

Toward an ecospheric rhetoric: Cleaning up “Trash Isles”

by

Jacob A. Miller

B.A., Bethel College, 2017

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF ARTS

Department of Communication Studies
College of Arts and Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2019

Approved by:

Major Professor
Colene J. Lind, Ph.D.

Copyright

© Jacob A. Miller 2019.

Abstract

To better attune rhetoric to the multiple cascading ecological crises, the recent ecological turn in rhetorical theory has sought to expand the rhetorical situation beyond the human subject, get down and dirty with matter itself, and honor its agential properties. While necessary for pushing the boundaries of rhetorical theory, these various approaches do not adequately express what they mean by the material. “Matter,” “material,” and “object” conceptualizations risk becoming as detached, limitless, and adrift as signifiers of the poststructuralist past, a past new materialists wish to shake. Therefore, an alternative object ontological framework is proposed, called “ecospheric rhetoric.” With this framework, common rhetorical components are re-theorized, such as the parameters of rhetorical situations and the signification process. Ultimately, the purpose of this thesis is to unite ecosphere and rhetoric in a way that makes both sustainable in the long term. This theory serves as the basis for an analysis of the Great Pacific Garbage Patch (GPGP), popularly known as “Trash Isles.” The GPGP is a nearly one million square mile floating patch of trash in the Pacific that contains 79,000 tons of plastic. I argue GPGP represents the material accumulation of the effects of the spatiotemporal rift between the ecosphere as totalizing hyperobject and how it presents itself to us in local manifestations, which calls us to reconceptualize the signification process. The material effects of our discourses are substantially greater than the material effects of the ecosphere relative to the same time frame. Thus, within an ecospheric rhetorical framework the signification process should be reconsidered using a heuristic I coin as “signification weights.” Finally, I discuss implications, limitations, and future research.

Keywords: Ecospheric rhetoric, object-oriented ontology, ambient rhetoric, assemblages, hyperobjects, ecology, signification, materialism, Trash Isles, Great Pacific Garbage Patch.

Table of Contents

| | |
|---|-----|
| List of Figures | vi |
| Acknowledgements | vii |
| Dedication | ix |
| Epigraphs | x |
| Preface..... | xi |
| Chapter 1 - Introduction..... | 1 |
| Chapter 2 - Literature Review..... | 10 |
| New Materialism..... | 11 |
| Insufficiency of solely using a new materialist ontology | 12 |
| Object-Oriented Ontology | 16 |
| Lacanian Register Ontical Cartography..... | 19 |
| Ambient Rhetoric..... | 23 |
| Assemblages | 26 |
| Time | 29 |
| Hyperobjects | 32 |
| Chapter 3 - Ecospheric Rhetoric | 38 |
| Rhetoric attuned to ecology | 38 |
| Rhetoric and ecology as one | 39 |
| Ecospheric rhetoric | 43 |
| “Ecosphere” etymology | 43 |
| Ecosphere properties | 45 |
| Encapsulation..... | 45 |
| Earth alive!..... | 49 |
| Entropy..... | 51 |
| Emergence..... | 55 |
| Attunement..... | 59 |
| Reconceptualizing semiotic theory | 59 |
| Ecosphere, as totalizing hyperobject, imbued in symbolic..... | 61 |
| Temporal tension | 64 |
| Chain of objects and Symbolic’s need for rhetorical translation | 65 |
| What are words? | 66 |
| Orality of Language | 69 |
| Chapter 4 - Great Pacific Garbage Patch, aka “Trash Isles” | 72 |
| Previous rhetorical analyses..... | 75 |
| Rhetorical criticism attuned to ecosphere | 77 |
| Ecosphere properties | 77 |
| Encapsulation | 78 |
| Earth alive!..... | 80 |
| Entropy..... | 82 |
| Emergence..... | 84 |
| Weighted signification | 85 |
| Visuals help convey signification weight | 92 |
| Google and GPGP..... | 93 |
| Conclusion | 95 |

| | |
|--|-----|
| Chapter 5 - Discussion | 97 |
| Implications and Applications | 97 |
| Environmental advocacy | 97 |
| Higher education | 102 |
| Grammar | 102 |
| Poesies | 106 |
| Future Research | 108 |
| Signification weight algorithm..... | 109 |
| Deep ecology, Gaia hypothesis | 110 |
| Affect | 111 |
| Religion | 112 |
| Conclusion | 112 |
| References | 114 |
| Appendix A - Existential Credo..... | 137 |
| The fall..... | 137 |
| Life's work..... | 138 |
| Grief | 138 |
| Spiritual overtones | 139 |
| Privilege of "the fall" | 140 |
| Team human | 140 |
| Why are we headed for the fall? | 142 |
| Ecospheric existentialism | 142 |
| Appendix B - "The Great Pacific Garbage Patch" | 144 |

List of Figures

| | |
|--|-----|
| Figure 1.1 Earth overshoot day (Plummer & McGoogan, 2017) | 1 |
| Figure 2.1 Quadruple object (Harman, 2011, p. 50)..... | 17 |
| Figure 2.2 Quadruple object with tensions (Harman, 2011, p. 114)..... | 17 |
| Figure 2.3 Lacanian register ontical cartography (Cates, Bruner, & Moss III, 2018, p. 163) | 20 |
| Figure 2.4 Three-Dimensional Register Matrix (Cates, Bruner, & Moss III, 2018, p. 171) | 29 |
| Figure 2.5 Cosmic uroboros (Abrams, 2015, p. 67) | 34 |
| Figure 3.1 Aristotle’s Order (“Understanding Evolution,” 2018) | 46 |
| Figure 3.2 Carolus Linnaeus’s taxonomy (“Understanding Evolution,” 2018)..... | 46 |
| Figure 3.3 Complete hierarchy of organization levels of matter, each one understood as a system (Haber, 2004, p. 5) | 47 |
| Figure 3.4 Object of study taxonomy (Rowe, 1961, p. 422) | 47 |
| Figure 3.5 Autocatalysis (Veldhuis, Berg, Loreau, & Olf, 2018, p. 310) | 58 |
| Figure 3.6 Autocatalysis at its simplest (Ulanowicz, 2017, slide 12)..... | 58 |
| Figure 3.7 Ogden & Richards (1923) semantic triangle (p. 11). | 60 |
| Figure 3.8 Piercian and Saussurean semiotic diagrams (Yi’an, 2013, p. 10). | 60 |
| Figure 4.1 GPGP’s location, modelled and measured mass concentration (Lebreton et al., 2018) | 72 |
| Figure 4.2 Trash Isles passport, 20 debris currency, and stamps (LADbible, 2019)..... | 74 |
| Figure 4.3 Trash Isles 50 debris currency (LADbible, 2019) | 74 |
| Figure 4.4 Trash Isles flag (LADbible, 2019)..... | 74 |
| Figure 4.5 Microplastics in bottled water (McCarthy, 2018) | 82 |
| Figure 4.6 Rainbow runner that ingested 18 pieces of plastic | 82 |
| Figure 4.7 Surface debris of the Great Pacific Garbage Patch (National Geographic, 2019a)..... | 84 |
| Figure 4.8 Microplastics (National Geographic, 2019a) | 84 |
| Figure 4.9 Earthrise, taken from Apollo 8 (Rickert, 2013, p. 214)..... | 93 |
| Figure 4.10 Goggle Earth image of GPGP | 94 |
| Figure 4.11 Google Maps image of GPGP | 94 |
| Figure 5.1 GPGP’s inventory of trash (Lebreton et al., 2018)..... | 99 |
| Figure 5.2 Material-semiotic postenvironmentalism (Certoma, 2016, p. 99)..... | 103 |
| Figure 5.3 The fall of humanity timeline (Jensen, personal communication, Jan. 10, 2019) | 137 |

Acknowledgements

God. Given I will always be more ignorant than knowledgeable, I should not exclude the possibility of Her. She is at once immanent (ecosphere) and transcendent (cosmic uroboros).

Indigenous peoples. The Kaw, Konza, Pottawatomie, and other natives whose land we continue to occupy and desecrate, and whose traditions we ignore and rewrite. The core of this thesis is really only an attempt to better reconnect with the one and only earth, to get back to those perspectives my ancestors wiped out through colonization long ago, albeit it in a problematic Western vein. Here, or in another life, may there one day be justice for Turtle Island and all its creatures.

Immediate family. They raised me to be the person I am today. My mom, Sara, and dad, Keith, read countless books to me as a child and always stressed the importance of a good education. Moreover, they instilled within me a good work ethic from the get-go. My brother, Eli, is one of the most quotable people I know. Even though he's a stuffy biosystems engineering student, he hasn't lost his wit, sense of humor, and orneriness. He and I never fail to laugh about a video, meme, or life event. And although I was often mean to him while growing up, he never stopped supporting me.

Close extended family. Scott, Nancy, Laura, Nettie, Kamyar, Joan, Dana, Larry(s), Mary, Marks, Sam, June, and others.

My grandfather, Wes Jackson. He was made me attune to a "life of the mind" and providing me with the intellectual inspiration for my two undergraduate seminars and this thesis. The beginning of my life's work would not be what it is without his guidance.

Close friends; partners. Brandon G., Daniel R., Kyle R., Chase S., Calvin H.; McKenzy U., Emily K., and Miranda K. They have been integral in my daily interactions, construction of the self, and motivations.

Influential teachers, professors, & coaches. Chris Schmitz, Michael Rottinghaus, Jeremy Lehning, Jim Johnston, Keith and Sara Miller, Donna Koelzer, Brad Born, Siobhan Scarry, Tony Hoops, Kip Wedel, Mallory Marsh, Craig Brown, and Darren Epping. I've learned from the best.

Mentors. Lisa Moser, Joan Jackson, Aubrey Streit Krug, Bill Vitek, and Robert Jensen. I will continue to be guided by their infinite wisdom as I move into the next stage of my life.

My committee. Dr. Timothy Steffensmeier, Dr. Heather Woods, Dr. Matthew Sanderson, and Dr. Colene Lind. I have had a course from each one of them, and enjoyed all of them immensely. I learned a great deal from their books and articles, and the ones they recommended. They didn't hesitate in agreeing to serve on my committee. They are driven people who are invigorating in their classroom lectures and personal research. And, although it is cliché to say, they make this world a better place with every engagement and interaction. Most importantly, I could not have done this without Colene. Her 2017 article in *The Land Report* was the first that I know of to imagine how Ecosphere Studies and the field of rhetoric could come together. In addition to having a never-ending supply of knowledge, she is understanding, the best listener I know, and seems to always put others needs before her own.

Blanket acknowledgement. Inevitably, the more people I include the more people I leave out. Therefore, I extend acknowledgment to all those who were not mentioned, to the hundreds of people who have invited me into their life and, in some way, shaped me for the better. Thank you for being you.

Dedication

To my beloved immediate family, Keith, Sara, and Eli, and my formative grandpa, Wes Jackson.

Epigraphs

“We are part of the earth and it is part of us... What befalls the earth befalls all of the sons of the earth.”

—Chief Seattle (1852)

“The climate is changing. The culture is shifting...There is only one pathway to avert the crisis humanity is heading toward, and it is to deeply feel the connection with the ecosystem we are a part of. [to] Reconsider. Everything.”

—Peter Buffet (2018)

“Because of the priority of the ecosphere over humans (in time, inclusiveness, complexity, evolutionary creativity and diversity), the ecosphere is a proper ‘boundary of causation’... within the cosmos.”

—Wes Jackson et al. (2018)

“Matter as vibrant, vital, energetic, lively, quivering, vibratory, evanescent”

—Jane Bennett (2010)

“Rhetoric accomplishes its work by inducing us to shift, at least potentially, how we dwell or see ourselves dwelling in the world.”

—Thomas Rickert (2013)

“Rhetoric will have taken things at their world and not just their word”

—Thomas Rickert (2013)

“Rhetoric does not overtake ecology or vice versa; each is embedded in the other, existing together, not apart.”

—Nathan Stormer (2018)

Preface

This thesis is a result of a burning question about the nature of materiality that I have had for the past five years. It is meant for four distinct audiences: (1) my thesis committee; (2) theoretical scholars writing on the ecological turn; (3) members of The Land Institute's ecosphere studies initiative; and (4) lay audiences interested in matters of ecology, climate change, or communication. I will briefly explain how I plan to tailor this thesis to each of these audiences. Each audience adaptation contains its own unique purpose, though the underlying purpose for all is reattuning how we talk about and treat the ecosphere.

The primary audience of this thesis is my four committee members, Dr. Timothy Steffensmeier, Dr. Heather Woods, Dr. Matthew Sanderson, and Dr. Colene Lind. They are the ones who helped shape it to be what it is by offering invaluable advice, texts, questions, and feedback. As is the case with any thesis, the purpose here is to pass—to make a coherent argument that satisfies my committee and allows me to obtain my M.A. degree. While I surely have learned more from them and vice versa, I do hope that this thesis influences each of them in their teaching and research.

My second audience is comprised of scholars who specialize in ecological approaches to rhetorical theory. They include object-oriented, new materialist, affective, regional, and ambient rhetorical scholars. These scholars are routinely participating in and shaping presentations at the major conferences and publishing in peer-reviewed journals, as well as contributing to broader understanding through teaching and publicly facing venues. Ideally, those I cite in my thesis would heed my call to rethink the nature of the “material” to which they continuously refer. Working together, we can better understand the ontology of materials comprising any given rhetorical situation. Chapters 2/3 are primarily for these eco-centric rhetorical scholars.

Third, ecosphere studies scholars may benefit from portions of this thesis. Those presenting at the 2018 annual meeting called for more theoretical work to be done on the ecosphere's connections to language, its process and systemization. Some of chapter 2, and most of chapter 3, is tailored to this group.

For those who are unfamiliar with “ecosphere studies” (ES), here is a brief background. It is a group of about a hundred scholars from a variety of backgrounds and disciplines. Ecosphere studies is the educational analog to The Land Institute (Salina, KS), which is known for pioneering natural-systems agriculture. ES emerged in 2015 as an ideological extension of The Land Institute and is maintained by this academic potpourri. Although canonical, it is not tied to any pamphlet, guidebook, or ossified definitions. The publication best suited to explain ecosphere studies is Jackson, Streit Krug, Vitek, & Jensen (2018). The experimental stage is where it will remain for quite some time. What remains unchanged within the fluid boundaries of ecosphere studies' broad effort is the call to *fundamentally* reconsider how humans fit into the earthly surroundings that created us and continue to sustain us.

This thesis will help the group further solidify what we mean when we refer to the ecosphere's materiality, limits, and/or its relationship to Sapiens' systems of signification and meaning.¹ Colene Lind (2017) published an article in *The Land Report* describing how rhetorical studies fits in to the ecospheric worldview. This article was formidable for me in thinking about how rhetoric would look through an ecospheric lens. This thesis will further look to see how rhetorical studies fits into such a worldview, with the hopes that each can benefit from the other. Although not immediately apparent, ecosphere studies and rhetoric already have concepts in

¹ Sapiens here refers not just to humanity's genus and species taxonomy, but to historian Yuval Harari's (2012) conceptualization of humanity in his best-selling book, *Sapiens*. Harari outlines four major parts of Sapiens' history. The first is the Cognitive Revolution (c. 70,000 BC), when Sapiens evolved imagination and language.

common. ES problematizes the word “environment,” this thing that requires our help. It is a word eco-centric rhetorical scholars critique as well. New materialist and feminist scholar Stacy Alaimo (2010) calls it a “bloodless, cold, mechanistic word” (p. 1), a thing out there that humans can destroy or preserve depending on our end goal. Popular environmental discourses anthropocentrically end with a “save the world” rhetoric that places human environmental control as the “end product” (Pilsch, 2017). Bogost (2012), Brown & Rivers (2014), Pisch (2017), Rickert (2013), Zylinska (2014) and other eco-rhetorical scholars argue that calls to “save” the world merely further inscribe human-centric views at the core of environmental rhetoric. “Environment” signals the end of the line on a problematic train of thought, so introducing the word “ecosphere” into rhetorical studies offers a needed replacement for “environment.” Those authors just mentioned above have opened the door for a replacement concept, and ecosphere could be the term to walk right through and fit right in.

Moreover, broadening the usage of “ecosphere” from the natural sciences into the humanities and communication studies proves necessary given rampant ecospheric catastrophe. Every year the earth’s ecological systems grow sicker, yet the environmental movement has been unable to provide even a pittance of panacea. This is in part because it is suffering from a voice problem (Endres, 2014), employing wildly different discourses in attempting to articulate what exactly it is they want to save when they say “environment.” And yet, the National Communication Association and Western States Communication Association still host “environmental communication” divisions in spite of convincing critiques of environment as a term. Establishment of “ecosphere” as a conceptual and lexical substitution could alter and strengthen the relationship between environmental communication and ecology, so long as scholars can warn against its devolvement into synonymous use.

Fourth, beyond my committee and various academic audiences, this thesis is also for lay audiences interested in matters of ecology and climate change. Chapters 4 and 5 are perhaps most relevant because they analyze Trash Isles and offer practical alterations to standard environmentalist language. These are the chapters that easiest to digest for a community, classroom, or public talk. For audiences that want to the elevator pitch of Trash Isles, they may benefit from watching my 2019 [three minute thesis presentation](#).

For select individuals in this fourth group who consider themselves environmentalist advocates or activists, chapter 5 is for them. It offers some concrete exercises and examples on how to change our language in a way so it is more conducive for the environment. It also says that as environmental advocates we need to fundamentally change our language if we truly want to avoid the worst that climate change has to offer

No matter the audience, I hope everyone get something out of my thesis. Enjoy.

Chapter 1 - Introduction

The Earth is not in good shape. Here’s a rundown of its health: Climate change, ever-increasing atmospheric CO₂—410 ppm at the time of writing this (Loria, 2018)—more greenhouse gases than anytime in human history (Plummer & McGoogan, 2017); acidifying oceans (Klein, 2014); melting ice caps (Orr, 2016); a plastic-pollution landmass in the Pacific Ocean 3.7 times the area of Texas (Lebreton et al., 2018); water shortages, deforestation (Orr, Brevini & Murdock, 2017); an “earth overshoot day” nearing August 1, meaning we consumed all of Earth’s 2017 resources by that date (Figure 1.1); and the sixth mass extinction (Kolbert, 2014). To top it all off, the first new epoch in 11,700 years, called the “Anthropocene,” marks the dominant age of human influence (Kolbert). In Kansas, volatile weather patterns make farming more difficult, and the Ogallala aquifer is predicted to dry up in 50 years (Brambila, 2014). As ecologist J. Stan Rowe (1990) put it nearly 30 years ago: “the world is running a fever and we are the flu. Humanity ought not to be a disease nor a deformity in the body Earth” (p. 3).²

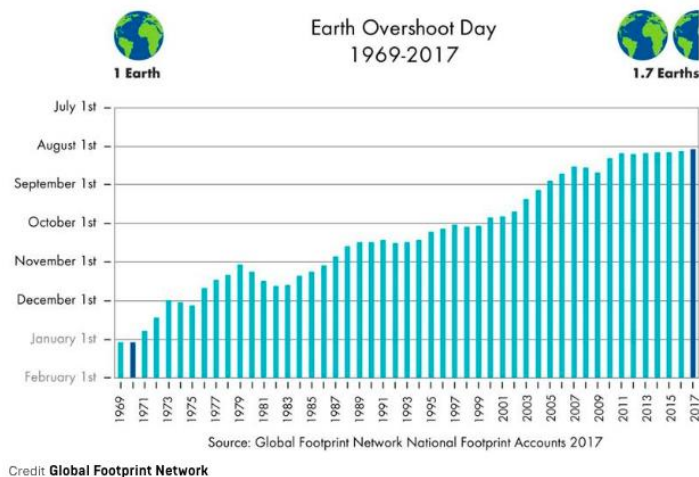


Figure 1.1 Earth overshoot day (Plummer & McGoogan, 2017)

² If you are ever curious about whether I believe it’s a good thing if humans survive some type of mass ecological catastrophe, what I call “the fall” (Figure 5.3), then visit Appendix A, my existential *credo* (“I believe” statements). Basically, I think a fall is inevitable, but I will still go about my life’s work trying to mitigate its effects.

The world's ecological problems have been getting worse primarily due to human activity. Scholars within environmental communication and rhetoric have known this for some time and feverishly crank out warnings of the doom and gloom. However, within the past decade they recently placed less emphasis on crisis and more on care. In the introduction to *Tracing rhetoric and material life: Ecological approaches*, Wells, McGreavy, Senda-Cook, & McHendry Jr. (2018) refer to the pivot as "rhetoric's ecological turn" (p. 5). These leading scholars and others wish to deepen our connection to the Earth in hopes of overcoming cascading ecological crises. Wells et al. (2018) give their justification and purpose for the volume:

In rhetorical theory, richly ecological perspectives have been forwarded to explore connections between interdependency and addressivity. In the process, rhetoric as traditionally conceived has become more networked, material, hybrid, immersive, and consequently dynamic. However, those developments have not always made connections to ecological care, and they have often been isolated from one another via rhetoric's institutional divides across speech and writing. The purpose of the current volume is to entangle these often independent lines of ecological thinking in order to advance an ecological approach to care. (p. 3)

The authors convincingly outline the genealogy and tropology of rhetoric's ecological turn. The turn distinguishes itself in several different ways, but most germane are two central shifts: (1) From a concept of "environment" to "ecology," and (2) from emphasizing the meaning-making of the human subject to the agential nature of non-human matter.

First, the discipline has gradually moved from a crisis disciple to a rhetoric of attunement (Cox, 2007)—to ourselves, our one and only earth, and the irreducible relationship between humans and planet. Instead of "saving" the environment, connoted as "a fixed and passive

container separate from human activity,” scholars have instead “rearticulated with terms including ‘vital materialism,’ ‘postenvironmentalism,’ ‘ecological politics,’ ‘cosmopolitics,’ and ‘ecology without nature’” (Wells et al., 2018, p. 7). These terms embrace “ecology as distinct from environment” (p. 5) because ecology de-objectifies its components and sees humans as existing within the natural world rather than controlling or dominating it.

Second, not only does the ecological turn pivot from the concept of the “environment” to that of “ecology,” it swivels from privileging the capacity of a human subject to non-human, agential matter. Ecological turn scholars make concrete the notion that “material” has come to “extend beyond concrete physical objects and fixed places, to how we immerse ourselves with(in) the world and articulate with it” (Wells et al., 2018, p. 21). This positions matter as a vital force at work both in- and outside our bodies. For example, they analyze natural entities such as prairie, trees, turtles, and tidal waves, but also assemblages of both human and non-human actors, such as dammed rivers, electrical grids, sand footprints, mimic octopi, urban neighborhoods, bombs, fuel, bicycles, GPS, mudflats, and so on. They have successfully argued that, to use Jane Bennett’s (2010) words, “materiality matters” (p. xvi).

However, this turn lacks a detailed exploration into what exactly is meant by “matter,” “materiality,” or “object.” Thomas Rickert (2013) argues matter has fundamental importance in the meaning-making process, saying “the meanings we reach for have already emerged” within a “stay of materiality” (p. 216). By this Rickert means a fixed amount of limit-bound, life-giving materiality already contains meaning before our symbolic code is activated, for it and us are of that embedded materiality. Therefore, without serious consideration of what is meant when we speak of matter, the ecological turn leads to the same dead-end as environmental communication

did before, unable to affect real change because it fails to capture what life on planet earth is really all about.

In terms of semiotics, the ecological turn wishes to solidify matter as an object that matters just as much, if not more, than humans do. Objects at any scale or form—be they atoms, minerals, air, soil, light beams, trees, and so on—are the starting place from which all other signifiers and signifieds, words and concepts, arise. The materiality matters because it anchors human language and concepts; the emplacement of matter has enormous influence in bearing up ideas. This part of the turn stands in direct contrast to the poststructuralist movement of the late 20th century, in which meaning defers, truth is said to be subjective, and human signifiers are thought to be untethered from the agential properties of non-human objects.

But even as the ecological turn seeks to solidify the various material objects that precede our discourses, its philosophical move is to account for the processual change that matter itself continuously undergoes. Forwarding matter's properties as "vibrant, vital, energetic, lively, quivering, vibratory, and evanescent" (Bennett, 2010, p. 112), Wells et al. (2018) argue that not only is rhetoric immanent but that its immanence imbues "processes" and "systems" (p. 13). Karen Barad (2007) makes the claim that all "phenomena are the ontological inseparability of agentially intra-acting components" (p. 33). Taking inspiration from quantum-physics founders Niels Bohr, Barad coins the neologism "intra-action" to refer to the process matter undergoes. Stacy Alaimo (2010) explores the movement of matter across time and says matter does not stop at the individual human. Joshua Ewalt (2018) says matter "pulsates" around people in "regional" articulations (p. 142). Most of the authors writing about matter wave at the fact that matter is always in process. In other words, an object is never truly an object because is always changing even when it seems like it is not changing from a human perspective. This move dissolves the

subject-object dualism, negates the totality of human influence, and highlights matter's process of becoming.

If matter is to serve as the basis for meaning-making and symbol use, its limits and boundaries must be better articulated. As a rhetor I can say matter moves around me, affects what I do, and even comprises my body, my speech, and all discourses everywhere. The authors cited above have given us a rhetorical theory that dissolves the subject-object dualism, negates the totality of human influence, and highlights matter's process of becoming. And that is great. But without a better articulation of the relationship between the material and the symbol, we are left to say "dissolves the subject-object dualism, negates the totality of human influence, and highlights matter's process of becoming" over and over again. We need more to get past that.

If we don't, the ecological turn is susceptible to drift. It allows the legitimization of theory less resembling an ecological turn and more a gradual slide off the road. More specifically, it weakens the two key components of the ecological turn. First, ecology could no longer be considered as conceptually distinct from environment as it should be, leading to synonymously tacking on "eco-" prefixes or other forms of linguistic greenwashing. Second, matter could become more detached and meaningless than it is. Statements about how matter matters forego why it is important that matters; for what aim does it matter? Without concretizing matter more than it is, what is to keep scholars from wielding ecology just as much as environment or the manipulative tools rhetoric is often perceived as sharpening? The limits, boundaries, and nature of matter should be more detailed and demarcated. All this to make sure matter "matters" as much as it should.

Using the "objective" conclusions of natural science, especially those taken from ecology, the boundaries of objects can be further explored. Objective is qualified by quotation

marks here because nothing is completely objective, even the purest object models and tools of analysis are biased by human subjectivity. Moreover, much of Western culture promulgates a fantasy of objectivity that has guided scientific discourses since the advent of Robert Boyle's lab in 1641 (Latour, 1993). These objective approaches have hardened in social discourses, and today they remain as potent as ever there. Such approaches devalue humanity, create a guise of objectivity, led to some horrific inventions and even arguably most of the ecological crises we face today (Latour, 1993). Nevertheless, conclusions and theories from the natural sciences are better for fixing the boundaries of matter so that these demarcations are not as easily dismissed. If anything, using ecology's conclusions does not devalue claims made by scholars writing within rhetoric's ecological turn, but rather, augments them.

To keep steering rhetoric's ecological turn in the right direction, the primary contribution of this thesis is the establishment of an ecospheric rhetoric. Before justifying this contribution, a bit of background on the concept is needed. "Ecosphere" was coined by U.S. physician and space medicine pioneer Hubertus Strughold (1898-1986) in 1953. It was picked up by ecologist J. Stan Rowe in 1961 and became his passion for the rest of his academic career as he wrote about "ecosphere" extensively (1989; 1990; 2003; 2006). He was fed up with the term "environment" for numerous reasons (see "Ecosphere" etymology) and argued it be replaced with ecosphere. This argument gained little support outside of Rowe and today the term remains mostly unknown, or at best misunderstood.

Rowe (1989) summarizes the need for the term: "The priority we must begin to seriously consider is Ecosphere before community, ecosystem before organism, the whole before the part. The planet is more than its people" (p. 1). Ecosphere includes all the earth's living organisms and their physical environments within the planetary ecosystem. the ecosphere's parameters are

comprised of three limit-bound spheres: atmo-, litho-, and hydro-. To contrast, an environment's parameters can shift depending on its holder. The assumption of someone who has an environment can make it *better than* what it was prior to them establishing it as *their* environment. And although the holder is surely subject to the environment's influence or contextualization, the holder is not bound by its material limits because it seemingly has none.

Moreover, the ecosphere includes the biosphere but is not limited to its definition because the ecosphere includes the interactions of things often considered by biologists and other natural scientists as abiotic, or "dead." The ecosphere does not merely end where we think life begins. Such thinking is what has partly resulted in the degraded health of the Earth. Therefore, it is essential that "ecospheric" rhetoric be considered as conceptually different than "environmental" rhetoric and its replacement.

This thesis follows in the footsteps of previous trailblazers writing within rhetoric's ecological turn. It uses similar form. Just as Barad (2007) develops her "intra-action" theory by drawing on insights from physics, this thesis develops "ecospheric" rhetorical theory using the writings of ecologists, primarily those of Stan Rowe. Moreover, just as Rickert (2013) describes rhetoric as "ambient" to solidify its ontological status, so too does this thesis detail "ecospheric" rhetoric as an ontological distinction.

Ecospheric rhetoric must deal with several tensions. Notably, the tension of temporality, which I thread throughout. By tracing a chain of objects (from which signs ambiently dwell) back to the ecospheric base, a temporal rift occurs between locating the object's common denominator and the process of signification. The signifying synapse fires faster than those relating all local objects back to the ecospheric common denominator. Thus, rhetorical scholars will have to play accordion with spatiality and temporality in their analyses. Theoretical

suggestions for overcoming this tension when performing analyses or criticisms are detailed in the section on Attunement, and applied suggestions can be found in the discussion section.

