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NIETZSCHE ON COPERNICUS

by

SHANE CALLAHAN

Under the Direction of Jessica Berry

ABSTRACT

I show that we have reason to believe a view on scientific theory change can be discerned in what I call the "Copernicus passages" of Nietzsche's published work—specifically, the incommensurability thesis. Since this view denies what Maudemarie Clark calls the "equivalence principle," she claims incommensurability cannot reasonably be attributed to Nietzsche. I argue, however, that we *can* reasonably attribute incommensurability to Nietzsche in the Copernicus passages, so my reading should not be ruled out. The first upshot to this project is that I provide a reading of passages that have received no scholarly attention to date. The second upshot is that we can understand Copernicus in light of the broader, better-known themes in Nietzsche's published work: Nietzsche's moral skepticism about the value of self-denial motivates his opposition to the ascetic ideal and to the emerging dogmas of scientists.

INDEX WORDS: Nietzsche, Kant, Copernicus, Thomas Kuhn, Mark Rowlands, Maudemarie Clark, Theoretical terms, Reference, Skepticism, Truth, Science, Ascetic ideals

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by

SHANE CALLAHAN

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

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2011

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Dedication

I dedicate this thesis to my adviser Jessica Berry. This thesis simply could not have been written without the patience and guidance she has given me. Because nothing escapes her eagle-eye, her helpful scrutiny has encouraged me to become a better writer and, as a result, a better thinker than I was when I entered the M.A. program at GSU back in 2008. I am extremely grateful for having had the opportunity to learn from her, and look forward to continuing to do so in the future. I also dedicate this thesis to my friend Brad Summers. I have had too many helpful conversations with Brad—about Nietzsche, philosophy in general, and, importantly, life outside philosophy—to count. His friendship and support has been seriously valuable to me, and this thesis probably presupposes that relation. I also dedicate this thesis to my committee members Andrew Altman and Sebastian Rand for their helpful comments and criticisms about the thesis other written work I've done for them while in the program here at GSU, but also for the kindness they've displayed to me while in this program. Lastly, I dedicate this thesis to my mother and father. I thank my father for always defending the opposing view, which had the effect of instilling in me a healthy sense of skepticism at a young age, and I thank my mother for teaching me the importance of empathy. These lessons form the foundation of my intellectual life, and I thank my parents for them.

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Introduction

I divide this essay into three chapters. In chapter one, I will examine the two "Copernicus passages" in Nietzsche's published work.[1] In *Beyond Good and Evil,*[2] Nietzsche says that Copernicus is "the greatest and most successful opponent of visual evidence so far" (BGE 12). This is because Copernicus managed to persuade us that "contrary to all the senses, the earth does *not* stand fast" (BGE 12). And in *Genealogy of Morality,*[3] Nietzsche says about Copernicus:

> Does anyone really think that the defeat of theological astronomy meant the defeat of that *ideal*?[4] Has man perhaps become less in need of a transcendent solution to his "riddle of existence" now that this existence looks more *arbitrary,* more *loiterer-like,* more *dispensable* in the *visible* order of things? Hasn't precisely the self-belittlement of man, his *will* to self-belittlement been marching relentlessly forward since Copernicus? (GM III 25, italics mine)

The meaning of this passage is far from self-evident: Nietzsche expresses his thinking in the form of a riddle. However, I hope to provide an interpretation that shows that a coherent thought underwrites the way Nietzsche regards the significance of Copernicus as a historical thinker. It is my goal in chapter one to solve the riddle and show that we can reasonably interpret

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[1] In keeping with Clark's view, I have located these passages within the "later" (or "middle," in the case of BGE) works of Nietzsche's development. Both BGE (1886) and GM (1887), where the passages appear, respectively, represent a period in which his mature thought was reaching fruition; therefore, the Copernicus passages would not be, on Clark's view, *de facto* relics of Nietzsche's intellectual juvenilia.

[2] In this essay, I refer to *Beyond Good and Evil* as "BGE," followed by the passage number that the quote comes from.

[3] In this essay, I refer to *Genealogy of Morality* as "GM," followed by the essay number, followed by the passage number that the quote comes from.

[4] I clarify the referent of "that ideal" in part iii of chapter one.

Nietzsche as anticipating a view in the Copernicus passages[5] that resembles a description theory of reference about theoretical terms.

According to Mark Rowlands (2003), description-based theories of reference hold that theoretical terms are "defined by their place in a theoretical-practical system or structure" and are further clarified by the set of "internal relations" relative to a particular theoretical language (Rowlands, 51).[6] Alan Musgrave holds that if this semantic view about theoretical terms is true, the incommensurability thesis follows. He claims, "The incommensurability thesis says that successive major scientific theories, or paradigms, or world-views, are incommensurable *because* the meanings of terms occurring in them are different" (Musgrave, 336, emphasis mine). It will be sufficient to show, then, that when the premise *the meaning of terms occurring in different theoretical-practical structures are different* is true, the conclusion *successive scientific theories are incommensurable* follows.[7] In chapter two, I will show that if this is the logical relation between the semantic view and incommensurability, then the Copernicus passages also contain a kind of proto-incommensurability.

Reading the Copernicus passages on the model of the semantic view is hardly uncontroversial, and the objection my reading is likely to receive requires a word of introduction. In the

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[5] It should be noted that I do not claim that Nietzsche can subscribe to the description theory of reference *as such*: the semantic view I am using to model these passages wasn't fully articulated until the 1960s (e.g., in Kuhn), about 80 years after Nietzsche published the works I am investigating in this thesis. However, because the Copernicus passages gesture towards or anticipate the theory by stressing the active role of scientists in shaping the meaning of theoretical terms, I claim that the Copernicus passages are best read on the *model* of the semantic view. Reading the Copernicus passages on the model the description theory of reference will enable us to gather together disparate elements of BGE 12 and GM III 25 and unify them, as I do below.

[6] This view is controversial; Rowlands (2006) as well as Devitt (1979) and Lycan (1981) all take issue with this theory of reference because it maintains that when the meaning of a term changes, the referent of that term changes too. This means that our language determines the structure, or reality of, the world. The world serves as "content" for the "structure" established in some practical-theoretical system, or what Kuhn calls a "paradigm". I will discuss this view in detail and some accompanying criticisms and respond to them in chapter two.

[7] Musgrave doesn't spend much time clarifying this relationship; instead, he uses the logical relation as a starting point for various arguments against incommensurability. Although Rorty spends a considerable amount of space in his published works *denying* that this follows, I will use his linguistic idealism to clarify what Musgrave likely has in mind with this logical relation in Chapter two.

twentieth century, beginning with Heidegger's influential interpretation, Nietzsche scholars widely accepted interpretations of Nietzsche that resulted in relativism.[8] In 1990, Clark's *Nietzsche on Truth and Philosophy* was published and it became a major catalyst in changing the trajectory of Nietzsche scholarship away from relativist-based readings.[9] In that work, her aim is to provide a reading of Nietzsche's published works that is not based in any view that faces obvious objections, such as those to relativism (Clark, ix).[10]

Arthur Danto's *Nietzsche as Philosopher* is an exemplar of interpretations in the relativistic tradition of Nietzsche interpretation that Clark rejects. On Danto's reading, Nietzsche thinks that "P is true and Q is false when P works and Q doesn't" (Danto, 65). What makes a view "work," on Danto's reading, is some successful act of coercion. In other words, true belief is a function of power: if someone succeeds in coercing someone else into thinking their belief is true, it follows that the belief *is true*.

The problem with Danto's reading is brought into view when we see what disagreement would look like. When two disagree over whether some belief is true, "we can do little more than insist on our perspective," Danto says, "and try, if we can, to impose it on other people" (Danto, 59). Imagine that A and B are having a conversation. A successfully coerces B into thinking that *p* is true. Later that day, A successfully coerces B into thinking (in addition to *p*) that *not-p* is true. Because there are no other constraints on our concept of truth,[11] the account of truth Danto

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[8] Relativist-based readings can be understood as a species of the genus "views that face obvious objections."
[9] Several interpretations of Nietzsche maintain that he has (broadly speaking) relativistic commitments. For example: Danto (1965); Heidegger (1961); Derrida (1978); and Kofman (1972) (all cited in Clark (pp.5-21)).
[10] Her approach has been widely influential. Clark's approach to rescuing Nietzsche from obvious objections (mainly from postmodern readers) has been positively received. Since I take issue with Clark's influential argument for ruling out incommensurability guided readings, I focus almost explicitly on Clark (1990) in this essay.
[11] Here is the full context of my citation of Danto: ""We cannot establish a fact in-itself," Nietzsche wrote in an unpublished note, "and it is perhaps nonsense to wish to do so." We can meaningfully say nothing, then, about whatever it is on which these are perspectives. We cannot speak of a true perspective, only the perspective that prevails. Because we cannot appeal to any fact independently of its relation to the perspective it is meant to support, we can do little more than insist on our perspective, and try, if we can, to impose it on other people" (Danto, 59).

is attempting to attribute to Nietzsche allows B to hold both *p* and *not-p*. This concept of truth suffers from an obvious objection: it allows contradictions to pass as truth. Therefore, on Clark's view, we should attempt to find a more reasonable view of truth[12] to use as a model for interpreting Nietzsche.

Bracketing for the moment the issue of when any interpretation may qualify as "reasonable," there is a larger problem that needs to be addressed: *Nietzsche* makes claims that appear to face obvious objections. For example, in *On Truth and Lie in an Extra-Moral Sense,*[13] Nietzsche claims that "truths are illusions we have forgotten are illusions" (TL, 84). It appears as though Nietzsche scholars (such as Clark), attempting to escape the tradition of reading Nietzsche as a relativist, have a problem. In TL, Nietzsche makes a self-undermining claim: he cannot say that *truths are illusions we have forgotten are illusions* is true, because his claim would itself be a mere illusion; and if he thinks *truths are illusions we have forgotten are illusions* is false, then we can't explain why Nietzsche would bother making the claim to begin with. It would appear, therefore, that a reasonable view of truth is not to be found in the very works of the thinker we are investigating.

