the last word about what should constitute subjectivity. This is because science puts forward the definitive account of what the world that is experienced consists of. Needless to say, a fully scientized subjectivity has yet to be realized. Instead, what we have witnessed is the piecemeal construction of subjectivities in which science plays an increasing role.

In total nihilism, subjectivities are produced at the whims of those with power. Subjectivity becomes a playground of sorts, a site for the operations of power. Divorced from traditional limits, those with power can function freely to create whatever subjectivities they desire. Subjectivity is mobilized as another tool of domination. One produces subjectivities that serve the interests of those with power. This can now be done with calculated glee. The goal is the production of subjects who are unaware of the oppression they undergo. In the economic North, this revolves around creating subjects that experience subjugation as freedom. People call themselves are free, although they are locked into the oppressive white supremacist, capitalist, patriarchy.[8] This sort of subjectivity has been made to serve the interests of those who benefit from this set-up.

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[6] See in particular *Discipline and Punish*, *The History of Sexuality*, and his short essay entitled "Power and The Subject."

[7] I have defended this claim in Garnar (2006).

[8] For more on this see Marcuse (1964) and Ebert (1996).

Science is not above this fray. It is yet another tool for domination. What makes science so useful in this respect is that it supposedly speaks the Truth. Put in different language, science is objective and rational. Its allure is that it should be above power. But this is not the case. In a world of total nihilism, all that is left of science is its rhetoric and power. Furthermore, its rhetoric of being objective and rational, that is to say seeking the Truth, helps to mask the operations of its power. This rhetoric serves as an effective cover because "who does not want the Truth?" We have been disciplined to desire the Truth, which make resistance to science's hegemonic power difficult. If science claims that competition is the central part of the human condition, it makes it hard to challenge systems that rely on such claims because they are the Truth.

The upshot of this is that science becomes an ever more potent tool for domination through the production of subjectivities. This occurs on three interrelated fronts. First, and perhaps most importantly, it translates subjectivity into a proper scientific form. That is to say that subjectivity is transformed from something fundamentally messy into a more orderly form. It reconstructs the categories of subjectivity to correspond to the world of nonobservable entities. We have already witnessed one example of this in our discussion of biological psychiatry.

Second, it reconstructs the subject into something like *homo epistemologicus*. One example of this was in our discussion of Foucault and sexuality. Science produces an essence for humanity, that of being a peculiarly sexual creature. That sexual being then seeks out this essence in all its forms, everywhere. More generally, the subject is cultivated in such a way that it desires knowledge. What will be significant about this is that this desire must go through some sort of mediator, the Truth speaker. Science, especially in its Big Science form, requires trained professionals. The subject cannot seek the Truth, in particular its Truth, without the aid of these Truth speakers.

Lastly, and most elusively, is the vision of the world that science produces. We saw this difference in the contrast between the two lyrics, one seeing life in all beings, the other reducing the sun, and in turn other stars, to mere astrophysical processes. Call this vision, following the work of Max Weber, "disenchanted."[9] Now, according to Weber, this process of disenchantment is not merely the work of science, but other social forces like economy and religion. Yet we can see the ways in which science disenchants the world as well. Following science's own rhetoric, it produces an ever more rational picture of the world.

By reconstructing subjectivity in scientific terms, one can achieve two goals. First, one creates a subjectivity that can be manipulated in a thorough-going fashion. Science, among other things, is about the manipulation of a variety of things. Subjectivity too should count as one of those things. By articulating subjectivities that correspond in some sense to the scientifically Real, one creates subjectivities that can be manipulated in much the same way as scientific entities can. By opening up one's subjectivity to science, one is at the whims of science. Subjectivity can be transformed in step with the changes of science. Of course, what this really means is shaping the subjectivity in such a way that works with the ends of those with power. By playing different scientific discourses off and against one another, one can produce the desired subject. Through the deployment of a variety of scientific discourses, those with power can arrive at a subjectivity that suits their purposes.

Second, because of the lingering effects of the Truth, one can make the subject complicit in its own domination. Since science is the primary Truth speaker, it has become the source for definitive knowledge about all things. If the subject wants to know about something, especially

[9] See Weber (1930) and Weber (1964), especially "Science as a Vocation."

about itself, science becomes the principal resource. The subject has been cultivated such that it desires knowledge and science is increasingly the only place to go. Subjects have been produced in such a way that they require the domination that science provides. Because the will to Truth has been so deeply ingrained in the subject, it needs the sort of oppression that science provides in order to feel secure. Without the effects of this sort of power, the subject fears that everything will collapse into meaninglessness. Science is one of the principle places that the subject can feel secure, thus it needs a role for science in its life. Because this is will to know has been so deeply inculcated, it does not seem like domination. Instead, the subject is merely following out the dictates of its carefully constructed free will.

What perfects this system is the role of disenchantment. This disenchantment systematically cuts off avenues for resistance. This goes further than simply the claim that science is about the Truth and that still has an effect on the subject. Instead, by stripping the world of its previous other meanings, one slowly limits the resources that can be mobilized to challenge the power of science. Older meaning systems like religion, humanism, or philosophy lose their legitimacy in face of science because science is about the Truth and science reconstructs the very language used by the subject to conceive of its subjectivity. Through this reconstruction, science cuts off access to resources that could be used to develop alternate sign systems. This perfects this domination because it, in some sense, totalizes the system. That is to say, this scientific world view is complete, by preventing access to any sort of normativity. This is what may make science unique as a system of domination.

A concluding remark

There should be at least one lingering question. Does this world of total nihilism exist in the present? I will answer with a qualified "yes." It is "yes" in the sense that nihilism has always existed side by side with foundationalism. These seem to be two persistent aspects of the human condition. In a certain sense, the two are not mutually exclusive. By this I mean that there has always been a danger of slipping from foundationalism into nihilism. The act of posing a foundation always entails the possibility of nihilism because the foundation is always in a precarious position. This is to say that the foundation constantly risks being undermined, either by another foundation or nihilism. The foundation is in continuous need of defense. It requires its proponents to incessantly rearticulate the foundation and guard it against any threats. As alluded to above, these threats are two-fold. First, the possibility of another foundation ascending into the privileged place. Second, that the foundation will be "found out" that it is a fabrication, which leads into nihilism. Because of this, those using the foundation must constantly be working at the foundation to put down these threats.

Chapter 7: Scientific surrealism: A manifesto of sorts

But, the objection will run: "science is about the world. It gets results that can be checked and rechecked. Scientists in fact manipulate nonobservable entities on a regular basis. They move genes about between organisms and make electrons dance in remarkable ways. How can you be so bold as to say that science does not even have an object of inquiry, the Real? This epistemic and ontological nihilism goes too far."

There is perhaps a grain of truth in this. Science in fact does a lot of amazing things. The question is how to understand the practice of science. I have argued in the previous chapter that understanding science in a certain foundationalist manner, one that is the effective terminus of traditional scientific realisms, leads to some rather unpleasant consequences, chiefly nihilism. The problem is the scientific realist's claim that science gets at the Real, where the Real is seen as some realm utterly divorced from the human mind. Put in the Kantian vocabulary, one has the phenomenal and noumenal realms and never the two shall meet. Yet, by framing matters in this way, one ends up lapsing into an abysmal situation.

The task of this chapter is to reconstruct science realism in a different way. I will refer to this reconstruction as scientific surrealism in order to differentiate it from more traditional realisms. This reconstruction has three principle goals. First, to frame the ontology of science in an anti-foundationalist manner. This will entail denying the radical rift between the noumenal and phenomenal. Second, to reconstruct scientific realism in such a way that it avoids the pitfalls of nihilism. This involves explaining my cryptic remark in the previous chapter that there is meaning enough in the world. Lastly, this account of scientific surrealism should leave a space for a more robust conceptualization of subjectivity than Sellars'. I will address this point in the following chapter.

The fundamental claim of scientific surrealism is that there is only one world, and it is a rather complex place. This complexity plays itself out in several ways. First, the inquiring subject must be understood as part and parcel of the world, not over and above the world. Second, the criterion of reality is that one is able to coordinate actions with events. Third, reality must be interpreted as very dense. Lastly, reality must be seen as sets of interrelated events all the way down.

Proposition #1: Inquirers are part of the world, not over and above the world

It should first be noted that I write of "inquirers" and not of the "knower," because 350 years of lingering Cartesianisms, the image of the knower is that of a thinking thing divorced from the world: the brain in the vat, desperately trying to connect its propositions to the world. Since the time of the *Meditations*, this has been what human subjectivity has been trying to escape.[1]

Instead, my emphasis is on the "inquirer," though this inquirer is always already part of a community. Rather than an isolated subject floating above the world, the inquirer should be understood as a flesh-and-blood organism trying to navigate through a complicated world. What is at stake is not certainty or some similar permutation, but survival. If the inquirer cannot acquire an adequate set of habits, which is what is at stake in the process of inquiry, that organism is not long for this world. This is merely recapitulating what I described in Chapter 3 as "acting-in-the-world."

[1] Never mind the endless exceptions to this rule.

What then is this process of inquiry? Following Peirce, we should start with doubt since it is with doubt that we are thrown into inquiry. First, it should be noted that doubt is "an uneasy and dissatisfied state." (**CP**: 5.372) When one is in doubt, it is not a comfortable situation. What one had once taken as a true is no longer the case. There is a certain restlessness that the inquirer wants to be rid of. The inquirer wants to have a belief again. It should be noted as well that this doubt is a real feeling, not something feigned. It is a psychological state as much as anything else.

Since doubt is an uncomfortable state, according to Peirce it is imperative that one return to the relative calm of belief. When one has a belief, one is ready to act. "Belief does not make us act at once, but puts us into such a condition that we shall behave in some certain way when the situation arises." (**CP**: 5.373) When one has a belief, one "knows" what to do and when to do it. This is a more pleasant state than doubt, because one has security in one's beliefs. Since a belief is something that will be acted on, one acts as if the belief is true. The end point of belief is establishment of habit that we can rely upon, a point to which I will return below.

The process through which doubt is eliminated is called inquiry. The whole of thought is about moving the inquirer from doubt to belief. Thought is principally about inquiry. One is called on to think when doubt arises. The goal of inquiry is to move from the dissatisfied state of doubt to the security of belief. It is this move from doubt to belief that drives thinking.

As Peirce sees it there are a number of ways that we can inquire and for him the interesting question is about which is best. He proposes that there are four different methods, though three of them boil down to the same basic strategy. The first method is that of tenacity. This involves merely fixing belief based upon one's fancy. There is no necessary rhyme or reason to what belief is acquired. Instead, one selects a new belief based on whatever, be it expediency, aesthetics, or something else. The trouble with this method is its essential arbitrariness. The next method for fixing belief is the method of authority. In this case, one appeals to a higher power to determine what one should believe. This method amounts to being the method of tenacity writ large. Another version of the method of tenacity is the *a priori* method. This is the method through which many philosophers attain belief. This method ends up being the method of tenacity, but dressed up in philosophical lingo.

The final method of inquiry is the "scientific method," which is the method that Peirce favors. As Peirce sees it, the advantage of this method is that "our beliefs may be determined by nothing human, but by some external permanency-by something upon which our thinking has no effect." (**CP**: 5.384) Instead of something arbitrary determining one's beliefs, the Real is called upon.

> There are Real things, whose character are entirely independent of our opinions about them; those Reals affect our senses according to regular laws, and, though our sensations are as different as are relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really and truly are; and any man, if he have sufficient experience and he reason enough about it, will be led to the one True conclusion. (**CP**: 5.384)

Through means like experimentation and correct reasoning, one can eventually arrive at this one True conclusion.

There are two reasons Peirce holds that there are Reals that are independent of the human mind. First, "If investigation cannot be regarded as proving that there are Real things, it at least

does not lead to a contrary conclusion; but the method and the conception on which it is based remain ever in harmony." (**CP**: 5.384) Of course there is an ambiguity here as to what constitutes the Real: is it the world of observables or the world of nonobservables? Peirce, on my reading at least, fails to give a clear answer to this question. And, for reasons discussed in Chapters 4 and 6, scientific investigation appears to give no answer in itself. Many instrumentalists see the conclusions of science and side with the observables as being Real. Scientific realists reach the opposite conclusion. Still, regardless of how one construes scientific investigation, philosophers take this as evidence that *something* is real.

Second, and more interestingly, Peirce makes the following claim:

> The feeling which gives rise to any method of fixing belief is a dissatisfaction at two repugnant propositions. But here already is a vague concession that there is some *one* thing which a proposition should represent. Nobody, therefore, can doubt that there are Reals, for, if he did, doubt would not be a source of dissatisfaction. The hypothesis, therefore, is one which every mind admits. So that the social impulse does not cause men to doubt it. (**CP**: 5.384)

The reasoning here is quite clever. To begin with, the very process of inquiry presupposes something real. If there were not some sort of real world, then we would never be thrown into the situation of doubt. By seeking to fix belief, we are attempting to think about something. That something is the real.