Ecospheric rhetoric is not just another approach to meaning making, because “the discourse of the ecosphere is too real and too social to boil down to meaning effects” (Latour, 1993, p. 6). In adopting an ecospheric rhetoric we can begin to reconfigure our relationship to our Earthly surroundings and turn from our crash course, or at least recognize its severity. In simplest terms, we need to move from a rhetoric that asks, “how can we save the environment?” to “how can we, as inescapable members of the ecosphere, better attune to it to save our species?” Not to build a bunker and remove ourselves from society, but to collectively attune.

To achieve this end, this thesis proceeds as follows. Chapter 2 reviews relevant literature that serves as the metaphysical, philosophical, and ontological scaffolding for an ecospheric rhetoric, hereafter referred to simply as “rhetoric” unless clearly specified for the sake of distinguishing. The scaffolding begins with new materialism as one of the foundational components of rhetoric’s ecological turn. Although it is a helpful and necessary leap for rhetoric, it goes too far by falling outside its domain and too heavily excluding the symbolic meaning-making of human subjects. Next, object-oriented ontology is reviewed to do just as the name suggests—establish the ontology of objects, including what is Real and Sensual (perceived) and each’s qualities. This is included to be clear on what is and isn’t embraced in the realm of materiality in any given rhetorical situation. Next in the scaffolding is a Lacanian register ontical cartography, necessary to combine, clarify, and build upon certain new materialist and object-oriented components. Thereafter, rhetoric’s ambient nature is discussed to establish how such objects entangle within, and give rise to, symbol-use and rhetoric, along with how objects constantly assemble and the associated temporal tensions. The final piece to the scaffolding is a

section on hyperobjects. This is the central to my larger claim, that “ecosphere” should be considered the *totalizing hyperobject*. Later in Chapter 3, ecosphere as totalizing hyperobject will crystalize as encompassing of, and inherent within, every rhetorical situation as well as forming the base object in the signification process.

Chapter 3 will further support this radical assertion by constructing a theory of rhetoric grounded in ecosphere as totalizing hyperobject. This chapter starts by covering the recent approaches to fusing rhetoric and ecology. It then introduces rhetoric attuned to the ecosphere by offering an etymology and describing four ecospheric properties that make it unique. The second half of chapter 3 dives into the theory attuned to the ecosphere, including the process of signification and the origins of language in an oral tradition, then briefly outlining Rickert’s analysis of the *Earthrise* photograph.

Chapter 4 uses the theory built over the course of the previous two chapters to analyze the Great Pacific Garbage Patch, a collection of plastic located in the North Pacific Ocean. The patch’s visuals, texts, and objecthood (determined through spatial, temporal, and genealogical approaches) taken together comprise the boundaries of the artifact. My primary claim is that GPGP represents the material accumulation of the effects of the spatiotemporal rift between the ecosphere as totalizing hyperobject and how it presents itself to us in local manifestations, which calls us to reconceptualize the signification process as weighted.

Chapter 5 concludes with a discussion of implications, limitations, directions for future research. The practicality of rethinking the materiality of a rhetorical situation and the pathways for future scholars will be the emphasis of this chapter.

But first, let’s take a look at the literature.

Chapter 2 - Literature Review

I write this literature review like I am building a theoretical ladder with six rungs. Each theoretical step builds upon the one that came before without dismissing or discrediting it. Each added idea is included with the goal of reframing, edifying, and clarifying those steps established prior. This literature is presented this way to establish the philosophy, ontology, and metaphysic of the matter that matters within any given rhetorical situation. This study of rhetoric attempts to discern the material premises of the rhetorical situation to push the boundaries of the rhetorical tradition further into ecological territory. This section begins with the foundational assumptions that rhetoric is emergent, generative, coalitional, immanent, affective, and not limited to the human.

The scaffolding's six rungs are built as follows: (1) Establish that rhetoric needs the field new materialism, but also point out its insufficiencies as a stand-alone theoretical foundation; primarily because it does not fully account for symbolic meaning making. Thus, (2) object-oriented ontology and (3) Lacanian register ontics are introduced to further articulate the nature of objects and account for the symbolic realm. Next, (4) the potential for rhetoric dwells ambiently and (5) the metaphysic of these objects is one of assemblage. Finally, (6) the totality of hyperobjects determines their assemblage and ambience. At the end of this chapter, the essence, nature, qualities, and parameters of rhetoric's "materiality" should be clear.

This scaffolding will set the stage for Chapter 3, which attempts to fuse rhetoric and ecology, establishes the ecospheric nature of rhetoric, and then attune to such an establishment. But first, let's examine the recent movement that returned rhetoric to its material roots.

New Materialism

New materialism is a necessary tradition from which to begin given its motivation is to conceptualize our material world so that we humans may better recognize ecological issues and seek to mitigate them. Its primary contributions germane to this thesis include expanding the rhetorical situation to include nonhuman actors, problematizing human agency, dissolving the object/subject Enlightenment dichotomy, and grounding discourses in a material that matters.

Boysen (2018) explains the origin of the tradition: “Manuel DeLanda and Rosi Braidotti coined the term ‘new materialism’ in the second half of the 1990s; however, the movement known by the name emerged more recently” (p. 227). New materialism incorporates several names and subfields, each with its own nuances. However, they are united in that they are fueled in part by the rising concern in environmental issues—the idea being we clearly have not thought enough about our surroundings and what the Earth is telling us, so we should attune to their discourses by first making the case that they have discourses. Boysen (2018) provides a further overview of the new materialist turn:

Throughout the last couple of decades, the so-called “material turn” has been in vogue in the humanities...After a decade of nominalism, stressing the mediated character of human perception of the world (structuralism, post-structuralism, constructivism, postmodernism, deconstruction, queer theory, cultural studies, etc.), it is time to get down and dirty with things as they are in themselves. (p. 227)

For example, Selzer & Crowley (1999) rethink at the physical nature of being human and the ways in which language and other symbols reflect and create the physical world. They also grant agency to elements normally ignored or implicitly disempowered. Blair (1999) examines

U.S. memorial sites to prove rhetoric's materiality. Blair begins by calling attention to the language of materiality used to describe rhetoric:

Rhetors occupy 'ground' and take 'stances.' They 'pose,' 'posture,' or 'hold' to an idea...Phrases are 'turned' and ideas 'taken up.' Audience members assume a 'position,' 'feel' a particular emotion, 'grasp' an idea, or 'see' a point. (p. 16)

Materialist conceptions of rhetoric like these (and many more) have argued that rhetoric is fundamentally material, and more recent conceptions of material rhetoric are specifically aimed at averting ecological catastrophe. In other words, they carry the teleology that rhetoric is material not just because it is, but because it is one of the first steps to avert ecological crises. These authors (Bennett, 2010; Ewalt, 2018; McGreavy et al., 2018) cast off environmental discourses and de-emphasize the roles humans play in the signification process. By acknowledging the agency of materials we have long taken for granted and exploited, new materialists hope we can live in-tune within our ecologies, for only in ecosystems can rhetoric exist.

Insufficiency of solely using a new materialist ontology

There are four reasons why pulling solely from the intellectual tradition of new materialism is insufficient. To be clear, the new materialist turn need not be dismissal wholesale. Its foundational contributions are necessary starting points if we are to correct course and see that there are more agents at work in our rhetorical situations than just ourselves. But new materialism, broadly addressed as a monolithic field, is not enough theoretical grounding for four primary reasons: (1) its reliance on bottom-up causation, (2) furthering the fallacy of misplaced concreteness, (3) semiophobia, and (4) stumbling into the idealistic philosophy of access and forwarding a flat ontology that questions the need for rhetoric in the first place.

First, these new materialists have various definitions for matter, including *hale*, atoms, particles, matter, entities, and so on. They are not synonyms but included by various authors to signify different conceptualizations regarding the *process* by which they came to be. All work assume that the process occurs from the bottom up. In other words, the parts make up the whole. For instance, new materialist scholar Karen Barad (2007) says matter “intra-acts” and “stabilizes over time to produce the effect of boundary, fixity, and surface” (p. 90)—so an object is always becoming inside itself but never actually fixed. However, as will be discussed in the Ecosphere properties section, matter does not comprise larger organisms or systems. Rather, those things encapsulate the agential matter. “In what order do material events cause others to occur?” is an important question to answer when addressing causation, signification, and difference within any given rhetorical situation.

Second, new materialists try to make products of abstract systems of knowledge concrete. The core adjectives used to describe matter, such as “vibrant, vital, energetic, lively, quivering, vibratory, [and] evanescent” (Bennett, 2010, p. 112), are abstractions that are granted ontologically concrete status.³ However, the abstraction is not the particular (Cobb Jr., 2008). For example, light as we have calculated it is not light in and of itself. The speed of light ($c = 3.0 \times 10^8$ m/s.) was calculated somewhat accurately by Hippolyte Fizeau in 1849 (Walker, 2008). Fizeau directed a beam of light at a mirror several kilometers away. A rotating cog wheel was placed in the path of the light beam as it traveled from the source, to the mirror and then returned to its origin. Using the way the light passed through the gap in the wheel, and knowing the

³ Barad (2007) argues in *Meeting the universe halfway* that objects do not precede their interaction. Those objects are not just passive material shaped by agents. Thus, there are not assemblages of humans and nonhumans but the potential for these material-discursive things to become (Coole & Frost, 2010; Zylinska, 2014). Sure, atoms and particles are not actually these things because they assemble and intra-act. However, the constraints of our language make it so we have to treat them as more or less unchanging elements that derive from scientific atomization (of objects and discourse) *if* we are to nail down a materiality (an “environment”) that no humans can violate.

distance to the mirror, the number of teeth on the wheel, and the rate of rotation, Fizeau calculated the speed of light as 313,000,000 meters per second (Walker). But neither the number, nor the formula for the number, *is* the speed of light itself. They are abstractions constructed within the numerical systems that allow for the speed of light to be conveyed. New materialists agree the speed of light exists prior to and after human measurement, but the light *as it is perceived* depends upon the meaning-making of a mirror or wheel, which themselves were dependent upon human discourses that were first brought about by the light's presence. Ultimately, the new materialist treat object perception sans symbolicity as Real even though those objects require the Symbolic realm to exist.⁴

Third, new materialists are semiophobic. They carry an "unease about the idea of semiotics" as in part structuring human reality (Boysen, 2018, p. 225). This can constitute an "overreach" (Cates, Bruner, & Moss, 2018, p. 153) wherein transmission of information between objects is regarded as meaning-making. It seems illogical to discount human symbol use entirely and yet rely on it to drive home the point that matter matters.

Finally, new materialists too strongly de-emphasize people's roles in their own signification. This is done through a series of thought experiments meant to reimagine our taken-for-granted construction of our own bodies. Bennett says, "The bacteria in the human microbiome collectively possess at least 100 times as many genes as the mere 20,000 or so in the human genome. The its outnumber the mes" (p. 112). Similarly, Stacy Alaimo's (2010) trans-corporeality asserts, "the human is always intermeshed with the more-than-human world" so "the extent to which the substance of the human is ultimately inseparable from 'the environment'" (p.

⁴ Therefore, although most new materialists imply or claim a Whiteheadian process-relational metaphysic, they succumb to the "fallacy of misplaced concreteness," (Cobb Jr., 2008, p. 15).

2). For Alaimo the body is not a body, but an amalgam of other things—the “human is always the very stuff of the messy, contingent, emergent mix of the material world” (p. 11).

By removing humans almost completely from the picture, and by placing undue emphasis on matter that cannot be known, perceived, or articulated by humans, new materialists wander into the philosophical trap of rigid idealism. Boysen (2018) and Cole (2013; 2015) argue doing so is no different than dovetailing into Kantian *noumena*, or a thing-in-itself (rooted in the Platonic ideal) as distinct from phenomenal attributes. New materialists say matter can exist independently from human perception, and thus box themselves into a circular “philosophy of access” debate (Harman, 2011, p. 47). This debate becomes stuck in a cycle and usually leads to the question, “how do you know that you don’t know?”

Not only does rhetoric necessitate human signification for access’ sake, it requires it so human meaning-making is not relegated to the sharing of information between objects (Cates, Bruner, & Moss III, 2018). When new materialists give as much agency as to an atom or blade of grass as they do a human, it is usually dismissed as a “flat ontology” in which humans “are merely to be understood as one agent among others” (Boysen, 2018, p. 225). This is not an ontology to be avoided *per se*, given ontologies’ preponderance for anthropocentric or totalizing essence, though anyone furthering only new materialist rhetoric must be wary of the flat ontology.

To reiterate, new materialism’s end goal—expanding the rhetorical situation to include non-humans and to highlight the agency of the material—is needed. But these four critiques highlight the need to draw on other theoretical lenses to find the intersections between matter, symbolic meaning-making in general, and the signification process. Before diving into the relation between material objects and human discourses, it is first necessary to explore the nature

of objects themselves. This will shed light upon what is meant by the term “object,” material, or any of its synonyms meant to establish a degree permanence that must be acknowledged, respected, and not violated.

Object-Oriented Ontology

Graham Harman’s (2011) object-oriented ontology (OOO) argues the nature of objects⁵ can be thought of in a fourfold sense, including that there are Real Objects (RO), Real Qualities (RQ), Sensual Objects (SO), and Sensual Qualities (SQ) (Figure 2.1). Harman fully defines and explains each of the four tensions (2011, p. 50).⁶ For the purposes of unpacking how objects influence a rhetorical situation, it is necessary here to only explain and expand upon the fourth tension between Sensual Objects and their Sensual Qualities. Harman calls this tension “time” (p. 50).

⁵ Just because he uses the term “object” does not mean that it is automatically held captive by a subject. Timothy Morton (2013) mentions “there are all kinds of objects that so-called subjects don’t apprehend. Global warming existed long before human instruments started to detect it” (p. 120).

⁶ Here is a brief rundown of the expansion of Heidegger. He was concerned more so with the nature of being than of reality as he worked in the phenomenological tradition, which is why Harman argues his work was later miscategorized by pragmatists. Later on, Heidegger (2001) became preoccupied with a philosophy of absence, meaning his focus was less on Dasein (“being there” or “presence”) *qua* Dasein and more concerned with *access to* Dasein. Levi Bryant (2011) and Barad (2007) critique Heidegger’s unnecessary obsession with access to. However, what proves salient for rhetoric is Heidegger’s notion on “vorhanden,” or what is “present-at-hand” or available (Harman, 2011, p. 35; Heidegger, 2001, p. 100). The tension between SO and their RQ, called *eidos*, is one of a metaphysical nature concerned with the enduring underlying units of a SO’s being.

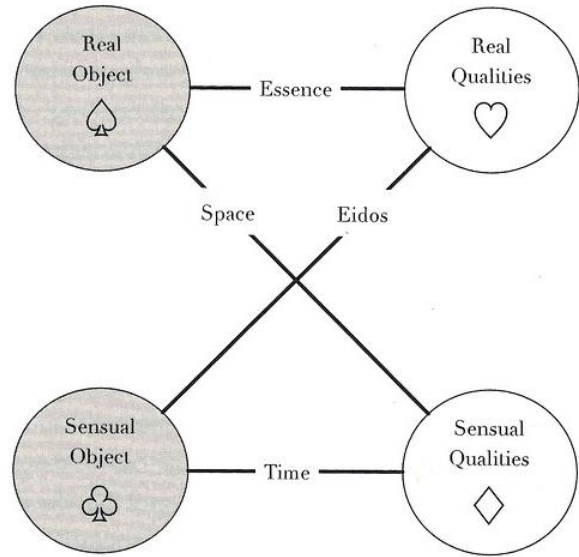
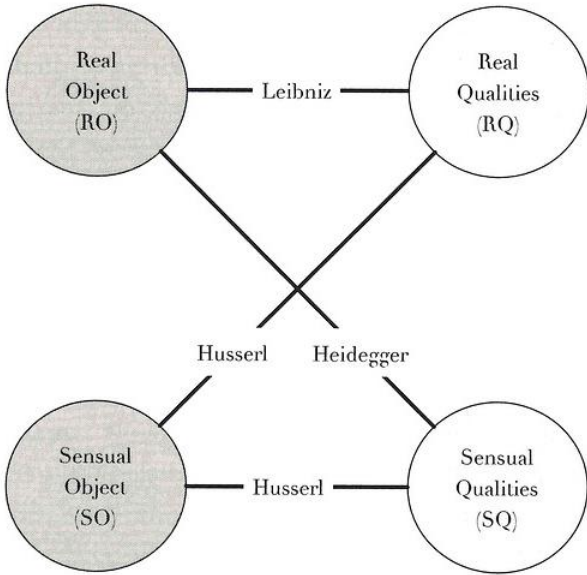


Figure 2.1 Quadruple object (Harman, 2011, p. 50) **Figure 2.2 Quadruple object with tensions (Harman, 2011, p. 114)**

Harman’s SO-SQ tension of time is best described as when Sensual objects⁷—or those things we have perceived using our senses and coded through our symbolic process—are present but enmeshed within a “mist of accidental features and profiles” (Harman, 2011, p. 50).⁸ We can perceive an object as an object, but the continuous passage of time, and consequently, the delay in the signification process, will always prevent us from fully articulating the true reality of that object. Harman says in passing that this tension is where rhetoric thrives.

For a more concrete example, let’s consider a tree. Why a tree? Because it seems every author uses a tree as an example in their theory chapter and I don’t want to be left out.⁹ Instead of concerning ourselves with a tree as it exists independent of our making sense of it (aka “tree is

⁷ Harman’s explication of the sensual distinguishes SO-SQ from the Husserlian phenomenological tradition, which is steeped in the genealogy of *noumenalism*. In SO-SQ, realism replaces phenomenology’s roots in transcendental idealism.

⁸ Harman’s SO relates to Latour’s (1993) “quasi-object” in that a thing is only a thing because of pre-existing meaning making. So unlike new materialism, which generally falls into the trap of rigid idealism or flat ontology, SO acknowledges ever-assembling discursivity.

⁹ Seriously, everyone uses a tree—McGee (1982), Cloud (1994), Rogers (1998), Heidegger (2001), and Harman (2011). Plus, it is my email handle. This is a good time to mention that author correspondence at tree11@ksu.edu.

tree”) (RO), or a tree is tree’s treehood (RQ), we should concern ourselves with always mischaracterizing the tree-as-perceived-and-signified (SO) with its treehood (SQ). By the time we name the object “tree” and make sense of what that means, the tree has already moved on from being the tree we initially described it as. As the mere existence of that materiality bears up our meaning of it, produces, reproduces, and proliferates throughout time in a patterned way, there will an inescapable gap in an object’s stand-alone existence and how we signify that existence. That this gap will always exist means we will always need rhetorical translation, especially in such ecological approaches to rhetoric.¹⁰

Harman’s (2011) work is useful as a metaphysical and ontological basis for exploring the ecospheric nature of rhetoric. If “rhetoric is a responsive way of revealing the world for others, responding to and put forth through affective, symbolic, and material means, so as to...inhabit the world to an extent that calls for some action” (Rickert, 2013, p. 162), then there must be further examination into the nature of the material made real through signification. If nothing else, Josh Gunn (2014) best states the goal of Harman’s quadruple object . It is to refuse to “treat objects as [the] constructions of humans” (p. 446).

This establishment of an ontological object is necessary for unearthing (or re-earthing) where rhetorical translation is necessary. Admittedly, rhetoric is not strictly limited to the human

¹⁰ There are extensive critiques of Harman’s OOO, like Cole’s (2015), they are largely based on access to the Real and not the tension between the two Sensual poles. When Harman writes, “My perception of a tree does meet the criteria for an object...It is also something new, irreducible to its pieces in isolation, since neither I nor the tree in a vacuum give rise to anything like a tree-perception” (p. 117), the retort by Ian Bogost (2012) or Gunn (2014) is likely that there are too many “questions concerning access to the in itself” (Gunn, 2014, p. 447). The critiques of such an ontological or philosophical position are that “the construct inside/outside” of objecthood “is a function of the old subject/object dualism, which is a dualism precisely because there is a sovereign subject around to proclaim what makes the cut, what qualifies as an object or not” (Cole, 2015, p. 322). Such a subject/object rift is caught up in the act of naming, explained by Bennett (2010): “The philosophical project of naming whereby subjectivity begins and ends is too often bound up with fantasies of a human uniqueness in the eyes of God, of escape from materiality, or of mastery of nature” (ix). However, from a purely practical point of view, naming from our species is inevitable. From a philosophical perspective, as long as RO and RQ are given standing without debating their merits, and insofar as objects are still “understood as process, the aforementioned ontological dualisms can be avoided.

subject, for it can be affective and therein lies its potential to exist in a-/pre- symbolic ecologies. But the SO-SQ time tension necessitates venturing into the Symbolic realm. Unlike Rickert (2013) argues, rhetoric cannot ignore the importance of symbolic meaning-making. Thus, the next section further uncovers that where symbolic and real objects collide is where rhetoric resides.

Lacanian Register Ontical Cartography

Cates, Bruner, & Moss III (2018) seek to “recuperate” both new materialism and object-oriented ontology because “various scholars publishing in the fields of new materialism and object-oriented ontology have demonstrated that we ignore object efficacy in networks at our peril” (p. 152). By looking at the intersections of the field, the authors contend they can “better understand the different valences in which rhetoric operates without foreclosing the agency of objects and the objectivity of subjects” (p. 151). In other words, this cartography seeks to characterize the many places rhetoric can dwell without attempting to over- or under-mine subject/object efficacy; the authors attempt this by incorporating debate from Bryant, Žižek, Harman, Bennett and Barad.

Cates, Bruner, & Moss III (2018) use the method of onticology, which attempts to “reconcile the level of human meaning through signification with the material object qualities found in local manifestations of objects without prioritizing either” (p. 160). They adapt the cartography from Jacques Lacan, the controversial 20th century psychoanalyst and philosopher who had a significant impact on post-structuralism, critical theory, linguistics, and, as Cates, Bruner, & Moss III argue, rhetoric. The register has three overlapping structures—Imaginary, Symbolic, and Real—in a Venn diagram that creates nine register cells (figure 2). Each section of the Venn diagram is its own register, each is demarcated by two non-hyphenated words

denoting structure qua structure; e.g. real is as such only by the quality of first being Symbolic (cell 8). The lowercase is embedded within the uppercase.

| Registers | Imaginary | Symbolic | Real |
|-----------|-----------|----------|------|
| imaginary | 1 | 2 | 3 |
| symbolic | 4 | 5 | 6 |
| real | 7 | 8 | 9 |

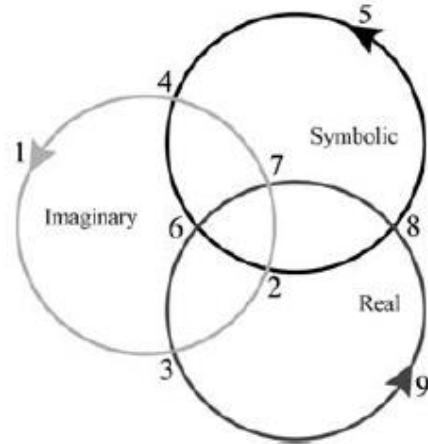


Figure 2.3 Lacanian register ontical cartography (Cates, Bruner, & Moss III, 2018, p. 163)

Of concern to a materialist rhetoric are three cells: imaginary Symbolic (cell 2), symbolic Real (cell 6), and real Symbolic (cell 8) (p. 172).¹¹ Due to their contingency these require uncovering of meaning between systems and not mere “translation of information” (p. 172). What follows are explanations and examples of each.

Cell 2, imaginary Symbolic, is where rhetoric, as it is traditionally conceived, belongs. A rhetor attends to the varying differences in the symbolic code and the many potent possibilities those differences afford. For instance, for some the phrase “global warming” signifies a rise in global temperatures. For others it conjures other signifiers, perhaps phrases like “hippie libtard,”

¹¹ Rhetoric is certainly not limited to these three registers of Lacan’s triptych. Gunn (2003) argues the decline in U.S. rhetorical studies on the Imaginary, where self-image, narcissism, and fantasy reside, but that moving forward the focus on rhetorical studies should not lose sight of Imaginary, which indeed has its own materiality (Cates, Bruner, & Moss III, 2018, p. 161). However, this thesis is primarily concerned with symbolic representations of egocentric materiality and these three registers best address that concern.

science skepticism, or other ideological, partisan, or pejorative associations. The ability of the symbolic register to produce imaginary, or fraudulent associations leads to the necessity for more conventional rhetorical deconstruction.

Cell 6, symbolic Real, is that which is made sensually real through our symbolic systems of meaning. As Cates, Bruner, and Moss III (2018) state, “The natural world itself has a discernable structure that humans can intervene in, through scientific models, to expand the actualized existence of possible things in the universe, even as symbolic codes structure the range of the possible” (p. 165). Note that Real here does not correspond to Harman’s (2011) RO, because “objects” like quanta or deep space still rely on our symbolic code, and thus are Sensual Objects made real only by previous forms of meaning. Said another way, “there is no pure access to things in the sense that our scientific notion of objectivity seeks to establish” (Rickert, 2013, p. 174).

Whether light is a particle or wave depends upon the quantum mechanic equation used (Falk, 2012). These equations may provide insight into the nature of light, but the equations are so abstract they embody only the narrowest of cultural meaning. Another example is when one multiplies an imaginary number (square root of negative one) by itself, the result is negative one. So an imaginary number¹² is only real within its symbolic code, but is used to derive formulas which produce technologies that have effects on Real objects.

Rhetoric, in this context, can be necessary to deconstruct the hard science’s tendency to believe in their ontological “Objectivity.” They rely on different positivist assumptions and methodologies, sure, but their systems of knowledge are still reliant on symbolic abstractions—ones so reductionist and precise that we rely on their ways of knowing but must still critique as

¹² Imaginary in the sense of the mathematical binary system, not the authors’ ontical register

exhibiting rhetoric. This exhibition is found in that made universally Real by way of taut symbolic systems (in the case of quantum mechanic equations, the binary system).

Cates, Bruner, & Moss (2018) also note there is a part of the symbolic Real conceived in “constitutive codes,” like language or money. Here is where sociology thrives, since social structure and culture have no grounding in what is Real but are still real in their consequences. So, although America’s digitized symbolic code of money is no longer tied to a materiality of sorts, and has not since the end of gold standard in 1974, the symbol of money is still real in its material consequences; without enough digits in the bank, a person’s access to basic necessities like food, water, and shelter becomes compromised, limited, even inaccessible. Race is another example. It is not ‘real’ in the sense that nothing genetic reliably distinguishes black from white. But it is absolutely real when it comes to human perception, social systems, and life outcomes.

Finally, Cell 8, or the real Symbolic. The real is formed through repeated translations of difference in the Symbolic. It is the “minimum substrate of difference” between the signified and signifier with both “lack” and “excess” (Cates, Bruner, & Moss III, 2018, p. 168). So, the thing most point to as a tree is more or less a universal tree. As Gunn (2014) writes of Lacan’s Symbolic, it is dependent upon the patterned “repetition” of difference (p. 439). Thus, the real made so through the Symbolic will always require explorations of the rhetorical.

Lacan is often accused of helping perpetuate the semiotic turn in postmodernism by reducing the world to discourse. One Lacan (1977) declaration seems to confirm this sentiment: “it is the world of words that creates the world of things...Man speaks, then, but it is because the symbol has made him man” (p. 77). However, Lundberg (2012) asserts Lacan should be read in a different way, namely that discourse’s continual failure of reference highlights the need for rhetoric. So the world of words does not create the world of trees—the sensual tree is more or

less a tree regardless of how we signify it—but considered together they not only allow the space for rhetorical translation, they invite it. The continual and hermeneutical difference between the patterned world of words and the world of things invites metonymy and metaphor, so rhetoric is material because it is tropological.

Still, readers of Lacan should be cautious given his emphasis on the power of human signification. When Lacan’s psychoanalysis was critiqued for being hardly a science at all, he dug in hard to the “art” of rhetoric, which offered him a lexicon from which to establish his theories as scientific (Lundberg, 2012, p. 67). However, Lacan was not working from an ecological approach—in all of his calculus-like formulas, signification systems, and the resulting tropological nature of rhetoric was as a result of signs *placed upon* the material. This is the very sort of presupposition new materialism *writ large* seeks to avoid. Cates, Bruner, & Moss III’s (2018) cartography of Lacan’s registers, especially the three cells previously explicated, is necessary to not completely discard human signification systems, but it, too, presupposes words, languages, and rhetorics as preceding the material. Writers steeped in this perspective perpetuate the war of the world of words and the world of things, and subject/object wages on. In seemingly direct opposition to Lacan, rhetorical theorist Thomas Rickert says “rhetoric will have taken things at their world and not just their word” (p. 162), so that the world rhetoric may always be around us. But can rhetoric always exist around us? The next section argues yes, rhetoric always lingers around, it is not how we use it but how we attune to it, and what our attunement can tell us about our relationship to the earth.

Ambient Rhetoric

Thomas Rickert’s (2013) *Ambient Rhetoric* expands the boundaries of rhetorical theory to its brink. His thesis is that rhetoric is ambient, exists everywhere around us, and thus ontological,

and we must attune, attend, and dwell in its ambiance. He describes rhetoric as “what is lying around, surrounding, encircling, encompassing, or environing” and also as “an ensemble of variables, forces, and elements that shape things in ways difficult to quantify or specify” (p. 5, 7). All this to fundamentally “rethink” rhetorical theory and practice (p. 3)

Rickert (2013) recognizes that “rhetoric has always dealt with things, which is to say that rhetoric has not ignored the material realm” (p. 191). Rickert (2013) claims that despite rhetorical theory’s predominant emphasis on the rhetor, audience, language, and a rhetor-centric rhetorical situation, rhetoric has long been concerned with the materiality of a “thing.” Rhetoric emerges from our surroundings and derives from socio-material complexity of ecological contexts. Rhetoric is not simply a technique to control subject/objects; it constitutes a habitus of being so long as that way of being aligns with Heidegger’s fourfold (Earth, sky, mortals, divine). Rhetoric as habitus traditionally conceived this way is not a new idea. What is new is the where and how of the habitation and how it seeks to expand the rhetorical situation to one based solely on an ecological materiality.

