

Nietzsche's Ontic Structural Realism?

I. Introduction

There is always a danger in trying to situate a historical thinker within contemporary philosophical debates. The danger lies in distorting the thinker's views in showing that they answer to contemporary concerns. Nietzsche's thought seems to be particularly susceptible to such distortions. Over the past century, interpreters have made Nietzsche into everything from a proponent of National Socialism to a forerunner of Sartrean existentialism. In Anglo-American philosophy, interpretations have only proliferated. Whereas Alexander Nehamas (1985) presents an aestheticist Nietzsche whose project can be linked to the work of Richard Rorty, Brian Leiter (2002) has given us a naturalist Nietzsche whose philosophy sits comfortably in a movement spearheaded by the likes of Daniel Dennett.

Given the diversity of Nietzsche interpretations, one wonders if we are progressing toward a more accurate picture of Nietzsche's thought or simply creating a series of Nietzsches that change with philosophical fashion. My own view is that Leiter has done some of both. On the one hand, his naturalist reading has rightly brought Nietzsche's interest in the natural sciences—an aspect largely absent from Nehamas' reading—to the forefront of Anglo-American scholarship. On the other hand, Leiter consciously endeavors to present a Nietzsche that "*speaks to us*" (Leiter 2002: xiii). This not only means approaching Nietzsche with the tools and terminology offered by contemporary analytic philosophy, but also developing interpretive strategies that do "Nietzsche *the philosopher* a favor" by expunging from his corpus supposedly "crackpot" views that fail to meet the standards of contemporary philosophy (Leiter 2015: 260).

For this reason, it can be argued that Leiter is pursuing what is known in discussions about the history of philosophy as a “rational reconstruction” of Nietzsche’s thought, one that primarily seeks to maximize the “favorable evaluation” of a historical thinker’s ideas by contemporary philosophers with an eye to “useful application” (Garrett 2004: 62) rather than maximizing historical accuracy in their representation. Although rational reconstructions of Nietzsche can serve an important purpose, they may simply multiply the number of Nietzsches on offer, as a new Nietzsche is generated with each shift in contemporary philosophy. Even more concerning is that they may sacrifice what Daniel Garber calls a proper “historical understanding” for what we assume to be “philosophical truth” (Garber 2000: 17).

It is for these reasons that I developed in my recent book, *Reading Nietzsche through the Ancients*, a historical reconstruction of Nietzsche’s thought. That is, I try to interpret Nietzsche through the lens of Nietzsche’s historical context and endeavor to present a Nietzsche that Nietzsche himself would understand. In so doing, I attribute ontological and epistemological views to Nietzsche that might appear weak, silly, and even crackpot to *some* contemporary philosophers, even though I do not attribute any views to Nietzsche that I think are weak or silly when judged in their historical context.

My historical reconstruction of Nietzsche’s thought has, however, been criticized for precisely this reason. In a recent review, Jessica Berry and Jennifer Daigle have objected to my work for attributing a series of views to Nietzsche that they deem to be “nothing short of alarming.” Among the allegedly alarming claims are: (1) Nietzsche is committed to an ontology of dynamic relations that rejects commonsense objects as a falsification of this true reality; (2) Nietzsche believes that this relational ontology resists adequate linguistic and logical representation; (3)

Nietzsche rejects the view that *a priori* reasoning of the sort Parmenides employs can be used to unpack the structure of nature (Berry and Daigle 2015).

To respond to such criticism, I could recite and expand upon the textual evidence supporting my view and insist that a proper historical reconstruction will indeed force us to attribute views to Nietzsche that some may find alarming. It is, after all, Nietzsche! However, I suspect that whatever textual evidence I present to bolster my case will be blocked by those looking to do Nietzsche a favor with the kind of *ad hoc* interpretative strategies I identify and critique in my book so long as such views are deemed alarming (Meyer 2014: 15f.). So rather than insisting on the fidelity of my historical reconstruction to Nietzsche's texts, what I want to do here is show that my historical reconstruction can indeed speak the language of contemporary philosophy.

In what follows, I argue, first, that the relational ontology Berry and Daigle find so alarming is actually a proto-version of what is now known in the philosophy of science as ontic structural realism (OSR). As I explain below, OSR, broadly construed, rejects the existence of things-in-themselves and inflates the ontological significance of relations vis-à-vis their relata, and I think Nietzsche's relational ontology, one he inherits from the natural sciences of his day, does just this. Second, I argue that Nietzsche's other alarming claim that such an ontology resists adequate linguistic and logical representation actually forms the basis for an interesting response to the oft-leveled charge—one that Nietzsche traces back to Parmenides' objection to Heraclitus' philosophy—that the holism implicit in OSR is incoherent. It is interesting because Nietzsche actually agrees with the charge. However, he responds to the charge by claiming that *if* our best descriptions of empirical reality support an ontology that conflicts with *a priori* reasoning, then this is grounds to

reject *a priori* reasoning as a guide to understanding the world, not our best descriptions of empirical reality.

To make my case, I begin with a general introduction to OSR and how it emerged from its Kantian variant, epistemic structural realism (ESR). I then argue that Nietzsche endorses a relational ontology he originally finds in the work of Heraclitus and then justifies by appealing to the results of the natural sciences of his day. Because this scientifically justified, relational ontology rejects things-in-themselves and inflates the ontological significance of relations, I argue that Nietzsche can be understood as endorsing a proto-form of OSR. In the penultimate section, I unpack Nietzsche's response to what I call the Parmenidean challenge to OSR, and I conclude with some remarks both about why Nietzsche should be understood as a forerunner to OSR and about why a historical reconstruction of Nietzsche's thought might best serve both historical and philosophical truth.