Clark's account has resources available for responding to the challenge that *Nietzsche* makes claims that admit to obvious objections. She claims that work published in Nietzsche's later years contains his mature philosophical work, whereas in work published in Nietzsche's early years as a philosopher, we can still see traces of Schopenhauer's relativizing influence. According to Leiter, up through the early 1880s Nietzsche remains committed to the view that "ge-

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Because we can not use facts to adjudicate disputes between conflicting perspectives, it follows that someone might easily believe *that p* when coerced, and soon after *not p* when coerced.

[12] In this essay I am not concerned with Clark's argument for how we should read Nietzsche's mature views on truth. But it is worth simply noting that Clark argues that Nietzsche's mature version of truth is "commonsense correspondence," a non-metaphysical account of truth that she characterizes as "Neokantian."

[13] In this essay, I refer to *Truth and Lie in an Extra-Moral Sense* as "TL," followed by the page number that the quote comes from.

nuinely objective 'truth' must involve correspondence to the way the world really is in-itself, i.e., the way things *really* are quite apart from how they may happen to *appear* to human beings" (Leiter, 15). According to Clark, Nietzsche begins to reject this view (which Clark calls the *metaphysical correspondence* view of truth) in *The Gay Science*[14] and BGE, when he begins to argue that the idea of a thing-in-itself is incoherent. Clark claims that Nietzsche's *mature* philosophical views *generally* begin with GM because, from GM on, Nietzsche overcomes the metaphysical correspondence theory (Clark, 95).

Because the claims of TL are from a period in which Nietzsche subscribed to the metaphysical correspondence theory, Clark's developmental thesis can explain away claims that would appear to make Nietzsche's project self-undermining. So, on Clark's view, if our goal is to find out what Nietzsche thinks qua philosopher, we should focus on the final six books that he published because they represent his mature philosophical views. With a focus on his mature works, *Nietzsche* doesn't *prima facie* rule out a reading of his published works that is free from obvious objection.

My reading might face an objection from Clark on the grounds that it refers to passages that come from Nietzsche's early period, in which we can still see in Nietzsche commitments to the metaphysical correspondence theory. Indeed, if my focus on Nietzsche's published works consisted *only* of works from Nietzsche's *early* period, then it would be easy for Clark to explain away my incommensurability-guided reading of the Copernicus passages as a mere relic of Nietzsche's intellectual juvenilia. However, because the content of GM III 25 (the work that represents Nietzsche's entry into intellectual maturity) is basically a reiteration of the view ex-

[14] In this essay, I refer to *The Gay Science* as "GS," followed by the essay number, followed by the passage number that the quote comes from.

pressed in BGE 12,[15] my reading is fully reconcilable with the era of Nietzsche's philosophical maturity and can therefore be taken as relevant to Clark's reading.

Returning to the issue of reasonable interpretation, my reading of the Copernicus passages—like Danto's interpretation of Nietzschean truth—is subject to criticism from Clark because she claims incommensurability faces obvious objections. I will attempt to show that Clark's argument against incommensurability from what she calls "the equivalence principle"[16] is not a good one because the metaphysical principle on which she bases her argument is too broad. I argue that as a result of its broadness, the equivalence principle is incoherent. Finally, I provide what I take to be the strongest and most obvious response to my objection; however, I show that this response is question-begging and that we are left with a dichotomy: the equivalence principle is either supported by a question-begging argument or it is incoherent. Irrespective of which of these two options is the case, I claim that Clark has failed to provide a standard in the equivalence principle to which she can appeal to in order to rule out implausible interpretations of Nietzsche. I claim that it is therefore false that it is unreasonable to attribute him this view, because she therefore fails to provide a sound argument for avoiding an incommensurability-guided reading.

I will then examine independent reasons for reading the Copernicus passages on the model of the semantic view. In chapter three, I will situate the Copernicus passages in their textual context and attempt to show that Nietzsche's basic motivation in the Copernicus passages is the same as the motivation in his discussion of ascetic ideals in GM III: a kind of (broadly con-

[15] Of course, with some nascent elements made explicit and clarified: Nietzsche makes explicit the moral values implicit in the *ideal* of theological astronomy when he discusses the *ideal* of theological astronomy again in the context of *ascetic* ideals, and Nietzsche elaborates on what the "defeat" of visual evidence (introduced in BGE) means for science in GM III.

[16] I respond indirectly: Clark rejects Danto's reading because it violates the equivalence principle, and because mine does too (albeit for different reasons), I take the scope of her argument to include my reading and respond accordingly.

strued) moral skepticism about values of self-denial. To make the case, I will first address a major hurdle to establishing textual consistency with the broader themes of GM III: BGE 17, a famous passage in which Nietzsche provides a *reductio* against "idealism." I claim, however, that BGE does not really pose a problem for establishing consistency with the textual context of the Copernicus passages: Nietzsche isn't rejecting *metaphysical* idealism in BGE 17; moreover, in GS, he appears to endorse metaphysical idealism. After having cleared the way, I establish that that my reading of the Copernicus passages *is* consistent with some of the broader themes of Nietzsche's thought—in particular, his opposition to ascetic ideals in GM III.

There are two upshots to this thesis. The first is that I provide a unified reading of passages that have received no scholarly attention to date. The figure of Copernicus, I show, has a special significance that has been concealed until now. The second upshot is that we can understand Copernicus in light of the broader, better-known themes of Nietzsche's published work: I show that Nietzsche's skepticism about the value of self-denial also motivates his opposition to both the ascetic ideal and to the emerging metaphysical dogmas of scientists.

Chapter One

Nietzsche on Copernicus

I will start by providing an interpretation of the passages that shows that the passages, taken together, are best read on the model of the semantic view: theoretical terms are "defined by their place in a theoretical-practical system or structure" (Rowlands, 50), so that the terms get their meaning by standing in various "internal relations" to other theoretical terms in use.[17] Let us begin by examining the connection Nietzsche lays out between Copernicus' discovery and the nature of "visual evidence."

In BGE 12, Nietzsche suggests that Copernicus *successfully opposes* "visual evidence" and "all of the senses." In GM III 25 Nietzsche elaborates on this successful opposition by claiming, in light of Copernicus' work, that a "riddle of existence" *has* been solved about transcendent objects[18] (despite our collective ignorance to the contrary): in light of this solution, the existence of these objects is now more "arbitrary," "loiterer-like," and "dispensable…in the visual order of things." Showing that these passages, taken together, anticipate the semantic view and provide a solution to the riddle of existence of transcendent objects is my present task.

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[17] The obvious parallel to Quinean holism needs to be discussed. Quine's account of meaning holds that "all of our theoretical terms get their meaning, and can be derived from, one another" (SEP, Quine). A common and potentially damaging objection to this view, according to the *Stanford Encyclopedia of Philosophy*, is that if this is how theoretical terms acquire meaning, "meaningful discourse" involving them "would be impossible," or, in other words, "we could not understand our language" (ibid.). If every theoretical term got its meaning by standing in an internal relation to others, i.e., by being derivable from the others, then it seems to follow that we would not have any way of understanding the meaning of any term as distinct from other terms. But the consequences don't follow. According to Chalmers, this objection lacks force. For even if it is true that each theoretical term can acquire meaning and be derived from another, i.e., even if meaning faces a circularity problem, the circle isn't *vicious.* For more, see Chalmers' 2009 draft of his still forthcoming *Revisability and Conceptual Change*.

[18]

i. *BGE 12*

The first mention of Copernicus in Nietzsche's published works is in BGE, and so we begin there.

> As for materialistic atomism, it is one of the best refuted theories there are, and in Europe perhaps no one in the learned world is now so unscholarly as to attach any serious significance to it (as an abbreviation of the means of expression)—thanks chiefly to the [Pole][19] Boscovich, he and the Pole Copernicus have been the greatest and most successful opponents of visual evidence so far. For while Copernicus has persuaded us to believe, contrary to all the senses, that the earth does *not* stand fast, Boscovich has taught us to abjure the belief in the last part of the earth that "stood fast"—the belief in "substance," in "matter," in the earth-residuum and particle-atom: it is the greatest triumph over the senses that has been gained on earth so far. (BGE 12)

My present focus is to try to understand what Nietzsche means when he says that Boscovich and Copernicus successfully oppose, or triumph over[20] "visual evidence" and "all the senses." It will be difficult to understand the significance of this passage unless we explore the work these men did, with "defeating visual evidence" and "triumphing over the senses" as the clues for interpreting it. In examining Boscovich's work in light of Nietzsche's BGE 12 first, I will try to show that the way Nietzsche thinks Boscovich defeats materialistic atomism—

[19] Kauffman translates *Polen* as "Dalmation" in the case of Boscovich, but "Pole" in the case of Copernicus. Clearly Nietzsche refers to both of them as "Poles": "*Dank vorerst jenem Polen Boscovich, der, mitsammt dem Polen Kopernicus*" (JGB 12). I have emended the translation to avoid the appearance that that Nietzsche regards their work as somehow distinct from one another (as successful opponents of visual evidence). If Nietzsche did choose to modify their proper names with different adjectives, there might be some room for suspicion about the uniformity of his attitude about their work in this passage.