Rickert (2013) claims that “In most rhetorical theory, such composite agency is identified as context, setting, rhetorical situation, and so forth; the human agent is the locus of rhetorical energy against these static or at least secondary contextual factors” (p. 211). Relationships among elements in an assemblage ecology that cannot be described by rhetoric’s traditionally conceived components, so as Staglian (2018) explains, rhetoric “is not contained by the elements that comprise its rhetorical situation (exigence, rhetor, audience constraints). Rather, a rhetoric emerges already infected by the viral intensities that are swirling in the social field” (p. 299). Rickert (2013) delimits the rhetorical situation as always contained within an environment: “So not only does the local environment ‘start to tell you what you are doing’...but we begin to see

that what a subject thinks and does is not simply a response to that environment...an environment is always a situation, conceived meaningfully, materially, and holistically” (p. 116). Finally, Rickert (2013) best sums up his expansion of the rhetorical situation when he says, “We are not in a rhetorical situation so much as a rhetorical lifeworld” (p. 213).

Before diving further into Rickert, it is necessary to establish the instances in which I do not agree with Rickert’s claims nor wish to further them. Rickert argues rhetoric “is not exclusively a symbolic art, nor does it issue solely from human being” (p. 176), but as stated earlier, attempts to completely disregard symbolicity can be read as semiphobic and should fall outside the field of rhetoric. After all, most of environmental humanities respond to how we help save the planet and primarily ourselves from climate change. Cates, Bruner, & Moss III (2018, p. 153) concede new materialists “correctly assert the agential capacity of objects but that they also often overreach by universalizing human meaning making as tantamount to the transmission of information between objects” (Cates, Bruner, & Moss III, 2018, p 153).¹³ So long as object is not thought of as such but in a process-relational metaphysic,¹⁴ human sign system can remain a unit worthy of analysis *and* the subject/object bifurcation can be avoided.

Lundberg (2012) argues that if the Real, or simply rhetoric in Rickert’s case, is not codable, then ontology is “impossible on its own terms” (p. 107). Similarly, as Dianne Davis (2011) argued rhetoric is not an inherent capacity in the speaker but a quality “triggered” outside of the speaker. Davis rightly assumes that difference itself is a necessary prerequisite for rhetoric’s being, as is her argument that objects maintain difference.

¹³ Rickert (2013) is lumped into the new materialist genre by some authors, although he aligns more with the Heideggerian phenomenological tradition.

¹⁴ Metaphysics thought of as “turtles all the way down,” meaning there will always be another foundation for the essence of being found below each, is surely more humble than ontological thoughts, especially Whitehead’s process relational philosophy given it is first and foremost “speculative” (Cobb Jr., 2008, p. 13). But these speculations help rethink new scientific discoveries given ordinary language’s inability to articulate the essence of the newly discovered (p. 14), which alludes to the emergent examples as found in the symbolic Real register.

But patterned maintenance of difference itself rhetoric cannot be. Boysen (2018), Cole (2013, 2015), and Gunn (2014) all critique this ontological overreach that Rickert (2013) defends and perpetuates. First, it is too “steeped in the philosophy” to see the benefit for human signification (Cole, 2013, p. 109). Even if rhetoric exists beyond signification, affect, animal, or the nonhuman realms, we will never have access to it and thus can only speculate on its metaphysic but not its ontology. Second (and this perhaps the best argument against rhetoric as ontological), this stance completely does away with the disciplinary lines. They should be pushed to some extent to better mesh with the materialist realities articulated in ecological disciplines, but as Cates, Bruner, & Moss III (2018) bluntly state, why not instead just study “game theory,” “information science,” gestaltism, or systems theory (p. 157)?

With these critiques aired, Rickert’s Chapter 6, entitled “The Rhetorical Thing” is useful because he offers a differing approach to how symbolicity arises and gives meanings to the material. This process, called “assemblages,” dwells in the real Symbolic cell. Despite my reservations about some of Rickert’s (2013) assumptions, his section on assemblages is necessary to consider how an object can simultaneously be many objects at once and becoming into a new object. It gets us thinking about how time fits into rhetoric. Thus, Assemblages isn’t weakened by the critiques aired above.

Assemblages

An assemblage is generally regarded as a collection or gathering of many entities—people, discourses, nonhumans, objects, subjects, actors, actants, etc. It contributes to an ambient rhetoric “by disrupting the commonplace that people, as rhetorical agents, achieve results in the world by more or less directly translating ideas into effects” (Rickert, 2013, p. 210). Several eco-centric rhetorical theorists also use assemblages as a way to recognize the non-object nature of

things we describe as objects for the sake of analysis. Assemblages are largely required to counteract results of a signification system that primarily ascribes nouns to things and verbs to actions. A theory of assemblage seeks to de-objectify traditionally-conceived objects so as to overcome objectifying (what we call) “nature” in theory building (Rogers, 1998). As Nathan Stormer suggests, since rhetoric and ecosphere are mutually convergent and dynamic, “rhetoric does not overtake ecology or vice versa; each is embedded in the other, existing together, not apart” (2018, p. 346).

Whitehead considers assemblages to be “deconstructing, reconstructing, delimiting” (Bennett, 2010, p. 72), which is similar to Barad’s (2007) ontology of the intra-acting object but as existing within the larger ecology of those mutually assembling intra-acting objects.

Assemblages point to the ability of rhetoric and ecology to change and exchange within multiple, fluid occasions and incorporeal objects that are “already there” (Guattari, 2000, p. 45), thanks to the cascading of previous events in a causality not typically thought of in monochronic temporal structures. Assemblages’ dynamism highlights rhetoric-ecology’s “continuous stream of occurrence” that operates “not in the service of a pre-given end but for the sake of itself as process” (Bennett, 2010, p. 117-118). The concrete, material objects that need rhetorical agency granted are not really the objects we say they are.

For an example of assemblage, Bennett (2005) spoke of the blackout that hit the United States in 2003, calling the grid a complex assemblage of “coal, sweat, electromagnetic fields, computer programs, electron streams, profit motives, heat, lifestyles, nuclear fuel, plastic, fantasies of mastery, static, legislation, water, economic theory, wire, and wood” (p. 448). Barad (2007) too pushes assemblage theory to adopt assemblages not as merely conceptual but as material-discursive in nature. The classic example is Robert Rauschenberg’s painting/sculpture

Canyon, created of materials including wood, nails, paper, fabric, paint, and metal. Its many assemblages already carry with them previous discourses; they are imbued in the being of the material and give rise to meaning inherently.

The point is not that nonhuman actants themselves have complete agency, but that each has a “specificity within a larger ecology” (Rickert, 2013, p. 211). Bennett’s assertion is that this does not require intermediation on behalf of human subjects, and for those who argue it are granting anthropocentric agency. Yet here we must diverge from Bennett because these assemblies are given their realness on behalf of the Symbolic. The materials “electron streams,” “coal,” “sweat,” etc. are more or less those things. The “electrical grid” is a signified broken up into its many other signifieds given their respective agency within the larger ecology of the grid system.

This may seem to be an argument drifting toward Jacques Derrida’s *différance*, in which a chain of signifieds defers meaning unto never-ending signifieds. However, Bennett (2010) avoids post-structuralist territory by grounding these terms in a materiality not solely limited to human symbolicity or imagination while minding a nature-culture fusion. If “environment is defined as the substrate of human culture,” Bennett says, then “materiality is a term that applies more evenly to humans and nonhumans” (p. 111). Guattari (2000) similarly expresses that “in the scenario of processual assemblages, the expressive a-signifying rupture summons forth a creative repetition...that make their presence felt as though they had been always ‘already there’” (p. 45). That these actants are “already there” is something poststructuralism does not adequately account for.

As has been detailed in this section, assemblages are necessary to highlight the non-object, processual nature of the material substrate of a Sensual Object’s Qualities (Harman) made

real by the Symbolic (Lacan). They help perpetuate the idea of a rhetorical situation always present in an environment. They are semiotic in nature (not merely represented by a chain of difference) even if their meaning cannot forego human intermediation. Finally, assemblage's primary purpose is to pay homage to rhetoric and ecology's oneness.

Time

Rhetoric springs forth in the patterned difference of the real in Symbolic, but how does rhetoric manifest in rich subject-object matrices of ordering relations given their passage of time? Rickert (2013) does not consult time in any great detail when outlining the ambience of rhetoric, and neither do Cates, Bruner, & Moss III (2018). That is, until their limitations section, where they conceptualize a “three-dimensional matrix” (Figure 2.4) that should be considered in the future to bridge the “realist/correlationist and material/representation gap by enumerating the possibilities that emerge from each perspective, as well as the relationships between them, across time” (p. 170).

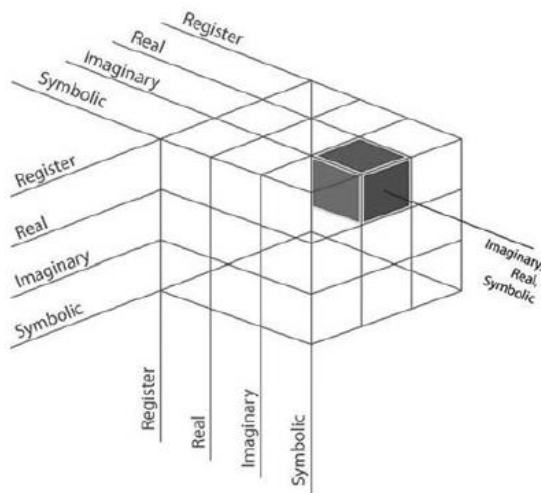


Figure 2.4 Three-Dimensional Register Matrix (Cates, Bruner, & Moss III, 2018, p. 171)

Although this three-dimensional matrix may prove a salient model for future rhetorical theory in this vein, given the three-dimensional register's isomorphous qualities and that the

primary focus of this thesis is not the Imaginary but the Real-Symbolic relationship, let's forego its furthering and instead return to Harman's (2011) tension between a Sensual Object and Sensual Qualities. Recall Harman names the tension between SO and SQ as "time." Time, meant in the Husserlian sense as it relates to the "essential structures of consciousness that make possible the unified perception of an object that occurs across successive moments" (Kelly, 2018, para. 1), is not subject to Aristotelian metaphysical speculation or Kantian dependence on a mind paradigm. Given SO are present to us but enmeshed within a "mist of accidental features and profiles" (p. 49-50), with "accidental" here meaning differences between an Object as it is routinely signified and its ontic nature, differing time tensions produce oscillations among its Sensual Qualities. Harman (2011) is not concerned with these oscillations because for his purposes they more or less make up the same object.¹⁵ But since the real as it is demarcated through the Symbolic requires rhetorical rendition the vacillations deserve attention if rhetorical theory is to take seriously those renditions.

To extend Bennett's example of the electrical grid, and to get a bit more concrete, we can expand the rhetorical situation of the grid failure beyond what was unsaid/said in the public discourse or within CEO offices to include human and nonhuman object-subjects. We can give the coal, electromagnetic fields, and plastic their rhetorical agency that is long overdue. But each of these, given the proper expansion in each of their assemblages, interactions, and relations, procures objects that are entangled yet dissimilar. Each elicits its own rhetorical translation, and the extent to which its assemblage is broken down or extended conjures a different material agency, and therefore, a differing rhetorical translation. So not coal, but a mixture of carbon,

¹⁵ Harman was less-so concerned with rhetoric as he was with the ontology of objects, though when rhetoric was brought up he would default to McLuhan's aesthetic and epistemological rhetoric. For more on Harman and rhetoric visit <http://figureground.org/interview-with-graham-harman/>.

hydrogen, sulfur, oxygen, and other elements; not electromagnetic fields, but photons; not plastic, but various polymers. Each embodies their own distinct rhetoric as it is made real through the Symbolic, though the sum of the rhetorical translations of the parts will not equal the rhetorical translations of their respective wholes. Electricity as a SO has within it the SQ of coal, which as its own SO has a SQ of carbon (though not limited to only these SQs), which can be made its own SO and so on down to the tiniest quark (it can also trend upwards in scale, but more on that later). *The automatic systemic translations of difference are dependent on the temporal contingencies of the ordering relations of each object.*

Philosopher Roberto Unger's conception of timespace is that we can have time without space, but not space without time. Time allows the speed of light (300,000,000 m/s) to be calculated because it is the distance traveled over time. Without time we cannot conceptualize the radius of the observable universe to be 14 billion light years or that there exists 4×10^{84} light photons (Overbye, 2018). A Real Object¹⁶ and its Sensual Qualities will endure the tension of "space" (Harman, 2011), but that space cannot come to be without the time tension first. Because how does one access the inaccessible without first retrieving the accessible's qualities? That space needs time but not the reverse furthers the idea that "what you see is what you get" (WYSIWYG) (Rickert, 2013, p. 195) with the addendum, "what you see is what you get" *at the time you got it.*

The importance of the tension of time in materialist and object-oriented rhetorical theory cannot be discounted if theorists are to really care about the matter mattering. This is not arguing for an across-the-board object at set intervals of time, for rhetoric has the capacity to dwell in all variable instances where time exists. Rather, if the agencies of objects need brought to the

¹⁶ Or Heidegger's "ready-to-hand, Cates, Bruner, & Moss III's "real Real," or Whitehead's "actual entities" for that matter.

forefront, and they do, then their agency must not be undercut by a weak or feigned materialism. In the same way that poststructuralism became dismissed in part because the words themselves became devoid of meaning tied to anything real, new materialist and object-oriented ontologies and cartographies will end up as the proliferation of objects that can be reduced to or embedded within other objects.

If matter, objects, or things can be broken into smaller objects or subsumed by larger ones *ad infinitum*, imbued with the same ontological nature as those previous in time, then how does this differ from poststructuralism? How can matter come to matter when it can be equally different matter at similar or dissimilar times? Depending on the time with which matter is infused, or the time which binds the matter, the rhetorical translation of its real affect or interaction within the Symbolic will prove distinct from each and weaken the importance of the material to the point where it resembles a detached signifier. If this happens, the world becomes broken into words chunks and reduced to an abstract exchange of translation and interaction. The uniting of matter, necessary to give it the recognition it deserves, is still under lock by rhetorical theory. Luckily, time supplies the key.

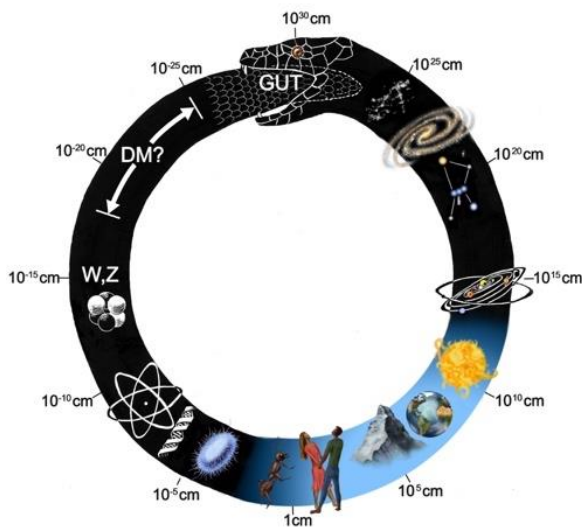
Hyperobjects

How are we to account for the pervasive influence of time on the rhetorical translation? Timothy Morton has an answer. Morton is the definition of a polymath. He is a professor of English but explores the intersection of Harman's OOO and ecological studies, and sprinkles poetry, rhetoric, and pop culture into his writings. Nearly all of the examples he uses to support his theories fall under the umbrella of environmental catastrophe, including global warming, climate change, the Anthropocene, and the Great Acceleration. Morton is "very critical of fossil-fuel consumption" (McIntyre & Medoro, 2016, p. 163). In *The Ecological Thought*, Morton

(2010) introduced the concept of “hyperobjects” to describe objects that are so “massively distributed in time and space as to transcend spatiotemporal specificity” (p. 130).

In a follow-up book appropriately titled *Hyperobjects*, Morton (2013) clarifies his definition of hyperobjects as referring to “things that are massively distributed in time and space *relative to humans* [emphasis added]” (p. 10). So a hyperobject could be “the biosphere, or the Solar System...the sum total of all the nuclear materials on Earth” (p. 10). It could even be “the very long-lasting product of direct human manufacture, such as Styrofoam or plastic bags” (p. 10). Hyperobjects are so totalizing they swallow up any temporal tensions of more local objects.

Like new materialists, his motives are driven by a deep care for the Earth and its limits. Morton establishes a “single, non-hierarchical network to challenge some of the commonplace distinctions of Western environmentalism” including “nature/culture” (Lange, 2012, p. 378), as do new materialism, ambient rhetoric, and OOO. Unlike these academic traditions, Morton writes on a much different and grandiose scale. Cosmologist Nancy Abrams (2015) offers a useful scale to think about such spatial-temporal distinctions.¹⁷



¹⁷ Swimme & Tucker (2011) provide a captivating narrative that buttresses such a scale.

Figure 2.5 Cosmic uroboros (Abrams, 2015, p. 67)

On this scale all of the observable cosmos is from 10^{-25} cm (tiniest quanta) to 10^{30} cm (all of the light we can see). New materialists do not forego analysis of hyperobjects. Their concern is not so much the hyperobject itself as the particulars that comprise it.

To construct how hyperobjects are enormously distributed relative to human's environments, Morton (2013) later establishes and defines a lexicon of hyperobject "properties." Since Morton (2013) asserts hyperobjects are "not just collections, systems, or assemblages of other objects" but "objects in their own right" (p. 10), these properties are unique to hyperobjects and not applicable to non-hyper objects.

Viscous: Hyperobjects "stick to beings that are involved with them" (p. 10), no matter how hard an object tries to resist. The biosphere is viscous because nothing "can be forcibly peeled" from it (p. 32). The planet atmosphere and surrounding dark matter and energy, but the planet as hyperobject (6×10^{24} kg) is still an intact object due to the Earth's inner iron core's anisotropic nature which Morton refers to as "sticky."

Molten: Hyperobjects are so massive that they refute the idea that spacetime is fixed or concrete. For planets time is literally "melting and rippling" along their surfaces and out into space through their gravitational field (p. 55). Hyperobjects relinquish human time for a temporal conceptualization far beyond that of their minute lifetimes. Oppenheimer's bomb, 10,000 times as hot as the sun, is a hyperobject that refuted the fixed nature of spacetime. Other molten hyperobjects include those known but not accessible to humans, like planets, galaxies, and black holes.

Nonlocal: Hyperobjects' totality cannot be realized in any particular local manifestation (Morton, 2010, p. 130). Global warming impacts meteorological conditions, such as tornado formation, ocean acidification, and wildfires. According to Morton, though, local objects don't

feel global warming—they instead experience tornadoes or wildfires as they cause damage in specific places. Nonlocality is a technical term in quantum theory describing how entangled particles have an arbitrary difference not identifiable in some real space. To ground their reality in the nonlocal one must “violate the speed of light” (Morton, 2013, p. 39). Thus, nonlocality describes the manner in which a hyperobject becomes more than the local manifestations they produce.

Phased: Hyperobjects occupy a “higher dimensional” totality than humans can perceive (p. 60). How I sense being in a time whilst inhabiting a place depends on some sort of regularly patterned structure of spacetime. The moon and the sun phase in and out of my life, ultimately constructing my sense of place, but I never experience their objecthood entirely.

The Heideggerian spatial tension between Real Objects and their sensual qualities can be thought in terms of the periodicity of RO. Molten hyperobjects that imbue a temporality on a *Gaussian* scale (approximately 10^{20} - 10^{30} cm) that are especially phased, like “dark” matter and energy, are Real Objects. They are so fully located in the real Real (cell 9) that their signification has no real tie to any phenomena we can perceive because dark matter and dark energy are likely non-baryonic (having no protons or neutrons) and made of undiscovered subatomic particles. As it turns out, the source of 85 percent of all the gravity in the universe is unknown (Tyson, 2014). Not only do astrophysicists not know what it is, they don’t know what to call it. They ascribe the word “dark matter,” but it might not be “dark” or “matter,” might as well call it Fred. Thus, hyperobjects with phased properties require a philosophy of access investigation too removed from earth to warrant further analysis into their need for rhetorical translation.

Interobjective: Hyperobjects are formed by relations between more than one object. Objects are only able to perceive the effect, or imprint, of its hyperobject. For example, Morton

(2010) says global warming is formed by interactions between the Sun, fossil fuels, and carbon dioxide, among other objects, a “mesh” he speaks of later (Morton, 2013, p. 69). Yet global warming is seemingly made apparent and real through products like emissions levels, temperature changes, and ocean levels, even though these phenomena antedated the measurements.

Davis (2011) may interject that rhetoricity is present here, since difference itself constitutes rhetoric and it exists in all systemic translation between the information transferred through objects. New materialists would generally agree that the relationism found among global warming’s components precedes human meaning making via scientific measurements. The primary difference between new materialists’ arguments and Morton’s argument is that new materialists do not distinguish the influence of the scale whereas Morton makes it explicit and the hinge on which his claims swing. For instance, returning to Bennett’s electricity grid example, the assemblage of its objects affects the thing (or hyperobject) we call the electricity grid, not vice versa. In Morton’s (2013) case, it is the opposite, a top-down influence. The interobjective system of grids, “outlets,” “circuitry,” and so on are ordered and assembled by the preexisting grid and depend on the evenness of electricity flows (p. 69), which can be taken a step farther by recognizing the electricity flows are made possible by the planet’s natural resources granted to us for the conversion into energy. Hyperobjects are *the* determinate constitutive in the mesh’s ordering, and as far as Morton is concerned, “we may scale up like this as far as we like” (p. 69).

It is not that there isn’t side-to-side or bottom up influence from humans within the webs of interobjectivity, because we have several examples that prove there is. The difference is ability to influence versus ability to dwell. Humans have the ability to influence multiple

ecologies at a global scale at the touch of a button. A nuclear bomb can quickly rip through the levels of hierarchy, eviscerating biota and the conditions for life. But humans cannot create those conditions for life to dwell—that can only be done by the interaction between the three spheres. Humans are not *creating* the top-down; we merely *rearrange* it. Take the example of space travel. Sure, space ships allow for the environmental conditions suitable for life, but these innovations are simply rearrangements of earthly elements made into solar shields, oxygen tanks, thermal-control systems, and so on. The bottom-up influence of humans has great affect, but we are still limited by our inability to escape the ecosphere’s immanence in all things. This may seem like a “no-duh” claim, that we cannot escape planetary bounds. But when Mars colonies are given serious consideration by experts, it may serve as a much-needed reminder.¹⁸

Ultimately, hyperobjects appear to us as phenomena only in “pieces” of time, never in their totality. Thus, “these existential catalytic segments can also remain the bearers of denotation and signification” (Guattari, 2000, p. 45). The next chapter’s “Ecospheric rhetoric” makes the case that there is one hyperobject that subsumes all other earthly hyperobjects, local objects, and rhetorical situations. Enter, “ecosphere.”

¹⁸ Aristotle’s Rhetoric said it is much about the art of listening as it is speaking, which has informed affect studies (Konstan, 2006). But as Morton poses, how are we supposed to listen to “hyperobjects?” His answer is “doom” (Morton, 2013, p. 119). Playfully channeling the wildness of Heidegger, doom “marks the decisive moment in which humans doom the nonhuman and thus doom the doom of Earth with greater doom” (p. 119). Morton (p. 120) says these hyperobjects “deliver” us this rhetoric of doom. As he states: “Delivery is the fifth aspect of traditional rhetoric (Aristotle, Quintilian): there is discovery (invention), arrangement (logic), style, memory, and delivery. Delivery is how a speech is embodied, how it is spoken, how it comes to exist for others. Demosthenes was once quizzed about what he thought was the most important part of rhetoric: he replied, ‘Delivery.’ Upon being asked what the second most important part was, he replied, ‘Delivery’—and so on. Demosthenes practiced his delivery by putting pebbles in his mouth and climbing steep hills while reciting his speeches. Delivery is physical. What if we flipped this around, so that we could understand that the physical is a form of delivery?”

Chapter 3 - Ecospheric Rhetoric

The established academic vein of this thesis thus far has been new materialism, OOO, Lacanian register ontics, ambient rhetoric, assemblages (including time), and hyperobjects. They have helped establish the agency of objects; the tension of time between sensual objects and their qualities; how rhetoric as it pertains to the agency of objects exists among three registers (notably cell 8, the real Symbolic); how the metaphysic of these objects is one of assemblage and that the potential for rhetoric dwells ambiently; and finally, how the totality of hyperobjects determines their assemblage and ambience.

This scaffolding has been established in part to highlight the mutuality of rhetoric and ecology. Chapter 3 will continue to explore this mutuality, though my primary focus is not just their mutuality. My primary claim is that we must be aware of the specific *ecospheric* properties of objects within any given rhetorical situation, translation, or event. Once the etymology and properties of ecosphere are established, the section on Attunement will attune semiotics, symbolic, grammar, language and persuasion to an ecospheric rhetoric.

Rhetoric attuned to ecology

This next section has two goals: (1) Show how scholars have already argued for rhetoric and ecology's mutuality,¹⁹ but (2) argue how these examples are problematic or incomplete. This is necessary to justify why one hyperobject in particular is worthy of further rhetorical study—the ecosphere—because of its totalizing spatial-temporal dimension.

¹⁹ Science and rhetoric shouldn't have to be thought of as opposites. Keeling & Prairie (2018) write that "Science and its rational foundations were presented as most equipped to discover enduring knowledge. Rhetoric, previously a primary subject of inquiry and a mode of knowledge production, became relegated to linguistic ornamentation" (p. 46). Discuss "things-in-themselves" and you mean objective facts procured by the lab, but bring up "humans-among themselves, then you must be talking just about discourse, language, texts, rhetorics" (Latour, 1993, p. 5).

Rhetoric and ecology as one

One of the ancient progenitors of rhetoric and ecology is pre-Socratic philosopher Empedocles (c. 490-430 BC), whom Aristotle credits with the invention of rhetoric itself (Campbell, 2018, para. 3). Empedocles was considered a “popular politician, rhetorician, and champion of democracy and equality” (para. 3). He believed the four elements of fire, air, earth, and water were able to create all things, including all living creatures, by “being mixed in different combinations and proportions” (para. 8). He differed from Pythagoras, who thought everything to be fixed, static, and solvable by theorems. Empedocles was influenced by the work of his predecessor, pre-Socratic philosopher Heraclitus (c. 535-475 BCE). Heraclitus’ claim to fame was *panta rei*, or everything flows. He is famous for his phrase that essentially says that a person does not step in a river twice, for it is not the same river and not the same person.²⁰ These two ancient Greeks primarily wrote about events and processes that we now consider ecological.

Modern rhetorical theory and criticism has become more attuned to ecology (Pezzullo, 2016). Stormer (2018), for instance, examines the “comingling of rhetoric and ecology as a fluctuating margin that forms its own environment” (p. 343). Here Stormer (2018) encapsulates the movement of ecological approaches to rhetoric. But notice Stormer (2018) situates the comingling of rhetoric and ecology within “environments” without identifying the assemblage of objects that comprise them. The union of rhetoric and ecology cannot truly take place in any given environments because those environments are anthropocentrically delimited. Rhetoric still requires human signification, as per the real Symbolic register, though that signification cannot

²⁰ Morton understands hyperobjects, as well as their semiotic-material-rhetorical systems, are “not the culmination of anything; they aren’t even a culmination of anything” (Morton, 2010, p. 44, emphasis in original). Such a processual assemblage view of rhetoric and the ontology of objects is shared by certain theoretical ecologists, including Karl Popper or Robert Ulanowicz (2009a; 2009b), who work on a set of similar theoretical and philosophical premises. These follow the *Modes of Thought* of Whitehead (1938), who said we might “consider the variety of wider relationships of the pattern in question” (p. 197).

exist outside of ecology. Therefore, the ontological presuppositions associated with the “environment” where ecology and rhetoric dwells undermines the hard limits of ecological boundary.

One can find Kenneth Burke (1950) giving examples of rhetoric’s ecological nature. Seigel (2004) and Stormer (2018) argue Burke’s (1950) turn toward the ecological nature of rhetoric (also reflected in his 1937 and 1984 works) was due to the influence the 1930s American dust bowl.²¹ Burke (1950) establishes the materiality of rhetoric with his examples of a bird’s song. As for the latter, the song nonverbally conveys meaning through the “perception of the air in vibration” (p. 175).

However, the process Burke describes by which meaning making occurs privileges human’s symbol-use. According to Rickert (2013), Burke dangerously “courts idealism” (p. 169) when he claims that “the logic of symbols must be ‘prior’ to the effects of any ‘productive forces’ in the socioeconomic meaning of the expression” (Burke, 1950, p. 177). Nonverbal things take on the nature of words and meaning but exist prior to symbol placement; otherwise human signification can precede the ecological placements that allowed their emergence.

Moreover, just because the Symbolic constructs a patterned real of the bird that is more or less bird does not preclude the temporal tension of its song’s material vibrations in relation to how we make meaning of it. The bird having sung first procures the significations from us due to the temporal ordering of ecological relations, both in present time and first origins of the interaction. Thus, although Burke (1950) calls us “symbol-*using* [emphasis added] animals” (p. 177), we are really symbol-*granted* animals. A pre-symbolic ecology that beckons human

²¹ Seigel (2004) further claims Burke’s comic frame and his critique of efficiency arise from his growing ecological understandings.

signification is a difficult argument to make and an even more difficult argument to grasp, but it is an important distinction made by Rickert, Heidegger, Bateson, Guattari, and others.