Now it should be patently obvious that this is too simple an account of the real. The way that Peirce phrases this argument here falls back into the traps of foundationalism discussed in Chapter 6. The Real is that which exists totally independent of the human mind. It is this divorce that causes Peirce to fall back on foundationalism. Furthermore, even Peirce will back off from this idea that the Real is that which is totally independent of the mind when he reaches his idealist phase in essays like "The Architecture of Theories."

Yet, we still can learn something from Peirce's discussion of the Real. What Peirce seems to be fumbling toward is a claim that we are in the midst of the real, that the real is all around us. Throughout his career, Peirce attempted to formulate a view of the world that includes the inquirer as part of the world. What he lacked, and he is not unique in this respect, is a clear way to describe the manner in which the inquirer is embodied in the world. Early in his career he attempted this through a deployment of semiotics, which we have discussed in Chapter 3. Later, he attempted to formulate this in terms of a peculiar sort of idealism. This later idealistic move is complicated by the fact that by that point in his career Peirce held that the universe itself is evolving.

The reason Peirce finds it so obvious that there are Reals is that the real is all around us. The real does not occupy some sort of mystical space above and beyond the world. Such a view merely falls into the traps of acting-on-the-world and foundationalism. Instead, we should view the inquirer as part of the real. This is to say that the real includes the inquirer among its constituents. What we are not concerned with is the isolated knower trying to attach propositions to things, trying to determine those limited number of things that are really Real. While the real does have a distinctive metaphysical character, to be developed below, it exists all over the place. The inquirer is part of this system as well, not divorced from it. The inquirer should be seen as a real existence along side others.

As noted above, the terminus of an inquiry is the establishment of a belief. The important thing about a belief is that it establishes a habit, a rule of action. Be it mental or physical, a habit is about acting in some way. "What the habit is depends on *when* and *how* it causes us to act. As for the *when*, every stimulus to action is derived from perception; as for the *how*, every purpose of action is to produce some sensible result." (**CP**: 5.400) The essence of habit is action. The habit comes into effect when a certain stimulus is presented to us. The purpose of the habit is to create some sort of "sensible result." This is to say that the habit aims to produce some sort of definite effect in the world. The habit is successful if it produces the desired result.

It is at this point we begin to see the dimensions of embodiment. First off, this whole process of inquiry is grounded in feeling. Unlike the caricature of Descartes and other modern epistemologists I have developed throughout this essay, inquiry is not some abstract process carried on by a disembodied subject. Instead, the process of inquiry is grounded from beginning to end in a real body with real feelings. What prompts inquiry is the dissatisfied feeling of doubt. What drives inquiry is the desire for a feeling of certainty.[2]

Furthermore, the role of habit is rather significant. This is because habits connect the inquirer to the world. Habits are rules for acting and all this action takes place in the world. This is true regardless of whether the habit is mental or physical. Both take place in the same, very complicated, world. Habits, as noted above, are about producing sensible results in particular situations. These sensible results will be real effects in a real world, the real world.

Habits *presuppose* a connection to the world. My habit of walking assumes something solid to walk on. If I am wrong on this, I will be placed in doubt, as well as flat on my back. When one acts on a habit, one does not think about what one is doing. That is precisely the point: habits do not involve thought in their execution. We simply execute the habit in a particular circumstance. This execution assumes that there is a world in which the habit operates. Otherwise, the habit will not get us very far.

So, what we have here is a theory of inquiry that emphasizes this idea that the inquirer is a part of the world. The aim of this account of inquiry is the establishment of habits. Habits are part of what gives us a "hook" which connects the inquirer to the world, because habits already assume the existence of the world. But our story goes further than this. The whole process should be understood as thoroughly embodied. Inquiry always occurs through a body. The process begins when habits break down and we are cast into doubt. To have this feeling of doubt, one already presupposes that one has a body for two reasons. First, it is because of the perils of embodiment, i.e., habits and their breakdowns, that one arrives at this feeling. Second, doubt is a fear in the gut, at least in cases of serious doubt. The process of trying to find a new belief is also embodied. If one takes Peirce's preferred approach to fixing belief, the method of science, then one can also anticipate an intimate connection with the world. The scientific method requires one to interact with things, to see how they work, behave. It is through experimentation that we arrive at a new belief. This in turn establishes a habit, which also involves a body and the world. Inquiry is entirely about acting-in-the-world.

This is not to say that the mind plays no role in this process. Far from it. The mind plays an extraordinarily important role. Without the mind, in some sense of the term, it is difficult to imagine how we would experiment with the world to settle matters of belief. What is important is that the mind of the inquirer is a part of the world. The mind is not simply something that happens to be attached to the body, but it is instead embodied. The mind is realized through

[2] This desire for certainty is always on the cusp of becoming pathological. It does so when the desire for certainty seeks something more than the comfort of belief, that is to say it tries to create a foundation.

acting in the world. Thinking occurs in the world by acting in the world. The currency of thinking is signs. And, as we saw in Chapter 3, the meaning of a sign is the actions that follow from it. In this way, thinking is a form of action. Thinking leads to some sort of perceptible result, even if this is just the production of a new sign. What is useful about this talk of semiotics is that it gives us a single space in which everything occurs, the world of signs. Because of this move, we can understand all thought as occurring in the same world as everything else.

This is not a conclusive proof of the ("external") world, nor does it really attempt to be. Instead, my purpose is to shift the discussion from talk about knowledge and propositions to inquiry and habits. I hope that I have at least given some reasons to make to this shift. The key move is the focus on the inquirer as being part of the world. First, this means that the inquirer should be understood as a flesh-and-blood organism trying to make its way through a complicated world. Second, this view entails that there is just one world. Minds, bodies, and other things all exist in the same space. There are no separate realms like in the Cartesian world view. This also entails that there is no privileged view from nowhere that the inquirer occupies. Instead, what we are faced with is a multiplicity of perspectives about the world.

Proposition #2: The real is that with which we can coordinate actions

Those things that we should take as real are those things with which we can coordinate our actions.[3] Real things, those things that (in some sense or other) exist, make an impact on our actions. This means that something that is real will cause the inquirers to act in a manner that they otherwise would not. Furthermore, the inquirers can construct stable patterns of interactions with those things. The inquirers can use those real things to affect something else.

The roots of this criterion of reality rest on an ontological interpretation of the pragmatic maxim. Peirce's statement of the maxim is:

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the whole of our conception of the object. (**CP**: 5.402)

Needless to say, a few words are needed to explain how we get from the maxim to matters of metaphysics. But first it is important to understand what the maxim means. The place to start is with the objects we are conceiving. We should reflect upon the possible effects that the conceived object might produce. This means considering what consequences follow from this conception, what actions are entailed by it. It goes without saying that for most objects we might conceive this list will be rather long, but we should be thorough. Once we are done, Peirce's claim is that this list will be our whole conception of the object. Nothing will be left out. The object is essentially what the object does. By considering all the effects, consequences, actions, behaviors that the object produces, we exhaust what the object is. Everything about the object is taken into account.[4]

It will be remembered from Chapter 4, that Peirce proposed that what Truth amounts to is what is arrived at in the end of inquiry. Along with this claim, Peirce also stated that "the object represented by this opinion is the real." (**CP**: 5.407) Now, it is clear that this will not do. Based on our discussion in Chapter 6, it is immediately obvious that this end of inquiry story is just a

[3] I would like to thank Anubav Vasudevan for forcing me to develop a criterion of realness.

[4] Clearly there are limits on what consequences can be known in advance. Certain objects might have unintended consequences and the like. This means that our understanding of any object is always incomplete.

variation on metaphysical foundationalism. Instead of having the foundation at the start, it is placed at the end. A cute move, but still problematic for precisely the reasons we have discussed earlier.

In which case, how should we reconstruct the real minus the end of inquiry? It should be remembered that what makes Peirce's Real real is that the Real holds up under inquiry. In a certain sense, the Real is that which we do not doubt. Since the Real is only clear at the end of inquiry, the Real will be those things that constitute the ontology of the final theory. Because they are part of this final theory, they cannot be doubted by definition, since all doubt has been exhausted.

It is from this indubitable character that we should take our cue for defining the real. In its first approximation, those things that are real are those things that we act upon, with or through without doubting at that particular moment. When we act, we anticipate that things will react in certain ways. Under normal circumstances, we expect that the floor will remain solid while we are walking across it. This is not in doubt. For this reason, we *take* the floor to be real. We are able to successfully coordinate our actions with it.

What then sanctions the move from taking something as real to it being *really* real? The first move is to return to the pragmatic maxim. If a thing amounts to the consequences it leads to, then it is those consequences that define what a thing is. This is because the thing is only those effects that it produces. Our whole conception of the thing is its possible consequences. For example, the whole conception of my coffee mug is its possible consequences. Most of these consequences center on the capacity for the mug to hold coffee and other beverages. But the coffee mug can also be used as a paper weight, a projectile, pencil holder, or a door stop among many other things. The conception of the coffee mug is formed by the things that can possibly be done with the mug.

Now it is not merely that a thing has consequences that make it real. In addition to having consequences we must be able to coordinate our actions with those consequences.[5] Take the coffee mug as an example again. It is not merely that the coffee mug has consequences, but that I can coordinate my actions with the mug. I am able to pick it up it, take a sip from it and put it back down without worry, though the addition of hot coffee might cause me to behave somewhat differently. I am able to successfully act with the mug without a doubt. For this reason, I take the mug to be real.

In being able to coordinate actions with a thing, we are able to use the consequences of a thing being what it is to successfully act in the world. We are able to use the thing to achieve our goals. In the case of the coffee mug, I am able to hold a liquid in something and then drink out of it. In the case of an electron, of which more will be said below, we are able to spray it to affect something else. What is key here is that one can use the real thing to do something.

This still leaves us with the question of why I can move from taking the mug as real to the mug being *really* real. This move is possible because all we experience are the effects, the consequences, of things. We do not have access to spooky metaphysical realms, like that of the noumenal. Instead, we are "stuck" with the world of experience. And this world is that of consequences, effects. This is because all we experience are the effects of objects. In terms of the coffee mug, all I ever experience are the effects of its color, solidity, holding capacity and so forth. By definition I can never access the thing-in-itself that lies behind these effects. This does

[5] I will leave it as an open question whether something can have consequences without being able to coordinate actions with the thing.

not matter because, as witnessed in the previous chapter, such a realm is a mere artifice. In which case, all we have access to is the effects of a thing. A thing is simply its consequences.

In which case, all "real" can mean is this taking of the object to be its potential consequences and our coordinated actions. There can be nothing deeper here. Anything else will be a fabrication, a spooky substance to which we cannot have access. Because all we can do is work with the consequences of a thing, our criteria of what counts as real is going to be determined by the consequences. Those things that we can act with, on, through are going to be taken as real because of the consequences that they entail, that we are able to coordinate our actions with them.

Again, we see the contextual indubitably of the real. When we act with something, we take that thing as real. This is not to say that we cannot doubt it at some later point, but in the process of acting, we rely on the thing to be stable, reliable. We take the thing as given. Yet, this taking is contextual, dependent on circumstance. The real is typically held in the background. It is those things we do not inquire into. We typically only inquire into those things that are in doubt. In most circumstances, I will take my coffee mug and what is inside it as real. I will simply pick up the mug and sip. It is only when something appears wrong that I doubt the realness of the coffee-filled mug. This typically ends up meaning that I take the mug as full of coffee when in fact it is empty.

This is all well and good when dealing with macroscopic objects. But these are not the entities usually under discussion in science. How then does one coordinate one's actions with entities that are not, in a strict sense, observable?

The place to begin is with the definition of experience introduced in Chapter 3. The basic idea of this construal of experience was that it was a double-barreled concept. Experience brings together the subject and object into a unity. In the first instance, there is only experience. Things happen, in which we play an active role. In its most elemental form, experience consists of sensations and feelings. But unlike the experience described by Hume, these sensations and feelings are not passive. Instead, these sensations involve active relations between what will become known as subject and object. Later on we parse experience into concepts like subject/object, knower/known and the like. These concepts are read into experience.

Now, there are senses in which experience is plastic. By this I mean that experience can be molded, extended and limited in certain ways. One way in which this occurs is through the very production of subjectivities. The concepts used by the subject are made to highlight certain aspects of experience and downplay others. But this sense of plastic is more about the experience of experience, the way in which experience is processed. There is much to found to any particular experience, what is taken as significant can change.

There is another sense in which experience is plastic. This has to do with the ways in which experience can be extended. My central example of this will be scientific instruments. In a multitude of ways, scientific instruments open up new realms of possible experience. The telescope brought things that are far away into a closer part of the observer's visual field. A more dramatic example is the microscope. The telescope simply magnified that which was distant, allowing us to see things that were previously unable to be resolved by the naked eye. The microscope revealed a whole new realm that was previously unimaginable. Entirely new classes of things had to be added to our ontology. In addition to the world of macroscopic things, one needed to take into account this new realm of microscopic entities.