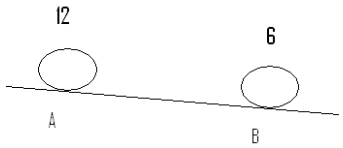
[20] I occasionally use the word "defeat" in place of "successfully oppose" or "triumph over." Not only does "defeat" mean the same thing, but Nietzsche also uses this word to refer to the same relation between Copernicus' work and the previous schema of visual evidence in GM III 25, which I address below.

triumphing over visual evidence—is the same way that Nietzsche thinks Copernicus defeats Ptolemaic (or "Theological") astronomy. This seems like the best way to make sense of the paragraph because, firstly, it seems like materialistic atomism has little or nothing to do with Copernican astronomy. Secondly, in BGE 12, Nietzsche introduces nascent ideas about the significance Copernicus' discovery that are made more explicit in GM III 25 (which I discuss below in part ii).

Rogerio Boscovich is an eighteenth-century thinker interested in natural philosophy. One of his interests is in establishing a viable concept of matter and in fleshing it out through an account of dynamics and mechanics. Although this description provides the common task of most eighteenth-century natural philosophers, Boscovich's approach to controversies of the day is unique. An appropriate exemplar of Boscovich's thought is his treatment of physical contact.[21] In Articles 69-76 of his *Theoria,* he argues that force must be negotiated inside bodies *prior* to contact. Boscovich reviews what he takes to be an exhaustive list of the possible explanations of contact and shows why all fail except his own. I do not have space here to review all the accounts of contact that Boscovich thinks fail; however, it will be helpful to explore his argument for why the atomistic explanation fails.

The popular atomistic materialism of the time[22] held that we can derive an explanation of what happens when two bodies come into contact by simply looking at what seems to take place: surface edges of each respective body touch. Boscovich argues that this is incoherent. Imagine two bodies, A and B, moving down an inclined plane at 12 and 6 degrees of velocity respectively:

[21] How to explain contact without violating any physical laws is a problem that occupied natural philosophers in the eighteenth and nineteenth century. It was a problem that attracted thinkers as prominent as Hegel and Kant, each of whom provide a unique explanation.
[22] In Art. 30, Boscovich identifies two (likely) atomists, Maclurin and Maupertuis, who deny the law of continuity.



Let A and B be of equal mass and size. When they collide, their velocities will change until they both have a velocity of nine degrees. One way to explain how the velocities in A and B change when they come into contact with one another is to appeal to the intermediate velocities between the initial velocities (twelve and six respectively) and final velocities (nine degrees for each). Let us imagine that B increases its velocity by one degree from six to seven. Now, A would be moving at eleven degrees of velocity. But if A is moving at eleven degrees of velocity and B seven, then it follows, Boscovich claims, that A would have to have "traversed a greater distance in space than the other" (ibid.). And if it *is* true that A traversed a greater distance than B in the same amount of time, it follows that A would have had to *penetrate* the slower-moving B. But this account of contact would deny the impenetrability of matter, which Boscovich says "no physicist should do" (ibid.).

To provide a coherent explanation of contact between A and B, Boscovich introduces two modes of velocity: potential and actual. Boscovich claims that in order to make sense of the change in velocity that actually takes place, we must investigate how velocities change when they are still potential. As actual velocities, both balls will accordingly adopt, at the moment of immediate contact, nine degrees of velocity each. But change in potential velocity takes place *before* change in actual velocity is observed, and negotiation of the causally salient potential ve-

locity is called “force.” Force causes B’s speeding up and A’s slowing down before immediate contact ever takes place.

Here is how I propose we understand Boscovich’s opposition to visual evidence. The atomists with whom Boscovich is familiar depend on a specific meaning of the theoretical term “particle.” A “particle” is the smallest unit of “matter” and is sometimes simply called an “atom.” The number of “particles” that some body has determines how much “mass” it has, and how two bodies are said to enter into “contact” is a relation defined in terms of how much “mass” the bodies have. The internal relations these theoretical terms stand in govern what the terms mean. This meaning is imposed on unconceptualized mental content; once that mental content is conceptualized from within a particular network of theoretical terms, we are able to allow particular observations to count as visual evidence for theories comprised of the network of internally related theoretical terms.

Boscovich completely revolutionizes this vocabulary, and we can see how the entire system of theoretical terms changes meaning when the meaning of one term changes. Boscovich redefines “atom” as “center of force**”** (BGE 12 fn16) and a “body” as a “determinate magnitude of force.” In the event of contact, we can see how the meaning of both “atom” and “body” are changed, too, because the internal relation in which the word “contact” formerly stood to other terms in the theory has been altered: what we see with our eyes—the observation that confirms Boscovich’s theory—must change accordingly. On Boscovich’s view, two bodies *never actually* touch one another, but rather participate in an exchange of a magnitude of force as they approach one another. In fact, Boscovich claims in Article 130 that wherever *physical* contact is concerned, that is, between two bodies that are supposed to share a common boundary, there is *al-*

ways between the two bodies a distance "too small to affect our senses, and the repulsive force is great enough to prevent closer approach being induced" (Boscovich, Art. 130).

Recall that on Nietzsche's view, Boscovich taught us to believe contrary to the atomists *because* he "successfully opposed visual evidence" (BGE 12). So, in this respect, how might we say that Boscovich's work defeats "visual evidence"? Our first clue should be Nietzsche's curious suggestion that someone can *oppose visual evidence*. We usually speak of evidence as something that confirms or disconfirms a theory, not as something someone can defeat *full stop*. This way of speaking is strange because usually humans stand in a *passive* relation to visual evidence: what we see either *confirms* or *disconfirms* a theory we have. But through the work of Boscovich, Nietzsche invites us to think of humans standing in an *active* relation to visual evidence. By establishing the conditions under which the world can show up as *evidence for* some belief, we have to bring our theoretical terms to bear on the world in the first place—to see it *in terms* of our theories constructed out of internally defined theoretical terms. And because *we* define these terms according to our purposes—in the case of Boscovich, a scruple about the inviolability of the principle of impenetrability of matter[23]—truths about the world can ultimately be understood as truths that have their origin in human minds.

When Nietzsche says that Boscovich successfully opposes, or defeats, the visual evidence of the materialistic atomists, Nietzsche can be read along the following lines: because the internally related system of theoretical vocabulary is imposed[24] by the materialistic atomists on the visual—i.e., what we see when we perceive objects in the world—Boscovich is one of the "greatest" and "most successful opponents of visual evidence [i.e., that of the materialistic atomists] the world has ever seen" (BGE 12). He deserves this moniker because he replaces old, theo-

[23] And, as we shall in the case of Copernicus, his purpose came from a scruple he had with the increasingly burdensome success conditions for Ptolemaic astronomy.
[24] I clarify the imposition thesis below.

retically defined terms with ones he *created*, and by privileging the active role of human minds in scientific achievement, Boscovich thereby attains one of the "greatest victories over the senses the world has ever seen" (BGE 12).

I turn now to Copernicus. I shall try to show that Copernicus' opposition to visual evidence can be understood in precisely the same way that we have seen Boscovich oppose visual evidence: Copernicus actively initiates a change in the meaning of theoretical terms (defined by the internal relations they stand in to one another). He initiates the change in meaning by re-defining particular theoretical terms, thereby changing what can show up and count as "visual evidence."

Nietzsche claims Copernicus managed to convince us, "contrary to all the senses, that the earth does *not* stand fast" (BGE 12). To understand what Nietzsche's quick reconstruction of Copernicus' discovery means, let us turn to a chapter in the history of philosophy.

Copernicus was a fifteenth- to early sixteenth-century astronomer. Sometime around 1510, Copernicus wrote an essay called *Commentariolus* in which he claimed that the universe is helio- and not geocentric (Rabin, SEP). The latter view was predominant at the time. An idea that began with Aristotle and was rekindled a number of times throughout early European history (and which was popular even in Copernicus' lifetime) was that all the planets orbit the earth. I want to point out that Ptolemy's second-century update of the old Aristotelian view included the new concept of an "equant." An equant is an imaginary point that astronomers calculated that determined the fixed position around which planets moved in the course of their orbit. Thinking of the planets as having a circular orbit around the earth had the strange consequence that those planets were seen to make irregular pauses and even to move backwards. Early astronomers needed a way to explain this observation given the assumption that planets orbit the earth (ibid.).

According to Rabin, Copernicus believed the concept of an "equant" required increasingly complicated and eventually implausible procedures for an astronomer successfully to chart the motions of the planets (ibid.). A particular source of cognitive frustration for Copernicus was the task of determining an equant and its corresponding parts (including a planet's circular path of orbit, called an "epicycle," and the additional point around which the planet cycles, called a "deferent" (ibid.)). Copernicus held that the theories of Ptolemaic astronomy

> were not adequate unless they also conceived certain equalizing circles, which made the planet appear to move at all times with uniform velocity neither on its deferent sphere nor about its own [epicycle's] center…. Therefore, having become aware of these [defects], I often considered whether there could perhaps be found a more reasonable arrangement of circles, from which every apparent irregularity would be derived while everything in itself would move uniformly, as is required by the rule of perfect motion…. (ibid.)[25]

Copernicus was dissatisfied because he was expected to understand motion, at times, in terms of an epicycle's center, *or,* at other times, in relation to the deferent. Copernicus saw this situation as unreasonable because it rendered observation indeterminate: if one regarded motion relative to the center of an epicycle, one would always have to treat this observation disjunctively. For if regarding motion relative to the center of an epicycle lead to inconsistencies with other calculations astronomers had completed, one would have to attempt to square the observation with extant calculations by regarding the motion relative to the deferent instead. This indeterminacy led to increasingly burdensome theoretical demands on the practitioners of astronomy. In other words, Copernicus finally chalked all of the increasingly burdensome demands of Ptolemaic astronomy up to a failure of the way the theoretical terms at work in Ptolemaic astronomy were defined.

[25] From *Commentariolus,* cited in Rabin (ibid).