Let's go to these authors to see if they provide a better example of an ecology determined by material limits and rhetoric. French philosopher Pierre-Félix Guattari's (2000) *The three ecologies*—social, mental, and environmental—offers the concept of “ecopschy,” or “ecological wisdom” (Rickert, 2013, p. 60), “concerned only with the movement and intensity of evolutive processes” (p. 44).²² However, like Zylinska's (2014) “geo-/bio- sphere” concept for the Anthropocene (p. 19) or Leopold's (1949) seminal “land ethic,” Guattari is concerned primarily with ethics, not rhetoric, so these do not provide better conceptualizations or examples for rhetoric and ecology.²³

None of the eco-centric rhetorical scholars I read point out what I find so striking. That to really attune to ecology, we have to critique the signification process—not just the discursive-material effects it produces, but our conceptualizations of it. Rickert (2018) argues in *Towards ecosophy in a participatory world* that Heidegger's fourfold (earth, sky, mortals, and divinities) is present in “all physical manifestations” (p. 68). The symbols inherent within earth or sky hyperobjects are not held to the same linear causality traditionally attributed to the Saussurian signification system. Their “worlding” transcends spatiotemporal specificity imbued within the

²² For concrete examples of an eco-logic, read Buceniece (2018) describe the transition from ego- to geo- to eco-thinking.

²³ Guattari makes the case for bridging the “feedback” definition across ecological and philosophical disciplines. Ecological feedback is how a component of an ecosystem affects another and how this effect feeds back into the source of the change. For instance, exponential population growth occurs when there is a surplus of resources (like grain calories) and few predators, which allows a population to grow seemingly without limit. In terms of the population debate and economics this is often debated in the Malthusian sense. In terms of rhetoric, Aristotle's dialectic or the inner workings of Lacanian registers follow the same feedback loop. Not mere heuristic overlap, however. Just as the potential for symbolicity lies dormant within ecology, presents itself to humans in our dwelling, and both shape each other, so to do positive and negative feedback loops present themselves to the encompassing ecosystem and constitutively shape its bounds. The formal causality of each's interactivity exists outside of, and presupposes, time—this is according to English social scientist, linguist, and semiotician Gregory Bateson (1979). Feedback loops are an integral part of rhetoric and ecology's cohabitation.

assignment of signification, a specificity that is the same in the signification system but different in the sensual object material realm. Signification of hyperobjects will continually leave gaps in their worlding in ways qualitatively and quantitatively different.

Rhetorical and ecological convergences must continue in full force. “Ecosphere” should be the concept considered when detailing the spatiotemporal locals of their convergences because it more robustly encapsulates their mutuality in the temporal dimension. Scholars in *Tracing rhetoric and material life* use “Anthropocene” 18 times to refer to Anthropocene in some context, mostly to refer to humanity’s impact on the geologic record (Bennett, 2010; Endres, 2018, p. 254; Goldberg, 2018; McGreavy, 2018, p. 87; Rickert, 2018, p. 61; Zylinska, 2014). A common theme is to use Anthropocene to justify analysis of various *ecological* artifacts and texts.

However, the Anthropocene and ecology are two very different concepts based on different scientific findings (Hamilton, 2015). There is overlap in conceptualizations of their systems, but the difference is scale. The Anthropocene means we affect the bio-, geo-, atmo-systems, or Earth’s systems.²⁴ Earth systems science in the late 1980s and 90s culminated in the Anthropocene concept (Hamilton, 2015). Plate tectonics, global temperatures, or worldwide CO₂ patterns (Krulwich, 2016) are examples of Earth systems, and these *must* be affected in order for us to live in the Anthropocene. And we are affecting them significantly, especially in the case of the latter two. Ecological situations—rivers, cities, fish, tides, and even the sixth mass extinction of species (Kolbert, 2014)—do not constitute the Anthropocene. They are necessary approaches for the sake of the multiple ecologies, our embedded places, and the Anthropocene

²⁴ We don’t have geologic evidence for the Anthropocene, but if any being is around in one million years, they will—plastics, nuclear radiation, etc. The Anthropocene is the first time geologists haven’t had to drill in the earth to find evidence of a new epoch. The Anthropocene is measured by what is currently present in these various spheres.

can certainly justify the significance of these ecological approaches. However, they are not indicators of the Anthropocene and ecological approaches to its rhetoric are not wholly conducive to its meaning, scope, and scale.

Ecospheric rhetoric

The ecosphere is what I will refer to as the *totalizing hyperobject*. As will be discussed later, with such an ontology scholars can begin to rethink the nature of words, language, persuasion, and rhetoric as a whole; then, how to attune to and dwell within these new conceptualizations of an ecospheric rhetoric (hereafter referred to simply as “rhetoric”). But before doing so, it is necessary to (1) delve into the etymology and origins of the term ecosphere before (2) detailing the properties that make it a *totalizing hyperobject*. Of note, a rhetoric attuned to the ecosphere has yet to be articulated in existing literature. Although “ecosphere” has been briefly mentioned its properties or effects for rhetoric have not been explored. Therefore, although this section continues to draw heavily on existing literature, the argument is original.

“Ecosphere” etymology

Out of all the literature this thesis interrogates, Rees (1992) is the only author who explicitly uses the term “ecosphere” (p. 122-123), but Rees does not go into detail about why they chose it over “environment,” “biosphere,” or so on. Perhaps it is intended as a synonym, perhaps not. But in the context of the article, Rees is referring to nature’s economies and how the ecosphere’s “ecology grounds economy” (Rivers, 2018, p. 177, emphasis in original). In the context of the article it should be considered a stand-in for synonymous ecological terms.

However, “ecosphere” should not be relegated as such. The prefix eco- derives from the ancient Greek term *oikos* (*οἶκος*, plural: *οἶκοι*). It generally refers to three related but distinct concepts: the family, the family’s property, and the house. Its meaning shifts even within texts,

but in ecological rhetoric texts it is used in a distinctive way, wherein it refers to “ecology, economy, and community” as one in the same (Robinson, 2016, p. 5). McGreavy (2018) calls *oikos* “home” (p. 91) and Rickert (2013), too, refers to it as “house,” “home,” or “dwelling” (p. 248).²⁵ Aristotle’s *Politics* uses it to mean everyone living in the same house. Rhetorical theory has written on *oikos* to discuss attic orators and social expectations of the house (Lehmann, 2016). The field of ecology was established similarly. Keeling & Prairie (2018) explain:

Ernst Haeckel coined “ecology” in his 1866 *General Morphology of Organisms*, a two volume work that promoted Darwin’s *Origin of Species*. Haeckel derived the name from the Greek *oikos* (the English prefix *eco-*, for house, dwelling place, habitat) and *logia* (for “the study of,” a derivative of *logos*, one who speaks on or treats of the subject). (p. 47)

Ecology emerged as a “subfield of biology” to better relate organisms to their respective environments (p. 47), in part because biology was becoming organism-centric. Yet ecology retained that organism-centric perspective by keeping the name “environment.”

In his plainly titled, *What on earth is environment?*, Rowe (1989) uses “ecosphere” to replace environment in 1961. Although Rowe studied in ecology, he talks about ecology less in linear physics terms and more in earth science terms. “Environment” is derived from the French ‘*virer*,’ to turn, or ‘*in/viron*’ meaning to encircle. However, “to encircle implies a centre, suggesting that other things of greater interest lie within” (p. 3). Rowe was fed up with the hazy concept of environment and its mismatch to the organisms to which it relates. Rowe continues, “Thus, nebulous ‘environment’ surrounds more sharply defined realities, such as organisms and people, from which at second hand it derives its status...environment used in this way reflects back to peoples’ preoccupation with themselves” (p. 3). Rowe’s use of ecosphere was to prove

²⁵ It’s even a name of Greek yogurt.

everything—all biota, abiota, plants, animals, organisms—is contained within one sphere widely distributed through space and time.

Ecosphere properties

As Morton (2013) outlines the properties of hyperobjects, the ecosphere as totalizing hyperobject has four distinctive properties (each conveniently beginning with an e): (1) *Encapsulation*, (2) *Earth Alive!*, (3) *Entropy*, and (4) *Emergence*. Together they shape the potential for rhetorical translation in the real Symbolic register.

Encapsulation

Carolus Linnaeus's (1707-1798) first established his nested hierarchy of being in his 1735 work, *Systema Naturae* (Figure 3.2). This order of nature nomenclature diverged from Aristotle's great chain of being (Figure 3.1) as well as Genesis 1:26: Then God said, "Let us make humankind [a] in our image, according to our likeness; and let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the wild animals of the earth, [b] and over every creeping thing that creeps upon the earth" (New Revised Standard Version). Whether God's dominion over plants and animals or Aristotle's order are read as metaphysical statements or arguments against class-based societies, Linnaeus offered a new way to think about man in evolutionary terms.

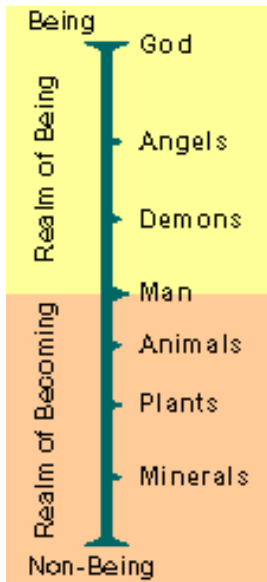


Figure 3.1 Aristotle's Order ("Understanding Evolution," 2018)

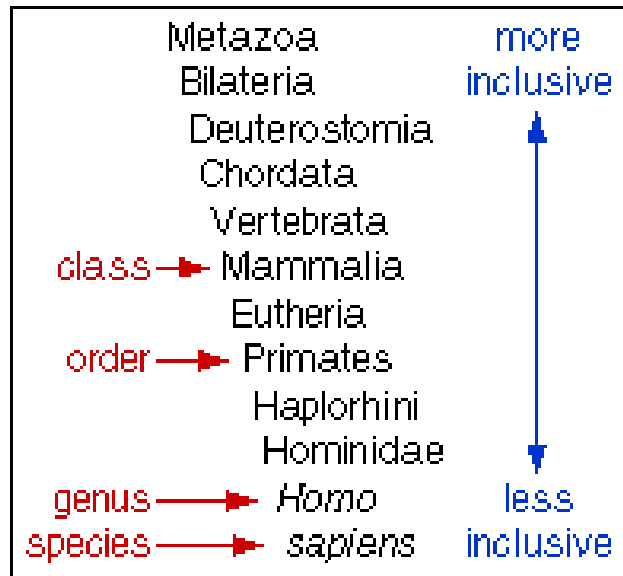


Figure 3.2 Carolus Linnaeus's taxonomy ("Understanding Evolution," 2018)

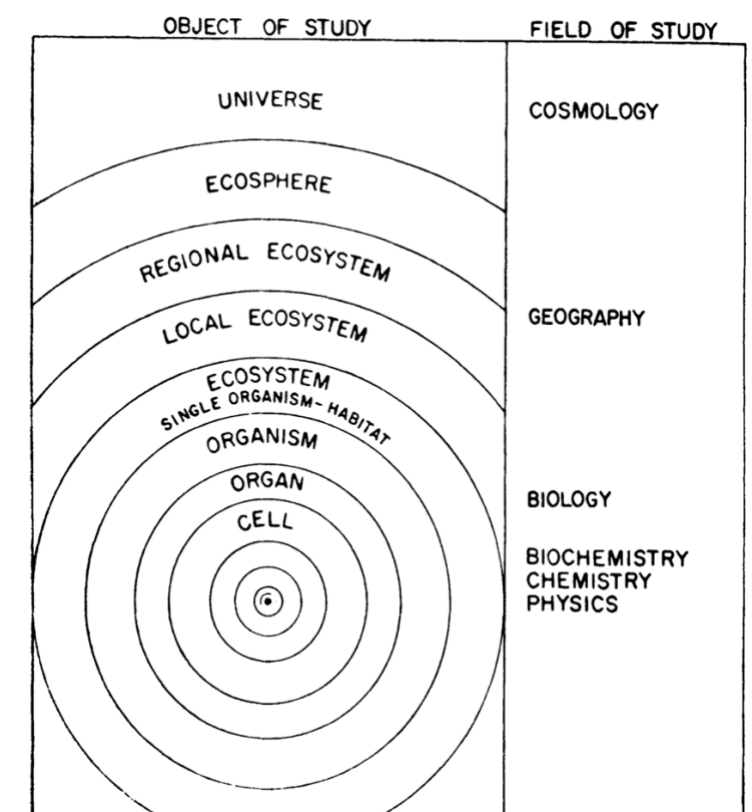
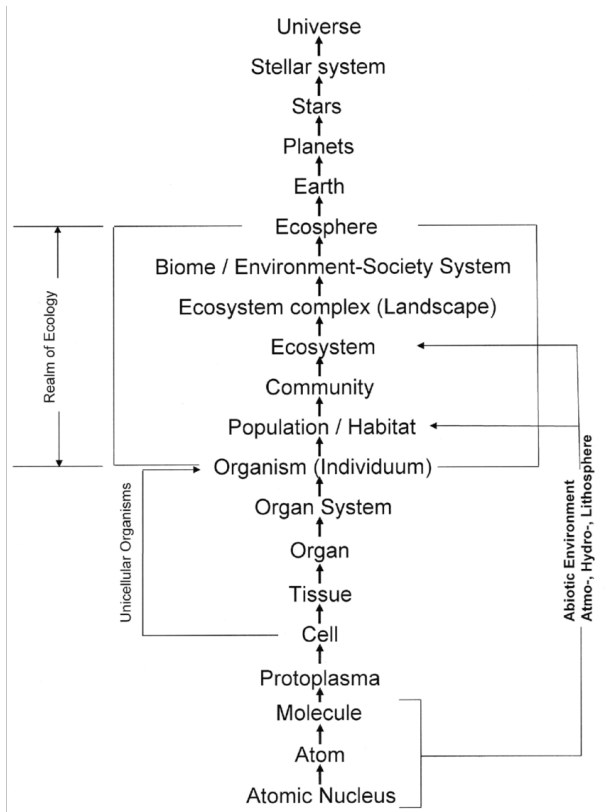


Figure 3.3 Complete hierarchy of organization levels of matter, each one understood as a system (Haber, 2004, p. 5)

Figure 3.4 Object of study taxonomy (Rowe, 1961, p. 422)

The Linnaean taxonomy is still widely used in science classrooms to understand how species evolve over time. Within biological studies the hierarchy akin to Haber's levels of matter (Figure 3.3) is the common tautology. However, Rowe (1961) takes issue with populations and communities coming after organisms because it privileges the conceptual centrality of organisms. In contrast, he argues ecosystem should come after organisms as he illustrates in his "Object of study" taxonomy (Figure 3.4).

The concepts become important as each becomes understood as its own individual system by its inhabitants. As Abrams (2015) explains, "in this universe the size or complexity level of a thing or event determines not only its nature but which world it's operating in and which physical laws control that world" (p. 83). The physical laws of the ecosphere operate much differently than those of a cell, and the former encompasses the latter. Rowe (2006), and later Jackson (2010), used the thought experiment of placing oneself inside a cell. Looking at the cell from the outside it may seem dead, but on the inside flagellums and bacteria wiggle about, very much alive. Likewise, everything on the earth is alive and cannot live outside of that which contains it. The zoom lens, so to speak, is the way the organism views the reality of the world. As Abrams (2015) says, "Every size scale holds a different world. Every world, when you focus on it, appears to be not a size scale but reality itself" (p. 71). When the zoom lens is set to population or community those become the organism's world, its reality.

The mismatch in the reality of the assemblage of objects within a system has material consequences for the encapsulating system, so even though the realities may seem separate and linear (as seen in Haber's linear diagram), they swallow one another (Rowe's levels are circles encircling other circles). An object (tree) has contiguous volume (Jackson); a geographical

aggregate (tree community) has unity in “common occupancy of area” (Rowe, 1961, p. 421); and a non-object, non-aggregate (species of tree) is widely separated in time and space. That these three exist within the same hierarchy leads to an inconsistent level-of-integration scheme (p. 492). Like a Russian doll, damaging the medium-sized Russian doll harms all the smaller dolls contained within the medium-sized one. But damaging just the smallest does not affect the rest of the dolls. Put another way, one cell in a tree may take millions of years to genetically change, but it takes only days for humans equipped with technology to decimate miles of forest.

In contrast to an environment, whose parameters can shift depending on its holder, the ecosphere’s parameters are always comprised of three spheres: atmo-, litho-, and hydro- spheres. Tissues are comprised of object cells. Populations are non-object, non-aggregate that cannot hold object organisms. “Tissue” implies living, “population” implies stagnation. Rowe casts doubt on “population” because it is not included within the environment of its member organisms. Other abstract categories, such as “species, flora, deme, vegetation, and nature,” Rowe argues, should all “be rejected” (p. 462). “Environment’s” violation of “contiguous volume” means the amount of stuff—the tangible, quantifiable assemblage of objects—can shift based on the organism and its environ(s). When extended to humans, this creates a superiority justified by such constructs that does not establish the three spheres’ primacy.

In attuning to an ecospheric scale one realizes that environments can have species, but species cannot have environments. For example, Pyenson (2018), a paleobiologist, explains whales emerged 4.5 million years ago but were unrecognizable from what we know to be a whale today. They lived in streams, river deltas, and were the size of a small dog. The onset of ice ages, a few million years ago, affected the distribution of their prey, making it hyperabundant in warmer seasons along the coasts. “This set the stage for long-range migration, while

enhancing advantages that baleen whales already had for living large” (para. 6). Indeed, it was not the whale itself that evolved as a larger creature. It needed the push from the ice age that occurred on a larger scale. And it was not really the ice age, but the solar radiation fluctuations that caused the ice age.

Total encapsulation by ecosphere is not often realized because the time of the assemblage of objects is so widely dispersed. For instance, in any given speech worthy of rhetorical analysis, precedent is given to what is said, not said, or perceived by the audience. Any additional noise, context, whirring fan, podium, symbol-use on hats, and other non-speech acts are sometimes considered as well, but as secondary factors. However, all of these factors can affect the public speech, and all can be accounted for within a rhetorical situation. As the section on Assemblages states, an Objects’ Qualities continually assemble even though they present as more or less the Sensual Object.

This conclusion takes effort to get to and constitutes a significant mental exercise exhaustive of time and resources with little practical worth for dominant modes of rhetoric. But the ultimate mental marathon is to relate all objects back to the ecosphere properties, which makes up all object’s Sensual Qualities. We can sense the air, earth, or water, but when they are presented in an alternate form—say a red hat or podium produced through the manufacturing process—suddenly we don’t see air, earth, or water. We may see color, fabric, or metal, but not the ultimate origin of those objects. That proves the point I am trying to make. That air, earth, and water are so massively dispersed and out of sight is evidence of their totalization.

Earth alive!

Rowe (1961) takes issue with equating life to the biosphere because doing so privileges organisms, especially humans. Later Rowe (2006) emphasizes how this fundamental mismatch

perpetuates into our linguistic, social, and political systems. Populations can spread and affect unchecked by their ecosystems given the treatment of atmo-, litho- and hydro- spheres as abiotic (as demarcated in Figure 3.3). If this is the case, why wouldn't the living take precedent over the dead? Nevertheless, Rowe's (2006) primary assertion is that the ecosphere, and everything that make it up, is living. Therefore unlike the previously mentioned ecological and rhetorical approaches, an ecospheric rhetoric cannot be relegated to the biosphere because the ecosphere is where "the interaction between the living and non-living components is emphasized" ("Ecosphere," 2018).

The biosphere emerges from interactions between the hydro- and litho- spheres (the early atmosphere was too toxic to sustain "life"). First life, as biologists use the term, originated in the oceanic thermal vent and we are descendants of that wriggly life. The great oxidation event around 2.48 billion years ago allowed the once-toxic oxygen to sustain the early life that beget Sapiens' evolutionary ancestors. Eventually, the atmosphere's golden ratio (78 percent nitrogen, 21 oxygen, 0.9 Argon, & 0.1 trace) materialized, establishing the ozone layer and further necessary conditions for Sapiens. But notice the same earth that gave rise to the biota (emphasis on Sapiens here) also gave rise to abiota (soil, sunlight, water). Moreover, individual abiotic factors can be just as unclear as the boundaries of an ecosystem. Those things we classify as non-living, the things outside of the biosphere, are deemed as such because science's objective ontologies separated biota/abiota. Resulting discourses treated abiota (non-living) as dead, even though they are comprised of the same stuff as biota. Treating these things as lifeless rationalizes our destruction or saving of them. In this way, we must exclaim that the entire Earth is Alive! (Rowe, 2006).²⁶

²⁶ Unlike Figure 3.3, where Earth and ecosphere are differentiated, Rowe considers them one in the same. Therefore, one could say Ecosphere Alive! just as much as Earth Alive!

Bennett (2010) acknowledges new materialism's goal to "horizontalize" the relations between humans by collapsing the biota/abiota bifurcation (p. 111-112). If one follows this logic to its natural conclusion, Bennett does not want to collapse species distinction but give them the same value as those things often considered dead. Her focus is not so much on relating every object back to three spheres—perhaps with this common foundation there is greater justification for flattening all.

Starting with the exclamation Earth Alive! can begin to further dissolve these dualisms, though any rhetorical work must still deal with the tension of time that will inevitably emerge in locating local objects' origins in the widely disseminated hyperobject. A rhetoric embracing Rowe's (2006) exclamatory statement must also deal with the tension of time within theories of semiotics, grammar, and language if such a hard dualism collapse is to be justified.

As has been detailed so far by the first two properties, the ecosphere encapsulates all other objects, and thus, their potential for rhetorical translation. It does not distinguish between living and dead things because all arise from the same interaction of three spheres—these are not made readily apparent because of how far back in time or widely dispersed in time they are.

Entropy

The third property is how the assemblage of local objects, all derivative of the ecosphere, are subject to entropy. Entropy is a thermodynamic quality often interpreted as the degree of disorder or randomness in the system. Distilled, it means a system's gradual decline into disorder.

In 1850, Rudolf Clausius and William Thomson (Lord Kelvin) stated the first law of thermodynamics, that total energy is conserved, and the second law, that heat does not spontaneously flow from a colder to hotter body. They are the only universal laws in that they

remain consistent at every scale—for objects that make up ecosystems, the ecosphere, and even the very beginning of the universe (Abrams, 2015; Nikiforuk, 2012; Wessels, 2006). Some might say, “well, what about photosynthesis? There exists generation without decay; where is the entropy in that system?” But that limits the system to the ecosphere, for our dying star (the sun) is experiencing extreme entropy and every generative aspect of the planet can exist thanks to its decay. Harkening back to Rowe’s thought experiment, it takes zooming out to get a better sense of the whole picture.

Entropy as information theory has a relationship to thermodynamic entropy. Information theory was developed by Claude Shannon and Ralph Hartley in the 1940s and was publicized in *A Mathematical Theory of Communication* (1948). “Information” can be within a specific entity, shared between entities, or used to theorize about language. If treated as a string of characters in a text,²⁷ English “has between 0.6 and 1.3 bits of entropy per character of the message” (Schnieder, 1996, p. 234). Its low entropy level makes English predictable. For instance, if the first part of a word is spelled out, it’s easy to guess the rest of the word. One of the most famous convergences of information came from Stephen Hawking, who argued the entropy of black holes eliminated “information.” In 2004 he finally conceded information *eliminated* and agreed it *retained*. Nevertheless, Hawking cemented that entropy in both thermodynamic and information senses were valid when said in the same breath.

Entropy referred to in both ways further fuses subject/object and shows that the ecosphere exhibits from similar models of object decay and predictable aspects of human communication (and therefore, rhetoric). Entropy is important because it universally (universalism qua scientism, not philosophy) signifies that everything within the ecosphere

²⁷ Admittedly a reductionist view of language that does not account for its. Language reframed as origin in the oral tradition is the subject of the section entitled, Orality of Language.

comes from somewhere and goes somewhere, and that in that process the thing is fundamentally a different thing because its energy escapes or transforms.

With this basis of verbal communication in the English language tradition, consider a rhetorical analysis of the discourse toward Syrian refugees who must flee due to water shortages amplified by climate change. The analysis' implication or discussion sections may gesture at popularized solutions to the root problem of displacement by way of climate change, like water desalinization or carbon sequestration; but what is likely left out of the analysis is that these solutions require disorder in another system, such as the energy consumed in the making or powering of the sequestration or desalination technologies, which affects the totality of the hyperobject system. Again, we do not often account for the source or sink because these systems are so widely out of sight that they forego our attention, or we pass the buck to another discipline.

Empedocles believed the four elements—air, fire, earth, water—continuously interrelated, interacted, and alchemized. These elements acted with one another, but he believed no new elements could come into being; change could only occur within the rearranging of these four. If only he knew how right he was. Everything on this earth comes from these three spheres (not four, fire comes from rapid oxidation of a material, combines atmo- and litho- interaction). Even newly added element Oganesson (118) was created in 2002 when calcium ions were formed into a beam in a particle accelerator and fired at a layer of californium oxide deposited on titanium foil. The accelerator, foil, and every other object used in the process can be traced back to the Qualities of three spheres. Empedocles' ancient theory is relevant today.

The source of our understanding of materiality, as well as most of the situations and technologies worthy of study, are because of the speeding up of the Ecosphere's entropy.

Bellamy & Diamanti (2018) describes how our deep understandings of hyperobjects today—like the economy, atmospheric carbon levels, acidification levels, etc.—are thanks to our reliance on highly dense carbon, the burning of which speeds up the rate of entropy:

Materialism has developed two modes of tracking energy that demystify the force unleashed by fossil fuels: on the one hand, through the critique of political economy; and on the other, through a theory of materiality contoured by the access to deep history and cosmic space made available first by coal and eventually by oil and natural gas. There is a historical dimension to these trajectories... The work of the body and the work of the machine, once ignited by the roaring furnace of fossil fuels, allowed for the redefinition of the conceptual. (p. 2-3)

Even the conceptual of the rhetorical situation as a rhetorical “lifeworld,” to use Rickert’s (2013) term (p. 213), opens up for redefinition. Discourses often treat the ecosphere as *apeiron*, a never-ending bounty we can continuously exploit, without acknowledging its limits. Instead, rhetoricians must fundamentally rethink research questions, like where—in what is said or not said, how people are persuaded, or what visuals can tell us—are the opportunities for material-semiotic analysis? In object-centric materialist and ecological discourses, what does it take to “make a thing and what it takes to move it” (Bellamy & Diamanti, 2018, p. 1)?²⁸

When I write of limits I mean the bio-, geo-, and chemical interactions of the ecosphere (not beyond) that produce Earth Alive! Falling between 10^6 - 10^7 centimeters on the cosmic uroboros scale (Abrams, 2015, p. 67), ecosphere is ever alive and in flux—evidenced by

²⁸ For instance, what does the prefix eco- actually mean? Sure, it may increase one’s wariness about matters of ecological concern. But does it signify the limit-bound reality of the system in question, or does it remain as abstract as “environment?” Eco-detergents, eco-modern homes, and eco-friendly organic food sound great in practice but glossed over is the underpinning structure of embodied energy required to create them. For Bellamy & Diamanti (2018), these eco- rhetorics “miss the forest for the trees” (p. 1).

volcanoes, tectonic plates, meteors—and is therefore not bound to certain measurements or qualities. That said, its “contiguous volume” (Rowe, 1961) can be estimated. Consider scientist and professor Vaclav Smil’s many calculations on energy, biomass, and human consumption. Moreover, Bar-On, Phillips, & Milo (2018) estimate ≈ 550 gigatons of carbon (Gt C) of biomass distributed among all the kingdoms of life. There is an identifiable and numerical mass of material stuff within this ecosphere. This mass includes limited, highly-dense carbon pools, of which are being burned at an alarming pace.²⁹

The material-semiotic struggles of rhetoric must grapple with these limits, which means continuing to push the temporal bounds of the rhetoric situation and agency of the material (in the case of this section, heat transfer). When a rhetorical lifeworld is put into close focus, the situation is given a spacetime slab of meaning, wherein those objects become more or less solidified and are given cause-effect status. Hyper-attunement to a rhetoric of ecological materiality must forego those things made immediately apparent to us by a more static viewpoint. A truly ecological rhetorical situation expands a situation’s spacetime to give credence to the entropy of that system.

To recap the first three properties, the ecosphere 1) encapsulates, 2) exclaims its total aliveness, and 3) experiences entropy in all local instances. But as the next section argues, it also demonstrates emergence.

Emergence

Abrams (2015) explains that emergence is when “something else emerges from nothing but” (p. 43). For example, as studied in chemistry, “heavier chemical elements arise from hydrogen and helium” (Harman, 2011, p. 120). Morowitz (2002) outlines the emergence of

²⁹ When Guattari (2000) warns of the “entropic rise of a dominant subjectivity” (p. 68), he was most likely referring to humanity’s quickening of entropy as a result of dominant human activities.

everything in 28 sweeping steps—language was step 24, technology step 26. Says Morowitz, “Emergence occurs only when the activities of the parts do not simply seem to give the activity of the whole. For emergence, the whole is indeed more than the sum of its parts” (p. 23). Abrams (2015) offers the pithiest way of articulating emergence: “more is different” (p. 38).

Emergence is not reducible to cause and effect, unlike Newtonian physics in a box. There is no clear linearity of one-part interacting with another to cause something else, and then reversing time and coming up with those same exact materials. Just as in ecology as in rhetoric, emergence can help provide explanations for the confusing, new, and inconceivable. Moreover, it can help mend the material/representation relationships by elucidating patterned difference across time.

Emergent systems cannot be predicted by systems theory. As Abrams (2015) explains, “Emergence tells us that as the complexity of a situation grows, we can predict with confidence that something radically original will emerge, governed by never-before-seen-laws” (p. 47). Emergent systems, then, maintain even if their individual parts do not. Abrams (2015) confirms that “emergent systems persist over time, outlasting any of their component parts” (p. 44). This happens at every scale, from the expanding cosmos to when microorganisms became the first eukaryotic cells a billion and a half years ago to our modern understandings of chemistry. The eukaryotic cell perfectly illustrates emergence. We learn its parts—nucleus, mitochondria, ribosomes, cell membrane—that interact together and make up a new whole we refer to as “life.”