II. Ontic Structural Realism: Some Basics

Ontic structural realism is a relatively new position in the philosophy of science, and it challenges some deeply held intuitions in contemporary metaphysics. Among the leading proponents of this view are James Ladyman and Don Ross, and their recent book, *Everything Must Go: Metaphysics Naturalized*, offers a powerful statement of the position. Ontic structural realism is a species of structural realism. Thought to be the most defensible form of scientific realism, structural realism is “the view that insofar as scientific theories offer approximately true descriptions of things in the world, they do not tell us about the underlying nature of reality—that is about the qualitative natures of things underlying observable phenomena. Rather, they tell us about the *structures* of things” (Chakravartty 2012: 188).

Structural realism, however, remains ambiguous about the status of the unobservable entities posited by a given theory, and this has given rise to two broad forms of structural realism, epistemic structural realism (ESR) and ontic structural realism (OSR). As a form of structural realism, ESR holds that science can give us knowledge of structures. However, it also holds that we must suspend judgment about the nature of the unobservable entities that generate such structures. There are different versions of ESR, but common to each is a commitment to the existence of unknowable objects and properties upon which structures supervene. Thus, a crude statement of ESR is “all we know is the structure of the relations between things and not the things themselves” (Ladyman 2014: Sec. 4).

John Worrall was the first to defend ESR (Worrall 1989). Worrall’s structuralism was motivated by a desire to deal with a challenge to realist understandings of science known as the pessimistic meta-induction—given the failures of past theories we ought to be skeptical about the epistemological success of contemporary theories—while at the same time avoiding the no-miracles argument—it would be a miracle if scientific theories were not tracking something real—that challenges anti-realist conceptions of science. On the one hand, ESR responds to the pessimistic meta-induction by noting that even though our understanding of the intrinsic nature of things has changed radically, there has nevertheless been continuity in our knowledge of structures through theory change. On the other hand, ESR meets the challenge of the no-miracles argument as a realist conception of science. Structures are real, and so science can be said to track truth.

In the scholarly literature, ESR is often associated with Kant’s philosophy. The reason for the association is both theoretical and historical. It is theoretical because ESR posits a distinction between a knowable realm of structures or relations

and an unknowable realm of unobservable entities or things-in-themselves. In other words, ESR endorses an appearance-reality distinction that parallels Kant's distinction between phenomenal and noumenal realms. The association is historical because Worrall claims to have identified the position in the work of Henri Poincaré, and Poincaré was, in turn, influenced by Kant (Worrall 1989: 102f.). As Bokulich and Bokulich (2011: xi) have noted, Poincaré's Kantianism is nicely expressed in the preface to his *Science and Hypothesis*: "The aim of science is not things themselves, as the dogmatists in their simplicity imagine, but the relations between things; outside of those relations there is no reality knowable" (Poincaré 1952: xxiv).

In contrast to ESR, OSR is often said to lack any historical precedent. Indeed, some see OSR as emerging from a subtle ambiguity in Worrall's paper. Although Worrall argues that structure is all we can know, as ESR claims, he remains ambiguous about the status of unknowable things-in-themselves. Do we know that there are things in themselves that we cannot know? Or should we be agnostic or even doubtful about the existence of unknowable things-in-themselves? OSR resolves the ambiguity by simply rejecting things-in-themselves.

In its initial formulation, OSR was presented as the view that "there are no 'things' and that structure is all there is" (Ladyman 2014: Sec. 4). Since then, two sub-species of OSR have emerged in the literature, eliminative and non-eliminative OSR. Whereas eliminative OSR, defended most prominently by Steven French (2014), rejects the existence of things or relata that stand in relations, non-eliminative OSR holds that there are relata that stand in relations but, as a form of OSR, nevertheless denies that these relata are things-in-themselves. On this view, relations and relata are ontologically equivalent (Esfeld and Lam 2010: 13). To encompass the different forms of OSR that have emerged, OSR can therefore be broadly defined as

“any form of structural realism based on an ontological or metaphysical thesis that inflates the ontological priority of structure and relations” (Ladyman 2014: Sec. 4).

Interestingly, recent work on Kant has also been used, first, to explain the argument for ESR and, second, to explain how both sub-species of OSR emerge as a response to ESR. According Michael Esfeld and Vincent Lam, the “master” argument for ESR’s insistence on the existence of unknowable things-in-themselves can be found in Rae Langton’s *Kantian Humility* (1998) (Esfeld and Lam 2010: 14). A modified version of the argument reads as follows:

(P1) There are relations.

(P2) Relations require relata, i.e., objects that stand in relations.

(P3) Objects that stand in relations must be something in themselves, endowed with some intrinsic properties over and above the relations they bear to one another.

(C) There must be things-in-themselves or objects endowed with some intrinsic properties over and above the relations they bear to one another.

OSR rejects the soundness of the argument by denying the truth of either the second or third premises (or both). Whereas eliminative OSR rejects the truth of the second premise by denying that relations require relata, non-eliminative OSR accepts the second premise but rejects the third, thereby allowing for relata that are nevertheless not things-in-themselves. In rejecting the soundness of the master argument for ESR, proponents of OSR are therefore free to reject the unknowable things-in-themselves that ESR presupposes.