Copernicus redefined theoretical terms in a way that made charting the motion of the planets *more reasonable.* And more the more reasonable definitions, for Copernicus, were definitions that led to simpler research procedures. So in *De Revolutionis,* Copernicus proposed that we place the sun at the center of our solar system. That way, when astronomers draw circles to describe the relative orbits and motions of the planets, astronomers would have to deal far less with the cumbersome ad hoc procedures that were ubiquitous in Ptolemaic astronomy (ibid.).

We can now begin to see how Nietzsche's characterization of Copernicus as a "successful opponent" of "visual evidence" can map on to this astronomer's work. Copernicus challenged the meaning of the theoretical terms "equant," "epicycle" and "deferent," which we have said amounts (just like it did for Boscovich) to challenging the entire structure of internally related theoretical terms that determine what counts as "visual evidence" of the Ptolemaic system. Copernicus defeated this visual evidence by means of imposing new definitions of internally related theoretical terms onto unconceptualized mental content. Copernicus successfully redefined the theoretical terms of the previous research program. In successfully accomplishing this task, we can understand now what Nietzsche thinks it means for Copernicus to be a successful opponent of visual evidence. To further clarify how Copernicus opposes visual evidence and achieves one of the "greatest victories over the senses the world has ever seen," (BGE 12) we turn now to the next Copernicus passage.

ii. *GM III 25 (a)*

> Does anyone really think that the defeat of theological astronomy meant the defeat of that *ideal*? Has man perhaps become less in need of a transcendent solution to his riddle of existence now that this existence looks more *arbitrary*, more *loiterer-like*, more *dispensable* in the *visible* order of things? Hasn't precisely the self-belittlement of man, his *will* to self-belittlement been marching relentlessly forward since Copernicus? (GM III 25, added emphasis mine)

Although this second passage is composed of a series of questions, Nietzsche wants to claim that, in light of Copernicus' work, a "riddle of existence" has been solved, and that its solution yields a truth about this existence (despite our collective overlooking this truth): that truth about the existence of transcendent objects[26] is now more "arbitrary", "loiterer-like", and "dispensable…in the visible order of things." My first task in this section is to provide an interpretation of this claim that both clarifies and expands on what Nietzsche means when he says in the former passage that Copernicus successfully defeats visual evidence.

Astronomy under a *theological* description was, historically, a science that regarded any observation as evidence for theories derived from Biblical or otherwise religious sources. The scientist who found evidence against claims made by papal authority was under immense social pressure to reconsider his findings. This kind of science was unique, and its mode of inquiry was

[26] The most obvious reading of this passage is probably the following: Copernicus' discovery should have solved a riddle about the nature of man's existence: that God divinely ordained the order of the world, placing man at its center, is false. But it is crucial to note that Nietzsche says in this passage that, since Copernicus, the answer to "his riddle of existence" appears "more arbitrary, loiterer-like and dispensable" than it did before Copernicus came on the scene. Nietzsche does *not* assign these predicates to "the riddle of his existence"—he assigns them to an ambiguous subject. And although Nietzsche does not explicitly mention *objects* or *the nature of the existence of objects* as problematic here, it is clear that he *does* raise issues concerning the nature of the existence of transcendent objects in the *prior* Copernicus passage reviewed in this essay. I claim that we can read the subject either way—as a riddle about man's existence, or as a riddle about the nature of the existence of objects—and end up with a profitable reading of the passage. Thanks to Jessica Berry, Sebastian Rand and Andrew Altman for their critical comments on this issue (as well as, of course, several others in this essay).

determined in advance—science would always stand in a consistent and even justificatory relation to the content of the canon. It deserves the name "theological astronomy" because scientists were expected to think in invariable accordance with Biblically-derived theological doctrines, the most relevant of which for astronomers was that *planets orbit the earth.*[27]

When Nietzsche says that theological astronomy was *defeated*, it might be the case that Nietzsche means that the set of theoretical assumptions operant in pre-Copernican astronomy were shown to be false, or that pre-Copernican astronomers did not correctly understand the way the world is. But this conceals that an *ideal* of pre-Copernican astronomy survived Copernicus' heliocentric discovery. In other words, Nietzsche seems to be suggesting in this paragraph that we cannot accurately describe the "defeat" of theological astronomy by describing it as the realization of our failure to have our beliefs correctly correspond to the world. There is an ideal that has survived, and it is this ideal with which Nietzsche has concern.

So, what is this ideal that has lingered on since the defeat of theological astronomy? I think that the point Nietzsche makes here about the character of science since the defeat of theological astronomy can, for the moment, be understood in two parts: the first part (with which I am concerned in this chapter) is Nietzsche's claim about what we should have learned about transcendent objects with the defeat of theological astronomy. Nietzsche *also* claims that the way science has proceeded since Copernicus is ultimately in self-belittlement and self-negation. For the moment, I treat the issues separately; I provide a full analysis of the relation between the ideal of self-denial (what Nietzsche calls "the ascetic ideal") and the Copernicus passages in chapter three.

We now need to clarify what Nietzsche thinks *should have* ushered in a change for the way scientific inquiry takes place. Since the defeat of theological astronomy effected by Coper-

[27] In the Bible, the book of Genesis claims that God created the universe with earth as its center.

nicus, Nietzsche asks, "Has man perhaps become less in need of a transcendent solution to his riddle of existence now that this existence looks more *arbitrary*, more *loiterer-like*, more *dispensable* in the *visible* order of things?" (GM III 25) Since Copernicus, Nietzsche suggests, our need for a "transcendent solution" to our riddle of existence *should* be "less." Given that Nietzsche thinks Copernicus' discovery signifies the successful defeat of "visual evidence," it is appropriate for Nietzsche to regard "transcendent solutions" to the riddle of existence—that is, solutions that depend on a transcendent criterion of judgment, a criterion to be further specified as anything *literally outside* human persons, which Andy Clark calls the "skin bag" (A. Clark, 5) —with suspicion.[28] And Nietzsche's suspicion here squares what we've seen so far: recall that Boscovich and Copernicus refute particular sets of visual evidence for theoretical terms defined by the internal relations they stand in to one another. Together, Boscovich and Copernicus properly motivate a sense of suspicion about whether the world, taken on its own, is the kind of thing that can we can appeal to when we want to understand it.

In this passage, Nietzsche does not just hint at skepticism about whether our theoretical terms refer to things in the world. Nietzsche turns next to what the "visual" consequences are for the way the world shows up for scientists when we recalibrate the theoretical terms that describe it. He says that the existence of objects[29] in the world—and how scientists seek interpretively to group them—now seems "more *arbitrary*, more *loiterer-like*, more *dispensable*" (ibid.).

To figure out what this means, let us turn to a description of scientists Nietzsche provides in GM III 12 that reads like the *opposite* of these qualities. There, Nietzsche says that scientists

[28] This move may seem problematic. When Nietzsche speaks of *otherworldly* or *transcendent* ideals, he may be referring to religious or quasi-religious views—in other words, that in this case, Nietzsche thinks religion is not to be used to understand ourselves. However, given Nietzsche's celebration of Copernicus' victory over "visual evidence," it seems at least *somewhat probable* that Nietzsche can also be read in the Copernicus passages as attacking epistemic externalism.

[29] Although Nietzsche also says these same predicates apply to us as well, discussing how this relates to conceptions of personal identity seems to be a different project.

strive to be "pure, will-less and time-less subjects of knowledge." The scientist thinks she will better know what the world is like if she adopts an attitude devoid of emotion and passion and of anything that could cloud her "objective" gaze on the world. Nietzsche suggests in GM III 25 that she also wants her truths to be non-arbitrary, non-dispensable and not at all loiterer-like; in other words, the scientist desires that her truths about the world be true even if there were nobody around to think them or be interested in them.

This relation to the world is for Nietzsche's scientist non-arbitrary because the scientist thinks she does not capriciously test the veracity of any old statement; rather, the scientist tests sentences that she thinks—or has "good reason" to think—accurately correspond to the world. This relation is non-dispensable because, when sentences *do* accurately correspond to the world, the scientist certainly shouldn't do away with them; she ought instead to keep them around because they represent the way the world is, and it is valuable to be able to say true things about the world. Lastly, this relation is not at all loiterer-like. A loiterer invites us to think of something, usually a person, who lingers around a place, but does so only transiently. To be not at all loiterer-like suggests that something permanently inhabits a place. Thus, Nietzsche's imagery invites us to consider that scientists often imagine that their truths would permanently inhabit the world, even if we weren't there to think them, formulate them or have an interest in them. But Copernicus, Nietzsche suggests, has showed that in the "visible order of things," we now know the world is not the location in which the truths of scientists reside. However, we've proceeded, since Copernicus, completely oblivious to this truth, and Nietzsche calls our attention to it in this passage. But there must be more to the relation between Nietzsche has in mind between scientists and the world—clarifying the relation should allow us to clarify how Nietzsche thinks we should understand how scientists are to be correctly understood as relating to the world.

iii. *GM III 25 (b)*

> Since Copernicus, man seems to have stumbled onto an inclined plane—he is now rolling faster and faster away from the center—whither? Into nothingness? Into the "penetrating feeling of his nothingness"? (GM III 25)

Here, Nietzsche concludes his meditation on Copernicus in GM III 25. The first curious thing to note about this passage is that Nietzsche has us imagine man, likened to a round object, rolling out of control into an indeterminate location. This is a strange image because the metaphor of man rolling down a plane does not strike any familiar chords. But Nietzsche is in fact referring to a discussion in the preface to the second edition of Kant's *Critique of Pure Reason*. According to Kant, when Galileo "experimented with balls of a definite weight on the inclined plane," determining in advance by calculation what the physical behavior of the ball would be, we learn that

> reason has insight into what it itself produces according to its own design; that it must take the lead with principles for its judgments according to constant laws and compel nature to answer its questions, rather than letting nature guide its movements by keeping reason, as it were, in its leading strings. (CPR B/xiv)

In other words, Kant claims it is not the case that there is a world that we can understand as having *meaningful* existence independently of the theories we create to describe it. "Reason" is described here as a faculty that provides the blueprint into which nature must be made to fit, and Kant's radical claim is that reason familiarizes itself with reality by *imposing*[30] a rational structure onto it.