Another classic example is that of the army ant colony. Sociobiologist E.O. Wilson was one of the first to argue evolutionary traits occur at the level of a social group (and not just at the genetic level), and he came to this conclusion whilst studying his first and enduring love—ants. Ants recognize certain pheromones and based on what needs are most immediate (food, water,

shelter, etc.) they respond to those the fastest. Thus, a “swarm logic” emerges (p. 40). An ant colony is always adjusting for how much food to get, but no individual ant knows about the holistic adjustment. The whole colony is greater than the sum of its ant parts. Moreover, an ant can die but will be replaced by an ant that supposedly has more fitness because it survived the surrounding environment—a different part that serves the sustained emergent system.

Abrams (2015) argues that “there’s a crucial difference between emergence as a result of human intentions and emergence in nature” (p. 48). Abrams is differentiating between orchestrated and organic emergence, but in doing so, Abrams is operating within the modern nature/culture split (Latour, 1993). In fact, any emergent property of human intention should also share an ontological connection with what exists in “nature” since we are not separate from it. We must become more attuned to the emergent patterns that occur in our ecosphere. This starts with understanding the emergence of rhetoric (traditionally camped into “human intention”) in a manner similar to how we understand emergence in the natural sciences.

The less we attribute rhetoric to anthropocentric tendencies, the better. We can better see the commonalities of rhetorical and natural emergence. Rickert (2013, p. 116) writes that rhetoric is “emergent: an ecology of elements and forces in dynamic, mutually condition interaction catalyzes in holistic transformation when significant ‘tipping points’ are reached.” As Ewalt (2018, p. 147) echoes, rhetorical “invention becomes an emergent process.” Rickert furthers this idea as follows: “The larger whole emerges as what fits things together, and from this fitting, individuation, motivation, bearing, and value emerge in their distinctiveness... There is a mutually conditioning amalgam of humans, animals, environment, and things that co-responsively produce disclosure” (p. 182-183).

However, those attuned to rhetoric must have a more accurate understanding of its qualities. That does not mean we must be able to predict it or craft an indisputable law. After all, as Abrams (2015) reminds, “next stages can’t even be given probabilities. They are ‘radically unpredictable’” (p. 47) and “emergence is still a relatively new field, there are schools of thought that sometimes conflict” (p. 41). I suggest rhetoric turn to the field of process theoretical ecology for more completely understanding of the commonplaces in which rhetoric and ecology dwell. For instance, just like autocatalysis (see Figure 3.5 and Figure 3.6), where there is a feedback loop in which one part does not predict or effect the other, the objects that make up a rhetorical situation do not experience direct causation. Both account for what is added (within the ecosystem’s limits) in a rhetorical lifeworld or system and show what is not usually given priority by traditional accounts of biology or rhetoric.

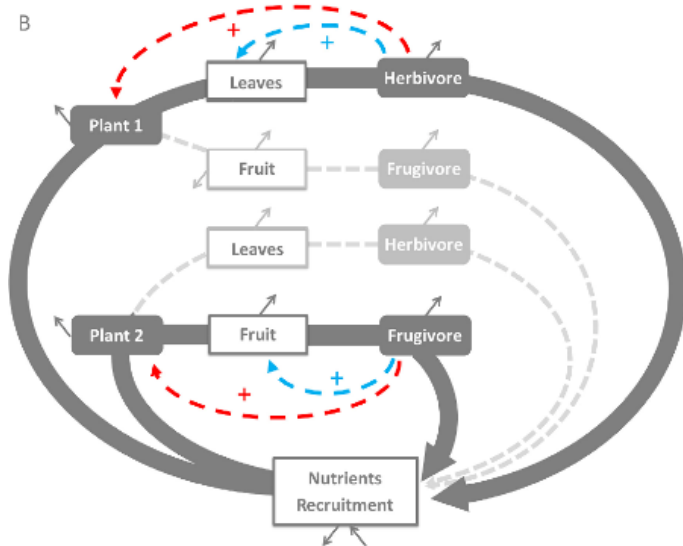


Figure 3.5 Autocatalysis (Veldhuis, Berg, Loreau, & Olf, 2018, p. 310)

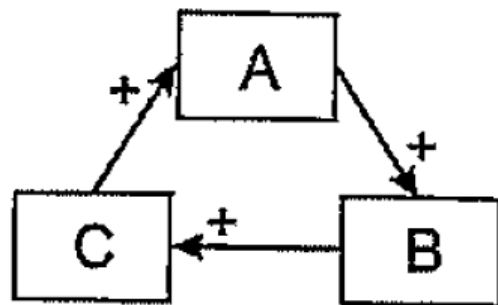


Figure 3.6 Autocatalysis at its simplest (Ulanowicz, 2017, slide 12)

This may sound like a totalizing argument, especially for rhetoric theory. But that's the point. Such widespread and totalizing ecological demise should be the reason to consider such a totalizing word as another alternative. If ecological-turn rhetors are serious about once again getting down and dirty with the things themselves, then those things must subsume us and direct more of our attention. If this totalizing argument is granted even a shred of legitimacy, then the tension of time yet again rears its head. Most notably, our signification systems do not broadly account for ecospheric temporality, or how to talk about its Sensual Qualities. Time to reattune.

Attunement

With the etymology and four properties of ecosphere established, now the question becomes how to “attune” and “attend” (Rickert, 2013) to such complex, entangled, and interwoven material multiplicities that symbiotically co-emerge? Attunement indicates how one situates in the world, or how one “embeds” themselves in the situation (p. 9). Embedding oneself is not easy. There are ways we can embed ourselves within a rhetorical situation and feel the ecosphere. One way is through language and how it enmeshes within a processual and limit-bound ecosphere. Moreover, realizing that the transmission of language throughout history has been foremost oral changes how we think about signification. These will serve as the theories used for the artifact that is the focus of Chapter 4.

Reconceptualizing semiotic theory

Semiotics comes from the Greek root *seme* as in *semeiotikos*, meaning the interpreter of signs (Lodge & Wood, 2008, p. 49). Semiotics claims two fathers: American Charles Peirce and French Ferdinand de Saussure.³⁰ Later, Saussure established his signifier-signified where the

³⁰ Ogden & Richards (1923) established the semantic triangle (referent, symbol, thought) based on the Piercian (1878) triadic semiotics (representamen, object, interpretant).

signifier, or the sign's physical form, is distinct from its conceptual meaning (Lodge & Wood, 2008, p. 42). Together they make up symbolic, iconic, and indexical signs, metonymy, synecdoche, denotations, and connotations. Collections of related connotations can be bound together by syntagmatic relations, myths, codes, ideologies, or discourses (Semiotic terminology, 2018). The signifier has been written as the material form that signifies, like words on a page, a facial expression, an image, or sound.

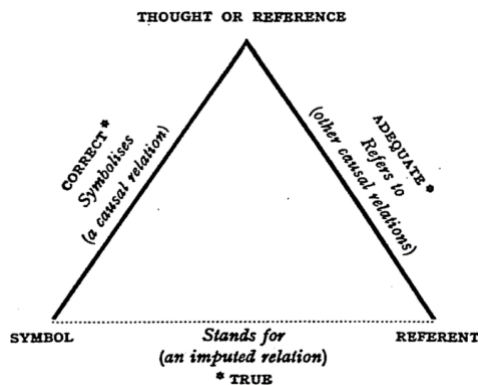


Figure 3.7 Ogden & Richards (1923) semantic triangle (p. 11).

| | |
|---|---|
| | |
| <p>Peirce's semiotics triangle theory</p> | <p>Saussure's semiotics dual layer theory</p> |

Figure 3.8 Piercian and Saussurean semiotic diagrams (Yi'an, 2013, p. 10).

Saussure established the signifier-signified diagram as a dyad wherein most meaning was considered detached from the physical sign (Figure 3.8). This reduced symbolic meaning to a chain of signifiers (Lodge & Wood, 2008, p. 313) where meaning defers and divorces from the

sign itself. In actuality, the relationship is triadic because the object/thing does the signifying, even for symbolic signs because although they are culturally specific all cultures are dependent upon the ecosphere and its various local manifestations.³¹

For the remainder of this section, I will use Saussure's terminology and make synonymous object and sign. I purposefully choose Saussure's terminology over Pierce. Although it would seem the latter's terms are more conducive for thinking of signification as material, I choose the terms that poststructuralists have most commonly used to rethink their meaning. When people read "sign," "signifier," and "signified" used differently, that should strike a mental comparison to poststructuralist's use of the terms. For the purposes of this thesis, the long written-about meaning behind each term is less important than how we conceptualize the *process* of signification that flows through the three. Of note, I use all three terms even though Saussure only meant it as a dyad, and I treat object/sign synonymously.

Rethinking these units of analysis in this way helps forward a critique about the order in which signification occurs. The crux of the argument in this section is that the object first triggers the signifier, that the triggering always imbues a temporal tension, and any objects subsumed by the ecospheric hyperobject create for a chain of objects, not a chain of signifiers.

Ecosphere, as totalizing hyperobject, imbued in symbolic

Language is characterized by certain qualities—it is abstract, arbitrary, negative, and producing meaning through difference. These qualities maintain from traditional semiology. What shifts is which anchors meaning as it is produced, reproduced, systematized, and circulated. As revolutionary as a "word within the world" mentality may sound,³² it was

³¹ For the purposes of this thesis, "object" refers to local manifestations of ecosphere as the totalizing hyperobject described in chapter 2. Although there is overlap, it is not synonymous with Saussure's concept of sign.

³² Back to the example of "dark matter/energy" from chapter 2, we know there's this presence that makes up 85 percent of all the gravity in the universe. It exists even though we don't have a name that specifically describes its

fundamental in classical times. Keeling & Prairie (2018) observe, “For classical Greeks, changes in language were physical transformations; language did not come before or after the physical, it was manifest in it. Today’s language–matter dichotomy was not readily apparent in classical rhetorical practice; it had to be created” (p. 45). Talbott (2018) agrees, “our life today, with its materialistic convictions about the meaninglessness of nature, has required a long descent from the living, ensouled landscape upon which our ancestors were nurtured” (p. 17).

Rhetoric attuned to ecology cannot presuppose a litany of signs detached from their origins. Sapiens’ big brain developed on the African savannah as a result of our ape-like ancestors coming down from the trees to work together on the grasslands. This paved the way for the “cognitive revolution” some 70,000 years ago (Harari, 2011), and allowed for symbol-making out of signs is a direct result of those signs (the actual grass or stone tool). The origins of symbolicity told this way may seem radical or absurd because of the sanctity of the human ingenuity myth. Talbott (2018) explains the myth:

According to the evolutionary story that most of us have forcibly absorbed from a young age, humankind somehow raised itself above the beastly, mindless, material substrate of its origin so as to achieve, step by step, the mystifying wonders of language and poetry, music and art, politics and science. (p. 14)

Obviously, Sapiens have not overcome our origin in the material substrate comprised of interacting assemblages of the atmo-, litho-, and hydro- spheres and their properties. We have come to be *as a result* of this substrate. The “stay of materiality bears up the meanings we reach for, even as the meanings we reach for have already emerged within the worldliness of our

properties. Neil de Grasse Tyson says we might as well call it “dark force” or “Fred, because we don’t want to send people down the wrong thought patterns. We don’t even know what to call it” (Tyson, 2014). The point is, the world comes before the word.

existence” (Rickert, 2013, p. 216). Meaning has the potential to dwell everywhere, in all signs, and makes themselves apparent to humans, because “virtually all our language testifies to the primeval experience of nature as a material/immaterial, inner/outer unity” (Talbot, 2018, p. 17).

To be clear, this is not asserting rhetoric exists pre- or a- symbolically (excluding affect studies). Because if we assume we were *not* symbolic creatures and ask “what is or isn’t symbolic?” we only get into a debate about access to something, not the something itself. That humans can act like Gods and have planetary effects on ecological systems does not mean our symbols can stand alone and presuppose a sign. Neither do I claim that sign systems have neat simplicity, because meaning is not stable (Blair, 1999). But the sign systems *as varying assemblages of the same hyperobject* are more or less stable. All signs, as well as us and all our signifieds, must be fixed to the ecosphere, which is processual and only fixed in a constant mass relatively stable to human activity. Otherwise we are saying human brains exist beyond the confines of our origins. And all the objects are assemblages of ecosphere as the totalizing hyperobject because all objects can trace their beginnings to the interaction among the ecosphere’s three spheres. This does not split nature (out there)-culture (here), but rather forwards ecosphere (all around)-human (within).

Ecosphere is simultaneously sign, signifier, and signified, for without the ecosphere those concepts would not exist. It seemingly swallows the mechanism of semiology, but retains its terminology given the need for rhetorical translation. Ecosphere spans several registers, including the symbolic Imaginary and imaginary Symbolic, but when addressing the nature of the real Symbolic, or that which is ontologically real within Sapien’s systems of meaning, ecosphere as fundamental object begetting all signage allows for contingency. Moreover, this argument requires a further exploration of time.

Temporal tension

Signifieds and concepts imbue a much different temporality than do objects and signifiers. Lacan (1977) was the first to introduce the concept of “signifying chain” in 1957 to describe a series of signifiers linked together (p. 153).³³ He argues against the linearity of Barthes’ symbolic chain, instead emphasizing the centrality of repetition when signification happens and the consequential deferral of meaning *ad infinitum*. However, to illustrate Lacan only extends as far back to an infant’s first use of language, thereby limiting the origin of the human. In reality, an infant is only one link in a chain of humans back 200,000 years evolved from the ecosystems of the ecosphere. An infant born today does not inherent a more evolved signification process than an infant born in Neolithic times.³⁴ Ecosphere as *hyperobject* is so massively distributed through spacetime that it at once encompasses the subject, language, objects, and signification pre-infancy whilst retaining human wholeness.

If all local or quasi objects are dependent are smaller manifestations of the ecosphere, a rift between the temporality imbued within the hyperobject-as-concept and hyperobject-as-object. For instance, when I say “look at that soil erosion on that river bank, that’s what industrial agriculture gets you,” it takes but a split second for the synapse that associates the concept of erosion by way of industrial agriculture to the signifiers of soil, river, and bank as discrete signs. The concept delivers at warp speed. Conversely, the temporality imbued within those local objects spans much longer. The soil, river, or bank took millions of years to form, and are all a result of interaction between the ecosystem in which they dwell.

³³ Cates, Bruner, & Moss III’s (2018) construction of an ontical cartography from Lacan’s register does not mean they agree with Lacan’s later claim that “there is no getting outside language” (Lodge & Wood, 2008, p. 185). They in fact do the opposite by overlapping that which is made real by the Symbolic but also those thoughts not accessible through symbolic meaning. Also see Lundberg’s (2012) rereading of Lacan (1977).

³⁴ Arguments of human uniqueness to language brings about speciesism. The conclusion of this argument could end with the question, can one be non-specieist and also retain human qualities, such as language?

This is not to separate the interplay between concept and object. An object precedes the concept, but the newfound concept can rearrange old objects into new ones. Take industrial agriculture. “Agriculture” as a concept came about due to the need to plant a stable grain crop. But the agriculture concept produced a different rearrangement of carbon (ontologically a new object) when industrialized pesticides, technology, and equipment became fixtures. The concept is able to affect or make the object, but the object is always the pivot because the concept cannot exist without the object’s existence. Each concept arose from the signs of the time. If the ecosphere so happened to remove those signs, the concepts would cease to exist after a period of time, when humans stopped passing on the concept to younger generations or no record existed. It is not that meaning is endlessly deferred, but rather, ecospheric signs allow meaning to *defer itself to us*.

Not only are we made of the same elements as those things we signify, but those things we signify present them to us to be signed. Our earliest big-brain ancestors did not likely debate what to call water. They felt called by the water to call it as such, through grunting, pointing, or what we would now call “archaic” symbol-use. Even though the object “water” stayed relatively the same for 200,000 years, the continual existence of water continues to allow us to call it as such. If it were to completely disappear, it would no longer beckon that distinct signifier-signified. Ultimately, drinking water allows us to not die and continue to signify water and other assemblages of the ecosphere.

Chain of objects and Symbolic’s need for rhetorical translation

I have already established that hyperobjects are so totalizing they swallow up any temporal tensions of more local objects. But how then do we consider the process of signification? If the hyperobject encompasses all local objects, it should logically follow that the

signification systems of local objects are encompassed within a hyperobject signification chain whose signs relate to those three things that always make and sustain us. The meaning of the thing relates not only to the thing itself but the common denominator assemblage of the atmo-, litho-, hydro- spheres that gave rise to both Sapiens and it, albeit at different points on the evolutionary timescale. Introducing ecosphere does not anchor the sign process any more than nonsense like “gorbleshank.” In the end, it is yet another thing, word, and concept that Sapiens have felt necessary to call as such. There is not a fixedness or linearity in studying the process of signification, thus, why rhetorical translation will always be necessary.

How does rethinking semiotics in this way influence our understanding of rhetoric? Most strikingly, rhetoric is not an inherent capacity in a speaker but a quality “triggered” outside of the speaker. The symbolic function of rhetoric functions to unite humans closer to our origins, as Cates, Bruner, & Moss III (2018) detail of the real Symbolic: “there is a ripe field of interactions between subjects and objects that should inform our understanding of processes called ‘rhetoric’” (p. 172). These interactions occur between us and the signs even as the sped-up big brain likes to think the signifier-signified interactions happen independently.

Other species, soil, or plants do not have to worry about hyperobjects. They live within their respective ecosystems and go about their business. But humans, for as much as we are similar to all of these Alive! creatures of the Earth, have managed to spread beyond our limits. The totalizing hyperobject of the ecosphere requires our attention if only because the consequences of our collective actions have begun to make its rate of change all too apparent. We must try our best to reimagine the basis of sign for our semiotic systems.

What are words?

All words have some prior bearing to any sign system. For Heidegger (2001), language was “the rich background of ordering relations within which symbolicity emerges and from which it takes its bearings” (Rickert, 2013, p. 179). Our dwelling in the fourfold—Earth, Sky, Mortals, and Divinities—means our language can only reflect the material reality of them. Words, then, do not grant existence for they materialize from what already is—“for a word to function as a sign already presupposes a matrix of relations that, insofar as it creates valuations and ordering, prepares places for the signifying names” (Rickert, 2013, p. 179-180). Rickert (2013) continues, “a mere word cannot give being to the thing... a word is not a sign, but it is of language or characterizes something essential about language” (p. 179). Words as a background of ordering relations allows for cohabitation of both words and the human subject, and dissolves the subject/object dualism for the former beckons the latter.

For example, let’s again turn to water. As I say the word “water” and then drink it, it becomes part of my body, adding to the 60 percent of water that makes up the material me. But it is also not water as we know “it.” Water has four emergent properties—hydro-philic and phobic substances, evaporation, cohesion, and temperature moderation—that disrupt our signifying name of “water.” It is more or less all these things but the word “water” does not give being to the substance of these properties. Its many ordering relations grant me life and prepare it for signifying, it is not solely I who does so. Greek philosophers thought water to be the original substance and that all things were made from it, and a common English translation of verse 21:30 of the Qur’an says, “From water we have made all things.” But *we* haven’t made all things from water, water (and its complex, processual interactions) made me from it and has called me to call it so.³⁵

³⁵ Again, whenever I use a noun it means there is a process present.

Within a dead human, synapses do not fire and thus a sign is not present. Without food grown from the lithosphere, or oxygen from the atmosphere, the human also dies, and there is no sign in death. Sign systems cannot exist without these three spheres. Insofar as the three spheres are responsible for all humans, they are also responsible for all human thought. Therefore, the opportunity of signification dwells within every phenomenon as far as we know especially grants itself to human cognition.

Another example is memory. When one crumples a piece of paper and then attempts to uncrumple it, it retains some creases. It has memory. When the same person cannot recall the name of a native prairie plant in the moment, and then it hits them three hours later (Switchgrass!), the word, too, has memory. “It hits us,” not “we retrieve it.” We recover neither the memory nor the word. Even though the word may have existed for hundreds of years, and is stored in Google databases and textbooks, the word calls us to call it so because “switchgrass,” or its synonyms *Panicum virgatum* and “Prairie sky,” was passed down from our ancestors. Our first ancestor who came across the plant felt so-called to name it that, an idea which is further explored in *Orality of Language*.

When Rickert (2013) says, “words are wellsprings” (p. 181), he means words (and therefore rhetoric) emerged out of the necessity to live within the material means that birthed us. By thinking this way, we can begin to understand that wherever place we are is where the ecosphere is. That abstract, broad dome container is right before us, unfolding along with us and guiding our discourses.

Again, “ecosphere” is a word just as “environment” is, although the former better stands in as the ultimate sign, signifier, and signified. Both check the boxes of the properties of language, and both relate to the rhetorical situation. The fundamental question of rhetorical

theory then becomes the affordances of time within patterned signification systems and the point to which rhetoric can no longer account for certain temporal dimensions of materiality. A rhetoric attuned to this scale then not only relies on our direct interaction with phenomena in the symbolic Real but dwelling within the Imaginary, which is too a result of the ecosphere because humans evolved within it and thus the synapses that produce our imagination are ecospheric.

Once again, this complete swallowing of semiotic theory seemingly pushes the bounds of rhetorical theory beyond its comfort. But as I will continue to stress, doing so does not push rhetorical theory into the same category as the exchange of information between objects. My argument does not discount Sapient's symbolicity and in fact makes it central. Ecospheric rhetoric relies on several disciplines—deep history, sociobiology, anthropology, ecology, and Earth Systems Science—but can still stand alone precisely because translation is needed when the inevitable gaps arise between the words mean the things that fundamentally make up our being.

This is a different reimagining than any poststructuralist argument wherein all reality and meaning is replaced symbols. The poststructuralist simulation of reality cannot be so because it supposes our being, and by extension our semiotics, can exist separately from that very reality. Ronald Barthes' "death of the author" (Lodge & Wood, 2008, p. 313-316), or worse, Heartfield's "death of the subject," assumes a semiotic system entirely divorced from material reality. These are far more phantasmagoric compared to the argument that signification, symbol-making, and words first arise from the ecosphere.

Orality of Language

A reimagined semiotic system with ecosphere as the totalizing hyperobject is perhaps better understood by considering it within the oral tradition of language. Language thought

primarily as oral allows for words not to be thought of as detached, cold, and floating, but alive, grounded in tradition, emerging, and circulating from common places. Ecological philosopher David Abram (1996) says, “the stories told within an oral culture are...deeply bound to the earthly landscape inhabited by that culture” (p. 182). Spoken stories root people in the places where they are told.

Walter Ong’s (2002) *Orality and literacy* categorizes the distinguishing features of orality by conducting a literary analysis of certain society’s “technologies” of literacy, mostly writing and print. Ong says knowledge is a product of language, and that when language is communicated through a medium, it makes us think along that path.³⁶ Ong (2002) is ultimately concerned by the impact of our shift from orality to literacy on culture. Ong makes the argument that even just a bit of education in writing converts people from immersing themselves in the community of orality to being alone together, in a solitude disguised a progress.

Writing as a technology was first critiqued by Socrates. A similar critique is levied against the Gutenberg printing press (15th-century) and new media (20th-century) that made writing more widely available. Writing began to “recycle knowledge back into the oral world” (Ong, 2002, p. 114), but it quickly became detached from orality. Writing separates stories “from the actual places where the events in those stories occurred” (Abram, 1996, p. 183), which among other effects secludes individuals and “restructures consciousness” (Ong, 2002, p. 77). In contrast, orality is marked by “presence” (Peters, 1999, p. 36). This presence produces cyclical thought (Abrams, 1996), which is characteristic of primary oral cultures, as opposed to linear, historical, or evolutionary thought dependent upon writing.

³⁶ If “medium is the message” sounds familiar, it’s because Ong drew heavily on his mentors Marshall McLuhan and Eric Havelock.

Ong (2002) claims orality is more basic to humanity than literacy. Speech is a material act because speech and “the breathing process” literally changes the atmosphere around us (p. 34; Abram, 1996; 2019), like Burke’s (1950) “air in vibration” (p. 175). Discourses are not then tied solely to human symbolicity and meaning making; they are tied to components of the ecosphere. They effect of “how [the word] sounds” (Morton, 2010, p. 39), which matters as much as the name written out and widely dispersed. Keeling & Prairie (2018) argue “Spoken language did not mimic, copy, or stand in for things; instead language “made use of physical substances endowed with life,” most of which were ‘imagined to be divine’” (p. 43). Language as primarily oral makes it easier to consider how it arises from the ecosphere. The life of language endowed with the life of the earth.

Only through the proliferation of text and technology did words become dead, cold objects that could only be chained only to other signifiers. This nature/culture rupture and “material turn” (Boysen, 2018, p. 227) chains itself to a nonreality, loses all grounding in what it means to dwell within this ecosphere, and in fact seeks to dominate it. Unlike common thought about orality, Ong (2002) does not believe words “as conveying power over things” (p. 32); representations, not influencers. To attune to the oral nature of language is to avoid this trap.

This thesis will be presented and defended, but it still relies on text. Text has allowed me to accumulate various ideas without hearing the original, oral story. In fact, I have not even visited the artifact I rhetorically analyze in the next section (because it is located in the Pacific Ocean). We live in a text-dominated culture, forwarding Ong (2002) is not to argue we should only return to spoken word. It is to ponder how words came to be, and come to be.

Chapter 4 - Great Pacific Garbage Patch, aka “Trash Isles”

Every year we pump out a mass of plastic equal to the amount of all humans on earth (Hanson, 2016). Of the 260 million tons of plastic the world produces each year, about ten percent ends up in the ocean (Le Guern, 2018). Most of the ocean’s plastic circulates in one of five gyres: the North Atlantic, the South Atlantic, the North Pacific, the South Pacific and the Indian Ocean. The “largest” and perhaps “most well-known” is the Great Pacific Garbage Patch (GPGP) (Maloney, 2018, para. 8), a floating patch of trash located in the northern Pacific Ocean (Figure 4.1). GPGP, discovered in 1997 by oceanographer Charles Moore and named by oceanographer Curtis Ebbesmeyer (para. 7), is now a whopping 994,194 square miles in size (Lebreton et al., 2018; Liu, 2018). To put that into perspective, it is 3.7 times the size of Texas.

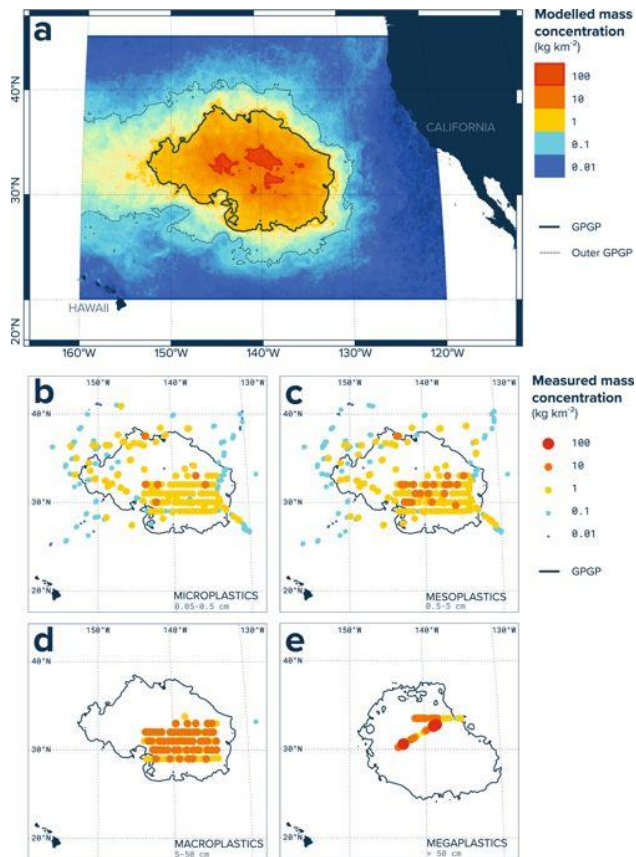


Figure 4.1 GPGP’s location, modelled and measured mass concentration (Lebreton et al., 2018)

A UK social media and entertainment company called LADbible teamed with the Plastic Oceans Foundation to take this country-sized trash patch and turn it into the world's 196th nation. They named GPGP the Trash Isles (LADbible, 2019). On World Oceans Day, June 8, 2017, they submitted a Declaration of Independence to the United Nations to seek recognition of the Trash Isles as an official country.

According to the Montevideo Convention on the Rights and Duties of States, an official state must meet four requirements. Trash Isles met all of them. Kiefer (2018) explains how:

First, define a territory. The campaign claimed all the plastic in the North Pacific Ocean as theirs. Second, form a government. Trash Isles established a monarchy and appointed Dame Judi Dench as queen. Third, be able to communicate with other states. The PR, social media, advertising and online content of the campaign covered this off. Finally, establish citizens. This is how the campaign brought in members of the public, by asking people to become citizens and sign a Change.org petition urging the UN to recognize Trash Isles as an official country. (para. 10-15)

When the petition closed on January 24, 2018, it had 240,906 supporters (Roberts & Nunn, 2018). Other celebrities in addition to Queen Dench were persuaded to join. For instance, although Al Gore did not become POTUS in 2000, he did become president of Trash Isles (Bengle, 2017). John Cena is treasury secretary. Mark Ruffalo and Chris Hemsworth were among the honorary citizens (Roberts & Nunn, 2018). New citizens received Trash Isles passports (Figure 4.2), one of the unique design elements of the campaign. The team also designed stamps (Figure 4.2), currency (Figure 4.2 and Figure 4.3), and a country flag (Figure 4.4). Altogether these designs helped LADbible win the 65th annual Cannes Lions Festival of creativity award (Griner, 2018).