Science has proceeded to open new spaces of experience. Examples abound. Radio telescopes allow scientists to perceive a different part of the electro-magnetic spectrum, "seeing"

entirely new aspects of the universe. Electron microscopes give scientists the ability to map the behavior of atoms and molecules. Cloud chamber images reveal the world of subatomic particles. These are simply the clearest examples, because they center on vision. There are whole other traditions that rely on different sorts of inscription devices. These are visual without being pictures per se. These can involve graphs, numbers and the like. Don Idhe refers to these as hermeneutical technologies.[6]

The obvious question is then "in what sense are these technologies, be they visual or hermeneutical, producing experience?" The cases of conventional light microscopes and telescopes are probably the easiest to explain. In both cases, what occurs is an opening up sensations of new things. In the case of the light microscope, it is making visible things that could not be seen otherwise. With the aid of the instrument one can perceive, see, the microscopic realm. These sensations are mediated by the technologies and this point should not be undervalued, but regardless, experiences of new sorts of things is made possible.

Other visual and the whole of hermeneutical technologies follow a similar logic. What is involved is the production of new ranges of sensations. While these are predominantly visual signs, what they offer is a way into other parts of the world. Each in their own way pushes the boundaries of perception. This is through the production of images and other kinds of readings, in other words, signs. All we have access to are these various signs, but in the right hands they can reveal a lot.

A word is necessary about how these signs are read. Needless to say, a lot of training is needed into making sense of them. To the untrained eye, a cloud chamber photograph looks a bit like an abstract expressionist painting. Yet, given the proper training, one can learn how to read what sorts of particles are involved. Science is not unique in this. There are many sorts of experiences that require training in order to, in some sense, properly read the signs involved. Take wine tasting as an example. For some, there are two kinds of wine: red and white, with perhaps a few subcategories. For those who have spent time drinking wine, there is a whole world of flavors there in the wine. The subtly of these distinctions is utterly lost on those of us who break down wine into red and white. I will propose that those distinct flavors are there in the wine, in the experience of drinking it, but one's palate has not been disciplined in such a way as to realize it. Much the same is the case with the signs inscription devices produce. One has to be disciplined in order to make heads or tails of its significance, its meaning. Otherwise it is just a number on a dial, a line on paper or a pretty picture.

From here it is a relatively short step to the realness of these scientific entities revealed by these technologies. What these technological devices allow for is new ways to coordinate actions. By creating new spaces of experience, one uncovers new things with which one can coordinate actions. The broadening out of experience is key to this. The various inscription devices discussed above create experiences of new sorts of things. This in turn permits the possibility of new sorts of interventions in these realms. These devices have been built both to make visible and to intervene in these realms. The latter is the case because the act of making visible is in fact a form of intervention. The reason for this is that in attempting to represent these phenomena, one is also intervening in them. Hacking's discussion of the microscope is an excellent example of this.[7]

Now the test of whether these things are really real is whether one can actually use them to do something. This is to say that one can use the entity to produce some sort of effect on

[6] See Idhe (1991) for more on this distinction
[7] See Chapter 11 of Hacking (1983).

something else. The repeatability of this production is important, but this is also the same at the macroscopic level. What is key here is that one can manipulate the entity under consideration in such a way that it does something. This usually takes the form of affecting something else. In this way, the fact that we can spray electrons does in fact make them real. (Hacking, 1983: 22-4)

It goes without saying that this is a complicated process, with many layers of technological devices. Yet, what I will propose is that this is not all that problematic. Yes, if one jumps immediately from the naked eye observations of early astronomy to high-energy particle accelerators, the shift seems rather dramatic. Instead, what has occurred in science is a gradual broadening out of what constitutes experience (and, in turn, experiment). With the development of new technologies, new ways of experiencing the world are put forward. Through these devices, what counts as experience has changed. No longer is naked eye observation the only realm of experience to be had. This process has not been simple or straightforward, nor should we have expected it to be. Yet, what has gone on is expansion of experience and the ways to intervene in various parts of the world.

Proposition #3: The real is very dense

> "Profusion, not economy, may after all be reality's key-note."
> - William James *Pragmatism*

It should be noted that in my discussion of Proposition #2, I made no attempt to limit what qualifies as real beyond being able to coordinate actions with the thing. This was done quite deliberately. As I have noted before, the world is a complicated place. We see this already. Minds, bodies, coffee mugs, floors and meaning are all real because we are able to coordinate our actions with them. This means that we already have a bustling ontology. This ontology is about to undergo an explosive growth spurt.

Many philosophers have sought to make the Real as simple as possible. The Real for them is composed of one sort of things: atoms, monads, Forms, mind, Spirit, etc... In Chapter 4, we saw that Sellars holds that the Real is defined by whatever is specified by science. More specifically, what is Real is constituted by those entities proposed in the final scientific theory. That is to say the theory held when scientific inquiry is done, when all the questions about the basic constitution of the universe are answered. Furthermore, Sellars takes a reductive line about this. Physics is the "queen" of the sciences, since it asks questions about the fundamental nature of matter. All the other sciences ask questions about what happens to particular configurations of matter. Because everything is made up of matter, everything is reducible down to the fundamental stuff of physics.

This strategy works well given Sellars' metaphysical foundationalism. Everything becomes explicable in terms of the fundamental entities. Everything can be boiled down to the final stuff that physics proposes. This takes the chaos and instability of the world and gives it a meaning based upon the final stuff. The more things in one's fundamental ontology, the more difficult it is to find comfort and meaning in that ontology. Questions arise like "which being has priority?" The purpose of those things in the fundamental ontology is to give an over-arching purpose to the world. If one has too many things in this fundamental ontology, then it is hard to know what the essential source of this order is.

Instead of holding that there is some fundamental reductive set of entities that defines the Real, I have argued that the real is simply constituted by those things with which we coordinate our actions. This leads one to conclude that the real, instead of being something quite simple is actually rather complex. Yes, we might provisionally take strings as real, but so are electrons,

genes, tables and stars. We are able to conduct transactions with all these things, along with others as well.

So, we find that the world is a very busy place. It includes a vast multitude of things. Put differently, the world is very dense. I use "dense" to describe this because the word captures this idea that the world is thick, rife with processes. There is a great deal going on, from the subatomic to the molecular to the everyday world of bodies to the realm of the astrophysical. At each of these levels, different things occur. What various sciences do is explore what occurs at these various levels. What is important to keep in mind is that each level is real in a meaningful sense. Each level has a life of its own so to speak.

The reductionist move is appealing because of lingering attachments to metaphysical foundationalism. It tends to rely on an "either/or" type of logic. In Sellars' case, *either* something is noumenal (Real) *or* it is phenomenal (Appearance). What I am recommending is a "both/and" logic. I am *both* a body-mind *and* an amalgamation of biochemical processes. If we are serious about working our way out of metaphysical foundationalism, we must abandon facile use of "either/or" logic. The world is a complex, dense place. If we accept this, then it should be unsurprising that there many aspects to a lot of things. To retain a simple-minded binary logic really just reinforces foundationalism. This is because foundationalism needs to parse out, in a stark manner, the world into two kinds of things: the foundation and everything else. In order to function as a foundation, it must separate the wheat from the chaff, the Real from the Apparent. Instead, I am arguing we should treat the distinction between reality and appearance as one that arises from the process of inquiry. The real is that which the inquirer does not doubt in a particular context, while the apparent is that which will cause doubt.[8] When we are acting, usually these two categories can coexist with each other. But there are times when they can come into conflict and this is when inquiry starts.

The upshot of all this is that the world is in fact a complex place. Our ontology should reflect this in a serious way. There are bodies and minds (or, more properly, body-minds) as well as genes and electrons. The real is very dense. It plays out on many different levels. To expect anything else is embrace metaphysical foundationalism.

Proposition #4: The real is composed of events

> "Every existence is an event"
> - John Dewey *Experience and Nature*

Along with holding that the Real is relatively simple, some philosophers have also held that the Real is static. This is to say that they have emphasized being over becoming. In many cases this has involved postulating a world of being above and beyond that of this world of flux, becoming. This world of being, which is taken to be the Real world, is static in the sense that it is fixed, unchanging. Once one knows its basic constituents and rules, the Real world is set. In the case of Sellars' scientific realism, this means that those magical entities of science's final theory are just there. While there is a creation story about how, in the opening seconds of the universe, these fundamental entities developed out of the Big Bang, this really serves as a testament to their inevitability. This is because the laws that govern their creation are, in some sense, necessary. Not surprisingly, this logic works well in supporting foundationalism. By emphasizing the relative importance of being over becoming, one can "point" to the world of

[8] Of course, we should apply our "both/and" logic to this as well. This term "the real" is both involved with matters of metaphysics and inquiry.

being and show how it is stable and certain. This gives a powerful bit of leverage for foundationalism because the world of being is supposed to be secure, static.[9]

This fixation on being over becoming is part of the whole psychological complex that I have been diagnosing and attempting to treat throughout this essay. The next step in overcoming this complex is to embrace becoming. This entails an acceptance that the world of becoming, change, is all there is. This also involves rejecting misguided appeals to the permanence of being, and probably Being as well. Let me explain this in terms of "events."

The real is composed of events all the way down. An event is an occurrence, a happening. Simply put, an event is a process that occurs through time. There are several things that are important about this. First, an event takes place across time. In this sense, events are all about becoming. They are transitions, changes, from one state to another. This necessarily occurs across time. This is because, without time, one could not change from one state to another. Change requires time. Even the quantum jump from one state to another relies upon some sort of duration through time. At one moment the electron is at one state and in the next it is in another. This occurs through time, as does everything else.[10]

Second, in the event, something happens. This is implied by the previous point, but it is worth expanding on. Consider a conventional event, like a party. At a party, things occur. People chat with each other, food and beverages are consumed, perhaps something is celebrated, games might be played, then people leave, and finally the mess made is hopefully cleaned up. Through the event of the party, everything is changed, if only in minor ways. The people involved have generated new memories. The food and beverages undergo serious transformations. The place in which the party occurs needs cleaning, among other things. The fundamental claim here is that everything is like this, though probably less dramatically. Even in the case of the electron making the quantum jump, the electron undergoes a change in potential energy, requiring the emission or gaining of a photon. During the span of an event things can change. Something occurs.

Third, every event is shaped. Other events come to bear on each other. Even a party thrown together on the spur of moment is shaped by numerous things: the people involved, the time it is held, the space it is held in, the food and beverages available. All these things go into making the party into what it is. Every event is like this. Other events act on a particular event in order to produce it. Without these "forces," the event would not be what it is. Yet it should be kept in mind that these "forces" are events themselves. They are produced as well. Everything is a process that occurs through time.

Needless to say, some events are less likely to change than others. In a certain sense, my coffee mug is a more stable event than my body, in that the coffee mug has a relatively fixed shape that endures through time and requires less upkeep, while my body is constantly changing and in need of maintenance. This does not make them any less of an event though. A particular process might be fixed in a particular way, but in most cases this does not mean it cannot change, or has not changed at some point in past. Some events are more stable than others. But, as Emerson reminds us: "Permanence is but a matter of degree." (Emerson, 1990: 189) Everything

[9] It should be noted that Sellars himself explicitly developed a process ontology later in his career. Yet there seems to be a tension in his work between the idea of process, which is constantly changing and the scientifically Real, which appears to be fixed. For more on Sellars' process ontology, see **FMPP**.

[10] John Dewey has argued in "Time and Individuality" (1940) that in fact it is change that produces time. I suspect he is correct in this. It is my hope that what I propose here is consonant with this idea, though for the sake of simplicity I have chosen not to deploy Dewey's language on this point.

undergoes change (or has undergone change or will), though in some cases it might be nigh imperceptible given the duration of a human life, human event.

But, the scientific realist might counter, are not the laws of physics necessary, in some sense? To this, I can only give a highly speculative answer. As alluded to above, there is a nice story about how, at the start of the Big Bang, there was no distinction between the four fundamental forces. Also, all matter, or what was to become matter, was compressed into a singularity. The usual way this narrative is told is that, across the span of a few seconds, the universe as we know it necessarily unfolded. There is a necessary logic to this process of unfolding. It had to happen this way.

What I will propose is an alternate reading of this story. Instead of holding that the origin of the universe is a necessary unfolding, perhaps it is a set of events as well. What we witness in the origin is the setting in motion of processes that are densely interrelated. In a sense, the forces themselves co-produce each other, as well as matter. In these opening seconds, these processes form each other. This involves a playing off of one force against the others, which in turn shapes the production of matter. These events could have occurred differently. Instead of arguing that these processes are necessary, we see the birth of a certain sort of necessity. These forces have become necessary, in the sense that they all matter is affected by them in generally predictable ways, but they are contingent themselves. They are productions, events, like everything else.

Again we see the return of a "both/and" logic. The fundamental forces are both necessary and contingent. Once set in motion, they become necessary, but there is a contingent story about how they came into becoming. This point is significant because we begin to see the truth in Peirce's claim that the cosmos is composed of both law and chance. Chance is an irreducible part of the world, though this sense of chance will play out in different ways at different levels of the world. Events are shaped through an interplay of chance and law. There are ways in which chance can be tamed, but these are always fallible. Even a well-designed assembly line runs the risk of producing a defective product. Other standardized practices run into similar problems. And since Hume, we are aware of the precariousness of assuming the uniformity of nature. This is merely to reiterate the point that chance is an irreducible aspect of the world.