According to Esfeld and Lam, there are three reasons proponents of OSR have for rejecting things-in-themselves and so ESR. First, ESR creates a gap between what we can know (epistemology) and what there is (ontology); OSR’s rejection of things-

in-themselves heals the divide that ESR creates. Second, proponents of OSR claim that things-in-themselves should be rejected for reasons of parsimony. Because relations cannot be reduced to intrinsic properties, they are necessary features of any theory. In contrast, unknowable things-in-themselves do not play a necessary role in our theories. Thus, Occam's razor encourages us to look for ways to eliminate unknowable things-in-themselves from our theories in a way that we cannot with relations. Finally, philosophers of science have appealed to the results of contemporary quantum theory—in particular, quantum entanglement—to attack the idea that relations must supervene on the intrinsic natures of independently existing things (Esfeld and Lam 2010: 19).

The appeal to quantum entanglement to support OSR is of particular importance here because I argue that Nietzsche's relational ontology is based on his claim that the fundamental stuffs of the ontology he inherits from the natural sciences of his day, namely, forces, are necessarily entangled, and the entanglement of forces forms the basis for his commitment to a proto-version of OSR. As Lam and Esfeld have argued, quantum entanglement undermines the principle of separability essential to classical physics in particular and atomism more generally (Lam and Esfeld 2012: 244). Atomism, as the contrary of holism, is the view that the world consists of independently existing objects with some intrinsic properties, and quantum entanglement denies that well-defined states supervene on the intrinsic properties of each quantum object taken individually. Instead, a well-defined state occurs only in those cases in which two or more quantum objects stand in relation to each other, and so quantum entanglement licenses a form of structuralism or holism which denies that the relations constituting the whole supervene on independently existing parts.

A number of philosophers such as Esfeld (2004) and Maudlin (2007) have also appealed to quantum entanglement to challenge a tradition of atomism that dates back at least to Aristotle and finds its most prominent contemporary expression in David Lewis' Humean supervenience. Humean supervenience is the view that "all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another" (Lewis 1986: ix). Central to the position is the idea that these local matters of fact are constituted by "perfectly natural intrinsic properties which need nothing bigger than a point at which to be instantiated" (Lewis 1986: x). According to Lewis, everything else supervenes on these intrinsic properties. The problem with Lewis' position is that it is inspired by a mix of *a priori* intuitions and classical physics (Lewis 1994: 474), and both of these have since been challenged by the results of quantum mechanics.

Ladyman and Ross, however, argue that the intuitions Lewis employs are not unique to his philosophical project. Instead, they inform much of contemporary philosophy, and the reliance on such intuitions has created a system of shared presuppositions that, in turn, "has been transformed into a foundational metaphysics of individuals, and a combinatorial and compositional conception of reality" (Ladyman and Ross 2007: 11). The OSR that Ladyman and Ross defend challenges these presuppositions, and they present much of contemporary metaphysics as a neo-scholasticism that fails to take the methods and results of the natural sciences seriously. Even though many contemporary philosophers declare allegiance to some nebulous form of naturalism (Ladyman and Ross 2007: 7), Ladyman and Ross claim that they often fail to understand the way in which the "unnatural nature of science" (Wolpert: 1992) cuts against the aforementioned intuitions and commonsense more generally (Ladyman and Ross 2007: 12). According to Ladyman and Ross, science

gives us reason to reject this commonsense picture of the world and instead support an OSR that forces us to revise radically the way we think about reality and even the way we do philosophy.

The widespread employment of commonsense intuitions that Ladyman and Ross identify also runs throughout recent Anglo-American Nietzsche scholarship. Even though much has been made of Nietzsche's naturalism, I argued in *Reading Nietzsche through the Ancients* that Maudemarie Clark (1990), one of the key interpreters enlisted in reading Nietzsche as a naturalist (Leiter 2013: 576), significantly underestimates the way in which Nietzsche appeals to the natural sciences to claim that most of our metaphysical *and* commonsense beliefs are not adequate to reality. Similarly, Berry and Daigle have appealed to commonsense intuitions and shared assumptions to reject the alternative reading of Nietzsche I propose in the book. Although those wedded to commonsense beliefs and neo-scholastic philosophy may find proclamations to the effect that "everything must go" alarming, proponents of naturalism who are comfortable with the lessons of modern science should find themselves at least willing to consider such views and, in turn, be open to understanding Nietzsche as a forerunner to OSR.

III. Nietzsche's Ontic Structural Realism?

Given the range of Nietzsche interpretations on offer, it may be surprising that Nietzsche could be cast as an ontic structural realist. Indeed, my efforts here may have me accused of just creating another fashionable Nietzsche. However, such a reading begins to make sense once one sees the way in which the interpretation I offer in *Reading Nietzsche through the Ancients* moves between the truth-relativist reading of Nietzsche presented by the likes of Nehamas and the naturalist reading that Leiter has defended (also see Meyer: 2015). In the *spirit* of Nehamas, I argue that Nietzsche

endorses a form of relativism. Against Nehamas, however, I argue that Nietzsche endorses an ontological relativism or relationalism that Nietzsche nevertheless takes to be objectively true. In the *spirit* of Leiter, I argue that this relational ontology follows from Nietzsche's naturalism in at least two respects. First, Nietzsche's relational ontology eliminates transcendent or metaphysical entities in the form of things-in-themselves. Second, Nietzsche appeals to the results of the natural sciences to justify his commitment to this ontology.

Admittedly, my own emphasis on Nietzsche's relational ontology emerged largely through a careful study of the first third of Plato's *Theaetetus*. I turned to the *Theaetetus* not so much because Nietzsche was directly influenced by the text—although we do know that he was familiar with all the Platonic dialogues—but because I found Nietzsche endorsing both a notion of Heraclitean becoming in his later works and a perspectivism that could be traced back to Protagoras' *homo mensura* doctrine. The question I faced was whether and in what way these two views are compatible, and so I turned to the Heraclitean-Protagorean position that Plato critically analyzes in the *Theaetetus* with this question in mind. The conclusion I reached was that these two doctrines are not only compatible but even bound together by a single teaching, namely, a relativity principle which states that nothing exists in and for itself but everything exists and is what it is only in relation to something else.