Figure 4.2 Trash Isles passport, 20 debris currency, and stamps (LADbible, 2019)



Figure 4.3 Trash Isles 50 debris currency (LADbible, 2019)



Figure 4.4 Trash Isles flag (LADbible, 2019)

Such activist responses potentially have positive effects, drawing attention to the pollution atrocity. But there's more underneath the surface than what is found in popularized articles. Trash Isles represents the perfect union of human and nonhuman discourses and the ultimate convergence of the human with all three spheres of ecosphere as the *totalizing hyperobject*. The ocean represents the hydrosphere, the petroleum-based plastics represent the lithosphere, which are in slow decomposition in-part thanks to their interaction with the atmosphere. If we are to clean up Trash Isles, we must first understand their embedded

discourses, symbols, and suasive elements. This chapter will first review previous rhetorical analyses of Trash Isles. It will then use the tenants of ecospheric rhetoric as outlined in the previous chapter to guide an original reading of the GPGP.

Previous rhetorical analyses

Over the course of the 2017-2018 academic year, University of Nebraska-Lincoln student Jordan Wong wrote and delivered a communication analysis on the competitive collegiate circuit titled *Trash Isles: The rhetoric of statehood*.³⁷ In the speech, Wong (2018) draws from Enric Castelló's (2009) article, "The Nation as a Political Stage: A Theoretical Approach to Television Fiction and National Identities," published in the *International Communication Gazette*. Castelló considers how fictional media narratives unify nationalist movements by examining Catalonia's independence movement. Because the Trash Islanders are crafting their own media narratives to also establish statehood, Castelló's model is fitting.

From Castelló Wong (2018) identifies three tenets campaign discourses require to establish nationality for the sake of a movement: "localized national identity," "cultural proximity," and "discourse of social issues" (p. 3). Through his analysis, Wong (2018) concludes that "Trash Isles forces us to reconsider our conceptions of statehood. While other states are based on a combination of territory and cultural unity, Trash Isles primarily uses discourse to establish a globalized national identity" (p. 4). One implication Wong draws from this conclusion is that this marks a new trend in geopolitics. Physical proximity could be less important than social discourse when establishing statehood. Moreover, if the UN recognizes Trash Isles as a nation, the international body will be required by its own policies to clean it up.

³⁷ Speech cited, shared, and made accessible with permission of the author, Jordan Wong (2018). Pursue thesis author correspondence (tree11@ksu.edu) for a copy of Wong's (2018) speech draft.

This raises some questions on the rhetoric of dissolution. If Trash Islanders's main goal of establishing nationality is to dissolve itself, what is to keep other activist groups from petitioning and establishing a certain dirty environment as a state to completely dissolve it? What does this say about the state of activism; i.e. what does it take these days to clean up our mess?

Wong is not the only rhetorical scholar to analyze Trash Isles. An ethnographic analysis was done by Alli Maloney, *Teen Vogue* news and politics features editor. In a December 22, 2018 article, she compares her experience visiting the site of marine debris to its common media portrayals. She seeks to uncover misconceptions about the severity and pervasiveness of GPGP. Her primary claim is that the "rhetoric of Trash Isles" has mischaracterized its reality. She wrote that she could not see the "landmasses" of trash the LAD Bible (2017) says there are. This is understandable because they only exist in some places and could have dispersed during the year. Perhaps the plastics were submerged or out of sight at the time of Maloney's expedition. However, calculated at 1.8 trillion pieces and 88,000 tons, the patch's severity cannot be overstated. Like any human, Maloney is unable to see for herself the extent of the plastic compared to Lebreton et al.'s (2018) modeling and mapping. Moreover, it is difficult for us to conceptualize or talk about what the quantity actually means. The best we can do is imagine 500 sunken jets accumulating in an ocean gyre. Hyperobjects' sheer totality cannot be realized in any particular local manifestation given their nonlocal and phased nature.

Wong (2018) and Maloney (2018) analyze Trash Isles discourses *placed upon* the Great Pacific Garbage Patch. The focus of their analyses is not the GPGP's materiality and what it *itself* tells us. An ecospheric analysis forwards a material-centric perspective that considers the GPGP's endemic discourses.

Rhetorical criticism attuned to ecosphere

The GPGP's images, texts, and object genealogy comprise the boundaries of the artifact. Since fragmentary pictures cannot provide a composite sketch of GPGP, the artifact will not be limited to particular visual images. Neither will it be limited to popular texts or LADbible reports, the source of the "Trash Isles" designation. The GPGP as an object is even more difficult. Lebreton et al. (2018) estimate 79,000 tons of ocean plastic are floating inside an area of 994,194 miles² (1.6 million km²); a figure four- to 16-times higher than previously reported. Most of the dense debris sinks several feet or miles beneath the surface, which makes the vortex's depth "nearly impossible to measure" (National Geographic, 2019a). Therefore, GPGP, as an artifact, includes the assemblages of materialist constructions and totalizing hyperobject properties, as well as their accompanying discourses and inert symbols. This description designates the bounds of the artifact for my analysis.

I will first analyze the ecospheric nature of GPGP based on the four "E-" properties. Next, I will explain how these four properties call us to reconceptualize the process of signification. Certain signifiers result in more material effect than others. I coin this as "signification weights" (sw), which are hypothetical units of measurement that seek to make tangible the material impact each signification has. Finally, I offer two visuals to illustrate this idea. Ultimately, my analysis shows that an ecospheric rhetoric will address the deeper systemic issues the Isles represents, as well as its effect on the ocean, us, and the entire ecosphere.

Ecosphere properties

The GPGP is an amalgamation of human's influence on the ecosphere. GPGP represents the ultimate convergence of the human and all three spheres. Detailing how GPGP fulfills these properties is crucial for understanding the nature of the material accumulation.

Encapsulation

Wells et al. (2018) place humans within the interaction of the hydrosphere and lithosphere by highlighting the power of the former:

A material fact about human experience on Earth is that we are, mostly, confined to a terrestrial existence. Unless we make a living at sea as merchants, fishers, or voyagers, our experiences with aquatic territories tend to be far more limited than those on land. Yet, with water covering three quarters of the Earth's surface and with our own bodies mostly composed of this material, our very existence is much more fluid than we might, at first, perceive. As environmentalist Rachel Carson once remarked, 'this fluidity connects us to ecologies across time and space: To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be.' (p. 1-2)

Wells et al. (2018) paint a rich picture of the ubiquity and totality of water. An empirical assessment of the ocean's grandness and inescapability confirms their vivid description. The ocean takes up "71 percent of the earth's surface" and houses "99 percent of the biosphere" (Gass, 2013). That means *only one percent* of the biosphere exists on land. It is hard not to look out on an ocean horizon and feel its immensity, evidenced by the Greek word *ōkeanos* meaning "a great stream encircling the earth's disk." Since ancient times we have been encompassed by the ocean's spatial grandeur and power.

Just as 95 percent of the ocean is unexplored and filled with mystery, so is the GPGP. There are many unknowns about the extent of its properties, its depth, or the best ways to clean it up. Here's what is known: GPGP is located approximately halfway between China and the United States, the world's two biggest plastic polluters. The ocean currents make it difficult to define its area, although Lebreton et al. (2018) provide the best estimates for its inner and outer boundaries (Figure 4.1). Their method included a "multi-vessel expedition," "aerial survey," and calibration of a "multi-source and multi-forcing ocean plastic transport model" (p. 2). And as they note in their discussion, their 994,194 square mile area estimate is "conservative" (p. 13).

Ecosphere, as the totalizing hyperobject, is both apparent in the local manifestations of the GPGP and affected by the severity of the GPGP's material accumulation. First, "ecosphere" may be *nonlocal* but its various manifestations are local. Lebreton et al. (2018) found 99.9 percent of all the marine litter to be plastics. Plastics, otherwise known as polymers, have various manifestations including polyethylene, polystyrene, and polypropylene. They are primarily made of hydrogen and carbon but sometimes of oxygen, sulfur, chlorine, fluorine, silicon, or nitrogen. Most are manufactured from petroleum, which was first assembled long ago in the cells of organisms. But if these plastics come from biomaterials, why are they not biodegradable?

As Wolchover (2011) says bluntly of plastics, "nature doesn't make things like that" (para. 4). The organisms that quickly degrade a banana from green to yellow to brown have evolved over billions of years to attack bonds commonly found in nature. But when faced with polypropylene, the critters don't have the metabolism to break them down. While plastics' constituent molecules may be found naturally in the ecosphere, their chains are not. Trace amounts of hydrogen in the atmosphere interact with carbon in the hydrosphere, and intra-action of hydrogen occurs within the hydrosphere itself. When introducing plastics with the same

elemental components rearranged through the human manufacturing, the nature of the interaction changes. The ecospheric properties are apparent in both manifestations—the ecosphere is inescapable in both cases.

Earth alive!

Alive are not just the turtles, fishing populations, fishing experts, scientists, LADbible activists, Trash Isles citizens, or UN members. The ocean is alive. The plastic is alive. Although considered abiotic, these materials present themselves to us as just as alive as humans. They do not meet biologist's definition for the necessary conditions of life because they do not maintain homeostasis, are not composed of cells, nor do they have a life cycle, undergo metabolism, grow, adapt to their environment, respond to stimuli, or reproduce and evolve.³⁸ But what allows all these generative processes in the first place is the interobjectivity of the ecosphere. It subsumes these properties of life, including us. And insofar as it subsumes us, it also subsumes all of our symbols, meaning, and discourses.³⁹

Although the ecosphere is inescapable it is constantly changing. The ebb and flow of the gyre especially highlights the processual nature of oceans. Formed by global wind patterns and forces created by Earth's rotation (National Geographic, 2019b), its movements are akin to those of a conveyor belt. The gyre is moving as if it is alive. The enclosed variation is also apparent when watching the flow of carbon dioxide through the ecosphere. A NASA video that tracks the flow of CO₂ over the course of 12 months (Krulwich, 2016) shows that in the summer, trees gobble carbon dioxide, and then, with help from the sun, the carbon stays in the tree branches,

³⁸ Somewhere in the GPGP there is likely to be a plastic fish one of the 28,000 rubber ducks still roaming the waters after shipping container was lost at sea in 1992. For either, if you apply sodium polyacrylate, the same waterlock material used in diapers, the fish/ducky seemingly springs to life. Although not one of these properties of life, mimicking movement gives off the appearance of life.

³⁹ And it's not like these life properties were created a long time prior and then have the ability to exist independently from ecologies current conditions. They mutually exchange in the present.

trunks, and leaves. The trees (and ocean, since most of the CO₂ added by humans has been absorbed by the ocean⁴⁰) clear the sky of carbon like a vacuum cleaner. Come winter, as the trees bare they exhale carbon into the atmosphere. Play the tape over the course of several years and watch the ecosphere breathe just like a human.

Humans are straining the Ecosphere's breath. Scientists warn the trees "can't keep up" with the buildup of CO₂ (Krulwich, 2016, para. 16). As a result, more carbon dioxide is absorbed into the ocean and the PH level decreases, causing ocean acidification, which is also caused by plastic breakdown (Kolbert, 2014). The size of the hypoxia (oxygen deficient) areas within the North Pacific oceanic gyre "is expanding" because of climate change (Valdés et al., 2009, p. 1436). In addition, food and habitat loss is hurting the marine life chain. If the "dead" plastics have this kind of effect on life, they too are alive!, if only because they affect the living.

Those things made dead by our symbolic system present themselves as alive and full of potential to become part of the living. Take microplastics (Figure 4.8), whose size ranges from 0.05–0.5 cm (Lebreton et al., 2018, p. 5). A 2018 study found microplastics in 93 percent of bottled water (Figure 4.5). The study involved "259 bottles of water from 11 brands across nine countries" (McCarthy, 2018, para. 2).⁴¹ The World Health Organization announced in response its plan to review the potential risks. No matter the outcome of WHO investigation, the study's results make it fair to assume that humans have ingested residual microplastics. Waste mismanagement—and all the industrial, political, and social discourses that comprised it—are coming back to us. We are *literally* eating our words. Scientists warn microplastic accumulation in the bloodstream could cause blood clots (Thompson, 2018). That microplastics swirling in the

⁴⁰ NOAA's March 2019 report finds "The global ocean absorbed 34 billion metric tons of carbon from the burning of fossil fuels from 1994 to 2007—a fourfold increase of 2.6 billion metric tons per year when compared to the period starting from the Industrial Revolution in 1800 to 1994" (p. 1).

⁴¹ Also, fish ingest microplastics, and we ingest fish (Figure 4.6).

GPGP can make their way into us points to their aliveness! Insofar as microplastics affect our food, water, and bloodstream, they also affect speech acts, nonverbals, and meaning making generally.

Here’s a joke that, in light of microplastic ingestion, is no longer ironic: Why does the person afraid of death want to be reborn as plastic? Because they will last forever. Plastics are “beyond the scope of our comprehension” (Morton, 2010, p. 131) because polystyrene materials will last tens of thousands of years, far beyond biological forms or social entities. Their longstanding birth from life and effect on life makes them alive! Considering the plastic, marine life, and ocean are alive as part of Earth Alive!, so, too, is the Great Pacific Garbage Patch alive. The GPGP is an ecospheric lifeworld of swirling objects, effects, and discourses that make themselves known to us in myriad ways.



Figure 4.5 Microplastics in bottled water (McCarthy, 2018)

Figure 4.6 Rainbow runner that ingested 18 pieces of plastic water (credit Marcus Eriksen of the Gyres Institute, retrieved from Thompson, 2018)

Entropy

The GPGP is not only encapsulated by the ecosphere and highlights the Aliveness! of the Earth—it is subject to the laws of entropy just like every other local object manifestation of the Ecosphere. Its objects, including the ocean waters, plastic, equipment, visiting oceanographers,

sailors, marine life, and Trash Isles discourses, all of whom comprise GPGP, are subject to entropy, or gradual decline into disorder.

Most obvious is the gradual breakdown of GPGP's plastic concentration.⁴² Lebreton et al.'s (2018) modeling separates all the GPGP plastics into four size classes: micro-, meso-, macro-, and mega- (p. 7). Scientists estimate there are "51 trillion microplastic particles in the oceans," which is "500 times more than stars in our galaxy" (UN News, 2017). Microplastics are more ubiquitous, but their mass is minimal—"Microplastics accounted for 8% of the total mass of GPGP but 94% of the estimated 1.8 trillion pieces floating in the area" (Lebreton et al., 2018, p. 1).

The GPGP has grown to such a large size in a short period of time. It was only discovered in 1997, and just 21 years later Lebreton et al. (2018) conclude that GPGP's area is "four to sixteen times bigger than previously reported" (p. 1). As it is, plastic is accumulating too quickly for such slow-acting forces to keep up (Figure 4.7). As Rachel Carson (1962) observed in *Silent Spring*, "Time is the essential ingredient, but in the modern world there is no time" (p. 6). In a similar context, the sped-up rates of entropy embodied in the GPGP make it clear the reality humans have constructed through symbol use and its meaning are at odds with the Ecosphere.

⁴² Less obvious is the entropy of the language GPGP assigns to us. An information theory entropic analysis of certain GPGP texts would be useful to determine the stochasticity.



Figure 4.7 Surface debris of the Great Pacific Garbage Patch (National Geographic, 2019a)



Figure 4.8 Microplastics (National Geographic, 2019a)

Emergence

The GPGP perfectly exemplifies emergence. As previously described, one of water's four emergent qualities is cohesion, which is what allows glaciers to float on water and insulate creature's habitats. A water molecule has emergent properties that arise from the properties of oxygen and hydrogen atoms. Many water molecules together form ocean waves. An emergent approach to a rhetorical situation considers not only plastic/water systems or the ocean environment, but also the "relationship among them" (Bar-Yam, 2011, para. 11).

Moreover, GPGP's plastic is an emergent property. Its material substance is an assemblage of material and the human discourses that produced the material. The plastics combine recent discourses, like LADbible's attempt to eradicate it by making it its own country, and the past discourses of its very origin. The history of plastics, detailed by *The Science History Institute* (2019), helps explain how plastics emerged to be something completely different than originally conceived. They were first developed in 1869 by John Wesley Hyatt, "who was inspired by a New York firm's offer of \$10,000 for anyone who could provide a substitute for ivory" (para. 4). At the time, the common discourse surrounding plastic touted not just that it was

revolutionary, but that it was *environmentally friendly*. Nature only supplied so much wood, metal, stone, bone, tusk, and horn. Plastic was thought to be unconstrained by the limits of nature and could replace the use of these natural materials, so advertisements praised it for being able to protect the planet from the destructive forces of humans. Plastic would “save the elephant and the tortoise” (para. 5).

If emergence is an inherent part of the ecosphere, why do we consider plastic inherently bad? The difference is that there are several disconnects in the time and spatial scales at which the emergence is happening. Plastics are not found in nature and some take thousands of years to breakdown. They rapidly diverge from the evolutionary pathway and their ubiquity affects marine life in pernicious ways.

In total, Trash Isles uniquely constitutes an ecospheric analysis because these four properties make up the stay of materiality comprising GPGP’s rhetorical lifeworld. Because “rhetoricity cannot be rendered as solely the result of human doing” (Rickert, 2013, p. 216), the four properties bear up the human discourses. These discourses cannot be studied in isolation; rather, the entirety of Trash Isles must be analyzed. But they also tell us that the ways in which the ecosphere structures our signification and resulting meaning are at odds with ecospheric materiality itself.

Weighted signification

Interaction of the three spheres bears all the meaning of our existence, even if we are unable to recognize it. The GPGP exemplifies that the reality of our ecosphere is out of sync with the reality constructed by our “Symbolic” code (Cates, Bruner, & Moss, 2018) and its material effects.

The associated symbols that make the GPGP the problem that it is—“plastic,” “trash,” “debris”—reference the materiality of the thing in itself. These are the things that communication mediations stand for. Given these objects are inescapably ecospheric, meaning the materials necessary to build them came from what was already present on Earth, so too is the signifier and its function. The abstraction from signifier to signified allows for meaning through difference and a symbolic code at once circulating and dynamic (Irvine, 2012).

Signification, then, is a process and product, not something static or ever completed. All involved members of the process are at once interpreters, encoders, and decoders (Irvine). These are staple statements of linguistics in both the French (Saussure and Levi-Strauss) and American (Pierce and Chomsky) traditions. Yet these traditions do not adequately address the unavoidable materiality of the object that gives rise to the utterance and experience that follow. Given an ecosphere bound by limits, objects can only support a limited quantity of meaning. All the meaning tied to the objects is bound by what the Ecosphere does or does not grant. Had we existed on another planet we would have different meanings given unto us based on that which was physically present to us; i.e., the thing produces the thought. We cannot give meaning to that beyond the Ecosphere in which we live. The signification process is bound to the restraints of space and the march of time; even though it progresses, it is always bound. In sum, there are limits on the generative properties of language.

Thinking of signification in this way calls into question the nature of the relation between signifier and signified. Generally, we think of it as arbitrary, not natural. Because the relationship is subjective, signs are considered fundamental to how “societies construct, produce, and circulate meanings and values” (Irvine, 2012, para. 28). Which makes sense. Saying the word “plastic” will mean something different to each interpreter. But that circulation is still entirely

dependent on the continuation of the inescapable reality of objects that grant life and its conditions for the signifier and signified. The sound “plastic” only means what it does insofar as the encircling conditions allow for its signification. Harkening a favorite process philosophy phrase, the “map not the landscape” (Cobb Jr., 2008, p. 15). Without the oceanic landscape there would be no map.

But what does a limit-bound process of signification mean for meaning? For starters, it means that the translations that occur in the process carry with them a degree of limitation. Take signifiers like “water” or “air.” These stand in for their objects, which underwent a quantitatively entropic physical transformation over a certain amount of time relative to the Ecosphere. Now consider “plastic” or “trash.” These, too, stand in for their objects, which also underwent a quantitatively entropic physical transformation over a certain amount of time relative to the Ecosphere, albeit a much different transformation. Even as these four signifiers become signifieds, sentences, language, and bound by syntagmatic relations, myths, codes, and ideologies (Semiotic terminology, 2018), due to the effect of the object(s) they represent on the ecosphere they carry a different weight. Inherent within language is this deviation from a natural state that will differ depending upon the signifier’s relation to its respective object.

Think of signification like the weights of elements in the periodic table. Every chemical element has an atomic weight, a fixed number, which reflects the variance of natural isotopes and the respective weight differences of that element. Nitrogen’s atomic weight is near 14 u, carbon’s atomic weight, 12 u, and oxygen, 16 u. They’re all elements but carry with them different weights. Likewise, each signifier carries with it a different signification weight, hereafter referred to as sw. For instance, my rough calculation of sw (percent increase from GPGP water mass in tons/year to GPGP water *and* plastic mass in tons/year) found plastic has a

sw of 1.818×10^{-7} , compared to water's relatively constant 0.00000 sw, within the past 150 years (since plastic's conception)⁴³ The Δm (change in mass) of the GPGP over the last 150 years (since plastic was invented) has been far more than if plastic were not in the GPGP. This means that relative to the GPGP hydrosphere itself, plastic has had more of a material impact. There are several assumptions here that need accounted for, but computer scientists could develop algorithms to account for variables. In some ways this is a form of linguistic accounting. There is no such thing as full cost accounting, but this can be a starting point to understanding a more direct connection between our language and its material effects.

The signifier “plastic” imbues a genealogy that incorporates an assemblage of effects from hundreds of previous years, including the discovery of petroleum to produce plastic, its initial advertising as a viable alternative, and the businesses' willingness to mass produce it. Despite this genealogy, “plastic” adopted a greater material effect. Taken at face value “plastic” merely represents but a material referent made up of an assemblage of polymers; in the semiotic triad this makes sense. However, because plastic's emergence is so completely different from the natural emergence of anything in the ecosphere, the material effects produced by the proliferation of the “plastic” signifier and associated concepts found in human discourses far outpace the material effects produced by “ocean” within a relatively short time period relative to each's mass taken individually. So the object-signifier conversion may look the same for “plastic” and “ocean,” but when the two's quantitative and qualitative effects are considered side-by-side, based on each's total mass, the formers' are far greater.

⁴³ Very rough. I took the mass of the ocean (1.5×10^{18} short tons) * 0.0044 (GPGP area % of entire ocean) = 6.6×10^{15} tons of water in GPGP. I divided by 150 years to get 4.4×10^{13} mass per year (assumed constant). GPGP's water *and* plastic mass in tons per year is $4.4 \times 10^{13} + 80,000$. I then found the percent increase—(new – original) / original = # * 100, which was 1.818×10^{-7} . Note: SW will not be able to fully account for every associated signifier; e.g. “plastic” carries a significant history of signifiers, including oil, industrialization, production, food waste, human rights violations, you name it. Further discussion will have to include whether attached signifiers include discussions of etymology. More on sw is in Chapter 5's “future research.”

The air we breathe is a sea of nitrogen, oxygen, and trace elements. Although they swirl together, chemists would not say their comingling creates a new atomic weight for each element. The weights stay consistent. In the same way, “plastic” carries with it a signification weight much greater than “ocean” (and of its constitutive parts) because of how quickly, in ecosphere time, it took for humans to put 500 jumbo jets worth of plastic into the Pacific. Plastic has a sw thousands of times greater than local and more naturally occurring ecospheric manifestations.

When these signifiers become strings of sentences, paragraphs, books, movies, and discourses, every word seems to be granted the same weight. Letters, words, and sentences may serve as the building blocks to produce an infinite number of meanings, but those objects which they signify is finite. Symbolicity makes determining a sw unit much more difficult because its abstract nature obfuscates the multitude of object-signifier and signifier-signified translations going on simultaneously. Since symbolism always wellsprings from the ecosphere, the symbolic propagation producing new objects (plastics) differentiates from the translations of older, more established objects (ocean). Thought another way, the connecting lines on the semantic triangle are not the same width. Their magnitude is relative to the spatiotemporal effect on the limits of the Ecosphere.

The tension is comparable to the nature of spacetime, where time is relative depending on the gravitational mass of space itself. Except in the case of symbol-material, the material effect on a section of space and time (GPGP’s area) within a given time window (50 years) makes the effect’s sw relative to the space and time sections themselves; i.e. the magnitude of the material effect is relative to its temporal proximity to the given space and time. Symbols are not timeless but bound to the space and time fabric that presents itself to us in the form of various local object manifestations like microplastic or water wave. Natural patterns remain fairly stable and thus

make us think the concept remains fixed, regardless of the referent's presence and presentation to us. But still the familiar patternings of space and time passed down orally through generations always emerges in the present and prefaces the symbol and its concept(s). Plastic fundamentally remains an ocean-water-air-Earth-crust assemblage. Its emergence carries a signification weight far heavier than the ocean water's emergence relative to the space and time. What makes this statement seem radical is that the chain of objects to get to "plastic" is so far removed from that interaction. It is an object out-of-sight, in a Heideggerian sense it is "ready-to-hand." Sapiens have socialized each other to regularize patterns and make solid our symbolic and conceptual relativity as an actuality, preceding the reality of the objects that grant them life.

Let's apply the physics twin paradox thought experiment to these claims. It goes that one twin journeys into space in a high-speed rocket, travelling closer to the speed of light and comes home to find the Earth twin has aged more relative to him because for the rocketship twin time went by more slowly. Now to apply to GPGP: Within the same space and over the same time,⁴⁴ the materials that give us the symbol "plastic" are relatively more in the effect, impact, or matter rearrangement than their origins in the ecospheric interaction that produced humans who produced plastic. Plastic is the rocketship twin if the speed of light is material impact. Again, we are still within the ecospheric container, but the effects we measure are not reflective of our relationship to the ocean. They are reflective of ourselves and our meaning-making systems. In sum, plastics quantifiably changed the nature of the materiality of the same area of ocean much more in 50 years than the ocean did to itself during the same time period.

But the point is not the impact *per se*, but to measure the "rift" between the material world and the supposedly arbitrary, limitless human creations.⁴⁵ A bomb cyclone might have

⁴⁴ This is not referring to the fabric of spacetime itself.

⁴⁵ This requires separating nature/culture if we go beyond heuristic.

more *immediate* impact by changing composition of the earth, water, and sky of the region and displacing humans than a small car bomb. But a human-made car bomb has a greater sw because it is relative to ecosphere's baseline of not-having-a-bomb sw. Those effects emerging due to our language in a relatively short time have sw impact *relative* to geological time, not just within a shorter sw moment. For instance, "Cyclones" have been around for eons but "human bombs" have only been around since 13th century China. The latter's signification weight is relative to ecosphere's geologic time which has only had humans for .0044 percent of its history. "Lumber," has a greater sw compared to "tree," "dam" greater than "river," and so on.

Historians, geologists, and others have said for decades that we've been on this earth such a short amount of time and altered it tremendously in that time. I'm questioning where we see that reflected in our language. This is all to consider how to measure our geologic impact in our everyday language. Every modern word, every sentence speaks grandiose volumes and histories of change that have happened at such a rapid pace we can't fathom it.

The stark juxtaposition of two wildly different ecospheric assemblages, plastic and ocean, can remind us that referents give themselves to us as symbols to name them as such. The GPGP's gradual breakdown of its meso-, macro-, and mega- plastics into microplastics gave rise to us, and to the plastics we produce. Just as it breaks down the plastic, it breaks down us. The ecosphere that gave rise to our ancestors and sustains our life so consumes everything we do, the plastics we make, and matter we rearrange. It just so happens the total mass and effect highlights how out of sync symbols and concepts are with the Ecosphere.

The amalgamation of distinct, local object manifestations within the GPGP provide a visual representation of time united. A mass of floating assemblages exists due to the multiple, previous discourses that went into the conceptualization, development, manufacturing,

distribution, use, and discarding of the plastics. The 1970s Pepsi bottles, 1990s plastic tubs, and 2000s *Suave* microbeads converge in the GPGP. The discourses of the past connect with the present in one swirling gyre. A temporal flow occurs. Plastic bobs in and juxtaposes the 200-million-year-old ocean.

Visuals help convey signification weight

The presence of signification weights raises several questions, including: “How would one begin to calculate a signification weight?”, “Is it really that complicated, or are there just too many of us?”, and “does this really matter for our survival?” All are valid questions that deserve exploration. However, in the interim the weight of signification can be also explored by turning to visuals because they can create an affect that language cannot. DeLuca and Demo (2000) examine the import of landscape photography to the birth of environmentalism. Carleton Watkin’s 1861 photographs of Yosemite Valley ushered a series of environmentalist legislation and highlighted the power of visual rhetorics, reframing the old adage “the pen is mightier than the sword” into the “camera is mightier than the pen” (p. 251).

An example is *Earthrise* (Figure 4.9), Rickert’s (2013) artifact of study. *Earthrise* is a famous photograph of Earth and a portion of the Moon’s surface that was taken from lunar orbit by astronaut Bill Anders during the Apollo 8 mission on December 24, 1968. The year 2018 marked the 50th anniversary of its capturing. Nature photographer Galen Rowell declared it “the most influential environmental photograph ever taken” (Rickert, 2013, p. 215; Rowell, 1999). The power of the photo helped galvanize the 1970s environmental movement and policies, including the Clean Water and Clean Air act, and “*Life* magazine listed it as one of the one hundred most famous and influential photographs of all time” (Rickert, 2013, p. 215).