So, I have attempted to show that the real consists of events. Those things with which we can coordinate our actions are simply processes that occur through time. From electrons to DNA to humans to the stars, everything is becoming. These real things are stable to various degrees. Electrons tend to be very durable, while human existence is rather precarious. Yet, everything is still an event. This is to say that everything is a unique happening that is shaped by other events, other unique happenings. Even though humans, in some sense, cannot differentiate electrons, each is a unique becoming. Although there is no record of its history that can be reconstructed, in the way you can for a human or even a coffee mug, this does not take away from the electron being an event. This is because the electron is still an individual with a history. It came into existence at a certain point and has done numerous things in that time. Simply because we cannot reconstruct its story does not take away from this.

Scientific surrealism and nihilism

We now have the basic components of an alternate vision of scientific realism. The central claim of scientific surrealism is that there is just one world, which is a very, very complicated place. Inquirers, electrons, molecules, coffee mugs and stars all have their place, are all real. Furthermore, all these things are in processes of becoming. It is now time show how

scientific surrealism avoids the pitfalls of both foundationalism and nihilism. First to foundationalism.

As we saw in Chapters 4 and 6, the essential move of foundationalism is to postulate that some thing exists above and beyond the world of becoming. This thing is taken to be the source of all meaning, order and value in the world of becoming. This thing exists in some other world in order to give the desired sense of stability, security and certainty. You end up here with two entirely separate worlds, one, the Real, and the other, the Apparent.

The first thing to note about scientific surrealism is that there is only one world, given that this is a rather complex one. This move blocks the attempt by the foundationalist to separate the world in two, the foundation and everything else. Both the real and the apparent are contained in one space, the world of experience. By blocking the foundationalist's move, one avoids several difficulties. Most important, one no longer has to worry about how to connect two incommensurable worlds, which is one of the things that triggers nihilism in the first place. Additionally, it does not have the lingering problem of how to attach the knower to the known because the activity of inquiry takes place in the same world as what is inquired into. This effectively puts foundationalism to rest.

The case against nihilism requires more sophistication. There is one sense in which it is easy. Because scientific surrealism relies on just one world, one cannot have foundationalism. Because one cannot engage in the foundationalist gambit, one does not need to worry about foundationalism giving rise to nihilism. Yet, nihilism might arise from other sources.[11] Even if one accepts scientific surrealism, there still might be a lingering concern that existence itself is meaningless. Let me attempt to demonstrate why this is not the case.

Scientific surrealism does not posit an over-arching meaning and order to the world. This much should be clear. Given our discussion in the previous chapter, my depiction of the inquirer might look a bit like *homo epistemologicus*, but this likeness is only skin deep. Both are concerned with inquiry, in a broad sense. But here the similarities end. For the inquirer, inquiry is a means to an end, not its whole and only purpose. Humans do many other things in addition to inquiry. Furthermore, inquiry is always situated, provoked by doubt. This is opposed to *homo epistemologicus*, for whom trying to know, the will to know, is a way of life. In this way, the inquirer is a very different entity from *homo epistemologicus*. It is here that I come closest to the moves associated with foundationalism, yet the differences should be clear enough. Perhaps the simplest way of trying to articulate this difference has to do with the source of meaning for the two. For *homo epistemologicus*, meaning comes from outside of itself, from the Real that it seeks to know. For the inquirer, meaning arises out of the process of inquiry (among other things). All things being equal, meaning is internal to this process.

Now, to say that there is no over-arching meaning and order to the world is not the same as saying that there is no meaning and order to the world. It is important to keep in mind this distinction. If one runs the two together, which seems to be one strategy for the foundationalist, then there are serious problems. Then we are really faced with total nihilism. Then there is no possibility of meaning, order or purpose in any form.

Yet, it should be patently obvious that these things, meaning, order, purpose, do exist, are real. Start with order. There are clearly a lot of orders and patterns in the world. These can be human made or naturally occurring. The interesting question becomes "what is the source of this order?" For the foundationalist, the answer is easy: the Real. The Real serves as an ordering

[11] Though it is my suspicion that most of these sources are just foundationalism in another disguise, or the desire for a foundation.

principle for everything. This is what makes foundationalism both so appealing and serves as its undoing. On the one hand, the Real gives an order to the chaos found in the world. On the other, trying to actually put this all into motion proves to be an impossible task.

Scientific surrealism holds that order is an emergent phenomenon. This is to say that order can arise out of the processes that events are involved in. The development of order is internal to these processes, in the sense of not having the order imposed from some external thing (like the Real). Through the interplay of chance and law, order materializes, is made real. This holds true for both natural and human made events. In the case of natural events, the apple will fall to the ground because of the force of gravity, which itself is an event, born out of the Big Bang. In human terms, order can be made for, or even imposed on, things. The well-ordered nature of the coffee mug is imposed on the raw materials. Even in this case, the order emerges as part of the process, in this instance, the production of the mug. In both cases, the order is a local phenomenon (even if the limit of the reach of gravity is the whole universe), rather than being something transcendent.

Much the same is the case with meaning, though it will be helpful to make a distinction before going further. The foundationalist seems to rely on two different senses of "meaning." One is the conventional understanding of the word, i.e., what a term expresses or represents. The other is something synonymous with purpose or order.[12] This is meaning in the sense of some sort of over-arching aim, a meaning to life. What nihilism undermines is the latter sense of meaning, though perhaps in its most totalizing form it also threatens the former.

What scientific surrealism starts with is the former sense of meaning, in which meaning is understood as the actions that result from a term. From here, we begin to see how meaning in the other sense can be built out to, though in a limited way. This is because meaning as action, use, feeds into meaning as purpose. When we reach a point in our cognitive development when we can actively reflect on meaning as action, we are in a position to create purposes. We can use words, and signs more generally, to achieve a desired end. Words become part of the repertoire of tools we use to do things in the world. These actions tend to have a purpose, some sort of end-in-view, the goal we are trying to reach. From here, it is a matter of building out to larger purposes or meanings.

Part of what prevents scientific surrealism from backsliding into nihilism is that these purposes are always local, much like order. They emerge out of the context of action. They are not fixed and transcendent, though they can be made to look like they are. What nihilism undermines are these purposes that are taken to be transcendent. It reveals them to be fabrications. And rightly so. Meaning as purpose in my more limited sense is also a fabrication and we should be consciously aware of this fact. These meanings are produced. While some of these meanings are in fact inherited and have proven themselves relatively stable (consider *homo epistemologicus* or humanity as conceived by capitalism), they still can (and should) be deconstructed, though this might require serious effort.

Furthermore, there is no over-arching purpose to the events that constitute the world of experience. In this, nihilism and scientific surrealism agree. Where these processes are headed remains an open question. One can give limited answers to such questions, but a transcendent answer is lacking and always will be lacking. There is no adequate answer to the foundationalist who asks "becoming into what?" Instead, at least at some levels, humanity has the space to transform inherited meanings, purposes. Meaning as purpose seems principally to be human

[12] In all likelihood, the former sense of meaning is dependent on the latter for the foundationalist because it is from the foundation that all reference springs.

realization and we should be aware of its limits. Asking what the purpose of gravity is appears to be a misguided question. Yet, what we do with knowledge about gravity is another matter entirely.

In this way, scientific surrealism only has a limited response to humanity's quest for a foundation. All it can show is why this search is misguided, then point to the variety of meanings that already exist in the world and say "there is nothing more than this." The instability and chaos of existence is part of the world, part of the existential situation. It must be accepted as such and dealt with in a more constructive manner. There is already meaning enough in the world. In fact, the world overflows with meaning. Our principle task is realizing this and then moving on.

Chapter 8: Subjectivity, dwelling, scientific surrealism

This chapter has two goals. First, I will propose a schema through which we can think about the interrelations between subjectivity and science. This will be based, in large part, on the discussions from earlier chapters. Second, I will introduce the concept of "dwelling" as a tool for critiquing the contemporary hegemonic power of science. Central to dwelling is the idea that humanity should, in some sense, reside in Wilfrid Sellars' manifest image. The manifest image captures some central aspects of the human condition that should not be lost. We should dwell there, in the sense that it should take center stage in conceptions of human subjectivity. This is not to the exclusion of science, but must be balanced in a delicate way.

The schema

I have presented two different ways of thinking about the human condition in the course of this essay. One centers on the notions of acting-on-the-world and foundationalism. The alternative view starts with acting-in-the-world and leads to an anti-foundationalist stance. Each of these takes a different approach to matters of subjectivity and science. In terms of a scientific foundationalism, subjectivity is either something out-dated and to be ignored or that can and in fact should be reconstructed in scientific terms because science is taken to be our best form of knowledge, the only knowledge that gets at the Truth. One can see outlines of the latter position in our discussion of Sellars, though he does leave open that space for the concept of "persons." I have said enough about why this foundationalist way of thinking is fundamentally untenable.

The alternate view I have proposed takes a different approach to matters of subjectivity and science. To begin with, subjectivity is a production. It is something made. Through the interplay of numerous forces (socio-cultural, economic, scientific, etc.), acting on organic matter, subjectivity is forged. Without these forces, a horizon of experience *qua* horizon of experience could not come into becoming. In this sense, subjectivity is another sort of event, a process distributed through time.

For the sake of simplicity, we might lump some of these forces together under two headings: the manifest image and scientific image. Yet, as soon as we do this, we must qualify it. This is because neither the scientific nor the manifest image is homogeneous. We have already discussed the ways in which the scientific image is actually constituted by a multiplicity of images. So too is the manifest. While Sellars tries to isolate the manifest image in its pure form, this thing never actually exists (and not merely in the way that an image has a derivative existence). Instead, there are a variety of philosophical approaches to humanity's existence in the world (one might make the key distinction in terms of acting-on-the-world versus acting-in-the-world). Furthermore, there are religious, literary, and popular cultural (music, movies, television) approaches, among others, to these questions of existence. These must be taken into account as well because these other images also help to constitute our subjectivity (and perhaps more than philosophy does). Yet, these other images can be collected under one heading inasmuch as they speak to matters of human existence in the world without falling into the category of science as outlined in Chapter 5. There are common themes that run throughout them, despite the fact that they might rely on different ontologies.

At this point, it is perhaps more useful to think of these two images as resources rather than forces. The production of subjectivity is principally about forces acting on materials. As alluded to in Chapter 3, this is fundamentally a social process. It requires interactions among subjects. Instead, these images provide resources that are employed by these forces. Resources

in the sense of concepts and narratives (there are probably others as well). An example of a concept would be mental illness as essentially biological. This is then associated with a narrative having to do with the genetics of mental illness and the role of responsibility in this gene being activated, among other things. Generally speaking, a concept, as I am defining it in this context, is an idea that can be used to transform subjectivity. A narrative is a story or script that can be used to the same end. The two imply one another generally, since the narrative is, in effect, how to put the concept into motion. On the other hand, a narrative without a concept to drive it seems empty.[1]

Following Sellars' account, each image tries to depict humanity's existence in the world. In developing these images, concepts and narratives are produced. This is done through the very activity of making the images. In the process of trying to understand how humans move through the world, we see the generation of ideas and stories that both explain human function and transform subjectivities. The latter is implied by the former since the very act of attempting to understand how humans function in the world leads to new tools for thinking about the self and its relationship to others and the world. In developing conceptual schemes, which is part of what goes into the images themselves, one also produces new subjectivities, because it is through subjectivities that these conceptual schemes get put into practice. Whether the production of concepts and narratives is the primary intention of those who work on these images does not matter since they crop up because of the nature of producing the images.

In this way, the images provide resources for the (re)construction of subjectivities. In attempting to craft these depictions, new ways for transforming our horizons of experience are created. These concepts and narratives are resources in the sense of providing a source, a supply, of means, tools. These tools are produced because of the nature of working on the images. In each image you have a reserve of means through which subjectivities can be (re)constructed.

It is through social forces that these tools are put into play. They are appropriated by these forces and used to produce and transform subjectivity. On their own, these resources do not do anything. They must be mobilized by someone to be of any significant value. Without being assigned to an end, they stand merely as bits of intellectual curiosity. Narratives and concepts need to be deployed with certain goals in mind. It is through this process of deployment that they gain value, a meaning (in the sense of purpose).

At this point, "social force" takes on a more technical meaning. A social force becomes a vector between subjects. This is to say that a social force is a form of power between subjects. It is a means to get one subject to behave in certain ways. I spoke above of social forces as consisting of socio-cultural, economic, and scientific forms. This needs to be qualified. In a broad sense, all of these are socio-cultural. Yet, we can narrow the sense of socio-cultural to cover specific instances like popular and high culture, education, family life, religion, government, etc... Economy and science are both institutions, much like the socio-cultural. Needless to say, there is significant overlap and interconnection among these various institutions. Regardless, each in its own way is a vector. They relate subjects in particular ways, brought together by networks of power.