Because I wanted to stress the Heraclitean ontology I took to be central to Nietzsche's project but receives little or no explicit discussion in the work of Nehamas, Clark, and Leiter, I presented my approach to Nietzsche as a continuation of the interpretations of John Richardson (1995) and Christoph Cox (1999), both of whom make Heraclitean becoming a centerpiece of their readings. However, my eventual emphasis on Heraclitus' relational ontology, rather than Heraclitean

becoming, places my reading just as much in contact with the interpretation Peter Poellner (1995) offers in *Nietzsche and Metaphysics*. Even though he lacks any explicit discussion of Nietzsche's relationship to Heraclitus, he has, through a reading of Nietzsche's late *Nachlass* or unpublished notebooks, placed a relational ontology at the center of Nietzsche's project.

As Poellner's work makes clear, the *Nachlass* provides plenty of evidence that attests to Nietzsche's commitment to a relational ontology. In an oft-cited fragment, Nietzsche claims that a thing is "the sum of its effects, united by a concept, an image" (WP 551; KSA 13, 14[98]). In another fragment, Nietzsche claims that the properties of a thing are its effects on other things, and so if one removes other "things," then a thing has no properties. Therefore, "there is no thing without other things," and so, there are no things-in-themselves (WP 557; KSA 12, 2[85]). Because independently existing things are inventions "owing to the requirements of logic" (WP 558; KSA 12, 10[202]), if everything we project onto reality to make it intelligible were eliminated, "no things remain but only dynamic quanta, in a relation of tension to all other dynamic quanta: their essence lies in their relation to all other quanta, in their 'effect' upon the same" (WP 635; KSA 13, 14[93]). Thus, for Nietzsche, the world is "essentially a world of relationships" (WP 568; KSA 13, 14[79]).

As I see it, these remarks provide substantive, if not sufficient, evidence to attribute to Nietzsche a holism that forms the basis for OSR, even though he seems to vacillate between the eliminative and non-eliminative strands. However, such a reading suffers from three potential shortcomings. First, the view has to be pieced together from Nietzsche's unpublished notes, and readers such as Clark, Leiter, and Berry have been eager to discount the use of the *Nachlass*. Second, the relational ontology Nietzsche articulates in the *Nachlass* is bound up with the view that Leiter

hopes interpreters can expunge from Nietzsche's corpus, namely, the cosmological formulation of the will to power. Finally, the late *Nachlass* does not give us a good sense of the reasons Nietzsche has for endorsing a relational ontology. Instead, it seems that Nietzsche himself is engaged in *a priori* speculation about fundamental reality.

It is here, however, that the connection between the relational ontology found in the late *Nachlass* and the understanding of Heraclitus Nietzsche first articulates in his 1873 unpublished work, *Philosophy in the Tragic Age of the Greeks*, can help address these concerns. First, the relational ontology Nietzsche attributes to Heraclitus is divorced from any notion of the will to power. Second, Nietzsche eventually turns to the natural sciences of his day to justify what comes to be his own commitment to a Heraclitean ontology and to re-articulate this ontology in the scientific language of force. Finally, Nietzsche's early interest in Heraclitus' relational ontology reveals the way in which it informs many of the claims Nietzsche puts forth in subsequent published works.

In *Philosophy in the Tragic of the Greeks*, Nietzsche credits Heraclitus with repudiating both the appearance-reality distinction that emerged in the thought of Anaximander and the concept of being more generally. Becoming is what Nietzsche's Heraclitus sees, and becoming entails the rejection of both metaphysical things-in-themselves and commonsense things (PTAG 5). Although it is initially difficult to understand why becoming, a thesis about change, should entail the rejection of things, some clarity begins to emerge once we see that Nietzsche grounds Heraclitean becoming in an even more fundamental principle, namely, the unity of opposites. For Nietzsche, Heraclitus' doctrine of the unity of opposites states that reality, at the fundamental level, is composed of opposites that exist only insofar as they stand in

relation to each other. In other words, Nietzsche's Heraclitus thinks that reality, at its fundamental level, is entangled, and this entanglement explains why change is a necessary feature of nature.

To develop these points, Nietzsche follows Schopenhauer in arguing that everything in space and time (as well as space and time themselves) has only relative existence. From this, Nietzsche argues that we can move on to the Heraclitean conclusion that the nature of reality [*Wirklichkeit*] is nothing other than its manifestations or effects [*Wirken*] (PTAG 5). Because the "being" of the material world lies in its *activity*, it is necessary for these "beings" continually to affect or be affected by each other. Change or becoming is therefore an essential feature of reality because the fundamental constituents of reality must be manifesting themselves at all times, and they can only manifest themselves in relation to other entities. In other words, Heraclitean becoming is really a form of actualism, and this actualism goes hand in hand with his relational ontology.

Although *Philosophy in the Tragic Age of the Greeks* provides substantive reasons for linking the relational ontology found in Nietzsche's later *Nachlass* to his earlier interpretation of Heraclitus, the work itself provides only indirect evidence that Nietzsche endorses the views he attributes to Heraclitus. However, we know from other texts from this time that Nietzsche turns to the results of the natural sciences to justify a commitment to a Heraclitean ontology. Most notably, in his unpublished lectures from the early 1870s printed in *Pre-Platonic Philosophers*, Nietzsche appeals to the work of Hermann von Helmholtz and Karl Ernst von Bär to argue that the natural sciences of his day prove the Heraclitean view that "all things flow (*panta rhei*).” As Nietzsche explains, "nowhere does an absolute persistence exist, because we always come in the final analysis to forces" (PPP, p. 60).