Figure 4.9 Earthrise, taken from Apollo 8 (Rickert, 2013, p. 214)

Earthrise expands the zoom lens of the rhetorical situation, literally and figuratively. It allows objects, the “worldliness of our existence,” and the “stay of materiality” to open themselves “up for us” (p. 216). It allows for new perspectives on meaning when Earth is canvassed against a dark, meaning-less void. The affect it produced among viewers as the “blue marble” opened up an entirely new set of “relations to the earth as material and ecological entity” (p. 218). Rickert’s (2013) rhetorical analysis concludes:

The Earth comes to matter differently and opens up the possibility of forms of dwelling that in turn convoke the earth not as a meaningless resource for human mastery but as a complex, not fully understood participant contributing to paths that are healing, hale, whole, even holy. *Earthrise* tells us, then, that the earth itself must participate in any such change (although we can, and often do, ignore this). (p. 218)

This conclusion offers profound new ways of “human belonging and interacting” with the world (p. 219). Within the blue marble, how do we make sense of ecological catastrophes so vast they require us to zoom out nearly as much as *Earthrise* to see the extent and scope of the damage? How might these play out rhetorically and politically? Such will be the focus of the next chapter.

Google and GPGP

GPGP's visuals from afar are best captured by Google Earth (Figure 4.10) and Google Maps (Figure 4.11). Looking like acne blemishes on the face of the earth, these highlight the pervasiveness of human influence. We see part of our home, a living room of the blue marble cluttered with junk. It opens new meanings about how we have disfigured our beautiful sphere.

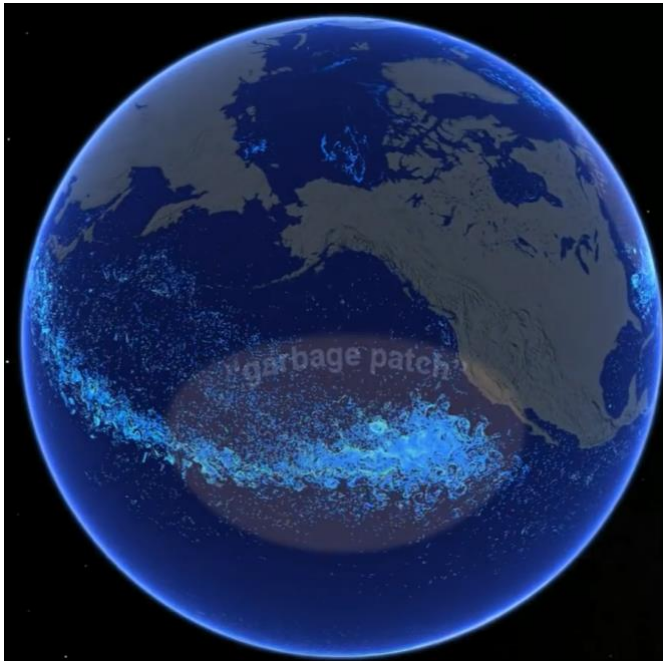


Figure 4.10 Goggle Earth image of GPGP



Figure 4.11 Google Maps image of GPGP

Maloney's (2018) ethnographic approach in these Trash Isles offers a grounding in the phenomena on the ground level. In contrast, these satellite images produce a different kind of affective response. We see an abnormality in the lines, borders, and geography, taken-for-granted features associated with aerial photographs of the Earth since the 1968 Apollo 8 mission. Like boils bubbling to the surface of a neglected face, the face of the Earth, we feel a break from the usual visual appearance of our home.

Moreover, these photos show that we have excavated, rearranged, and reassembled the lithosphere. After all of that, we unthinkingly deposited most of it into the ocean in less than 50

years. The same material that made the United States made the GPGP, but it didn't just bubble up from the surface like a volcano. It mostly sits on the surface and upper half of the hydrosphere, untethered to the ocean floor. Although the photos make it look like the patch is made of the same earthly material as California or China, we know this is not the case. We know the patch's contents have been altered by human hand. Both United States and Trash Isles are part of the same ecosphere; they are one in the same, but something is not right. For all of humanity's consumerism, in these photos we see no happy people. These photos allow us to see the true extent of our alteration and worry about the mystery of its future. They offer a host of affective, symbolic, and material interpretations that transform how we inhabit the world, and to an extent call for some type of action.

I acknowledge certain people may not see these photos as I do. However, they can produce a different way of seeing the problem. Rhetoric requires not only investigating signification weights, but images at a scale different than what we're used to.

Conclusion

The first viable and cheap synthesis of plastic was invented in 1907 by Leo Hendrik Baekeland. A single piece, weighing about a pound. In 2019, 102 years later, an estimated 269,000 *tons* circulates in the oceans, 79,000 alone in the GPGP. That's not even considering all the plastic produced each year, which is roughly equal in weight (9.1 billion tons) to the amount of humans on earth (Earth Day Network, 2019). From not existing to 9,100,000,000 tons produced annually *in just a hundred years*. Consider humans have been around since about 200,000 years ago (Harari, 2011), when the population was less than a million. In 0.05 percent of

our existence, we have 133,823 times the weight of plastic now as compared to the entire the weight of our one million human ancestors, a 13,382,252.94 percent increase!⁴⁶

The ecosphere is massive, but even small percent changes can have significant effects. Although plastics could be argued as nothing more than an emergent rearrangement of what's been on earth for centuries, its effects are of irreparable destruction. These statistics are unfathomable and help tell the story of plastics weight on the planet. Given plastic's material weight, it has a greater signification weight than the ocean in which it dwells. If we are to give credence to that difference in signification weight, perhaps discourses surrounding the GPGP, and even the entire ecosphere, can begin to matter more.

⁴⁶ 136 pounds was considered the average weight per person, the same used by scientists as described by Rettner (2012), so 68,000 tones equals one million people. The percent difference was calculated between 9.1 billion tons (plastic now) and 68,000 tons (of people 200,000 years ago). The factor of time was not included. A crude calculation, but a telling one.

Chapter 5 - Discussion

Some might take this to be an ambitious project filled to the brim with esoteric theory. This is a fair assessment and potential limitation of the project. Another limitation is that theoretical scaffolding creates opportunities for slipping and falling. To my point, since Chapter 2 integrates several different metaphysics, ontologies, philosophies, epistemologies, and theories, there may be incongruences. Moreover, because the author is neither an ecologist, biologist, nor chemist, there is risk of mischaracterizing, misapplying, or oversimplifying scientific conclusions. Efforts were made to not gloss over technical precision and depth, but some distortion is inevitable. Nevertheless, this project has united ecosphere and rhetoric in a useful way that makes both sustainable in the long term. Offered in this discussion section are implications, applications and avenues for future research.

Implications and Applications

I recognize it may have been difficult to read and/or that it leads to the question of, “so what? What can I actually *do*?” Great question, able reader. There are at least three practical ways to advance a rhetoric and the ecosphere that stem from this theoretical grounding: (1) environmental advocacy; (2) grammar; and (3) poetry.

Environmental advocacy

An ecospheric analysis of GPGP allows for greater introspection and critique on the human condition. Unlike other environmentalist activisms, which blame industry, governments, or governing bodies, an ecospheric rhetoric points the finger back on our entire race. We can draw from it a blunt lesson: we need nothing less than a new way of talking about environmental issues with policy and action. And that new way of talking must be animated by what is best for the ecosphere.

To understand this argument, let's first dig into the current activist approaches. Environmentalist activists frame the GPGP in various ways. As mentioned in Chapter 4, LADbible pressures the United Nations to gain sovereign status and mandatory cleanup. But another group, The Ocean Cleanup, is taking a different approach. They are not waiting. They want to clean it up themselves.

The San Francisco-based environmental organization was founded by Dutch inventor Boyan Slat in 2013 when he was just 18.⁴⁷ He invented a clean-up system and claims it is estimated to capture “50% of the Great Pacific Garbage Patch every 5 years.” Their website explains the clean-up system: “a 600-meter-long floater sits at the surface of the water and a tapered 3-meter-deep skirt is attached below. The floater provides buoyancy to the system and prevents plastic from flowing over it, while the skirt stops debris from escaping underneath.” It mimics a coastline, collects the trash, and then a boat collects the garbage and disposes of it onshore.

Lead author Laurent Lebreton (2018) of the widely cited and shared article “Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic” works at The Ocean Cleanup as an oceanographer. Portions of the scientific paper are digestible for lay audiences, and even for the parts that are not, the graphics and context communicate the breadth of the GPGP and the urgency of cleaning it up. The Ocean Cleanup's explicit efforts to influence behavior and attitudes are working. They receive donations, post several new jobs, and attract volunteers. Because plastic straws account for only .03 percent of the plastic compared to 47

⁴⁷ Another 18-year-old recently became famous for cleaning up microplastics as well. Alex Weber dove headfirst into the problem. Literally. Joyce (2019) explains, Weber, a free diver, noticed a peculiar white sand at the bottom of the ocean bed she was exploring one day. This wasn't ordinary sand, and in fact turned out not to be sand at all. The white bed was made up of dimpled golf balls—50,000 of them. The balls accumulated in the Pacific Ocean by rolling from the rivers flowing through five coastal golf courses. They were breaking down and chipping into microplastics, so over the course of two years she decided to haul all of them to shore, pounds at a time, and store them in her garage. Alex published her findings in a scientific journal at just 18-years old.

percent from industrial fishing equipment (Figure 5.1), Lebreton et al. suggest industry bears the brunt of responsibility for cleaning up their act.⁴⁸

The Ocean Cleanup is struggling to keep its promises, to little fault of their own. In an interview with *NPR* on January 5, 2019, Slat explained the natural barriers. Even though their team had successfully tested the technology and got it to be propelled by wind, they found two main issues: 1) the plastic will occasionally drift out of the system, and 2) A 60-foot long section of the clean system separated from the rest of the system, so it had to be hauled back to Hawaii (Martin, 2019). They continue to forge ahead with 80 team members and counting, but they are behind schedule.

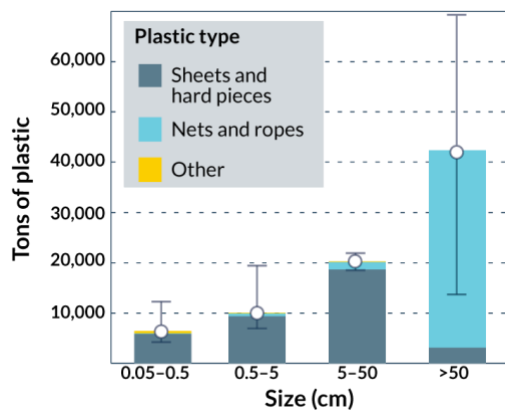


Figure 5.1 GPGP’s inventory of trash (Lebreton et al., 2018)

I reached out to the Ocean Cleanup, and then to Dr. Lebreton. I asked them what they thought of LADBible’s approach. Does it mischaracterize the problem or is it too showy to communicate how bad plastic pollution really is? The Ocean Cleanup said they were unable to answer my questions due to a high volume of inquiries and directed me to their general homepage. Dr. Lebreton has yet to get back to me. This is understandable, but I will continue to

⁴⁸ “Ghostnets,” or lost or discarded fishing nets are the “main contributors to the total mass of GPGP” (p. 13) (Figure 5.1).

ask Ocean Cleanup employees or affiliates their view of Trash Isles. It is important to know whether they generally consider the attention a detriment, neutral, or a supplement.

LADbible's newfound activist approach and The Ocean Cleanup's pragmatic approach are two ways to ameliorate GPGP, but their approaches are marginalized, under-funded, and under-valued. Such is the case for example after example of environmental organizations. Every environmentalist movement has had its language. However, this is probably why there are so many environmentalist movements. Environmentalism writ large is fractured with a voice problem (Endres, 2014). Perhaps such differences among movements is one reason governmental bodies have been quick to dismiss matters of the environment. A new environmentalist movement arguing for ecospheric justice will turn some heads and deviate from the same worn-out environmentalist arguments legislators have been hearing for decades, such as jobs versus environment, cap and trade or carbon tax, or what constitutes sustainable. Admittedly, not every legislator will be open to debating who we fundamentally are as humans and rethinking our very role on earth. But in pushing the needle toward ecospheric justice for all, our species will finally moving in the right direction. Yes, ecospheric rhetoric is a radical, difficult, and profound departure from our current way of being, *and* it is a practical necessity. It is a shift we must make.

When the Apollo 8 crew spoke in front of Congress about what they had saw, they kept referring to earth not just as earth, but as "this one" earth or "this beautiful" earth. Being the first humans to see the entire earth from space deeply shook their attitude toward it. One word communicates a deep relationship to this place we all share. We can't all go out and see Earth from space. But this crew did, and it fundamentally changed their perspective—no country lines, no people, just one blue marble. If more people would sit and deeply think about this for ten

minutes, we might have more people in power who actually give a damn about the environment without blaming their inaction on economy, politics, or culture. If we collectively do this, and change our language, then perhaps we can help prevent the fall.

Sure, changing our language will not be a cure-all. But it gets us to begin to question the baked-in myths we have blindly followed since birth. Making myths only takes a mass of people repeating a few words. People really dive head first into a myth and everything can change quickly. Hitler threw out “superior,” “noble,” “natural,” and not too long after his followers slaughtered six million Jews. In humanity’s search for meaning, we crave myths, but unlike the common understanding of myths these do not exist ethereally, unable to produce material change. No, myths make up the fabric of everyday life and guide our material actions. Ecosphere is the most fundamental myth that contains the fewest mythical properties, and yet it hasn’t taken hold. We’ll only be left with more examples like the Great Pacific Garbage Patch it doesn’t. This one ecosphere has called me to say this so.

The tricky part is, even if the ecosphere has its own language, our language can easily meander away from it because meaning changes and language is slippery. Anthony Leiserowitz, director of the Yale Program on Climate Change Communication, says “the key thing about terms like [global warming or climate change], they are plastic. Or, well, maybe since we are talking about the environment, we should say words are renewable organic latex or something...Essentially, meaning changes” (Christensen, 2019, para. 46). The plasticity of language makes it that much more difficult to identify what modern terms like “plastic” actually means. Since starting with a revamp in language is a bottom-up approach, new environmental activists can embrace this language change, which can happen through education.

Higher education. Ecospheric rhetoric allows for the demolishing of the social/natural split that Latour (1993) describes. Latour attempts to reconnect the two by arguing the modern distinction between nature and culture never existed in the first place, that we have never been modern. What if anthropologists, geologists, political science, communication scholars, and rhetoricians collaborated on an ecospheric project? Ecosphere fits the description of interdisciplinary, so why not an ecosphere major? An ecosphere department? An ecosphere college? Even an ecosphere university? The reality is that ecosphere houses all of these anyway, why not have it house them on the books?

Grammar

Radically rethinking and changing our language may sound like an “out there” idea. However, the field of ecolinguistics is already well established, and it seeks to do just that. Fill & Muhlhausler’s (2006) *Ecolinguistics reader: Language, ecology, and environment* incorporates multiple approaches to changing our linguistic and grammar structures in a way more amenable with ecological thinking. Classrooms in elementary and secondary schools should try to adopt their curriculum to not just teach grammar as it has been taught, but to simultaneously critique its structure. We have to start educating the youth to understand that our words have consequences, and have hurt this earth. So we should be careful of what we say not just so that we don’t hurt others, but this earth.

To return to the notion that language’s origins are oral, Ong (2002) says the ‘rules’ of grammar, “can be abstracted from usage and stated explicitly in words only with difficulty and never completely. Writing, commitment of the word to space, enlarges the potentiality of language almost beyond measure, restructures thought” (Ong, 2002, p. 7). The oral reconsidering

of language allows for the seizing of power from the oppressions of the structure and reconnection to our discursively constructed surroundings.⁴⁹

The presence of orality that produces cyclical thought can help us further reimagine semiotics. One approach is Certoma’s (2016) material-semiotic postenvironmentalist diagram (Figure 5.2). Certoma, like other postenvironmentalist approaches (Buck, 2012; 2018), seeks to work within the semiotic system while eliminating the dualisms formerly produced by those systems. Other authors, like Hashimoto & Ikegami (1995), put forward a mechanism for the evolution of grammar structures. They claim a “net-grammar” emerges from the interaction of grammar systems and that “net-grammar” determines the path of future systems (p. 812-813). In this way, their network model approach is akin to ecological autocatalysis (Figure 3.6), with the whole regulating the direction of the future assemblage of parts.

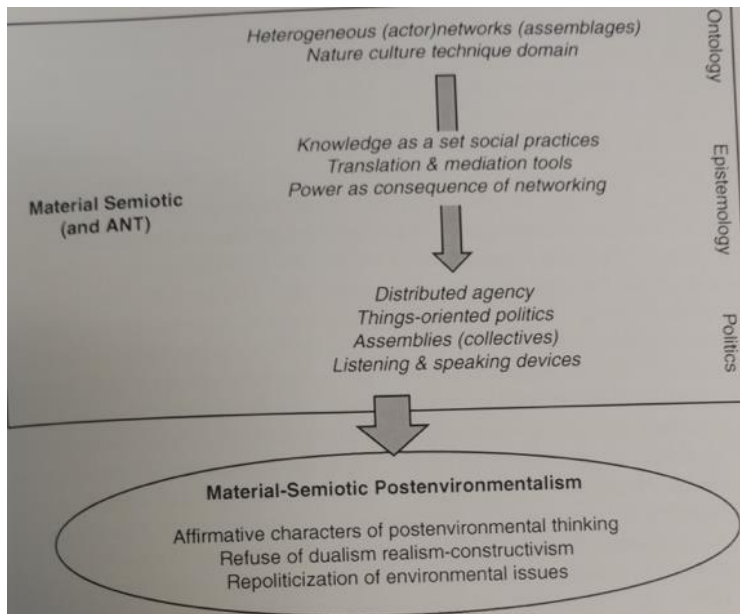


Figure 5.2 Material-semiotic postenvironmentalism (Certoma, 2016, p. 99)

⁴⁹ Ideally, all of us would learn an indigenous language. So much of what an ecospheric rhetoric seeks is what Western colonizers wiped out in the first place. *The Omaha language and the Omaha way: An introduction to Omaha language and culture* (2018) provides a starting point for understanding the language of the ingenious peoples and its ecospheric qualities.

Within this network model strings of symbols string together to form a grammar system. Language, ascending from the ecosphere in multiple, assembling relationships, including the agential properties of matter and non-human actors, is not static. Rather, it dynamically changes. Locating the contingencies and emergent places in grammar structures allows rhetoricians to identify breaks.

It is possible to work within the constraints of our semiotic system within the English language. Cates, Bruner, & Moss (2018) tell us in the imaginary Symbolic (cell 2), “contingency indicates the possibility for the artful manipulation of content” (p. 166). In some languages, such as Spanish, conjugation of verbs can differ based on the tense and form. Some authors have argued we should look for breaks in traditional grammar structures that intensify the present (Kimmerer, 2017; Lynch, 2017).

For instance, instead of code switching, Young, Barrett, Young-Rivera, & Lovejoy (2014) suggest African-Americans should stick by their use of the invariant “be” and other cultural linguistic expressions to critique the notion of “standard” English. Robin Wall Kimmerer’s (2017) *The grammar of animacy* offers ways to de-objectify abiotic creatures by referring to them as “ki” or “kin,” and Streit Krug (2017) answers Kimmerer’s call by offering several personhood metaphors. For instance, the tree I see outside is my kin and the ecosphere would not want us to think of it, or its many kin, as merely resources or impediments to soybeans. Lynch (2017) describes the Apostle’s Creed’s (“The Lord *is* come) use of *paremimi*, or the intensification of the present, which allows us to use present tense to pay homage to the moment. Pithy grammar breaks can connect us to the ocean and the only thing distancing us is time. Examples include:

- The ocean *is* come into all of us.

- Microplastics *be* us.
- We *is* Great Pacific Garbage Patch.
- Now I *am* become death, the destroyer of worlds (Vishnu, Bhagavad Gita)

These will catch people off guard, and that is the point—to elicit questions and feedback about why it is the GPGP is described in this way. Discombobulating phrases encourage split-second reflection on problematic conventions so that what was and is might not always be.

Sibeon (2004) observes language’s tendency to objectify: “Every language involves relatively ‘fixed’ categorizations that constrain thought at the same time as they make possible a whole variety of conceptual operations that without language would be impossible” (p. 74). This is true, though there are ways to de-fix categorizations. In addition to privileging present tense, privileging future perfect can expand temporality beyond human-centric tendencies and retain the action component of the ecosphere. Lacan (1977) thought the future perfect tense—will + have + verb’s past participle that indicates some action will be completed before another action in the future—to be fundamental for the study of psychoanalysis. Similarly, environmental solutions to predictions of the future use the future perfect all the time; e.g. “the icecaps will have melted by 2030,” “the Ogallala will have dried up by 2050,” or “the ecosphere will have suffered this much loss” by whenever.

The grammar of animacy places heavy reliance on verbs over nouns. Indigenous cultures’ languages were strongly verb-oriented. For instance, in the Omaha language, *tanúk izhégtho* means “where meat is broiled” (Omaha & Ponca Digital Dictionary, 2019). In English, it is just called a “grill.” This is not to say that other languages do not have nouns, but that they are less emphasized than the action, process, or verbs. Animacy can begin by looking to non-Western cultures for a personification of the ocean. For instance, life-giving Oshun, the African goddess

of sweet or fresh waters,⁵⁰ highlights the fluidity of these connections to the hydrosphere and aligns humans with other beings (objects) across space and time, be they the plastic cups, the first navigator named Austronesians from Taiwan in 1000 B.C., or the sponge-like creatures we descended from 750 million years ago.

Similar to NASA's satellites that show the annual carbon flow of the earth that make it looks like it is breathing (Krulwich, 2016), Abram's (2019) concept of *Breathing earth* gives us ways to think and speak about the ecosphere Aliveness! as well as the oral origins of language. Abram thinks of the Earth as "Eairth," because it symbolically puts "I" in the middle of Earth. And when spoken, it makes us breathe the word differently. Another example he uses is the tetragrammaton YHWH, the Hebrew name for God. Jewish people regard the name as too sacred to be spoken and are uncertain of the vowel sounds. But Abram interprets these four consonants to be the most-vowel like. Plus, say the "YH" on the in-breath and "WH" on the out-breath, and it is as if you are breathing. If you are comfortable, try it. For me it feels soothing, rhythmic, and elegiac. Abram (1996) says too often we forget how words make us feel. We section the words that make us think from the words that make us feel. Poetry is another way to make us feel.

Poesies

Poesies is about making and doing. The act of writing and consuming poetry allows for more of a space where words display a weight far closer to actuality than is depicted in semiotic theory. Not just for rhetorical scholars, but practitioners, educators at all levels, and communities seeking methods for healing. Keeling & Prairie (2018) argue trope can break out of fixed grammar molds because of how it bends its usually linear structure: "Tropes work recursively as they bring together particular events while folding over others. Folding time and space is a

⁵⁰ That we were once the ocean and still are highlights some religious overtones of the ocean. In the Christian tradition, those of baptism and rebirth.

tropological event” (p. 42). All language is tropological, but poetry purposefully makes breaks in convention.

McGreavy (2018), Heidegger (2001), Rickert (2013), and Talbott (2018) all turn to *poesies* as poetry’s origin and its favoring by Empedocles and Heraclitus. Empedocles was a poet and emphasized the importance of verse in highlighting the mixtures of his four elements. Empedocles’ foundations help comprise western tradition for the concomitance of rhetoric and ecology. He influenced Heidegger, who turned to poetry later in his career to find answers in philosophy. Echoed by Cates, Bruner, & Moss III’s (2018) dive into the imaginary Symbolic, poetry emphasizes the contingency possible in the Symbolic register.

Although poetry is often conceived as “having the luxury of being elliptical and enigmatic,” (Hart & Daughton, 2005, p. 4), and thus contrasted to the “active art” of rhetoric, poetry can play with conventionally problematic structures of grammar within an oral tradition. Hart & Daughton push the door of potential wide open, saying “poetry may be rhetorical, and rhetoric may be poetic” (p. 3). For GPGP, poetry actively emplaces us in the problem. For example, a Colorado School of Mine’s student, Richard Sebastian-Coleman (2017), wrote a poem entitled, “The Great Pacific Garbage Patch Poem” (Appendix B). His last three stanzas connect human body and plastic into one:

My body, ocean / One third shellfish / One quarter fish gut / Fecal plankton peppery stew
/ What flesh did you lodge in first? / Degraded under the sun / Carried in current /
Flushed by stream / Bag and box swept by wind / What tempest carried you into the
gyre? / Picked by salt / Picked by bird / Picked by fish / Tiny morsel picked by algae /
For what do I owe the pleasure of you in my body?

Sebastian-Coleman joins our bodies to the ocean by offering a series of short action statements that grant agency to non-humans and allow the reader's imagination to run wild. It has the reader ask themselves, where was I before me? Another, more well-known poem connecting us to the ocean is Wallace Stevens' "The Idea of Order at Key West." Stevens begins personifying the ocean:

She sang beyond the genius of the sea. / The water never formed to mind or voice, / Like
a body wholly body, fluttering / Its empty sleeves; and yet its mimic motion / Made
constant cry, caused constantly a cry, / That was not ours although we understood, /
Inhuman, of the veritable ocean. / The sea was not a mask. No more was she. / The song
and water were not medleyed sound / Even if what she sang was what she heard, / Since
what she sang was uttered word by word.

Stevens characterizes the ocean's "sound" as absolute. At the end of the poem, Stevens laments human nature's pursuit of order through words and our anger when we cannot have it:

Oh! Blessed rage for order, pale Ramon, / The maker's rage to order words of the sea,
Words of the fragrant portals, dimly-starred, / And of ourselves and of our origins, / In
ghostlier demarcations, keener sounds.

When we place less emphasis on our delineations of what we want to hear, how we "order words," only then can we become acutely aware of our surroundings and origins.

Future Research

Future research may consider how the findings presented in this thesis can develop the statistical tools to calculate signification weights. Future research must also incorporate, learn from, and answer other academic movements, including deep ecology, Gaia hypothesis, affect, and religion.

Signification weight algorithm

The English language is so good at naming new “things” that almost every new technology is given an English name, making it the “conqueror’s language” or “techno-friendly language.” By its own definition, technology does not recognize limits. Umberto Eco once said, “The fact that a technology, which by definition alters the limits of nature, is required in order to violate them means that the limits of nature exist” (World Congress of Philosophy XXIII, 2013, p. 8). Just as one can calculate the steadfast limits of the resources and energy required to make a technology, so too should one be able to calculate the limits of signification. In the future, algorithms, data engineers, and linguists may look into developing a way to estimate the material weight of signification inherent in every word. At the same time, any quantitative calculation of sw will never be entirely sufficient given the generative qualities of language.

A sw algorithm would allow us to begin to rethink the validity of the signifying underpinnings of “modern” discourses enculturated for 400 years (Latour, 1993). Numerous historical examples show policies were made to give material reality to modern fantasies like “innovation,” “progress,” “surplus,” and “economic growth.” They do not signify the same material reality as “ozone,” “soil,” or “water,” but our discourses have granted them equal standing, so they have become real in their consequences. Modern society has long had the luxury of believing our language exists independently of those objects that give it life, but in the near future we will no longer have that luxury the way we do now. When future generations face water shortages and thirst, “water” and “diamond” will roll off the tongue with a different weight. Perhaps only then will we begin to realize the degree to which we misunderstand the processes of our semiotic system. It’s not our language, but the ecosphere’s.

This will require communication scholars, geologists, and computer science folks to join together and think through how to create such an algorithm. Similar to developing a world bank for seeds, this database might store words based on some material criteria, use existing software that runs syntactic combinations, to eventually test out some unit of weight for each sentence or even paragraph. This author has a concept in mind, but developing the actual algorithm is outside the scope of their training. But it is valuable if we are to start taking seriously *how* our words matter for the future of our planet.

Deep ecology, Gaia hypothesis

The notion of ecosphere may cause some to think of the already established movements Gaia, which ecofeminists point to, or deep ecology. Arne Naess introduced the phrase “deep ecology” to the environmental canon in 1973. At the core is the belief that the living “environment should be regarded as having certain basic moral and legal rights to live and flourish, independent of the benefits humans use it for. Drengson (2012) explains of the movement:

The word “deep” in part referred to the level of questioning of our purposes and values when arguing in environmental conflicts. The “deep” movement involves deep questioning, right down to fundamental root causes. The short-term, shallow approach stops before the ultimate level of fundamental change, often promoting technological fixes (e.g. recycling, increased automotive efficiency, export-driven monocultural organic agriculture) based on the same consumption-oriented values and methods of the industrial economy. (para 2)

At first blush, deep ecology and the ecosphere seem complementary but more serious comparison is needed. Morton (2010) wishes his “hyperobject” to take the claims of deep

ecology “more seriously than it takes them, and go deeper” (p. 134). Robinson (2016) united Aristotle’s rhetorical tradition and Naess’ deep ecology. Starting from these places, what are the differences and similarities between these academic traditions, and what is needed to supplement or revive them?

The Gaia hypothesis proposes that living organisms interact with their surroundings on Earth to form a synergy, self-regulation, and complexity. It was developed by chemist James Lovelock and microbiologist Lynn Margulis in the 1970s. Lovelock named the idea after *Gaia*, the primordial goddess who personified the Earth in Greek mythology. It argues Earth is a complex system involving the biosphere, the atmosphere, the hydrospheres and the pedosphere, tightly coupled as an evolving system (Lovelock & Margulis, 1974).

These already established academic audiences can be allies of ecosphere studies because they share several similarities. However, ecosphere studies is not exactly the same. It can draw from classical rhetoric, deep ecology, and Gaia hypothesis, but ecospheric studies solely reliant on Earth Systems data from the 80s and 90s, it considers the human to be supra human (as opposed to Gaia’s super-human), and if it pulls from any classical rhetorical traditions, they will be from Heraclitus and Empedocles.