These social forces use the resources the images provide to (re)construct subjectivities. To (re)construct a subjectivity is to transform the sorts of categories used to make sense of experience to another sort. Concepts and narratives are appropriated to this end and put to work. This is always done with a particular end in view. There is a goal that determines which

[1] Literature, especially novels, might be an exception to this rule. Additionally, poetry might include examples of concepts without narratives.

concepts and narratives are deployed. The subject in a position of power determines both which resources are used and what goals are being sought after. These are the decisions to be made. For example, being in the position of educator first endows that subject with a certain power over the student. Also implicated are goals about what the education should both achieve and consist of. Usually, the goals are determined by other social forces, in the case of public education, the government. Part of what is involved here is developing a knowledge base for the student. Additionally, subjectivity is at stake. It is the task of the educator to cultivate certain sorts of subjectivities, ways of experiencing the self and world. From primary education on, there are always questions about what sort of attitude the subject should take towards its experiences. This ranges from concepts like cause and effect to seeing the world through properly American eyes, as is the case with most US civics education.

Regardless of whether subjects are conscious of their goals, these goals are still in play. In some cases, the goals might be rather diffuse and subjects might not be aware that in fact that they are working towards them. This is particularly important when it comes to economic and scientific institutions. While one might not set out to transform subjectivity by deploying a particular discourse, this happens along side it. In the case of the sciences, no one says "my purpose is to reconstruct subjectivity in terms of nonobservable entities and the laws that govern them." Yet, such processes are put in motion through education and popular press treatments of science or medicine. Consider as an example any number of recent books on mental illness or the mind in general in which what is offered is a scientific account of how the brain works and how this impacts our conception of the mind.[2] Likewise, it is rare that someone explicitly proposes to use subjectivity as a means to keep the economic structure intact, but this is the de facto goal of many discourses and practices associated with capitalism. In this way, goals can be either deliberate or, in some sense, unconscious. One must also take into account the ways in which different goals overlap and reinforce each other.

So, at this point, we have subjectivity, subjects, social forces, two images, resources and goals, all linked together in a variety of ways. One begins with the subjects, mobilizing the social forces to achieve certain goals. Among other goals is the (re)construction of subjectivity. The subject uses resources provided by the images as means to achieve this process of (re)construction. Needless to say, there should be feedback loops throughout this process to make sure the subjectivity is being "properly" (re)constructed as well as to double-check whether the goals are worth attaining. What complicates this process is that some of these institutions are so massive and/or diffuse, that constructing feedback loops, especially with respect to goals, is nigh impossible.

Science plays a unique role in this process. As has been repeated throughout this essay, science has the unique role of speaking the Truth. This gives science a certain legitimacy in terms of the (re)construction of subjectivities. This is because of the peculiar force that the Truth still possesses. The Truth retains its hold on us, makes us act in certain ways. Of all the social forces, science alone has this sort of distinctive power. Other social forces might have their own sort of practical legitimacy, little "T" truths, but science is unique as the definitive source of Truth.

This has a great impact in terms of subjectivities. The scientific image of human existence offers many resources for its (re)construction. What is distinctive about these resources is that they echo the Truth. Since science speaks the Truth, its concepts and narratives do the same. These resources reflect the Truth that science gets at. Because of the hold that the

[2] For a particularly thoughtful example of this, see Andreasen (2001).

Truth has on us, the scientific image offers itself up as the definitive account of humanity's existence in the world. The normative impulse at work here is that subjectivity should be (re)constructed in these terms. Since science offers the last word on what is and what is not, given the thrust of the argument thus far, science will also define how subjectivities should be (re)constructed.

As noted in Chapter 5, a fully scientized subjectivity has yet to come into existence. What has occurred thus far is piecemeal (re)constructions of subjectivity based upon the sciences. This takes place at various sites, for example: in science education, the doctor's office, popular science books and magazines, television, and the like. It goes without saying that each of these sites operates in different ways. What happens at each of these sites is a deployment of the concepts and narratives of the scientific image. Return again to the lyrics of Hy Zaret and Lou Singer. These lyrics use the concept of the sun as a "mass of incandescent gas" to develop a narrative about the proper way to relate to the sun. It is "proper" because science is the last word on what is. This narrative consists of seeing the sun in a certain way. This draws the listener into the world of science. It establishes the definitive way to experience the sun, and, in turn, the self.

While not nearly as catchy, other scientific discourses and practices perform similar operations. Each, in its own way, deploys narratives and concepts as ways to mold subjectivity. Consider any popular treatment of science and you will find many examples. The goal, conscious or not, is to create horizons of experience that correspond to the Truth. Subjects attempt to (re)construct, albeit in a piecemeal fashion, each other's subjectivities to mirror this Truth. For the point of view of science, the idealized subjectivity is one that involves experiencing the world and the self in terms of these nonobservable entities and the forces that govern them. Behind every observable thing, the subject would know it is really only an amalgamation of strings operating under a peculiar logic. Matters of conscious experience would be reduced to the firing of neurons and the like. Heredity is turned into genetics and epigenetics. Eating and digesting food is simply a matter of chemistry and physiology.

I am unsure whether anyone actually endorses such an idealized and scientized subjectivity, with perhaps the exception of Paul Churchland and similar eliminativists.[3] Regardless, there is a powerful lure to such accounts of subjectivity because such an account would in fact mirror the Truth. Further still, we are beginning to see the outlines of such a subjectivity emerging. Through a multitude of discourses and practices, new subjectivities are arising that attempt to mimic this ideal. Perhaps one of the clearer examples is the rise of "genetics-speak" with regards to matters of heredity, along with a trend towards scientized medicine as a whole.[4]

The (re)construction of subjectivities is a complex and messy business. It involves many subjects, along with many, sometimes conflicting, goals and social forces. In its most simple form, it requires one subject with an end-in-view exerting power over another to transform the way self and world is experienced. In practice, there are a myriad of subjects doing this all at once. Subjects receive a variety of different accounts and in some cases have to chose among them. In other cases, there is no choice at all (consider the case of early childhood education). Yet, any choice is channeled, restricted, in specific ways. The effect that Truth has on the

[3] See Paul Churchland (1979) as an example

[4] A fairly clear example of this is with the development of biological psychiatry, which draws on neuroscience and genetics to explain mental illness. Subjects are reconstructed in terms of the entities referred to in these theories. Again, see Andreasen (2001) as an illustration of this point.

individual subject cannot be overstated. This sometimes makes acts of resisting science rather difficult.

Science and capitalism

Science does not operate in vacuum. It never has. Since its modern inception, it has always been bound up with other institutions, be it the royal courts, universities, governments, or industry. This is not to say that science has not possessed some sort of autonomy, but that autonomy has been, and is, limited. What I will focus on in this section is the interconnections between science and capitalism. This should help to bring into sharper relief concerns about subjectivity and science that I discussed in Chapters 5 and 6. What follows is a set of brief, somewhat speculative comments about the ways in which the spirits of science and capitalism are intertwined.

Capitalism reduces everything to commodities. Works of art, food, labor, housing, music, knowledge, forests, life itself, among other things, become items to be bought and sold. This reduction means that everything, be it human or nonhuman, is treated as a mere resource. Capitalism transforms the world into a reserve of materials to be made into commodities. Through the processes of production and consumption, the world is reconstructed based upon the "needs" of capitalists. Nothing is sacred in such a world, because everything can be affected by the commodity-form.[5]

Capitalism is a form of domination. Its power extends over both the human and nonhuman realms. The exploitation of labor is rampant, as is the abuse of "natural resources." Waste products are disposed of haphazardly. Especially within the United States, it reinforces racism. Throughout the world, capitalism is intimately intertwined with gender oppression.[6] As a system of domination, it is nearly perfect. First, many modes of resistance, particularly within the economic North, have already been routed through the commodity-form, thus neutralizing much of their revolutionary potential.[7] Second, it is rather effective in making its subjects desire its domination. Capitalism holds out commodities to lure subjects in and then uses these commodities as a reward for forsaking one's labor.[8]

Science has been, and continues to be, complicit in these processes. From the beginning of its modern form, science was bound up with the development of capitalism.[9] In the present, the case is even more clear. Profit drives a significant part of scientific research. Some forms of scientific research have become just another commodity to be bought and sold.[10] There is extensive research into a variety of different parts of the world to see what can be extracted. The pure/applied distinction, always a bit shaky to begin with, gets increasingly blurred as capitalism invests more money into research. Living things are designed to be sold.[11] This is simply offered as an example of the general way in which science develops and perfects commodities.

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[5] See Marx and Engles (1848) and Marx (1977).

[6] See Ebert (1996) as well as Bordo (1993).

[7] This is epitomized in Adorno's concept of the cultural industry, to be discussed below. See Adorno (1991) and Horkheimer and Adorno (1972). Consider the way that punk music, something that should be the height of rebellion, has been turned into a consumable object.

[8] Again, this echoes Horkheimer and Adorno. Capitalism's version of the good life, one that is totally determined by commodities, is presented as a reward for hard work. In fact, it seems to be principle reason why people do work.

[9] See Hessen (1971) as well Bernal (1954), in particular pages 251-351. Hessen does an effective job of demonstrating how the basic problems that Newton addressed were also pressing matters for the emergence of capitalism.

[10] For more on this, consider a Marxist reading of Lyotard (1979).

[11] Take Haraway's (1997) discussion of OncoMouse™ as an example, pages 49-118.

Part of the general spirit of science is to treat the world as a reserve of materials to be studied and manipulated.[12] This goes hand in hand with the spirit of capitalism.

There is another way in which science is implicated in these processes. Science also helps to cut off possible avenues of resistance. Because of science's assumed ability to speak the Truth, it functions as the last word on any number of subjects. Through scientizing a discourse, one gains access to this power to speak the Truth. As noted above, by playing the Truth card, it becomes harder to resist a given practice or discourse. The Truth endows these practices and discourses with a certain power. To move against them is difficult because to do so is to go against the Truth, which is counterintuitive to those disciplined to open themselves up to it.

So, when possible, capitalism mobilizes science to further its ends. Perhaps the case of American economics is the clearest example of this. Other sciences are not immune to this either. At several points, biology has turned aspects of the capitalist human condition into aspects of "human nature."[13] One might consider a grossly simplified account of Darwin's idea of "survival of the fittest." The idea that an organism is competition with everything else works very well with the dominant capitalist ideology. Additionally, part of the general spirit of science alluded to above illustrates this. The world is no longer assumed to be an object of wonder, except in a narrow scientized sense, but instead is a mere resource. Because science tells us this is the case, it becomes accepted as the Truth of the matter (and, hence, the Truth of matter). This follows from the epistemic privilege that science has in the West.

We also witness this process when it comes to matters of subjectivity, though the issue takes on a curious twist. It is not simply that as subjectivity becomes scientized it becomes harder to resist because one's horizon of experience is "in line with the Truth." What is particularly devilish about this is that this process tries to cut off any avenue of resistance. This process seeks to undercut the possibility of struggles against the dominant mode of production. Return to the example of Darwin's "survival of the fittest." Through "naturalizing" competition it becomes increasingly difficult mobilize discourses that emphasize cooperation.[14]

Remember that language is central to the conception of subjectivity. The languages of the sciences purport themselves to be lacking any ethical or political normative content. These languages supposedly just describe the world. Science, in some sense, lacks the ability to make robust normative judgments about ethical and political matters. Any (re)construction of subjectivity through these languages potentially loses it normative character. This is because a fully scientized subjectivity no longer has the vocabulary to make these judgments. If one's languages are simply those of science, there is no space for these sorts of normative judgments. The subject no longer has access to the languages that make a sophisticated ethics and politics possible, since science does not speak such languages.

In this way, science provides tools that make resistance to capitalism impossible. It shuts down possible lines of struggle through the very production of subjectivities. By producing scientized subjectivities, science prevents the possibility of critiques of capitalism. The subject lacks the proper language to articulate the varieties of exploitation it undergoes. It no longer can conceive of itself as an entity that is exploited and alienated. These concepts are written out of its language, because science in its present form account for these sorts of experiences. Capitalism's goal is a subjectivity that is unable to articulate its plight and cannot even recognize

[12] See Keller (1995) and Heidegger's "The Question Concerning Technology" in Heidegger (1993).
[13] See Lewontin, Rose, and Kamin (1984), especially pages 37-61.
[14] This is typified by an number of right-wing defenses of capitalism that foreground "man's" competitive nature to the total exclusion of cooperation.

that it is in a dire situation.[15] The sciences provide precisely the right means for achieving this goal. The combination of speaking the Truth with the lack of a robust normative vocabulary creates a perfect tool for domination. Because it can speak the Truth, science is in a position of authority to make pronouncements on the correct way to experience self and world. This is compounded by the fact that the sciences give no source for normativity to resist either its power or that of capitalism.