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[30] There are two ways Kantians generally talk about the relation between the schematizing work of the categories and the world: there is the view that we *impose* the structure of the world onto it (e.g. when we define theoretical terms in terms of their internal relations) and this view is called, according to Rowlands, the *Imposition thesis.* Although some other Kantians hold that our theoretical terms *filter* the world, so *what we know* about its structure

The figure of Copernicus, for Kant, is an exemplar of this new way of thinking because Copernicus stands in a proper metaphysical relation to nature. Kant claims that the major discoveries in natural philosophy—such as the "invisible force of Newtonian attraction" (CPR B/xxii)—would "have remained forever undiscovered if Copernicus had not ventured, in a manner *contradictory to the senses*, yet true, to seek for the observed movements *not in the objects in the heavens but in their observer*" (CPR B/xxii, emphasis mine). Put another way, Copernicus, according to Kant, didn't just have to neglect the extant astronomical accounts of planetary orbit; rather, he had to abandon a system of theories altogether—along with what was literally seen supporting the theories, its "visual evidence"—to prevent himself from "keeping reason in [nature's] leading strings" (CPR B/xxii). The Copernican revolution, for Kant, was the announcement of reason's primacy in bringing objects into conformity with itself, and it does this by making use of a principle made available to itself only through itself.

We are now in a position to understand better the meaning of the final sentences of our paragraph of interest in GM III 25. Galileo's foreknowledge about what the behavior of the ball would be as he rolled it down the inclined plane was, for Kant, instructive: this is precisely how reason relates to reality; reason reveals *a priori* the principles by which we come to know the world. When Nietzsche suggests that it is humanity that is actually on the plane, he seems simply to allude to the Kantian insight: reason—an innate human faculty—is responsible for the principles by which we come to experience the world.

(as opposed to *actually giving it structure*) is *restricted* to what meaning our theoretical terms allow for, I go with *imposition* for brevity and ease; it is more likely that it is the Kantian caricature that Nietzsche was working with when he refers to Kant.

iv. *Conclusion*

I have shown that we can make sense of the Copernicus passages, understanding them as having a unified theme, when we understand them as anticipating a description theory of reference. In them, Nietzsche is best read on the model of the semantic view outlined in the introduction to this chapter: that theoretical terms are "defined by their place in a theoretical-practical system or structure" (Rowlands, 50), and that the terms get their meaning by standing in various internal relations to other theoretical terms in use. We saw Nietzsche affirm a nascent expression of this view in his celebration of the work of Boscovich and Copernicus—figures whose work shows what it looks like when we actively *change* the meaning of theoretical terms defined by their internal relations to one another. We have not yet arrived at the incommensurability thesis, however, and it is the first task of chapter two to elucidate the logical relationship between the semantic view and incommensurability.

Chapter Two

Motivating Incommensurability

In this chapter I explain and respond to Clark's and Rowlands' rejections of incommensurability. Clark and Rowlands argue against incommensurability on the grounds that its proponents are confused about the meaning of the term "world." I will attempt to show that Clark's argument against incommensurability from what she calls "the equivalence principle" is not a good one because the principle is too broad. I argue that at as a result of its broadness, the equivalence principle is incoherent. Finally, I provide what I take to be the strongest and most obvious response to my objection; however, I show that this response is question-begging and that we are left with a dichotomy: either the equivalence principle is supported by a question-begging argument or it is incoherent. Whichever of these two options is the case, I claim that Clark has failed to provide in the equivalence principle a standard to which she can appeal in order to rule out implausible interpretations of Nietzsche.

i. *An Argument for Incommensurability*

Recall that Musgrave claims that the semantic view about theoretical terms implies the incommensurability thesis. He says, "The incommensurability thesis says that successive major scientific theories, or paradigms, or world-views, are incommensurable *because* the meanings of terms occurring in them are different" (Musgrave, 336). Paraphrasing a bit, I will use the following argument for incommensurability[31] in this chapter:

[31] I realize this is a very general expression of incommensurability. Recall from chapter one that the semantic thesis, in this essay, is a thesis concerned only with the meaning of theoretical terms. I wish to keep the terms general for my discussion for the sake of ease, but it might help to think that the following expresses the relation between the

(1) If the semantic thesis is true, incommensurability is true.

(2) The semantic thesis *is* true.

Therefore,

(3) Incommensurability is true.

I argued in chapter one that the Copernicus passages can be read as anticipating a view that resembles (2). Recall that the description theory of reference holds that theoretical terms are "defined by their place in a theoretical-practical system or structure" and that the terms get their meaning by standing in various "internal relations" (Rowlands, 50) to other theoretical terms in use.

The problem we presently face is that all we know so far about (1) is that it is the case according to Musgrave. We will need more in order to clarify *why* it is the case that incommensurability follows from the semantic thesis. To illustrate the inferential relation, I use an oft-cited passage in the work of Thomas Kuhn. In the following excerpt, Kuhn describes the impact that changing the meaning of theoretical terms has on the world:

> Lavoisier … saw oxygen where Priestley had seen de-phlogisticated air and where others had seen nothing at all. In learning to see oxygen, however, Lavoisier also had to change his view of many other more familiar substances. He had, for example, to see a compound ore where Priestley and his contemporaries had seen an elementary earth, and there were other such changes besides. At the very least, as a result of discovering oxygen, Lavoisier saw nature differently. And in the absence of some recourse to that hypo-

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semantic view and incommensurability in terms closer to the description theory of reference, which is also closer to my focus in chapter one:

(1) If the meanings of theoretical terms occurring in major scientific theories are different, then successive, major scientific theories are incommensurable.

(2) The meanings of theoretical terms occurring in major scientific theories *are* different.

Therefore,

(3) Two systems of scientific theories that utilize different theoretical terms are incommensurable.

> thetical fixed nature that he "saw differently," the principle of economy will urge us to say that after discovering oxygen Lavoisier worked in a different world. (Kuhn, 118)

When Lavoisier developed the notion "oxygen," he had to re-define other theoretical terms in order to see the world as a structure with consistency and order. Because it is only through the set of theoretical terms defined internally to the system and with respect to one another that knowledge of the *world* is possible, Kuhn's claim is that when we change the meaning of our theoretical terms, we change the way we access the world. But because there is no other way of accessing the world, change in meaning can therefore be said to change the world. And if it is true that the meaning of a theoretical term changes the nature of our only access to the world, it is possible (and at times over the history of science actual) for different worlds to be encountered by scientists. Because (1) is a generally accepted inferential relation between the semantic view and incommensurability, and because we have seen Kuhn provide descriptive support for the truth of the relation, in addition to our having seen (2) expressed in Nietzsche's published works, it follows that the Copernicus passages anticipate incommensurability.

Rowlands presents what is the most common objection to the argument for incommensurability. He claims that, along with all philosophical structuralists since Sapir and Whorf, Kuhnian philosophy of science confuses two fundamentally different claims: on the one hand, there is the claim that when we change the way we speak about the world, we change the way we *see* or *experience the world*; and on the other hand, the claim that when we change the way we speak about the world, we *actually change the world.*[32]

[32] For an extended discussion on this point, see Rowlands, Ch. 4., pp. 32-56.

ii. *An Argument Against Incommensurability*

For the sake of clarity, let us represent Rowlands' argument for the former claim as follows:

(1) If incommensurability is true, then the way we speak about the world changes the world.

(2) The way we speak about the world does not change the world.

Therefore,

(3) Incommensurability is false.

This is a standard argument against the semantic view, and it is one that carries a lot of intuitive weight: that we experience the world differently when we change the meaning of our theoretical terms does not imply that the world *itself* is different. Clearly, if Rowland's distinction between language *changing our experience of the world* and language *actually changing the world* is accurate, then incommensurability appears to face an obvious objection.

I want to draw attention to (2) in the above counter-argument. I focus on Clark's defense of (2), the second premise in the argument against incommensurability, for two reasons: first, it bears on her reading of Nietzsche, and second, she is a contemporary philosopher who shares Rowlands' intuition and develops a point Rowlands leaves unaddressed.

iii. *Clark's Equivalence Principle*

On Clark's view, there are two claims that *must be* logically consistent with a reasonable interpretation of Nietzsche's published works. The first is the ontological claim that the world exists independently from the human minds that think about it. The second is the metaphysical claim that there is a way the world is. Clark's position here contains both claims:

> the world—that about which we have beliefs—exists independently of us in the sense that we cannot reduce its existence to acts of knowledge or the occurrence of representations. Contrary to subjective idealism, it is not the case that *esse* is *percipi.* The world has its own, extra-mental existence, and therefore does not need God or any other mind to be thinking of it in order to continue in existence. But if our beliefs about the world are true, then it seems clear that they can be true only if they correspond to it, that is, "get it the way it is." (Clark, 39)

The reason why we end up with the view that propositions are true when they correctly correspond to the world is, according to Clark, a matter of intuition. It would be a mistake to try to reduce the world's existence to a mental act, as subjective idealists would have it, she says, because of our strong intuition[33] that the world has extra mental existence (ibid.).[34]

Clark then shifts her attention to the metaphysical claim and, using the ontological claim as its basis, says that "if our beliefs about the world are true, then they correspond to the world (they get it the way it is)" (ibid.). So, provided our beliefs are *about* the world, which exists independently of us, we can say something about truth: a belief is true when it correctly maps on to

[33] While Clark has some argument against other theories of truth, she ends the chapter, and it appears, her discussion of the correspondence and coherence theories of truth, with this appeal to intuition.