In *Reading Nietzsche through the Ancients*, I argued that Nietzsche's early reflections on pre-Socratic philosophy are significant because they provide a bridge to understanding his reflections on "first and last things" in the first book of his 1878 published work, *Human, All Too Human*. There, Nietzsche embraces, more so than in any other work, the ethos and the results of scientific investigation to reject both metaphysical and commonsense descriptions of reality. He begins by referring to the "problem of opposites" that animated philosophy some two thousand years ago, and he then identifies two types of philosophy that emerge depending on how one answers this problem. Whereas *metaphysical philosophy* strictly divides opposites—thereby demanding separability—and claims that phenomena emerge from the realm of things-in-themselves, *historical philosophy*, which Nietzsche claims cannot be separated from the natural sciences, denies that opposites can be strictly separated—thereby endorsing entanglement—and so rejects the existence of things-in-themselves. Having made such a distinction, Nietzsche then endorses historical philosophy and promises to offer in the subsequent chapters of the work what he calls a "chemistry" of "moral, religious, and aesthetics conceptions and sensations" (HH 1).

Although not explicit, there are four reasons why Nietzsche's historical philosophy can be understood as an endorsement of Heraclitean ontology and so an attempt to show how the natural sciences support such a view. First, the historical philosopher's denial of absolute opposites resembles Nietzsche's understanding of Heraclitus' unity of opposites doctrine from *Philosophy in the Tragic Age of the Greeks*. Second, Schopenhauer also refers to a historical philosophy that he contrasts with metaphysical speculation and associates with "a doctrine of constant becoming" (WWR I 53). Third, we know that in Nietzsche's 1888 reworking of the first

aphorism of *Human, All Too Human*, he explicitly associates historical philosophy with a radical conception of (Heraclitean) becoming that does away with any concept of being (KSA 14, p. 119). Finally, in the second aphorism of *Human, All Too Human*, Nietzsche stakes out the Heraclitean position that “everything has become,” and he then uses this point to claim that there are neither “*eternal facts*” nor “absolute truths” (HH 2).

Whereas the opening aphorisms of *Human, All Too Human* make it clear that Nietzsche wants to reject any sort of transcendent entities, further aphorisms in the opening chapter suggest an even more radical denial of any countable “things” or objects whatsoever. Intimations of this position can be found in Nietzsche’s claim that nothing in reality corresponds to the logical notion of identity, even though Nietzsche seems to be speaking of two qualitatively identical things (sameness of properties) and diachronic self-identity (numerical sameness over time) (HH 11). In an aphorism entitled “appearance and thing in itself,” Nietzsche further claims that science may gradually enable us to realize that the thing-in-itself is empty of significance and so “worthy of Homeric laughter” (HH 16).

Nietzsche completes the attack on the existence of things in a section called “number” (HH 19). There, he tells us that the laws of numbers are “erroneous,” i.e., they do not correspond to anything in reality. They do not correspond to reality because numbers presuppose the existence of identical things. The problem, however, is that there are no identical things. This is because “there is no ‘thing’.” According to Nietzsche, things are fabricated beings, “unities which do not exist.” Nietzsche then justifies this claim by appealing to the results of the natural sciences. Just as it is wrong to believe that there are commonsense things, it is wrong to believe in the “theory of atoms.” Although we feel compelled “to assume the existence of a ‘thing’

or material ‘substratum’ which is moved,” the “whole procedure of science has pursued the task of resolving everything thing-like (material) in motions” (HH 19).

Nietzsche is appealing here to science to reject the things that populate both the commonsense and scientific pictures of the world. Although by no means clear, Nietzsche’s reference to the developments of the natural sciences in this aphorism seems to have F. A. Lange’s *History of Materialism* in mind. Nietzsche’s engagement with this text is complex (Meyer 2014: 124ff.), but we can reasonably turn to the story Lange tells about the developments of the natural sciences in the chapter, “Force and Matter,” from the 1873 edition to help elucidate Nietzsche’s remarks in *Human, All Too Human*. There, Lange explains how modern materialism, which he casts as a revival of Democritean atomism (Lange 1950, Vol. II: 351), has slowly resolved matter into force ever since Newton introduced force into the mechanistic picture. In Lange’s own words, “the progress of the sciences has led us more and more to put force in the place of matter, and that the increasing exactness of research more and more resolves matter into force” (Lange 1950, Vol. II: 379).

From Nietzsche’s perspective, the developments of modern science that Lange describes can be understood as the Greek enlightenment in reverse. Whereas early modern science left behind Aristotle for Democritus, modern science is now progressing from a Democritean worldview of matter in motion to a Heraclitean worldview of just motion or force. Interestingly, Lange resists the conclusion that reality is one of interrelated forces only. Instead, he insists, first, that just as properties belong to substances and predicates belong to subjects, our mind requires us to think of force in relation to matter. Second, he claims that we can nevertheless only know forces through their effects and so their relations to other things; matter, in contrast, remains completely unknown (Lange 1950, Vol. II: 389). Thus, the neo-Kantian

Lange endorses a proto-version of ESR: “with the advance of science we become ever more certain in our knowledge of the *relations* of things, and ever more uncertain as to the subject of these relations” (Lange 1950, Vol. II, 382).