Dwelling

I now introduce the concept of dwelling as an attempt to circumvent some of these problems. Needless to say that the scope of this concept is limited. It is attuned to one particular aspect of this problem, that of language. In order to be of much use, dwelling must be embedded in a larger critique of, and action to challenge, capitalism and the ways in which science is bound up with it. This larger critique and call for action will not be dealt with here.

I have liberated the phrase "dwelling" from Martin Heidegger. In "The Letter on Humanism" Heidegger states: "Language is the house of Being. In its home man dwells." (Heidegger, 1993: 217) For Heidegger, language, especially Greek, has a unique connection to Being. Through language humanity develops its relationship with Being. Humanity dwells in Being through language. This is dwelling because humanity makes its home in language. A home in this context is both a shelter and the place where one lives, rests, sleeps. Ideally, a home, a dwelling, should be a comfortable place, somewhere one can be at peace and be oneself. According to Heidegger, language is precisely the place where humanity develops this sort of relationship with Being.

Despite problems with Heidegger's being/Being distinction, there is still something that can be learned from this passage. The lesson consists of acknowledging two things. First, that language is key to understanding humanity's place in the world. Second, that it is through language that humanity dwells, feels at home, though, as it turns out, it is only in certain languages. The first lesson should be unsurprising at this point, since it has been a central assumption throughout this essay. It is through language that humanity comes to cognize itself. In order to understand humanity, one must also grasp the languages we use to comprehend ourselves.

The case for the second lesson is more complicated. It begins at the same place as the first, that language is absolutely necessary for understanding humanity. In a certain sense, the only place where humanity can feel at home is in language. Without language, humanity would not be what it is; in which case, language is the only space that humanity *qua* humanity has to dwell in. There is a way in which humanity can dwell in any language. So long as humanity has a language, humanity will be able to make their home in it. If this is true, the central question becomes in which language should humanity dwell?

This is largely an ethical and political question, rather than simply metaphysical. It is ethical because it is primarily concerned with asking about what should be done in addition to what constitutes the good life. At issue here is what languages allow for a flourishing human life. It is political for reasons discussed in the previous section. What is at stake is, in part, the possibility of human flourishing. Questions about how human existence should be administered

[15] This mirrors Adorno's culture industry and as well as the ideas developed in Marcuse (1964), though Adorno never explicitly addresses science. One can see the outlines of this happening now as no one in the economic North, with the exception of a few lingering Marxists, even brings up a phrase like "exploitation," at least with respect to their plight. People might complain about their jobs, but seeing this as fundamentally connected to mode of production is something that almost never occurs.

are the very stuff of politics, as is challenging regimes of administration. In which case, raising issues about where humanity should reside, in a metaphysical sense, will be deeply political, as well as ethical.

My contention is that humanity should dwell principally in the manifest image, as understood above.[16] There are two reasons for this. The first is negative, centering on limits of the scientific image. The scientific image is principally descriptive. In a strict sense, it does not tell us how to live, though in certain hands it can be made to answer to such questions.[17] This seriously limits the scope of scientific image. The scientific image can only offer narrow, technical responses to matters of human existence. These are fine, so far as they go. Part of what this hinges on is what the question is. On the one hand, if one is asking about the origins of the human species, then science has a fairly convincing story to tell. On the other, if one is asking what human existence should be bent toward, science's answer will probably be much less satisfying.

This is problematic in terms of dwelling. First off, the scientific image on its own cannot prescribe ends. It can only provide means once ends have been agreed to. This is significant because the setting of ends is part of human flourishing. Humans should have goals that they seek to achieve. The scientific image does not contain these goals, only tools for achieving them.[18] Instead, the scientific image must be joined to something else in order for there to be ends. This is where capitalism comes in. Capitalism mobilizes the sciences as a means to further its goals. This is troubling since it ends up putting some rather serious limits on the possible avenues through which humans can flourish. The principal goal of human life has become furthering of the interests of capital. Science masks these ends through its ability to speak the Truth. The central problem here is that humanity loses control of what goals life should be bent towards.

Second, and more importantly, the scientific image's resources for conceptualizing subjectivity are limited. On the one hand, the sciences do present a rich and varied portrait of human existence in the world. On the other, this portrait is notable for what it leaves out. As discussed in Chapter 5, the scientific image has a hard time dealing with things like thoughts, feelings and the perception of objects. Thoughts and feelings might be reconstructable as neurological phenomena, though, following Nagel, there is the concern about whether this leaves out what it is to be a becoming with thoughts and feelings, a certain sort of phenomenology. Nagel's example of the bat's sonar makes this point quite clearly. Science can explain how the sonar works, but cannot address what it feels like for the bat to perceive the world in this way. Many domains of human experience also face similar problems. A scientific account of falling in love will focus on what parts of the brain are doing things. Such an account might even be able to explain in neurological terms the feeling of euphoria associated with love, but it is

[16] It should be clear that the manifest image is a place where we can dwell. This is because the manifest image is nothing but a space of possibilities articulated through a wide variety of languages.

[17] We have witnessed this above. Science gives means to live, but does not fix ends itself, which is why the interconnection of capitalism and science is such a potent combination. In terms of providing means, science offers a very powerful set of tools. Capitalism has great power to set ends and capitalism can make good use of the tools science provides.

[18] The one exception to this might be the goal of seeking after the Truth, yet this end is not entirely contained within science itself. Instead, it a function of the human response to the existential and power situations discussed in Chapter 4.

unclear if science will ever be able to capture the phenomenology of this experience. That is to say, capture from a first-person point of view what the experience is like.[19]

Here we see the threat of leaving out "what it is like." This is the central concern about attempting to (re)construct subjectivity based upon the resources of the scientific image: that something essential to human experience is left out of the scientific image. The phenomenological dimension is something important. It marks a distinctive way of going through the world. It is something intimately connected to our lives. This is lost in science. These experiences are routed through unobservable entities. While such accounts might give an excellent explanation of the mechanisms involved, they do not address what is distinctly human in them. Part of human existence involves not just the mechanisms through love is experienced, but the real feelings of being in love. It is this feeling that seems to be the most important part and the one science cannot get an adequate handle on.

This has serious ramifications in terms of dwelling. The scientific image gives a rather peculiar home to humanity. For lack of a better word, call it "ascetic." It is ascetic because of the dimensions of subjectivity that it leaves out. The scientific image reduces everything down to bundles of sub-atomic particles configured in a variety of ways. Emotions are transformed into neurological processes. Life is viewed as essentially about reproduction, be it genes or memes. Potentially, every facet of human existence can be (re)constructed by the scientific image. Yet, this scientized view ends up being purely technical. By "technical" I mean two things. First, that it is too rational, too concerned with details and procedures. Second, that it is reduces life to a phenomenon that exists simply to be manipulated. It is because of the second sense that the first becomes so important. Because of the need to manipulate life, details and procedures are vital.

Under this regime, dwelling is downgraded to mere efficiency. That is to say, dwelling is simply an issue of connecting means to a set a fixed ends, those goals set by capitalism and others with power. What it is to have a home becomes a scientific matter. One is restricted to only those resources that the scientific image provides to conceptualize oneself, the world and the relations between the two. To live in this dwelling is an ascetic experience, due to the technical nature of the resources. These resources do not allow for robust accounts of what is to feel pain, be in love or see a painting. All experience is understood through the concepts of science, which always run the risk of leaving out certain aspects of the human condition. Dwelling, what it is to have a subjectivity that one feels at home in, becomes an object of manipulation, something to be controlled. It is not a space where one should feel comfortable living.

The second reason humanity should dwell in the manifest image is positive. There is more to human life than the sort of knowing that is called science. Science is one sort of knowledge among others. There are also "folk" ways of knowing how the world works that might have certain advantages over science in some contexts.[20] More importantly, we are not simply *homo epistemologicus*. Yes, we inquiry into the ways the world, but we do many other

[19] It should be noted that Sellars believes that science will be able to represent even these dimensions of human experience in time. I am less sanguine about this possibility. For science to be able to do so would require an enormous revolution. And, unlike previous scientific revolutions which generally arise when exploring a new domain of inquiry, it would need to occur in an intellectual space we already are well versed in. Furthermore, given the success of the sciences thus far and the serious interpenetrations of science and capitalism, it seems unlikely that there are the seeds for such a revolution.

[20] In much of everyday life, these "folk" modes of knowledge work just fine because they are more attuned to their contexts. Science tends to be rather abstract and occasionally requires a lot of legwork in order to applied properly.

things as well. We fall in love, have aesthetic experiences listening to music and looking at paintings, and seek thrills of various kinds, among other things. Knowing does not exhaust human experience; instead it just one dimension of human condition. The manifest image captures these other activities in way the scientific does not. Science might be able to describe the physical phenomenon of listening to beautiful piece of music but it does not tell us what constitutes such a piece. On the other hand, the manifest image contains accounts of what makes music beautiful, which seems to be the most important part of the experience. In this way, the manifest image gives a more rounded account of the human condition. The scientific image only covers the "knowing" part, while the manifest touches on many other aspects that are as important, if not more so.

Furthermore, the manifest image meets the two criteria for a dwelling implicitly developed above: it allows for robust accounts of both human flourishing and subjectivity. Though, and this will be developed below, the manifest image is not perfect. This is to say that the manifest image does not exist in some isolated world outside of the forces of capitalism. With that said, the manifest image still offers the better of the two alternatives because of the ways it allows for human flourishing and robust sorts of subjectivities. Additionally, the manifest image contains within itself spaces for critiquing capitalist domination in a way that the scientific image never can.

First, begin with subjectivity. The manifest image allows for what I have referred to as robust conceptualizations of our horizons of experience. By "robust" I mean rich and varied. Through the manifest image we acknowledge the plurality of ways in which life can be experienced. While any given slice of this image might seek to shut down this plurality, taken as a whole it does a good job of covering the variety of ways in which experience can occur. Through philosophy, literature, religion and the like, the image offers many different ways in which the world can be experienced, be it spiritual, poetic, analytic and so on. Each of these offers a unique perspective on the world and our life within it. And this is not in done in the backhanded manner in which science might admit this plurality. Since science is always actually the sciences, it has ways to say it admits for this multitude ("See, we have physics, geology, biology, etc."). Yet the dream of many is for a reduction. The manifest image must not take this route because no single perspective can account for the manifold dimensions of human experience. In order to avoid this, we must always keep in mind that there are many ways in which the world can be experienced.

Instead, we should embrace this multiplicity and the manifest image offers a space in which this can be accomplished. This is because there are a wide variety of ways of experiencing self and world. Based upon on our discussion of subjectivity in Chapter 3, this much should be obvious. Since there is plurality, the right thing to do is accept it because it appears that there is no absolute against which we can measure our subjectivities. To posit an absolute, for example, in the way that science does, would always risk falling back into foundationalism. Yet, this does not mean that anything goes. What needs to be looked to is the way in which ends and means are connected together. I will have more to say on this point when we return to human flourishing.

Now, in what way does the manifest image deal with this plurality of subjectivities? If one looks to the manifold discourses of the manifest image, one finds many different accounts of subjectivity, although it might not be called this. Within Western philosophy there are the three main schools: Analytic, Continental, and Pragmatic. In various ways, each school attempts to explain how we do and should experience the self and world. And there are further divisions as

well. One has the distinctive influences of canonical philosophers like Aristotle, Kant, Hegel, Heidegger, and Wittgenstein. These figures channel discussions in certain, specific directions. The lesson here is that within Western philosophy there is a vast array of tools for (re)constructing subjectivities. Although manifested in different ways, the same can be said of literature, religion, art, and the like.

When taken as a whole, as a single image, we find that the manifest image does in fact admit this multiplicity. This admission is probably inadvertent. This is because no set of discourses really has priority over another. Both religion and philosophy generally purport themselves to be the last word on such matters, but it unclear which has the upper hand.[21] To my mind, this is a perfectly acceptable situation because no single part of the image should have priority over another. Each set of discourses brings something unique to the table that others do not. Each is a distinct perspective that reveals some aspects of the human condition while obscuring others. Any particular discourse highlights certain aspects of experience. In doing this, it downplays others. Because of this fact, we must learn to embrace the plurality within the manifest image. No single perspective, including the one I offer, can account for every part of the human condition, so it is vital to accept the necessity of many different views.

In this way, the manifest image allows for robust accounts of subjectivity. Furthermore, each of these sets of discourses can offer rich visions of subjectivities. This is because each perspective can contain a wide array of divergent concepts and narratives for understanding human experience. While particular perspectives will emphasize certain aspects of experience over others, there is still space in these concepts and narratives for dynamic accounts of subjectivity. They can be dynamic in emphasizing process over the thing produced, as well as containing curious internal tensions. These internal tensions can themselves be productive because they foster debate. This is opposed to the resources of the scientific image, which seek to deny internal tension, and in turn, debate, in favor of a monologue on subjectivity.