[34]Clark depends on an appeal to intuition to defend the equivalence principle in other cases in her work without otherwise arguing for it. Take for example how she rules out Danto's pragmatist reading of Nietzsche: "the position Danto attributes to Nietzsche would violate the principle that expresses our surest intuition regarding truth, namely, the equivalence principle derived from Tarski's Convention T (the requirement that an adequate definition of truth entail all sentences of the following form): sentence "S" is true in language L if and only if (iff) S" (Clark, 32).

the world. So, in short, there *is* a world, and there is *a way* the world is; so a sentence that expresses the belief that P is true when it maps onto the way the world is and false when it does not.

However, *that the world exists* and *that there is a way the world is independent of what we think about it* are *separate* claims. Following Rorty,[35] it can be said that the world exists independent from us, and we can still maintain a robust notion of reference where statements refer to or are about objects in the world; but this is far from establishing that there is a way the world is. For if a statement's meaning obtains not in virtue of something in the world but in virtue of human minds, then we can say that human minds "change the world" in the sense that because they change how they think about the objects in the world, they change the reality of the objects that exist in the world.[36]

Clark could still argue that we have good reason to think of the metaphysical and ontological claims as conjuncts. And in fact, she does argue for this: the conjunction of the metaphysical and ontological claims forms what she calls "the equivalence principle." The equivalence principle holds that "there is a world out there; and what we say or think is 'true' when it gets it *the way it is* and 'false' when it does not correspond to the *way it is*" (Clark, 39). For example: "snow is white" is true if and only if snow is white (Clark, 40). Even if the two claims are distinct, the equivalence principle is "a basic truism" that no one can reasonably deny, and we therefore should treat the two claims as conjuncts.

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[35] On Rorty's claims it can be said "with commonsense" that the world exists independently of the human minds that true beliefs are still nevertheless *about* those objects in the world (Rorty, 5).

[36] I am aware that this view faces a number of external objections on conceptual grounds. Paul Bogohossian's *Fear of Knowledge* is said to show that constructivism and various brands of relativism are false. The objection I ultimately address from Clark certainly does nothing to defend my controversial view against strong objections such as these; however, I simply want to show that Clark's argument against this view *fails* on account of the problematic broadness of the equivalence principle, and that because the obvious line of defense against my objection begs the question.

Now, Clark uses this principle to rule out as unreasonable[37] particular interpretations of Nietzsche. Recall from the introduction the view of truth Danto attributes to Nietzsche: "p is true and q is false if p works and q does not" (Danto, 65). This violates the metaphysical claim of the equivalence principle—it denies that there is a way the world is that can adjudicate the truth value of sentences. And because this denial conflicts with our "commonsense usage" of the words "true" and "false," Danto's view—along with any other view that denies this—must be rejected (Clark, 33). But if the view I use to model the Copernicus passages on also rejects the equivalence principle—and I have shown that it has, on the grounds that it argues there can be multiple worlds for scientific practitioners—then Clark can use her argument against Danto to object to my reading as well.

iv. *The Argument From Metaphysical Broadness*

First, I want to review the definitions of some key terms I'll make use of in this section. Recall that the ontological claim holds that the world exists independently from the human minds that think about it, and the metaphysical claim holds that there is a way the world is. The conjunction of the metaphysical and ontological claims is the equivalence principle, which *is* on Clark's view *basically the Tarskian convention T*: "the relation of correspondence between beliefs and the world—given the assumption that beliefs are about an independently existing world—seems to amount to no more than the equivalence principle: given the world's independent existence, "snow is white" corresponds to the world iff snow is white" (Clark, 40).

Now, the equivalence principle presupposes the ontological claim because there needs to *be* something in the world in order for there to be truth values for sentences that express beliefs

[37] Recall from the introduction that Clark thinks any interpretation that faces obvious objections should be ruled out.

about the world.[38] However, the equivalence principle also presupposes the metaphysical claim because the value of the above sentence is *true* when snow is white and *false* when it is not. The problem with the equivalence principle is that it is too broad; as such, the metaphysical claim has members in its extension that are logically inconsistent with one another. If the equivalence principle is a conjunction of the two claims (metaphysical and ontological) then it is incoherent, because one can demonstrate inconsistent instantiations of the metaphysical claim. The metaphysical claim fails to pick out one uniform set of truth conditions for utterances about the world because a sentence can accurately correspond to the world at one time but not another.

Let us start by examining a case: at time t1, geocentric astronomers are doing Ptolemaic astronomy. Recall that a sentence is true when it gets the world "the way it is," and the way the world was at the time depended on the meaning of the words used to understand it. For the correspondence relation to obtain during this time there needed to be a clear, fixed meaning for the theoretical terms: "earth" meant "stationary object at the center of the universe"; "sun" meant "object orbiting the earth," and so on. So an astronomer could satisfy the equivalence principle by looking to the way the world was, and the way the world was depended on the interrelated system of meaning that theoretical terms had. Ptolemaic astronomers therefore satisfied the equivalence principle.

Now, in a second case: at time t2, heliocentric astronomers are doing heliocentric astronomy. They also satisfy the equivalence principle. In order for the correspondence relation to obtain between beliefs held by scientists and the world, there needs to be fixed meaning for the theoretical terms: "earth" means "planet orbiting the sun," and "sun" means "the most massive object in the solar system, orbited by all lesser-massive objects" and so on. So someone could

[38] Barring, of course, the possibility in which there *isn't* a world; in this situation, all our beliefs about the world would necessarily be false.

satisfy the equivalence principle in the same way that Ptolemaic astronomers did—by looking to the way the world is. But the way the world is depends just as much *at t2* as it did *at t1* on the interrelated system of meaning that comprises our theoretical terms. In short, we can see that this formulation permits that there be an externally existing world independent from us, but that what "the world" means is something determined by some system of theories, composed of theoretical terms which are in turn defined by the internal relations in which they stand to one another. Clark's formulation of the equivalence principle is therefore too broad, because the principle is satisfied when the metaphysical claim is not. This leaves us with two options: either the equivalence principle is incoherent or the principle can be revised to include the possibility of multiple worlds.

v. *Possible Defense Against Metaphysical Broadness*

Of course, the equivalence principle can be amended to include the possibility of multiple worlds and thus to avoid this incoherence. But if we provide such an emendation, the principle no longer does the work Clark needs it to do—i.e., to rule out views of truth logically inconsistent with view she ultimately argues is the most reasonable. The most obvious line of defense available against the equivalence principle's incoherence is to argue that the metaphysical claim was satisfied at t1 only apparently. Put another way, it only appeared to be the case that our statements referred to an externally existing world *and* got it the way it was. That people got it *wrong* at t1 means that they never really met the conditions of the equivalence principle. Thus, one could still maintain that the equivalence principle is internally consistent.

Although this response has apparent purchase on our intuitions about the consistent application of the equivalence principle across time, the argument for the reasonableness of the equivalence principle fails because the strongest and most obvious response to the problem

posed begs the question about what the nature of the standard is that we use to adjudicate claims about reality. One can say that Ptolemaic astronomers "got it wrong" only if one assumes in advance that there *is* a way the world is. This is the precise assumption that needs justification. Therefore, the equivalence principle is either question-begging or incoherent: in either case it fails.

vi. *Conclusion*

I have attempted to de-motivate Clark's objections to the view that follows from the semantic view I claim is nascent in the Copernicus passages. Clark claims that Nietzsche cannot reasonably be attributed any view that denies the equivalence principle. Because incommensurability denies the metaphysical claim assumed by the equivalence principle, we must interpret Nietzsche as denying incommensurability. I attempted to show that this argument fails because the equivalence principle is either defended by a question-begging argument or the principle is incoherent. Since Clark's argument fails to show that we must reject incommensurability *because* it denies the equivalence principle, it is therefore not the case that Clark has provided any reason to reject as unreasonable a reading of the Copernicus passages modeled on the description theory of reference about theoretical terms.

My goal in this chapter has not been to try to show that incommensurability is a position that *best* describes how theories change in science or that the semantic thesis is the *best* candidate for describing how the meaning of theoretical terms change over time. Rather, I have attempted to show that the views discussed are *reasonable enough* to use as a model for reading the Copernicus passages (i.e., Clark and Rowlands have failed to show that we have good reason for taking either thesis as *prima facie* false). Clark's failure doesn't imply that my reading is successful,

however.[39] I will attempt to show now that we have strong reasons independent of the philosophical tenability of the principles of my interpretation for interpreting the Copernicus passages on the model of the semantic view. A good test for whether my reading of the Copernicus passages is a good one is seeing whether it is consistent with the textual context of Nietzsche's published works; in chapter three, I will establish this textual consistency and show that my reading of Nietzsche in the Copernicus passages on the model of the semantic view can be integrated into Nietzsche's more general project of opposing ascetic ideals.

[39] Recall that Clark maintains that if a view is self-undermining, it ought not be used to interpret, or it ought not be attributed to, Nietzsche.