In contrast to Lange, Nietzsche responds to this proto-version of ESR by jettisoning the unknown subject of these relations, namely, matter, the final remnant of being in the scientific picture. In so doing, he endorses a relational ontology of force that I think is a proto-version of OSR. Nietzsche does this by appealing to the authority of the Jesuit mathematician and physicist, Roger Boscovich, one of the figures Lange mentions in his chapter on matter and force in the 1873 edition of his work and who Nietzsche discovered via Gustav Fechner as early as 1873 (Gori 2013: 71). In an 1882 letter to his friend, Heinrich Köselitz, Nietzsche writes:

If anything has been well refuted, it is the prejudice of “matter”; and indeed not by an idealist but by a mathematician—by Boscovich. He and Copernicus are the two greatest opponents of appearances to the eye. Since him, there is no longer any matter—except as a popular simplification. He has thought the atomistic theory through to its end. Gravity is most certainly not a “property of matter,” simply because there is no matter. Gravity is, just like *vis inertiae*, certainly an appearance of force (simply because there is nothing else other than force!). (KSB 6, 213; my translation)

Although the view Nietzsche attributes to Boscovich is probably closer to the view of matter later espoused by Michael Faraday than by Boscovich himself (Faraday XXX), the letter is significant for at least two reasons. First, Nietzsche explicitly associates Boscovich with Copernicus. This suggests that Nietzsche’s opposition to appearances to the eye is not an opposition to empirical evidence as such. Instead, he is claiming that Boscovich follows a Copernican tradition of appealing to refined scientific observation to reject untutored observations and commonsense beliefs. Second, even

though Nietzsche appeals to Boscovich to reject matter, he nevertheless remains a realist about force. Indeed, Nietzsche claims that there is nothing other than force!

The letter is also significant because the dual reference to Boscovich and Copernicus directly parallels Nietzsche's remarks about Boscovich in *Beyond Good and Evil*. In the twelfth aphorism, Nietzsche again refers to both Boscovich and Copernicus' opposition to "visual evidence," and he appeals to Boscovich's work to argue that, "materialistic atomism...is one of the best refuted theories there are." According to Nietzsche, Boscovich has shown us that "nothing stands fast," and so we must abandon our "belief in 'substance,' in 'matter,' in the earth residuum and particle atom." Having rejected atomism in the physical realm, Nietzsche then goes on to critique the "atomistic need" in the psychic realm by rejecting what he calls "soul atomism" (BGE 12). Thus, Nietzsche appeals to Boscovich to reject atomism in all its forms, and just as he suggests replacing an atomist conception of the soul with a structuralist one, i.e., a "social structure of the drives and affects," his rejection of atomism in the physical realm implies a commitment to the structuralist ontology he originally attributes to Heraclitus.

Although the relationality of force is only implicit in Nietzsche's appeal to Boscovich's rejection of atomism, we can gather further evidence for such an understanding of force by both turning to Nietzsche's sources and by considering its relationship to the will to power. On the one hand, Mattia Riccardi has traced Nietzsche's understanding of force back to Kant's definition of force as *respectus* or relation and through the work of Afrikan Spir and Otto Caspari to argue that forces are necessarily relational and so not substance-like or things-in-themselves (Riccardi 2009: 195). On the other hand, we know that Nietzsche designs the cosmological formulation of the will to power to complete "the victorious concept of 'force'" in the

physics of his day by ascribing an inner quality or will to it (WP 619; KSA 11, 36[31]). Since Poellner (1995) and Riccardi (2009: Sect. VII.4) have both argued that the doctrine of the will to power is itself a relational ontology, one in which there are only dynamic quanta whose “essence lies in their relation to all other quanta” (WP 635; KSA 13, 14[79]), the forces that forces the basis for the doctrine of the will to power must also be relational.

Because the attempt to “complete” the concept of force that Nietzsche inherits from the natural sciences with the will to power complicates my argument, I want to conclude this section by stating why I understand Nietzsche to be defending a proto-form of OSR and by explaining why the introduction of the will to power does not threaten my claim. To begin, Nietzsche is *realist* because he believes in a mind-independent world best characterized in terms of relational forces. Second, he is a *scientific realist* because he thinks the entities science describes, namely, forces, are real. Third, he offers a proto-form of *structural realism* because he thinks that these forces are relational, and he thus believes that science does not tell us about the “underlying nature of reality” or “the qualitative nature of things underlying observable phenomena” (Chakravartty 2012: 188). Finally, he is an *ontic structural realist* because the relational ontology of force he endorses is “based on an ontological or metaphysical thesis that inflates the ontological priority of structure and relations.”

Indeed, it seems that Nietzsche feels the need to complete the concept of force, which Schopenhauer repeatedly calls an occult quality, with the will to power precisely because he thinks the natural sciences fail to tell us about the qualitative nature of things underlying observable phenomena, and this failure creates an explanatory gap that must be filled if Nietzsche is to complete what Schopenhauer

calls “naturalism proper” or a “system of pure physics” (WWR II 17). In this way, Nietzsche seems to both endorse a proto-form of OSR and nevertheless agree with the criticism that structuralism undermines the explanatory power of science (Ladyman 2014: Sec. 5). Rather than abandoning OSR for this reason, however, Nietzsche sees it as grounds for going beyond what the natural sciences describe by self-consciously using introspection to interpret forces as wills-to-power. In so doing, he will have an explanatory principle that allows him to explain otherwise unfamiliar phenomena in terms of something absolutely familiar. Nevertheless, because such an interpretation of reality both preserves and depends upon the relational ontology science describes and so avoids a return to Kantian things-in-themselves, Nietzsche’s claim that the world is will to power and nothing besides (WP 1067; KSA XXX) does not threaten his status as a forerunner to OSR.