The resources of the manifest image have generally been developed to account for human subjectivity. These resources can reflect that they are "lived in" by human subjects. That is to say that these concepts and narratives show the fact they have been designed for distinctively human kind of experiences. Some concepts and narratives might do this better than others. I personally find the resources most Analytic philosophers provide to be too constraining and offer boring view about the self and world, which might be explained by a persistent scientizism within that tradition. Regardless, these are distinctively human resources. I propose that they evolved as place where subject to feel at home in them. This is in sharp contrast to science, where narratives and concepts have traditionally been developed without human dwelling in mind. Instead, the scientific image's resources are principally constructed as tools to "objectively" describe the world. It is through this peculiar process of trying to be "objective," in one sense of the word, that the sciences have tried to deny the human processes through which these resources have been constructed.

There is further significance for dwelling because these robust accounts of subjectivity permit this plurality to flourish. The resources of the manifest image, by not forming a coherent whole, allow for many different subjectivities. This means that it is possible to (re)construct a subjectivity that one can dwell within. This is not easy. For reasons alluded to in Chapter 3, the (re)construction of subjectivity is a labor-intensive process. Yet, the manifest image allows for this by containing such a wide variety of resources. There are limited degrees of freedom within

[21] That said, religion has a cultural status that philosophy does not. In terms of the cultural availability of the resources, religion is certainly in the better position.

the manifest image for (re)constructing subjectivity in desired ways, based upon what the subject wants.

There is another sense in which the manifest image fosters human flourishing. The manifest image provides not only means for attaining the good life, but also a vast number of conceptions of what the good life consists of (along with cautionary examples about what it should not be). High literature and popular culture, assuming a distinction can be maintained, abound with illustrations of what goes into the good life and what should be avoided. Most religions involve codes of ethics, which are, in effect, rules about how to attain the good life. Philosophy as whole, not just ethical and political philosophy, deals with the good life as well. In probing into matters of metaphysics and epistemology, one generates visions of the world which we inhabit and what is of value in it. This in turn produces outlines of what can possibly constitute the good life, albeit in a covert manner. Aristotle, Kant and Dewey provide relatively systematic examples of this phenomenon.

What we are faced with here is an embarrassment of riches. There are perhaps too many competing visions of the good life. We are inundated with these visions. What is needed is a way to choose wisely among them. The abstract goal is human flourishing. Yet, there are many ways in which humans can flourish. Some of them are acceptable, others are unacceptable. It takes wisdom in order to distinguish among them. This process must involve taking both ends and means into account, because the two reciprocally educate each other.[22] The implication of this is that such judgments must be contextual. Again, this does not mean that anything goes. This is because any judgment about the good life occurs within a context of what constitutes right and wrong. But within this context, there are still multiple avenues through which human flourishing can be realized. Wisdom becomes necessary on two fronts: first, determining the path to which good life should be taken and, second, determining the right way from wrong in accomplishing this.

The manifest image contains these various visions of the good life within itself. This constitutes the last reason for dwelling in this image. This is because, in a certain sense, the manifest image is self-sufficient. Unlike the scientific image, it contains both the ends and means necessary to conceptualize and attain the good life. This is not to say that the manifest image is impervious to social forces. It is not and I will have more to say on this below. Still, within it are all the resources important for human flourishing, which is to say it contains both goals for what constitutes a good human life as well as the tools for achieving that life. For this reason, we can comfortably dwell in the image. It gives sufficient space for realizing multiple visions of the good life. Subjectivity can be allowed to thrive because there is enough room for it grow and change.

Now comes the inevitable qualifications. Things are not nearly so rosy with the manifest image as portrayed above. The manifest image is also thoroughly implicated in capitalism as well. First of all, many of the components of the manifest image are items that have been manufactured by capitalism. This is the most clear in the case of popular culture. An entire industry has been developed solely to produce easily digestible cultural artifacts.[23] This culture industry's whole purpose is to manufacture books, magazines, television, movies, and music for mass consumption, much in the same way that the automotive industry manufactures cars and

[22] This is to say that what means one has on hand will influence what ends one can possibly choose. On the other hand, what one has as an end will constitute what is seen as a means. The two concepts are interdependent. For more on this see Hickman (1990).

[23] See Horkheimer and Adorno (1972) as well as Adorno (1991).

the like. These artifacts have been designed to be as consumable as possible. That is to say, they are easily taken up and used. So long as one has money to spend, there is a whole world of products available for transforming one's life and subjectivity.

The trouble with the culture industry is that it exists to further the interests of capitalism. This operates on two fronts. First, the culture industry offers distractions from the tedium of capitalist way of life. It does this through producing artifacts that occupy subjects' time when they are not working. This allows capitalism to lull subjects into a slumber of sorts while diverting them from attaining a critical consciousness about their situation. Second, the culture industry produces visions of the good life that are conducive to its ends. It sells images of what it is to be a happy, productive worker. These are then taken to be the definitive account of the good life. The goal of such visions is to strip away any possibility of revolutionary potential by focusing attention either elsewhere or encouraging the subject to embrace capitalism thoroughly. In these ways, the culture industry makes resistance to capitalism increasingly difficult because the modes of resistance are co-opted by the system.

But it is not just popular culture that is implicated in this. Philosophy itself is also guilty of draining revolutionary potential, the possible avenues of resistance, from the manifest image. There are several trends worth noting. First, traditional philosophies of science simply feed capitalist domination by continually valorizing their object of inquiry. Second, the strand of Analytic philosophy that focuses on the "proper" use of language tends to make critique impossible. This is because the heavy emphasis on how to use words correctly obscures the inherent tensions and vagueness of language and life that make critical, synthetic thought possible.[24] Then there are philosophers like Heidegger. He is so focused on recovering Being that all he can offer is a quasi-meditative program of "thinking," while challenging the very ground of ethics.[25] It is my suspicion that religion will face different problems.

That said, the manifest image still has the potential for producing revolutionary visions of the good life. Despite the efforts of the culture industry and others, there is still conceptual space for critique, which seems to be the first step in a program of action. While always in danger of cooptation, the manifest image contains many different elements that can be combined and shifted in new ways. There is an inherent slipperiness to its concepts and narratives. This is to say that its resources are transformed by their very use. For this reason, they are "slippery," hard to get a strong, lasting hold on. It is this that keeps open the space for critique. Because these elements of the manifest image are constantly changing, one can always find a place from which critical projects can be launched. Yet, one must move quickly, for capitalism is always on the watch for such projects and will seek to either shut them down or co-opt them. Of course, critique is the easy part. Translating critique into programs of actions, especially effective programs, is the more difficult task.

For these reasons, humanity should make its home in the manifest image. First, the manifest image allows for more robust accounts of human subjectivity because, in part, its concepts and narratives were developed for human use. Second, the manifest image provides many different ways of conceiving the good life. This is important because it means that the manifest image is self-sufficient in the sense of containing both ends and means. Lastly, the

[24] For more on this, see Marcuse (1964), pages 170-99.

[25] See "The Letter on Humanism" as well as Bernstein (1992), Chapter 4. That said about Heidegger, there is at least space in the paths he opened for the possibility of more robust ethical and political discourse than he every acknowledged. The works of Derrida, Foucault, Deleuze and Guattari stand as a testament to this.

manifest image retains a space for critique of the dominant mode of production. The scientific image lacks all of these things.

One question remains: how should subjectivity and science be connected? Based upon scientific surrealism, we have good reason to "take science seriously." Science does provide a fascinating account of the real. For this reason alone, we should not dismiss any attempt to draw together science and subjectivity. But we must be careful in how to do this. What I have been arguing against throughout this essay is the dream of fully (re)constructing subjectivity based upon the scientific image. This dream should be regarded as a nightmare. In which case, how should the two be related in a way that allows for human flourishing?

Scientific surrealism gives the answer, albeit in a round about way. There are two points of significance. First, as noted in the previous chapter, we found that there is a lack of any privileged view from nowhere that the inquirer occupies. Put differently, the inquirer is always situated, operating from a particular perspective. Implicit within what was said above about perspectives is that every perspective has strengths and weakness. It reveals certain elements and obscures others. Science is one perspective among many. It has great power over specific domains, but lacks relevance in others. The question becomes "what are the goals that a given matter of inquiry is trying to achieve?" Different approaches will achieve these goals in different ways. Science is simply one way to fix belief, which has its strengths in certain contexts. For this reason, a "one-size-fits-all" approach should be avoided.

Second, and building on the first point, the world is in fact a complicated place. The real is very dense. It involves many different levels that connect in various ways. No simple-minded reduction is possible, which makes the one-size-fits-all approach that is the dream of scientific reductionism difficult. We should not expect that one perspective could account for the variety of things found in the world. Furthermore, because the real operates at many different levels, each of these levels is real. The level of macroscopic entities, the level at which most of human experience occurs, is just as real as the subatomic. Unlike Sellars' scientific realism, which consists solely of the entities described in science's final theory, scientific surrealism holds that the real is overflowing. The real is not "a desert landscape," but a forest, teeming with life and activity. For this reason, the real calls out for multiple perspectives. No one perspective can capture the richness of the real.

The implication of this with respect to the connection between science and subjectivity is that the manifest and scientific images both have a part to play in the (re)construction of subjectivity. The concepts and narratives of each are important in cultivating subjectivity. While each image seeks to give a comprehensive account of how humanity exists in the world, they go about it in different ways. Both perspectives are necessary to get a truly robust account of human existence. In this sense, both images have become necessary for subjectivity because of the successes of science. We cannot do without science now. So, any attempt to understand the self, the world and the connections between them must involve science.

That said, we should still dwell within the manifest image. It should be remembered that humanity has many different kinds of buildings. Dwellings are just one type. There are office buildings, gas stations, shopping centers, and sports stadiums, just to name a few. Each of these buildings was designed with different purposes in mind. Yet, dwellings are unique in that in them humanity makes its home. It is in dwellings that one rests, plays, eats and sleeps. Needless to say, these other building help to constitute the self. Additionally, dwellings are not homogeneous. They contain kitchens, living rooms, bathrooms, bed rooms, and offices. This is to say that there is space within dwelling for science. But, one does not want to have science

dominate the dwelling. Instead, it should be something akin to the home office. A place in which one works, but there are other spaces for sleeping and playing as well. Science can coexist along side other parts of the dwelling. Science can, and probably should, be a part of subjectivity, without overshadowing other aspects of our lives and experiences.

What we end up with is an account of subjectivity that emphasizes the manifest image rather than the scientific image. This, unlike Sellars' account, despite his rhetoric seems to place the onus on the scientific image. This should not be to the exclusion of the scientific image. The scientific image offers many unique resources for the (re)construction of subjectivity. But the concern I have raised about it is that the scientific image does an inadequate job accounting for all aspects of the human condition. There are some things that science does very well. Yet, when it comes to matters of how we should live and what we should live for, science is curiously lacking. The manifest image can answer such questions and for this reason, it is the image in which we should dwell.

For further research

There are a number of different research projects that could be pursued after this essay. Perhaps the most pressing is further development of my concept of acting-in-the-world. There are several matters that were left underdeveloped. First is the need for a more developed theory of embodiment. While I allude to the fact that the subject always exists as body, little more is said on this point. Theories of embodiment have been among the most fascinating developments in philosophy, especially feminist philosophy, in the last 50 years and this is something that needs to be addressed because it helps to further ground the subject in the world. This also offers a way into the second matter that requires further articulation: dealing with the problem of consciousness. While I claim that acting-in-the-world offers a way out of the neo-Cartesian problem of explaining consciousness, attempting to cash this out this out is another matter entirely. Yet, in order to fulfill the promise of acting-in-the-world, this needs to be accomplished.

Something that was left under-theorized throughout this essay is the connections between pragmatism and Marxism. Both philosophies place a heavy emphasis on action, as well as acting-in-the-world, though in different ways. And it is this concern for action that seems to be the source of a deep resonance between the two. An interesting research project would be to analyze the affinities and conflicts between these philosophies. Another connection that could be investigated is that between pragmatism and feminism. While there has been some work done on this, it seems to be space that is worth exploring further.

The last research project that might be pursued is an actual application of the schema developed in Chapter 8. One area that would prove fascinating would be psychiatry. There is currently a conflict within psychiatry between its biological and psychosocial wings that is being played out at the level of practice. Here you see a clash between the manifest and scientific images. What further complicates this matter is the ways in which the government and economics channel this conflict in certain directions. This is not simply an intellectual debate, but also a political and social problem. This offers a rich terrain for understanding how science is being used to structure human subjectivity.

Afterward: A critical backwards shudder

The bulk of the dissertation was written well before it was finally defended, on the order of two years before. Between when I finished writing it and when it was revised, my thinking on the matters discussed has become substantially more sophisticated (I hope). I do not I disagree with many things I have argued here. While there are several places where I have quibbles with myself, the overall thrust of the argument still strikes me as correct. That said, I continue to be rather ambivalent with how I constructed the argument. The core of the dissertation, Chapters 4 to 6, as well as Chapter 8, is too quick, too simple. In order to make the case persuasive to someone not already predisposed to my line of thinking would require a great deal more work than was done here. The writings I have done since I completed the body of the dissertation, and plan work on in the future, the deficits present in this text. Of course, it should be noted that this more recent production would have been impossible without first setting forth the trajectory found in this document. So, the dissertation was the ladder necessary to reach where I am now, but philosophers should now know what to do with certain sorts of ladders… Given these general criticisms of my document, I will propose three points that should help make further sense of the argument.