Chapter 3

The Copernicus Passages in Textual Context: 1883-1887.[40]

In this chapter, I will address textual consistency between my reading of the Copernicus passages and other views Nietzsche expresses in and around the years he publishes BGE and GM. Using BGE 17 as an exemplar of the kind of opposition my reading might encounter from any reader of Nietzsche with a general knowledge of the views Nietzsche espoused at the time, I claim first that it is not the case that my reading of the Copernicus passages is inconsistent with its textual context. My second claim is that my reading of the Copernicus passages *are* consistent with some of the broader themes of Nietzsche's thought—in particular, his opposition to ascetic ideals in GM III. I draw on the textual context of GM III to help explain and motivate Nietzsche's purposes in the Copernicus passages and ultimately to claim that the semantic view can be integrated into the motivation Nietzsche has for opposing ascetic ideals; that is, to advance a kind of moral skepticism about the values of self-denial.

i. *BGE 17 and Nietzsche's Rejection of Idealism*

On the issue of the consistency between my reading of the Copernicus passages and the textual context in which they reside, it might be argued that we cannot *really* say Nietzsche subscribes to a kind of internalist semantics about theoretical terms. After all, if the semantic thesis is some form of *idealism*,[41] it might be said that Nietzsche offers a clear rejection of idealism[42] in the following passage:

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[40] I picked a time period that is still near-late in Nietzsche's development, but the period spills over into the "middle" period of his development. This is because I want to account for other passages in temporal proximity to the Copernicus passages in which Nietzsche can be understood as making similar claims; chapter one is evidence for the claim that ideas nascent in BGE 12 about Copernicus' work in science are made explicit in GM III 25.

[41] According to Rowlands, it is a version of neo-Kantian transcendental idealism. However, I do not have to address the sense in which it *is* idealism as opposed to, say, some variety of non-idealistic semantic internalism. The difference is irrelevant for my purposes; there is at least one philosopher of language who thinks it is idealistic, so I

> And others even say that the external world is the work of our organs? But then our body, as a part of this external world, would be the work of our organs! But then our organs themselves would be—the work of our organs! It seems to me that this is a complete *reductio ad absurdum* assuming that the concept of a *causa sui* is something fundamentally absurd. (BGE 17)

One thesis of idealism (as Nietzsche presents it in this excerpt) is that the "world is the work of our organs." Nietzsche claims that this means the very organs responsible for perceiving and cognizing, and thereby constituting the external world would have to also somehow constitute themselves. But this is absurd; organs are *part* of the external world, and cannot therefore also constitute the external world. Because the organs cannot both be a part of the external world and not be a part of the external world, Nietzsche shows idealism is absurd.

If idealism is absurd, and if the description theory of reference expresses a sort of idealism, then it is possible that Nietzsche's argument in BGE 17 condemns the description theory of reference, which I have claimed to be nascent in the Copernicus passages. However, Nietzsche's scope in BGE 17 is unclear. First, we need to distinguish two claims of idealism: there is the metaphysical claim that what is true is so in virtue of human minds, and there is the ontological claim that only minds exist. The claim of idealism Nietzsche addresses in BGE 17 is the ontological claim, because he claims the idea that *organs can be the cause of their own physical existence* is absurd, *not* that *statements are true in virtue of the human minds that think them* is absurd. It is therefore not the case that, in BGE 17, Nietzsche denies a thesis that would commit him to denying the semantic thesis I claim the Copernicus passages anticipate.

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take that as sufficient for proceeding.

[42] And elsewhere; according to Clark, Nietzsche scholars "almost unanimously agree that Nietzsche rejects all forms of idealism" (Clark, 40).

In addition, there is textual evidence that Nietzsche can be read as—minimally— *not* univocally opposed to the metaphysical claim in the textual context of the Copernicus passages. In the oft-cited passage from *The Gay Science* entitled "Long Live Physics!" Nietzsche argues that we should abandon old forms of moral judgments in favor of "the *creation of tables of what is good that are new and all our own"* (GS 335). Nietzsche, continuing on, explains that we need to become *creators* if we are effectively to bury our moral past, emphasizing *science* as a vehicle of alternative, creative freedom:

> Let us leave such chatter and such bad taste to those who have nothing to do but drag the past a few steps further through time and who never live in the present—that is, to the many, the great majority! We, however, want to *become who we are*—human beings who are new, unique, incomparable, who give themselves laws, who create themselves! To that end, we must become the best students and discoverers of everything and lawful and necessary in the world: we must become *physicists* in order to be creators in this sense—while hitherto all valuations and ideals have been built on *ignorance* of physics or in *contradiction* to it. So, long live physics! And even more long live what *compels* us to it—our honesty! (GS, 335)

In this passage,[43] Nietzsche makes the claim that if we are going to be new selves—human beings that are "new," "unique," "incomparable" and self-created— then we must become the best students of discovery and of "everything lawful and necessary in the world" (ibid.). Of course, if we are expected to be good self-creators, one would think there is some degree

[43] I intend what follows to count as a plausible interpretation of the relation between *being a creator* and *the laws of physics* in GS 335. I am aware that this passage has received a lot of attention, and I do not have space in this essay to attempt to argue that my present, partial interpretation of GS 335 is *more* plausible or even superior to extant interpretations. All I want to claim is that my interpretation is *plausible* given the textual context of (a) other passages in which Nietzsche can be understood to claim that truths are true in virtue of the minds that think them; (b) works written in a relatively close time-frame. It is, in other words, not my attempt to provide a definitive reading of this passage—it *is* however my purpose to provide a reading that shows this passage can be read consistently with the themes of the Copernicus passages *somewhat plausibly.*

of freedom at work in creative action. However, if some degree of freedom is required for creative action, then it seems like Nietzsche is calling for an impossible action. For a free action seems, on the whole, incompatible with "everything lawful and necessary." A simple way to understand what Nietzsche means in GS 335 is first to clarify the meaning of "everything lawful and necessary." I propose that the discovery of a law is, for Nietzsche, not an act by which the world makes itself known to a subject by fiat. They are posits *by* human beings used to arrange unconceptualized mental content, and here, Nietzsche suggests that we *creatively* work our way out of old value systems by inventing new ones. We can therefore understand Nietzsche as embracing metaphysical idealism in GS 335 when he claims that we "need to become creators" with respect to the discoveries of the laws of physics.

I have shown that we can distinguish among different kinds of idealism, such that the scope of Nietzsche's rejection of idealism in BGE 17 does not include the metaphysically ideal claim I have argued he makes in BGE 12. Additionally, drawing from the textual context surrounding the publication BGE, I have shown there is a positive reason to think Nietzsche isn't *generally* opposed to metaphysical idealism—in at least one other passage in his published works from the same time period (BGE 17), Nietzsche appears not to deny metaphysical idealism.

ii. *GM III: Nietzsche, Science and the Ascetic Ideal*

I turn now to an independent point of support for the claim that the Copernicus passages are consistent with their textual context: Nietzsche's discussion of the ascetic ideal in GM III. Focusing on the ascetic ideal, I will explain why Nietzsche regards contemporary science with suspicion. Understanding why Nietzsche regards contemporary science with suspicion will help

clarify why Nietzsche is motivated to make the claims I argue he does in my reading of the Copernicus passages: he is motivated out of a kind of skepticism about the value of self-denial, a value which he takes to underwrite activity in the sciences of his day. I begin by describing the general character of the ascetic ideal as Nietzsche discusses it in GM III.

Someone who subscribes to the ascetic ideal can be said to be a person who "idealizes the belief that a life of self-denial is the best human life" (Clark, 160). There have been several such people in history. In fact, on Nietzsche's view, throughout the history of the west, values that place the life of self-denial in the highest regard have been held its three dominant schools of thought: Platonism, Christianity and Kantianism. What the three schools share, in addition to their placing the highest value on self-denial, is: first, a focus on what Nietzsche calls *life denial;* and second, giving favor to the "otherworldly" over "this world." I will now briefly sketch these three shared traits in order to explain why Nietzsche, at the end of GM III, claims science is just the most "recent and noblest form" of the same old Western ideal (GM III 25).

Nietzsche attributes to those who value the ascetic life an "unsatiated instinct and power-will that would like to become lord not over something living but over life itself, over its deepest, strongest, most fundamental preconditions" (GM III 11). One who adopts ascetic ideals attempts

> to use energy to stop up the source of energy; here the gaze is directed greenly and maliciously against physiological flourishing itself, in particular against its expression, beauty, joy; whereas pleasure is felt and *sought* in deformation, atrophy, in pain, in accident, in the ugly, in voluntary forfeit, in un-selfing, self-flagellation, self-sacrifice. (ibid.)

We see all three traits of the ascetic ideal embodied in the above quote. To explain what Nietzsche is talking about here, let's take (for the sake of brevity) the Christian as a exemplar of the ascetic ideal *par excellence*.

(a) *Life denial*

The Christian holds that once we understand that *this life* is *not the real life,* but that some *other life is* (i.e., the afterlife), we come to devalue *this life.* This Christian valuation is therefore said to be ascetic because it denies value to *this life,* i.e., the life here on earth.

(b) *Focus on the "other worldly" over "this world"*

Next, as intimated in the previous paragraph, the Christian gives favor to the "other-worldly" over "this world." The Christian regards *this world* as false and locates the favorable, transcendent, unattainable-in-this-life yet still real world in *the other world*. The afterlife—where the other, *real* world is—is assigned the highest value, and purposes are geared to attaining access to this world.

(c) *Self-Denial*

Finally, the Christian practices self-denial. In the above passage, Nietzsche draws a contrast between two basic kinds of people: on the one hand, Nietzsche claims there are those who are disposed to the the expression of physiological flourishing—in "beauty" and "joy" —and on the other, there are those who are disposed to the ascetic ideal, in whom "a *ressentiment* without equal rules" (ibid.). Nietzsche says the Christian *voluntarily pursues*, for example, "self-flagellation." When the Christian remembers all of the "sins" she has committed and has to receive some kind of divine pardon for her wrongdoings, she is actively seeking out a way to *feel-again* (*re-sentiment*) the pain in knowing she has failed to live up to the life-denying codes enforced by the church: the churchgoer who feels bad about having sexual desires, for example, attends church *because s*he longs for the pain caused by the disapproving glare of the priest.