IV. The Parmenidean Challenge to OSR and Nietzsche’s Response

As a minority view in the philosophy of science, OSR is not without its critics. Indeed, criticism of OSR not only occurs in contemporary debates in the philosophy of science, but also in Nietzsche scholarship. In this section, I discuss what I will provocatively call the Parmenidean challenge or charge that OSR is incoherent. This claim is provocative in two senses. First, it depends on Nietzsche’s reading of the relationship between Heraclitus and Parmenides in which Heraclitus is presented as a founding father of a holism that supports OSR and Parmenides is presented as rejecting holism on the *a priori* grounds of incoherence. Second, I contend that criticisms of OSR in the philosophy of science and Nietzsche’s relational ontology in recent scholarship can be understood as variants of Parmenides’ challenge.

As noted above, OSR now comes in two versions, eliminative and non-eliminative. In various articles, Anjan Chakravartty has leveled the charge of

incoherency against both by defending the truth of premises (P2) and (P3) in the aforementioned Kantian argument for things-in-themselves. According to Chakravartty, eliminative OSR is false because it violates (P2) the claim that relations require *relata*. For Chakravartty, it just seems obvious that “one cannot intelligibly subscribe to the *reality* of relations unless one is also committed to the fact that *some things* are related” (Chakravartty 1998: 399).

Chakravartty’s case against non-eliminative OSR is more complex, but also rests on the charge of incoherency. In defending (P3), he argues that it is impossible “to liberate objects from their intrinsic properties” (Chakravartty 2012: 197). This is because an object without intrinsic properties must be wholly constituted by extrinsic properties. However, an extrinsic property is “one that is possessed by an object in virtue of its relation” to other things. Thus, an object constituted exclusively by extrinsic properties makes no sense of what *it* is that stands in relation to other things, and so if we provide an analysis of the object in terms of its extrinsic properties alone, we face circularity or regress (Chakravartty 2012: 201). Chakravartty therefore holds that we must either accept intrinsic properties and so reject OSR or pursue the eliminativist strand of OSR. Since he also rejects eliminative OSR, we can surmise that Chakravartty thinks we should abandon OSR altogether.

Interestingly, a similar objection can also be found in the secondary literature on Nietzsche. Having demonstrated Nietzsche’s commitment to a relational ontology in *Nietzsche and Metaphysics*, Poellner proceeds to criticize the view for reasons strikingly similar to Chakravartty’s. Specifically, Poellner has been said to argue that Nietzsche’s “relational metaphysics collapses into incoherence due to its dismissal of ... intrinsic properties” (Doyle 2009: 171). According to Tsarina Doyle’s analysis of the argument, Poellner is committed to two theses: (1) relational properties cannot be

intrinsic properties; (2) relational properties must be grounded in something intrinsic (Doyle 2009: 171). Because Nietzsche claims that all properties are relational and relational properties cannot be intrinsic, Nietzsche's relational ontology falls into incoherence because it violates the claim that relational properties must be grounded in something intrinsic.

Doyle has appealed to the work of George Molnar to try to escape the incoherency charge by challenging Poellner's first claim. Specifically, she argues that, for Nietzsche, quanta of force have intrinsic properties, insofar as they exist and are what they are independently of their manifestations, that are nevertheless relational, insofar as they necessarily manifest themselves in relation to something other than themselves (Doyle 2009: 186). However, such a reading seems to transform Nietzsche's wills-to-power into substance like entities that can, as pure potentialities, exist independently of their relations to other entities. For this and other reasons, I think Nietzsche offers a different response.

To begin to see why, it is important to note that Nietzsche actually agrees with Poellner that a relational ontology that rejects the existence of things endowed with intrinsic properties is conceptually incoherent. This is evidenced by the fact that, in his initial articulation of the position, Nietzsche not only acknowledges that Heraclitus' unity of opposites doctrine violates Aristotle's version of the principle of non-contradiction (PTAG 5), he also interprets Parmenides as rejecting Heraclitus' relational ontology precisely because it is incoherent (PTAG 10). Nevertheless, Nietzsche defends Heraclitus against the attacks of Parmenides and Aristotle. However, he does not do so by arguing that Heraclitus' view are in fact coherent. Instead, Nietzsche simply challenges a suppressed assumption that underlies the charge of incoherency.

This underlying assumption is what I will call, in the spirit of Nietzsche's critique, Parmenides' prejudice, and we can identify this assumption by looking at how Parmenides both rejects Heraclitus' philosophy and generates his own understanding of reality. On the one hand, Nietzsche's Parmenides employs the logical principle of non-contradiction to reject the holism that Heraclitus derives from careful observation of the sensible world. On the other hand, Nietzsche's Parmenides appeals to the logical principle of identity to develop an atomistic conception of being that is completely divorced from the relational properties the senses reveal. In both instances, Parmenides' prejudice is that he assumes that the world necessarily conforms to the way we think, and so he assumes that we can employ *a priori* analysis both to make claims about the nature of the world and to place restrictions on what we can endorse in our empirical theories. Thus, if there is a conflict between empirical observation and *a priori* analysis, Nietzsche's Parmenides thinks the former should be sacrificed to the latter. In contrast, Nietzsche simply argues that if our best description of empirical reality conflicts with *a priori* analysis, we should simply reject the assumption that there is a neat conformity between our thinking and the world.