First, a vital distinction should have been introduced in Chapter 4 between "science-as-practice" and "science-as-ideology." Science-as-practice involves those things that scientists actually do as part of the social endeavor that is called "science" (working in the lab, publishing, granting, presenting at and attending conferences, etc.). "Science-as-ideology" is the cultural conception of what science is, particularly in terms of a body of knowledge (that science is, effectively, the Truth). Making this distinction would have helped to clarify much of the argument from Chapter 4 on because each of these ways of talking about science commits one to different visions of the endeavor. Science-as-practice is a messy affair where no question is easily, if ever settled. Science-as-ideology holds the answer for everything since science is Truth. Furthermore, the doctrine of surrealism proposed in Chapter 7 comes out of science-as-practice and, given the commitments of Chapter 8, it becomes a counter-ideology. Yet, this is not a rigid distinction by any means. These two understandings of science support and/or challenge one another at any number of points. Scientific practice will be transformed by the ruling (scientific/scientistic) ideology of the day and the ideology can only go so far as the practice, or the ideologically imagined practice, will allow (which is still pretty far). Short version: while the distinction *might* end up collapsing, it would have helped along the way.

As best I can determine, there are two reasons for failing to make this distinction. 1) When writing the dissertation, I was still under the shadow of Michel Foucault and his deep distrust of any work that "ideology" might accomplish. It was only through writing the dissertation that I came to understand the depth of Marxism and my debt to Marx and Marxist concepts. As with all these "shudderings," to have adequately addressed this one within the text would entail the production of a new, and very different, text. 2) On my highly idiosyncratic interpretation of Sellars, I seem him failing to make the distinction between science-as-practice and science-as-ideology. Perhaps this is not surprising given that many serious discussions of practice only started in the 1980s when Sellars had largely stopped writing. Regardless, at certain points Sellars seems to be discussing scientific realism as a part of scientific practice (which explains part of his debt to Peirce); while at other points, his scientific realism echoes much more of the cultural (read: ideological) conception of what science is or should be. In the

course of my writing, I was too in the trenches, too busy making sense of Sellars to see the significance of making this distinction.

Second, because the above distinction was missing, I never adequately argued for collapsing another distinction. In many discussions of Sellars, I consistently ran together "explain" and "explain away." While based on my reading of Sellars, I still hold he is committed to running these together, I failed to make the case. If Sellars, or anyone else for that matter, holds largely to discussing science-as-practice, then there is a meaningful distinction between the two and I am wrong. This is because explanation would be a pragmatic tool for navigating the surreal world. Yet, by Sellars not making the practice/ideology distinction, I read his discussions of explanation in a much more heavy handed way. Put bluntly: the phenomenal world is something that, in principle if not practice, can be discarded, i.e., explained away, once the mystical final theory has emerged. There is no need for taking that world seriously if the world of nonobservables is really real. This was sleight of hand on my part, which needed to be defended overtly. Another and related point is the way I understand causal explanation as a breed of certainty. On the surface, and without knowing the roles that Dewey, Nietzsche, and Derrida played in the construction of Chapters 4 and 6, this seems patently wrong. What I allude to in those chapters is that there has been a series of mutations as to what counts as certainty, as to what will fulfill the pathological desire for a foundation. I jump all too quickly from our fabled ancestors to the present, skipping over the series that allows this move (which in turn, justifies my move to collapse "explaining" into "explaining away"). Surely few now would say that science arrives at absolute certainty in the way Descartes thought. After Hume, to do so would be foolish. Yet, the sort of causal explanation that science supposedly develops does serve to give a peculiar comfort to creatures longing for a foundation. Hence the appeal of science-as-ideology.

Lastly, there is a nest of terms whose definitions were left implicit for the most part. On the one hand, there is a distinction that was never fully articulated between "appearances" and "the world of appearances." By "an appearance," what I intended was something like a specific experience of seeing the pink Kirby doll. On the other hand, "the world of appearances" has a much broader signification in that it refers to the whole of these particular appearances taken together to form a realm, a place, the subject moves through. This distinction needed to be made clearer throughout because on the one hand, Sellars does not deny that objects appear to subjects in conventional space and time (in fact, it is paramount for science to try to explain precisely how this occurs) and, on the other, Sellars denies the fundamental reality of the world of appearances. Essentially, this world is unreal and should be adequately explained down the road by a better scientific theory. To use language not found in the dissertation, this second move of Sellars amounts to denying the reality of the subject's usual "life-world."

The other phrase that was deployed in the text, but never clearly defined, was "the world of experience." At first glance this appears to be much like the world of appearances, which makes sense because many of the experiences the subjects participates in involve appearances like that of seeing the Kirby (even if few catch this reference). Yet, this is not all that the world of experience consists of: it also includes the panoply of nonobservable entities of science. Following the argument of Chapter 7, I might never directly see an electron in such a way that I am directly aware that "what I see is an electron." Regardless, given the proper instrumentation and techniques for reading those instruments, the electron is a part of the world of experience since I, and many others, have deliberately manipulated those electrons. (I am thinking here of demonstrations of the photo-electric effect I saw in college. Very impressive, if you know what

to look for). If this line of thinking is correct, then the world of experience is: a) a very complicated place; b) something rather distinct from the worlds of appearances and reality, since both of these are, effectively, subsumed within this world of experience. Two immediate concerns can be raised: 1) what then is the connection between this object of inquiry (the world of experiences) and the metaphysics of this object (this was addressed in Chapter 7, but in an unsatisfying manner)? 2) what is the role of trust in surrealism? I have not experienced, in a way analogous to electrons, either DNA or many places on the planet. Yet, I take both real, in the sense I have defined. Clearly, the concept of trust in others will be very significant here.

With these qualifications in mind, the dissertation lurches toward being a more satisfactory text. That said, in order for it be more compelling, the whole project would need to be rewritten with these points in hand (probably others too) and starting from the first sentence. That said, the general points I make and what I realized afterwards about how I should have made my case have been immensely valuable. In which case, perhaps it best to end this with the words: "*es ist genug*."

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Education

• 2007 Ph.D. Science and Technology Studies, Virginia Polytechnic Institute and State University (Blacksburg, Virginia).

Ph.D. Dissertation Title: "An essay concerning subjectivity and scientific realism: Some fancies on Sellarsian themes and onto-politics"

Committee: Joseph C. Pitt (Chair), Richard Burian, Ellsworth Furhman, Jim Garrison, Tim Luke.

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Awards and Honors

• Peirce Society 2006 Essay Contest: Honorable Mention ("Semiotics, Difference, Realism: Derrida's Peirce)

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Employment

• Clemson University, Department of Philosophy and Religion (Clemson, SC): Lecturer (2007-2008)

Courses taught:

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• Virginia Tech, Department of Philosophy (Blacksburg, Virginia): Visiting Instructor (part-time 2000-2007)

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Fall 2001, Spring 2002, Summer Session I 2002, Summer Session II 2002, Spring 2003, Summer Session I 2003, Fall 2003, Spring 2004, Summer Session I 2004, Fall 2004, Spring 2005, Summer Session I 2005, Fall 2005, Spring 2006, Summer I 2006, Spring 2007

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• Beloit College Library, Serials Department (Beloit, Wisconsin): Technical Services Assistant (1994-1996)

Research interests

• Philosophy of science and technology
• Continental philosophy
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• Using the commonalities between Continental and American philosophy to understand how science and technology transforms contemporary life, in particular with respect to globalization.

Teaching interests

Current

• American philosophy
• Applied ethics
• Continental philosophy (Marx, Nietzsche, 20th Century, Continental Ethics)
• Critical thinking
• Feminist philosophy
• Global ethics
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• Introduction to philosophy
• Philosophy of science
• Philosophy of technology
• Postmodernity and postmodernism

In progress

• Business ethics
• Computer ethics
• Epistemology
• Logic
• Philosophy and history of psychiatry
• Philosophy and history of science

Publications

Textbooks

• Galusky, Wyatt, Andrew Garnar Harlan Miller, and Jean Miller (editors). **Global Ethics**. Kendal/Hunt (2002)

Peer-reviewed journal articles

• Garnar, Andrew. "Urban Assault Vehicles and Portable Civilizations" in **Techné: Journal of the Society for Philosophy and Technology**, Volume 5: Issue 2 (2000)
Available on-line at: http://scholar.lib.vt.edu/ejournals/SPT/

• Garnar, Andrew. "Power, Action, Signs: Between Foucault and Peirce" in **Transactions of the Charles S. Peirce Society** (2006) 42:347-66

Book chapters

• Garnar, Andrew and Valerie Hardcastle. "An Unnecessary Divide: Neural Models in Psychiatry" in **The Philosophy of Psychiatry**, edited by Jennifer Radden, pages 364-80. Oxford University Press (2004)

Papers under review

• Andrew Garnar. "Derrida's Peirce: Semiotics and difference"

Papers presented

International conference meetings

• "Social science, liberal democracy, domination" at "The Social Sciences and Democracy" Ghent University, Ghent, Belgium (September 2006)
• "Work and play in the technological infrastructure of science" at the Society for Philosophy and Technology conference, Aberdeen, Scotland (July 2001)
• "Of madness and molecules: Some aspects of the genetics of schizophrenia" at the International Society for the History, Philosophy, and Social Studies of Biology conference, Oaxaca, Mexico (July 1999)

National conference meetings

• "Globalization, technology, and 'the human'" at the Society for Philosophy and Technology conference, Charleston, SC (July 2007)
• "Reflections on nanotechnology and technological messianism" at "Nanotechnology: Ethical and Legal Issues" Conference, University of South Carolina, Columbia, SC (March 2005)
• "Listening to Schreber: A crisis in psychiatry's realm" at the Society for Literature and Science conference, Buffalo (October 2001)
• "The role of subjectivity within biological psychiatry's discourse on antipsychotics" at the International Society for the History, Philosophy, and Social Studies of Biology conference, Hamden, CT (July 2001)
• "Reconstructing the fragmented self: The genetics of schizophrenia as a technology of the soul" at the Humanities and Technology Association conference, Charlottesville, VA (September 2000)
• "Power, action, signs: Between Peirce and Foucault" at the Society for the Advancement of American Philosophy conference, Indianapolis, IN (March 2000)

• "Linus Pauling and the chemistry of madness" at International Society for the Philosophy of Chemistry conference, Columbia, SC (July 1999)
• "Urban assault vehicles and portable civilizations" at the Society for Philosophy and Technology conference, San Jose, CA (July 1999)

Regional presentations and graduate student conferences
• "Images of science, subjectivity" Virginia Tech, Department of Science and Technology Studies Seminar Series, Blacksburg, VA (March 2004)
• "Wilfrid Sellars' last Given: Towards a reconstruction of scientific realism" Virginia Tech, Department of Philosophy Colloquium Series, Blacksburg VA (November 2002)
• "Sport/utility vehicles and identity: A semiotic perspective" at "Technology and Identity" Conference, Cornell University, Department of Science and Technology Studies, Ithaca, NY (April 1999)

Work in progress
Journal articles
• "Can a pragmatist be a historical materialist?"
• "Dwelling: Ethics in an age of technoscience"
• "How can subjectivity be a part of the world?"
• "The iPod and Materiality: A collector's concerns"
• "Our brains, our subjectivities?"
• "*Pragmatism*, pluralism, and the philosophy of science"
• "Scientific surrealism: A manifesto of sorts"
• "Wilfrid Sellars' last Given: Scientific realism and nihilism"

Book manuscripts

• *Acting-in-the-world*
Anticipated to be 11 chapters, 6 of which are complete. The rest are in various stages of drafting. Complete first draft around 1 December 2007.

Professional association

Memberships

• American Philosophical Association
• International Society for the History, Philosophy, and Social Studies of Biology
• International Society for the Philosophy of Chemistry
• Philosophy of Science Association
• Society for Philosophy and Technology
Associate Editor: The Newsletter of the Society for Philosophy and Technology (1998-2000)
• Society for the Advancement of American Philosophy
• Society for the Study of Difference
Service
Referee: • *Perspectives on Science*
• *Science, Technology and Human Values*
• *Studies in Philosophy and Education*

Departmental Service

• STS-Graduate Student Organization Ph.D. Representative to the STS Graduate Committee (1998-1999)
• Conference Assistant, Department of Philosophy annual conference: "Kuhn Reconsidered" (Virginia Tech, March 3-5, 2000)
• Chair of Local Arrangements Committee, "Production and Diffusion of Public Choice" (Virginia Tech, May 19-20, 2000)
• Conference Co-Chair, "Exhibiting STS" (Virginia Tech STS Program, April 8, 2001)
• Conference Committee Member, "Mephistos Graduate Student Conference" (Virginia Tech, March 14-17, 2002)

Other Interests

• Cooking
• Music
• Painting and other visual arts
• Literature