With a sketch of the major traits of the ascetic ideal complete, I turn now to science. Intuitively, science doesn't really have much to do with any of the aforementioned traits. In fact,

off the cuff, we can even say that science seems to put forth a set of values that are *contrary* to the values of the ascetic ideal: science tends to study *this* world, and science even attempts to provide natural explanations of phenomena in *this life*. Thus, science seems to be a natural candidate for an antagonist to the tenets of the ascetic ideal.

"No!" declares Nietzsche, "Don't give me science as an answer when I look for the natural antagonist of the ascetic ideal" (GM III 25). He says:[44]

> those who are truthful in that audacious and ultimate sense that is presupposed by the faith in science *affirm another world* than the world of life, nature, and history; and insofar as they affirm this "other world"—Look, must they not by the same token negate its counterpart, this world, *our* world?...it is still a *metaphysical faith* upon which our faith in science rests—that even we seekers after knowledge today, we *godless anti-metaphysicians* still take our fire, too, from the flame lit by a faith that is thousands of years old, that Christian faith which was also the faith of Plato, that God is the truth, that truth is divine. (GM III 24)

Nietzsche says that contemporary science has been shaped by our relentless pursuit of ascetic ideals, and that scientific practice can be seen proceeding in the same vein as its ascetic, historical precedents. Scientists somehow *affirm another world* than "our world"—the world of "life, nature and history" (ibid).

As a clue for what Nietzsche is talking about when he says scientists somehow mistakenly place a higher value on "another world," and engage in the same project of self-denial as their Christian, Platonic or Kantian predecesors, let us turn to Nietzsche's discussion of actual scientific practices in the late nineteenth century. Nietzsche provides a disparaging description of German science in GM III 24. He claims that it "now seeks renunciation of all interpretation (of

[44] This is a quote Nietzsche includes in section 24 of GM III, reprinted from book IV of GS.

doing violence, pressing into orderly form, abridging, omitting, padding, fabricating, falsifying, and whatever else belongs to the *essence* of all interpreting)" (GM III 24). Nietzsche refers here to a new phenomenon of science in the nineteenth century—with the increase in sophistication of technology, scientists became increasingly wary of their human abilities to represent nature the way it is. Along with the advent of the photograph was an anxious attitude of scientists, increasingly pressured to *yield* to reality—a pressure that culminated in a revision of scientific practice. Gradually, scientists were moving *away* from favoring an active interpretation of nature. This meant moving away from old means of representing it—particularly woodcuts, lithography or drawings—which involved, according to Datson & Gallison, what Nietzsche has described in GM III 24 as "omission, padding, fabricating and pressing into orderly form.[45] Instead, scientists everywhere were settling into favoring passivity: let nature show itself, let the camera or experimental machinery allow nature to *show itself* so no human self make an appearance in the matter.[46]

When scientists attempted to understand the world by letting *it* be the criterion of truth, they can be understood as "affirming another world than *our* world," thereby pursuing the ascetic

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[45] See Lorraine Datson and Peter Gallison's *Objectivity* (MIT Press, 2010), and especially their chapter, "The Idea in the Observation," pp. 69-84. On their account, early nineteenth-century biological naturalists would search for a new specimen, and one which was a suitable candidate to represent what was common across creatures of the type. With an impressive display of technical ability, artists would then draw the specimen in intricate detail. As an artist would draw, the scientist would often provide them instructions about how to *fix* the representation of the specimen. An artist would satisfy the demands of the scientist when she would make the appearance of the figure conform to geometric principles (e.g. when the specimen didn't actually have angles) or if she otherwise perfected the image. Good science was an active practice; nature was seen as a fragmented unity, as ubiquitous imperfection. The job of the scientist was to find a way to present an image of the specimen free from accident and imperfection. The ability to be a scientist is one that took a great deal of time to develop; it meant not only "observing and interpreting nature" in the sense of correcting and perfecting its representation, but also "monitoring and correcting the artist" whose job it was to execute the scientist's will.

[46] See *Objectivity*, "Seeing Clear" (pp. 115-125), where the authors describe the transition into designing machines responsible for representing nature as an "insistent drive to repress the willful intervention" of the scientist, and to replace the active role of the scientist (as well as his artist) with "a set of procedures that would, as it were, move nature to the page through a strict protocol, if not automatically" (D&G, 121). In a series of detailed historical citations (including color photographs) D&G show how the work of scientists reflected a new anxiety about subjective contributions *distorting* the image of the object. As this anxiety became more pronounced, scientists came up with newer, cleverer ways to expunge the distorting role of the human mind in the observation process.

ideal in one of the above-mentioned senses. Selves were becoming obsolete in science. Scientists had to routinely practice eliminating themselves from the scenario under which observation took place to make sure not to cloud the image nature would generate on its own. Human subjectivity was viewed as a distorting presence, and its value in scientific observation declined exponentially in the mid- to late-nineteenth century.

Surely, this historically unprecedented scientific attitude is what Nietzsche has in mind when he denigrates it as the most recent expression of the ascetic ideal. Many scientists whom we know Nietzsche read between the late 1860s and into the late 1870s make published claims that commit them, by Nietzsche's own definition, to being the newest followers of the ascetic ideal. Take Nietzsche's knowledge[47] of Herbert Spencer (Brobjer, 22), who is widely known for "enthusiastically embracing the possibility of simultaneously *eliminating judgment* and capturing, in one visage, the vivid image of a group" (D&G, 168). And take Nietzsche's knowledge of Carl Von Nageli (Brobjer, 22) who is widely known for his "schematic drawing" of bacteria which utilized photographs, depicting them as shorter and more "tufted" than other contemporaneous scientists' traditional [though less "accurate"] lithographic depictions (D&G, 165). And take Nietzsche's knowledge of Rudolf Virchow (Brobjer, 28), who was widely known to often express remorse at the frequent reemergence of his "subjectivity" into his research (D&G 189-90, 195).

Although we might have the intuition that science doesn't have much in common with the above-mentioned traits of the ascetic ideal, Nietzsche's claim at the end of GM III is that they actually *do*—contemporary scientists, on Nietzsche's view, embrace the ascetic values they ap-

[47] We have good reason to think Nietzsche had a robust knowledge of contemporaneous science. We know Nietzsche was sufficiently knowledgeable about the work of the following scientists: Georg Christoph Lichtenbert (Brobjer, 36); Ernst Mach (Brobjer, 43); Wilhelm Wundt (Brobjer, 28); Rudolf Virchow (Brobjer, 27-8) Emil Du Bois-Reymond (Brobjer, 41); and finally, Hermann von Helmholtz. (Brobjer, 28).

pear at first blush to depart from. Now that I have explicated Nietzsche's critique of science as ascetic, we are in a position to return to my reading of the Copernicus passages and see how the two square. Let us return to the Copernicus passage in GM III 25:

> Does anyone really think that the defeat of theological astronomy meant the defeat of that *ideal*? Has man perhaps become less in need of a transcendent solution to his "riddle of existence" now that this existence looks more *arbitrary*, more *loiterer-like*, more *dispensable* in the *visible* order of things? Hasn't precisely the self-belittlement of man, his *will* to self-belittlement been marching relentlessly forward since Copernicus? (GM III 25, italics mine)

The ideal of theological astronomy is the ideal characteristic of the West—ascetic self-denial. As technology progressed and religious influence waned on the Continent, a new God was born amongst the scientists, complete with an identical set of values that call for the ascetic values of self-denial.

Now we are in a position to understand Nietzsche's motivation in the Copernicus passages. I propose he is providing an argument to oppose the metaphysical claim discussed in chapter 2. There, I claimed that if incommensurability is true then the metaphysical claim that *there is a way the world is* is false. Recall in GM III 25 that Nietzsche likens scientists to the ball on Galileo's inclined plane. Nietzsche's point, as we saw, was a Kantian one: the principles of empirical knowledge come from subjects and not objects. Additionally, what we see depends on, as I put it, the internal relation that theoretical terms stand in to one another (which exist in incommensurable "paradigms" or "practical-theoretical structures"). If the semantic view is true, then incommensurability is true. If incommensurability is true then the claim that *there is a way the world is* would be false either because we wouldn't have any cognitive access to the world either because

the only meaningful way we can relate to it is by understanding it by what bottoms out in internally derived principles, or because the way the world is *isn't* independent from the way we can think about it. Therefore, the Copernicus passages should be read as a unified attempt to diminish the plausibility of a metaphysical dogmatism that was a vehicle for the new, more subtle expression of the ascetic ideal.

Thesis Conclusion

I have claimed that reading the Copernicus passages on the model of a description theory of reference about theoretical terms provides a unified account of their meaning. There are obvious objections that arise concerning this interpretation, which I have attempted to address. I have attempted to defend against these objections by showing that Clark's argument against incommensurability from what she calls "the equivalence principle" is not a good one because the principle is too broad. I argued that as a result of its broadness, the equivalence principle is incoherent. I provided what I took to be the strongest and most obvious response to my objection; however, I showed that this response is question begging and that we are left with a dichotomy: the equivalence principle is either supported by a question-begging argument or it is incoherent. Irrespective of which of these two options is the case, I claimed that Clark has failed to provide a standard in the equivalence principle to which she can appeal to in order to rule out implausible interpretations of Nietzsche. In chapter three, I attempted to show that the Copernicus passages *are* consistent with some of the broader themes of Nietzsche's thought in the textual context of the Copernicus passages—particularly, his opposition to ascetic ideals in GM III.

There have been two upshots to this essay. The first has been a novel, unified interpretation of passages that have received no scholarly attention to date. The figure of Copernicus, I have shown, has a special significance for Nietzsche that has been concealed until now. The second upshot is that we can understand Copernicus in light of the broader, more well-known themes of Nietzsche's published work: I have shown that Nietzsche's moral skepticism about the value of self-denial also motivates his opposition to the ascetic ideas as well as it does to the emerging metaphysical dogmas of scientists.

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