Although Nietzsche's defense of Heraclitus will certainly alarm some, I think we can ease such concerns by briefly looking at Tim Maudlin's response to Einstein's objections to quantum entanglement. Specifically, Maudlin explains how Einstein resisted the idea of quantum entanglement because non-separability threatened the intelligibility of the world. As Einstein writes to Born, if we do not assume "the independence of the existence (the 'being-thus') of objects which are far apart from one another in space—which stems in the first place from everyday thinking—physical thinking in the familiar sense would not be possible" (Maudlin 2007: 54). As

Maudlin rightly notes, Einstein is effectively placing an *a priori* demand on what a physical theory must endorse—in this case separability—in order for it to be comprehensible, and so Einstein is trying to infer an ontology (the structure of the world) from the demands of epistemology (the structure of our minds) (Maudlin 2007: 63-64).

Maudlin offers two responses to what I think is Einstein's version of the Parmenidean challenge. First, Maudlin claims that because quantum theory has both abolished separability and developed as a rigorously tested theory, it seems possible to adjust our concepts—in the way that Doyle tries to do for Nietzsche—so as to avoid the charge that quantum entanglement is unintelligible. At the same time, Maudlin challenges, in Nietzschean fashion, the very idea that our conceptual frameworks can be used as a guide to developing a proper ontology. Because science provides us with reasons for believing that “extravagant accounts of what exists might be correct,” we should begin to think of our systems of representation not as guides to ontology but rather “as *impediments* to understanding the world” (Maudlin 2007: 79). In particular, Maudlin points to Aristotle's mistaken belief in the *Categories* that there is a “parallelism between grammar and ontology” such that we can read off the structure of the world from the structure of language. In contrast, Maudlin follows Russell in claiming that, “we commonly interpret features of a representation as features of the thing represented, thereby illegitimately projecting the structure of our language onto the world” (Maudlin 2007: 79). As I see it, Nietzsche couldn't agree more.

Indeed, Nietzsche simply extends Maudlin's critique of our tendency to project, illegitimately, the structures of language onto reality to our tendency to project, illegitimately, the basic rules of logic onto reality, and so Nietzsche moves

from the claim that the structures of language and logical thinking make it difficult to understand reality to the claim that the structures of language and logic make it impossible to understand reality with perfect adequacy. Similar to Chakravartty and Poellner, Nietzsche believes that *a priori* thinking forces us to posit the existence of things-in-themselves or the little “it” of the logicians (BGE 17) even though we never encounter things-in-themselves in sensible reality. In contrast, Nietzsche simply rejects the idea that the empirical world *must* conform to our intellects and so rejects the idea that there must be things-in-themselves. To assume that there is an isomorphism between thinking and being or what the scholastics would call an *adequatio intellectus ad rem* is to fall prey to the all-too-human tendency to anthropomorphize the world and to assume uncritically that we are *designed* to know the world and the world is *designed* to be known by us.

Of course, even proponents of OSR might find such a response rather discomfiting. Whereas OSR seeks to eliminate a kind of skepticism caused by ESR’s gap between epistemology and ontology, the holism of OSR that Nietzsche endorses now seems to produce an alternative form of skepticism due to a discord between ontology and epistemology. In response, it should be noted that the post-Kantian choice Nietzsche identifies is not between skepticism and knowledge of thing-in-themselves. Instead, it is between two versions of skepticism, and Nietzsche chooses the skepticism generated by a relational ontology because it eliminates a transcendent realm of unknowable things-in-themselves that Kant and Schopenhauer use to ground an ethical program that Nietzsche wants to destroy. So if eliminating the metaphysical world comes at the price of having to endorse a form of skepticism, then Nietzsche is willing to pay the price. Whether this is a price that contemporary defenders of OSR will also be willing or even forced to pay is, however, certainly an open question.

V. Concluding Remarks

On one level, the purpose of this paper has been to place Nietzsche in conversation with contemporary debates surrounding OSR. I not only tried to make a case for understanding Nietzsche and Nietzsche's Heraclitus as offering a proto-version of OSR, I also argued that Nietzsche offers contemporary defenders of OSR a potential response to what I have called the Parmenidean charge of incoherency. Regardless of what one thinks about the legitimacy of Nietzsche's response, there is sufficient textual evidence to think that Nietzsche appeals to the natural sciences to justify his commitment to a relational ontology that does away with things-in-themselves. If this is right, then just as Kant can be understood as offering a proto-version of ESR, Nietzsche can be understood as defending a proto-version of OSR.

On another level, this paper is about defending my historical reconstruction of Nietzsche against objections that such a relational ontology is "nothing short of alarming." By highlighting the fact that a version of such an ontology is currently being defended in the philosophy of science, readers should be less alarmed at the attribution of such views to Nietzsche. Indeed, if OSR continues to gain traction in the philosophical community—and I suspect it will—then my historical reconstruction of Nietzsche may very well meet the rational reconstructionist's demand that a good interpretation receive "favorable evaluation" by contemporary philosophers and even have "useful application."

On a final level, my argument here issues a challenge to those who think it is good interpretive practice to try to expunge views from Nietzsche's corpus that are deemed weak, silly, or crackpot. What may be alarming to one group of philosophers may be the basis for an entirely new way of thinking for another generation of philosophers, and so in trying to do Nietzsche a philosophical favor by denying his

commitment to ostensibly alarming views, we may be doing him a great disservice. For if the ontology I attribute to Nietzsche is a proto-form of OSR, what Berry and Daigle have effectively argued is that OSR is so alarming that, as a matter of charity, a defender of OSR should not be interpreted as a defender of OSR. My guess is that if such an interpretive principle were applied to the work of contemporary defenders of OSR, they would kindly return the favor, and if Nietzsche were alive today, my guess is he would do the same. So the best way to do Nietzsche a favor might be to let Nietzsche be Nietzsche, and if it turns out that Nietzsche himself speaks to contemporary concerns, we should be eager to point that out. If, however, he does not, then so be it. His philosophical project is valuable in its own right.

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