Affect

Although symbols are material, according to Blair (1999), “it is problematic to treat rhetoric as if it were exclusively or essentially symbolic or meaningful” (p. 19). The theoretical work of this thesis and the analysis of GPGP implicitly acknowledge affect as an important component of symbol making and use given objects precede signification. However, more explicit ties to affect-studies scholarship would prove useful. As the analysis of the Google Earth and Maps photos of the Great Pacific Garbage Patch suggests, the affective responses to visual

depictions of ecological catastrophes may be more effective than textual or oral representations. What are the differences in affect produced by images imbuing various scalar and temporal dimensions? How does the affect differ when an image depicts a single climate refugee, a group of Californians fleeing a wildfire, a starving polar bear, a poisoned stream, or an entire Pacific Ocean filled with plastic visible from space? Differences in emotional resonance may shed further light on why it is so difficult for humans to empathize with an entire, hyperobject ecosphere relative to the suffering of an individual or group.

Religion

This thesis has often struck a religious or spiritual tone. Even so, its arguments are grounded in rhetorical theory and do not wade into theology. However, they might need to. Religion can spread and affect a great deal of people. A religion in which people can deeply immerse themselves in nature, believe in the Earth, and that it has meaning. Yes, this will initially be compared with hippie culture, scientology, or a cult following. But as the environmental conditions worsen, people not already identifying with a religion will need somewhere to turn to suppress nihilism. Pew Research (2014) found there are now more unaffiliated people in the U.S. (22.8 percent) than Catholics (20.8 percent). This is the kairotic moment for a new religion to take hold. The core beliefs of an ecospheric worldview are grounded in science, but they might just be able to heal the science/religion split described by Keeling & Prairie (2018).

Conclusion

This thesis has first and foremost argued for an ecospheric rhetoric. The processes around us matter just as much as we do, and even more so. This is not a revolutionary idea. It is quite simple. And yet, here we are, still living in our naming fantasies. How regularly we forget that in

the beginning was the world, and the world gave us the word. And the word was used for naming. And naming was used for possessing, first for survival and then to “acquire more for more people” (Buffett, 2018). All to the detriment of the world. But we know. We *know* we are the ways in which we talk, act, and rhetorically analyze. But those two things have been too focused on the word and misunderstood the world. Jackson et al. (2018) say, “Because of the priority of the ecosphere over humans (in time, inclusiveness, complexity, evolutionary creativity and diversity), the ecosphere is a proper ‘boundary of causation’ ... within the cosmos” (p. 43). And yet we treat discourses as if they are the cosmos, circulating, spiraling, swirling masses of dominance. We have the knowledge. We know we will always be no more than a part of the ecosphere but have yet to fully realize what that means for our species. Until we do, we will need more theses like these.

References

- Abram, D. (2019, Mar. 7). *Breathing earth* [PowerPoint presentation]. Boulder, CO: University of Colorado at Boulder.
- . (1996). *Spell of the sensuous*. New York, NY: Vintage.
- Abrams, N. E. (2015). *A god that could be real*. Boston, MA: Beacon Press.
- Ackerman, J. M. (2018). Walking in the city: The arrival of the rhetorical subject. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 117-140). doi:10.1007/978-3-319-65711-0_5
- Alaimo, S. (2010). *Bodily natures: Science, environment, and the material self*. Bloomington, IN: Indiana University Press.
- Barad K. (2018). Posthumanist performativity: Toward an understanding of how matter comes to matter. In C. Åsberg & R. Braidotti (eds), *A feminist companion to the posthumanities* (223-239). Cham, Switzerland: Palgrave Macmillan.
- . (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.
- Bar-On, Y. M., Phillips, R., & Milo R. (2018). The biomass distribution on Earth. *Proceedings of the National Academy of Sciences*, 115, 6506-6511. doi:10.1073/pnas.1711842115
- Bar-Yam, Y. (2011). Concepts: Emergence. *New England Complex Systems Institute*. Retrieved from <http://necsi.edu/guide/concepts/emergence.html>
- Bateson, G. (1979). *Mind and nature: A necessary unity*. New York, NY: E. P. Dutton.
- Bellamy, B. R. & Diamanti, J. (2018). Materialism and the critique of energy. *Mediations*, 32, 1-16, Retrieved from www.mediationsjournal.org/articles/critique-of-energy

- Bengle, J. (2017, Sept. 7). Al Gore joins campaign to turn ocean plastic landmass into official country, *Resource*. Retrieved from <https://resource.co/article/al-gore-joins-campaign-turn-ocean-plastic-landmass-official-country-12089>
- Bennett, J. (2010). *Vibrant matter: A political ecology of things*. Durham and London: Duke University Press.
- . (2005). The agency of assemblages and the North American blackout. *Public Culture*, 17, 445-66. doi:10.1215/08992363-17-3-445
- Berry, W. (1977). *The unsettling of America: Culture and agriculture*. San Francisco, CA: Sierra Club Books.
- Blair, C. (1999). Contemporary U.S. memorial sites as exemplars of rhetoric's materiality. In J. Selzer and S. Crowley (eds.) *Rhetorical Bodies* (16-57). Madison, WI: University of Wisconsin Press.
- Bloom, H. (ed.). (1987). *Modern critical interpretations: Henry David Thoreau's Walden*. New York, NY: Chelsea House Publishers.
- Bogost, I. (2012). *Alien phenomenology; Or, what it's like to be a thing*. Minneapolis, MN: University of Minnesota Press.
- Boysen, B. (2018). The embarrassment of being human. *Litterarum*, 73, 225-242. doi:10.1111/oli.12174
- Brambila, N. C. (2014, Aug. 9). Drying times: Could the rapidly depleting Ogallala aquifer run dry? *Lubbock Avalanche-Journal*. Retrieved from <http://www.lubbockonline.com/local-news/2014-08-09/drying-times-could-rapidly-depleting-ogallala-aquifer-run-dry>

- Brown, J. J. & Rivers, N. (2014). Composing the carpenter's workshop. *O-Zone, 1*, 27–36,
Retrieved from http://static1.squarespace.com/static/50b4d1aee4b0214dc1f68c69/t/52979aeb4b09eb8018f2156/1385667307737/04_Carpenter's+Workshop_FINAL.pdf.
- Brevini, B. & Murdock, G. (Eds.). (2017). *Carbon capitalism and communication: Confronting climate crisis*. New York, NY: Palgrave Macmillan.
- Bryant, L. (2011). *The democracy of objects*. Ann Arbor, MI: Open Humanities Press.
- Buceniece, E. (2018). Phenomenology as ecology: Movement from ego- to geo- and eco-thinking. In W. Smith, J. Smith, & D. Verducci (eds), *Eco-phenomenology: Life, human life, post-human life in the harmony of the cosmos* (pp. 225-234). doi:10.1007/978-3-319-77516-6_17
- Buck, C. D. (2018). Post-environmentalism. In N. Castree, M. Hulme, & J. D. Proctor (eds.), *Companion to environmental studies* (238-242). New York, NY: Routledge.
- . (2012). Post-environmentalism: An internal critique. *Environmental Politics, 6*, 883-900, doi:10.1080/09644016.2012.712793
- Buckles J. (2018). *Education, sustainability and the ecological social imaginary*. Cham, Switzerland: Palgrave Macmillan.
- Buffett, P. (2018, Jan. 4). The fierce urgency of “how.” *Yes! Magazine*. Retrieved from <http://www.yesmagazine.org/happiness/the-fierce-urgency-of-how-20180101>
- Burke, K. (1984). *Attitudes toward history* (3rd ed.). Berkeley, CA: University of California Press.
- . (1950). *A rhetoric of motives*. Berkeley, CA: University of California Press.
- Butler, O. E. (1993). *Parable of the sower*. New York, NY: Four Walls Eight Windows

- Campbell, G. (2018). Empedocles (c. 492—432 B.C.E.). *Internet Encyclopedia of Philosophy*. Retrieved from <https://www.iep.utm.edu/empedocl/>
- Castree, N., Hulme, M., & Proctor, J. D. (eds.). (2017). *Companion to environmental studies*. New York, NY: Routledge.
- . (2003). A post-environmental ethics? *Ethics, Place, and the Environment*, 6, 3-12, doi:10.1080/13668790303542
- Carbaugh, D. & Cerulli, T. (2013). Cultural discourses of dwelling: Investigating environmental communication as a place-based practice. *Environmental Communication*, 7, 4-23. doi:10.1080/17524032.2012.749296.
- Cates, C., Bruner, M. L., & Moss III, J. T. (2018). Recuperating the real: New materialism, object-oriented ontology, and neo-Lacanian ontical cartography. *Philosophy & Rhetoric*, 51, 151-175, doi:10.5325/philtrhet.51.2.0151
- Certomà, C. (2016). *Postenvironmentalism: A material semiotic perspective on living spaces*. New York, NY: Palgrave Macmillan.
- Christensen, J. (2019). Is it climate change or global warming? How science and a secret memo shaped the answer. *CNN*. Retrieved from <https://www.cnn.com/2019/03/02/world/global-warming-climate-change-language-scen/index.html>
- Cloud, D. L. (1994). The materiality of discourse as oxymoron: A challenge to critical rhetoric. *Western Journal of Communication*, 58, 141–63, doi:10.1080/10570319409374493
- Cobb Jr., J. (2008). *Whitehead world book*. Claremont, CA: P&F Press.
- Cohen, J. J. (2018). The pull of the sky. *Emergence*. Retrieved from <https://emergencemagazine.org/story/the-pull-of-the-sky/>

- Cole, A. (2013). The call of things: A critique of object-oriented ontologies. *The Minnesota Review*, 80, 106–118. doi:10.1215/00265667-2018414
- Cole, A. (2015). Those obscure objects of desire: The uses and abuses of object-oriented ontology and speculative realism. *Artforum*, 317–323. Retrieved from <https://www.artforum.com/print/201506/the-uses-and-abuses-of-object-oriented-ontology-and-speculative-realism-andrew-cole-52280>
- Coole, D., & Frost, S. (2010). Introducing the new materialisms. In D. Coole & S. Frost (Eds.), *New materialisms: Ontology, agency, and politics* (1–43). Durham, NC: Duke University Press.
- Cox, R. (2013). *Environmental communication and the public sphere* (3rd ed). Thousand Oaks, CA: Sage.
- . (2007). Nature's "crisis disciplines": Does environmental communication have an ethical duty? *Environmental Communication*, 1, 5-20. doi:10.1080/17524030701333948
- Dannenberg, C. J., et al. (2012). The moral appeal of environmental discourses: The implication of ethical rhetorics. *Environmental Communication*, 6, 212-232. doi:10.1080/17524032.2012.668856.
- Davis, D. (2011). Creaturely rhetorics. *Philosophy & Rhetoric*, 44, 88-94. doi:10.1353/par.2011.0000
- Deleuze, G. & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia* (B. Massumi, Trans.). Minneapolis, MN: University of Minnesota Press.
- DeLuca, K. M. and Demo, A. T. (2000). Imaging nature: Watkins, Yosemite, and the birth of environmentalism. *Critical Studies in Media Communication*, 17, 241-260, doi:10.1080/15295030009388395

- Drengson, A. (2012). Some thought on the deep ecology movement. *Foundation for deep ecology*. Retrieved from <http://www.deepecology.org/deepecology.htm>
- Earth Day Network. (2019). 10 shocking facts about plastic pollution. Retrieved from <https://www.earthday.org/2018/03/07/fact-sheet-end-plastic-pollution/>
- Ecosphere studies. (2018). *The Land Institute*. Retrieved from <https://landinstitute.org/our-work/ecosphere-studies/>
- Ecosphere [Def. 1]. (n.d.). In *Oxford Living Dictionaries*. Retrieved July 10, 2018 from <https://en.oxforddictionaries.com/definition/ecosphere>
- Endres, D. (2014). Response essay: The (im)possibility of voice in environmental advocacy. In S. Depoe & J. Peeples (eds.), *Voice and Environmental Communication* (110-123). New York, NY: Palgrave Macmillan.
- Endres, D. & Senda-Cook, S. (2011). Location matters: The rhetoric of place in protest. *Quarterly Journal of Speech*, 97, 257–82, doi:10.1080/00335630.2011.585167
- Ewalt, J. P. (2018). (Re)arranging regional rhetorics. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 141-166). doi:10.1007/978-3-319-65711-0_6
- Falk, D. (2017, Aug. 8). The 7 biggest unanswered questions in physics: Physicists have solved some of the universe's biggest mysteries. But they're not done yet. *NBC News*. Retrieved from <https://www.nbcnews.com/mach/science/7-biggest-unanswered-questions-physics-ncna789666>
- Fill, A. & Muhlhausler, P. (2006). *Ecolinguistics reader: Language, ecology, and environment*. New York, NY: Bloomsbury.

- Gass, S. [TED-Ed]. (2013, June 24). *How big is the ocean?* [Video file]. Retrieved from https://www.youtube.com/watch?v=QUW_Zv_jB8&vl=en
- Goldberg, S. (2018). Anthropocene frontiers: The place of environment in western studies. *Western American Literature*, 53, 21-30. doi:10.1353/wal.2018.0020
- Guattari, F. (2000). *The three ecologies* (I. Pindar & P. Sutton, Trans.). New Brunswick, NJ: The Athlone Press.
- Gunn, J. (2014). Canned laughter. *Philosophy and Rhetoric*, 47, 434–54.
doi:10.5325/philtrhet.47.4.0434
- . (2003). Refiguring fantasy: Imagination and its decline in U.S. rhetorical studies. *Quarterly Journal of Speech*, 89, 41–59. doi:10.1080/00335630308168
- Haber, W. (2004). The ecosystem – power of a metaphysical construct. *Synopsis of approaches to systemic environmental research*. Ökosystemzentrum Kiel, Germany. Retrieved from https://www.researchgate.net/publication/308555988_The_Ecosystem_-_Power_of_a_Metaphysical_Construct
- Hagen, N. (2018, Jan. 22). *Energy, technology, money and the human superorganism* [PowerPoint slides]. Retrieved from <https://www.slideshare.net/NateHagens1/energy-and-technology-from-lens-of-the-superorganism-87406048>
- Hanson, J. [Squarespace]. (2016, Feb. 8). *100,000,000 years from now* [Video File]. Retrieved from https://www.youtube.com/watch?v=oBcHf_eeYt4&feature=youtu.be
- Harari, Y. N. (2011). *Sapiens: A brief history of humankind*. New York, NY: Harper & Row.
- Haraway, D. (2006). A cyborg manifesto: Science, technology, and socialist-feminism in the late 20th century. In J. Weiss, J. Nolan, J. Hunsinger, & P. Trifonas (eds.), *The international*

- handbook of virtual learning environments* (pp. 117–158). Rotterdam, Netherlands: Springer International Publishing.
- Harman, G. (2011). *The quadruple object*. Blue Ridge Summit, PA: Zero Books.
- Hart, R. P. & Daughton, S. (2005). *Modern rhetorical criticism* (3rd ed.). Boston, MA: Pearson.
- Hashimoto, T. & Ikegami, T. (1995). Evolution of symbolic grammar systems. In F. Morán, A. Moreno, J.J. Merelo, & P. Chacón (Eds.) *Advances in Artificial Life. ECAL 1995. Lecture Notes in Computer Science (Lecture Notes in Artificial Intelligence)*, 929, 812-823. Berlin, Heidelberg: Springer. doi:10.1007/3-540-59496-5_345
- Heidegger, M. (2001). *Being and time*. (J. Macquarrie & E. Robinson, Trans.). Oxford, England: Blackwell.
- Irvine, M. (2012). Structural linguistics, semiotics, and communication theory: Basic outlines and assumptions. *Creative Commons*. Retrieved from http://faculty.georgetown.edu/irvinem/theory/Semiotics_and_Communication.html
- Jackson, W., Streit Krug, A., Vitek B., & Jensen, R. (2018). Transforming human life on our home, perennially. *The Ecological Citizen*, 43-46. Retrieved from <https://www.ecologicalcitizen.net/pdfs/v02n1-08.pdf>
- . (2011). *Nature as measure*. Berkeley, CA: Counterpoint Press.
- . (2010). *Consulting the genius of the place: An ecological approach to a new agriculture*. Berkeley, CA: Counterpoint Press.
- Jensen, B. (2019, Jan. 10). Personal interview.
- . (2015). *Plain radical: Living, loving, and learning to leave the planet gracefully*. New York, NY: Soft Skull Press.

- Joyce, C. (2019, Jan. 17). Teenage diver finds tons of golf balls rotting off California. *NPR*. Retrieved from <https://www.npr.org/2019/01/17/686257550/teenage-diver-finds-tons-of-golf-balls-rotting-off-california>
- Keeling, D. M. & Prairie, J. C. (2018). Trophic and tropic dynamics: An ecological perspective of tropes. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 39-58). doi:10.1007/978-3-319-65711-0_2
- Kelly, M. R. (2018). Phenomenology and time-consciousness. *Internet Encyclopedia of Philosophy*. Retrieved from <https://www.iep.utm.edu/phe-time/>
- Kiefer, B. (2018, June 27). How Trash Isles' creators founded a country of rubbish to tackle a global crisis. *Campaign*. Retrieved from <https://www.campaignlive.co.uk/article/trash-isles-creators-founded-country-rubbish-tackle-global-crisis/1486119>
- Kimmerer, R. W. (2017). Learning the grammar of animacy. *Anthropology of Consciousness*, 28, 128-134, doi:10.1111/anoc.12081
- Kinsella, W. J. (2007). Heidegger and being at the Hanford reservation: Standing reserve, enframing, and environmental communication theory, *Environmental Communication*, 1, 194-217. doi:10.1080/17524030701642728
- Klein, N. (2014). *This changes everything: Capitalism vs the climate*. New York City, NY: Simon & Schuster.
- Kolbert, E. (2014). *The Sixth Extinction*. London, England: Picador.
- Konstan, D. (2006). *The emotions of the ancient Greeks: Studies in Aristotle and classical literature*. Toronto, Canada: University of Toronto Press.

- Krulwich, R. (2016, Mar. 9). The earth has lungs. Watch them breathe. *National Geographic*. Retrieved from <https://www.nationalgeographic.com/science/phenomena/2016/03/09/the-earth-has-lungs-watch-them-breathe/>
- Lacan, J. (1977). The function and field of speech and language in psychoanalysis. In *Écrits: A Selection, translated by Alan Sheridan*. New York, NY: W. W. Norton.
- LADbible. (2019). *Trash Isles*. Retrieved from <http://www.ladbible.com/trashisles>
- . (2017, Dec. 14). *Trash Isles – The LADbible country: Trash Isles summary*. Retrieved from <http://www.ladbiblegroup.com/Projects/trash-isles-casestudy/>
- Lange, M. M. (2012). Book reviews: The ecological thought. *Journal of Applied Philosophy*, 29, 378-379. doi:10.1111/j.1468-5930.2012.00571.x
- Latour, B. (1993). *We have never been modern*. Cambridge, MA: Harvard University Press.
- Lebreton, L., B. Slat, F. Ferrari, B. Sainte-Rose, J. Aitken, R. Marthouse, S... & J. Reisser. (2018). Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic. *Scientific Reports*, 8, doi:10.1038/s41598-018-22939-w
- LeCain, T. J. (2015). Against the Anthropocene: A neo-materialist perspective. *International Journal for History, Culture and Modernity*, 3, 1-28, doi:10.18352/hcm.474
- Le Guern, C. (2018). When the mermaids cry: The great plastic tide. *Coastal Care*. Retrieved from <http://plastic-pollution.org/>
- Lehmann, H. (2016). *Feeling home: House and ideology in the attic orators*. (UCLA). Retrieved from <https://escholarship.org/uc/item/99n9k56z>
- Leopold, A. (1949). *A sand county almanac and sketches here and there*. New York, NY: Oxford University Press.

- Lin, D. (2010). Citing the paradox: Probing the systematization of Whitehead as philosopher subject. In R. Faber, B. G. Henning, & C. Combs (Eds.), *Beyond metaphysics? Explorations in Alfred North Whitehead's late thought* (pp. 61-76). New York, NY: Rodopi
- Lind, C. (2017). Ethos, pathos, logos, wholeness. *The Land Report*, 119, 12-20. Retrieved from <https://landinstitute.org/wp-content/uploads/2018/03/LR-119.pdf>
- Lodge, D. & Wood, N. (2008). *Modern criticism and theory: A reader* (3rd ed.). London, England: Pearson Education Limited.
- Loria, K. (2018, May 8). The amount of carbon dioxide in the atmosphere just hit its highest level in 800,000 years and scientists predict deadly consequences. *Business Insider*, Retrieved from <http://www.businessinsider.com/carbon-dioxide-record-human-health-effects-2018-5>
- Lovelock, J. E. & Margulis, L. (1974). Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis. *International Meteorological Institute*, 26, 2-10. doi:10.1111/j.2153-3490.1974.tb01946.x.
- Lundberg, C. (2012). *Lacan in public: Psychoanalysis and the science of Rhetoric*. Tuscaloosa, AL: University of Alabama Press.
- Lynch, P. (2017). On care for our common discourse: Pope Francis's nonmodern epideictic, *Rhetoric Society Quarterly*, 47, 463-482, doi:10.1080/02773945.2017.1347953
- MacCormack, P. & Gardner, C. (2018). *Ecosophical aesthetics. Art, ethics and ecology with Guattari*. New York, NY: Bloomsbury Publishing.
- Mackey, S. (2012). Semiotic, rhetoric and democracy. *Cosmos and history*, 8, 304-322. Retrieved from <http://www.cosmosandhistory.org/index.php/journal/article/view/275>

- Maloney, A. (2018, Dec. 22). I went to the Great Pacific Garbage Patch. This is what I saw. *Teen Vogue*. Retrieved from <https://www.teenvogue.com/story/i-went-to-the-great-pacific-garbage-patch?verso=true>
- Martin, M. (2019, Jan. 5). An engineering wunderkind's ocean plastics cleanup device hits a setback. *NPR*. Retrieved from <https://www.npr.org/2019/01/05/682532583/an-engineering-wunderkinds-ocean-plastics-cleanup-device-hits-a-setback>
- Matthews, D. (2018, Oct. 17). 23 charts and maps that show the world is getting much, much better. *Vox*. Retrieved from <https://www.vox.com/2014/11/24/7272929/global-poverty-health-crime-literacy-good-news>
- McCarthy, N. (2018, Mar. 16). Study finds microplastics in 93% of bottled water [infographic]. *Forbes*. Retrieved from <https://www.forbes.com/sites/niallmccarthy/2018/03/16/study-finds-microplastics-in-93-percent-of-bottled-water-infographic/#15a90a2a73fa>
- McGee, M. C. (1982). A materialist conception of rhetoric. In R. E. McKerrow (ed.), *Explorations in rhetoric: Studies in honor of Douglas Ehninger* (pp. 23-48). Dallas, TX: Scott, Foresman.
- McGreavy, B. (2018). Intertidal poetry: Making our way through change. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 87-115). doi:10.1007/978-3-319-65711-0_4
- , Wells, J., McHendry Jr., G. F., & Senda-Cook, S. (Eds.). (2018). *Tracing rhetoric and material life: Ecological approaches*. London, England: Palgrave Studies in Media and Environmental Communication.

- . (2014). Process philosophy and rhetorical ethnography: A return to Alfred North Whitehead's theory of organism. *Conference Papers, National Communication Association, Chicago, IL.*
- McIntyre, C., & Medoro, D. (2016). Spokesvultures for ecological awareness: An interview with Timothy Morton. *English Studies in Canada, 42*, 159-174. doi:10.1353/esc.2016.0030
- Mesle, R. C. (2008). *Process-relational philosophy: An introduction to Alfred North Whitehead.* West Conshohocken, PA: Templeton Foundation Press.
- Morton, T. (2013). *Hyperobjects: Philosophy and ecology after the end of the world.* Minneapolis, MN: University of Minnesota Press.
- . (2012, Nov. 14). In-person interview with Gabriel Shalom. Berlin, Germany.
- . (2010). *The ecological thought.* Cambridge, MA: Harvard University Press.
- Morowitz, H. J. (2002). *The emergence of everything: How the world became complex.* New York, NY: Oxford University Press.
- National Geographic Society. (2019a). *Great pacific garbage patch.* Retrieved from <https://www.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/>
- . (2019b). *Ocean gyre.* Retrieved from <https://www.nationalgeographic.org/encyclopedia/ocean-gyre/>
- National Oceanic and Atmospheric Administration. (2019, Mar. 15). Global ocean absorbing more carbon: Scientists see fourfold increase in ocean's annual carbon uptake. Retrieved from <https://www.ncei.noaa.gov/news/global-ocean-absorbing-more-carbon>
- Nikiforuk, A. (2012). *The energy of slaves: Oil and the new servitude.* Vancouver, Canada: Greystone Books Ltd.

- Ogden, C. K. & Richards, I. A. (1923). *The meaning of meaning: A study of the influence of language upon thought and of the science of symbolism*. New York, NY: Harcourt, Brace and Co.
- Ong, W. J. (2002). *Orality and literacy: The technologizing of the world* (2nd ed.). New York, NY: Routledge
- Orr, D. W. (2016). *Dangerous years: Climate change, the long emergency, and the way forward*. New Haven, CT: Yale University Press.
- Overbye, D. (2018, Dec. 3). All the light there is to see? 4×10^{84} photons. *The New York Times*. Retrieved from <https://www.nytimes.com/2018/12/03/science/space-stars-photons-light.html>
- Perinbanayagam, R. (2018). *The rhetoric of signs*. Bloomington, IN: Archway Publishing.
- Peters, J. D. (1999). *Speaking into the air: A history of the idea of communication*. Chicago, IL: The University of Chicago Press.
- Petri, A. (2014, Nov. 21). Yes, half of America believes that the end times are causing natural disasters. *The Washington Post*. Retrieved from https://www.washingtonpost.com/blogs/compost/wp/2014/11/21/yes-half-of-america-believes-that-the-end-times-are-causing-natural-disasters/?noredirect=on&utm_term=.d21aaf330bd1
- Pew Research Center. (2014). *Religious landscape study*. Retrieved from <https://www.pewforum.org/religious-landscape-study/>
- Pezzullo, P. C. (2016). Unearthing the marvelous: Environmental imprints on rhetorical criticism. *Review of Communication*, 16, 25-42, doi:10.1080/15358593.2016.1183874.

- Pierce, C. S. (1878). How to make our ideas clear. *Popular Science Monthly*, 12, 286-302.
Retrieved from <http://www.peirce.org/writings/p119.html>
- Pilsch, A. (2017). Invoking darkness: Skotison, scalar derangement, and inhuman rhetoric. *Philosophy & Rhetoric*, 50, 336-355, doi:10.5325/philrhet.50.3.0336
- Plummer, L. & McGoogan, C. (2017, Sept. 4). 11 terrifying climate change facts: This is what's going on right now and it isn't good news. *Wired*. Retrieved from <https://www.wired.co.uk/article/climate-change-facts>
- Potenza, A. (2018, Mar 29). About half of Americans don't think climate change will affect them — here's why: It's a mixture of politics and psychology. *The Verge*. Retrieved from <https://www.theverge.com/2018/3/29/17173166/climate-change-perception-gallup-poll-politics-psychology>
- Primack, J. R. & Abrams, N. E. (2006). *The view from the center of the universe: Discovering our extraordinary place in the cosmos*. New York, NY: Riverhead Books.
- Pruchnic, J. (2015). *Rhetoric and ethics in the cybernetic age: The transhuman condition* (1st ed.). London, England: Routledge.
- . (2006). *The transhuman condition: Rhetoric and ethics in the cybernetic age*. ProQuest Dissertations Publishing.
- Pyenson, N. (2018, June 23). Wrap your mind around a whale. *NY Times*, Retrieved from <https://www.nytimes.com/2018/06/23/opinion/sunday/wrap-your-mind-around-a-whale.html>
- Rees, W. (1992). Ecological footprints and appropriated carrying capacity: What urban economics leaves out. *Environment and Urbanization*, 4, 121-130. doi: 10.1177/095624789200400212

- Rettner, R. (2012, June 17). The weight of the world: Researchers weigh human population. *Live Science*. Retrieved from <https://www.livescience.com/36470-human-population-weight.html>
- Rickert, T. (2018). Towards ecosophy in a participating world: Rhetoric and cosmology in Heidegger's fourfold and Empedocles' four roots. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 59-83). doi:10.1007/978-3-319-65711-0_3
- . (2013). *Ambient rhetoric: The attunements of rhetoric*. Pittsburgh, PA: University of Pittsburgh Press.
- Rivers, N. A. (2018). Better footprints. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 59-83) doi:10.1007/978-3-319-65711-0_7
- . (2016). Rhetorical prehistory and the paleolithic. *Review of Communication*, 16, 352-373, doi:10.1080/15358593.2016.1207358
- . (2013). *Ambient rhetoric: The attunements of rhetorical being*. Pittsburgh, PA: University of Pittsburgh Press.
- Roberts, S. & Nunn, T. (2018, Jan. 24). *Accept the Trash Isles as an official country & help protect our oceans*. Retrieved from <https://www.change.org/p/un-secretary-general-ant%C3%B3nio-guterres-accept-the-trash-isles-as-an-official-country-help-protect-our-oceans>
- Robinson, D. (2016). *The deep ecology of rhetoric in Mencius and Aristotle: A somatic guide*. Albany, NY: State University of New York Press.

- Rogers, R. A. (1998). Overcoming the objectification of nature in constitutive theories: Toward a transhuman, materialist theory of communication. *Western Journal of Communication*, 62, 244–272, doi:10.1080/1041794X.2015.1065289
- Rowe, S. J. (2006). *Earth alive: Essays on ecology*. Edmonton, Alberta: NeWest Press.
- . (2003). The living Earth and its ethical priority. *Trumpeter*, 19. Retrieved from <http://www.synergiescanada.org/journals/synpra/trumpet/14>
- . (1990). Environmental ethics—ethical ecosphere. *Trumpeter*, 7, 1-7.
doi:10.1.1.863.1475&rep=rep1&type=pdf
- . (1989). What on earth is environment? *Trumpeter*, 6, 1-6. Retrieved from <https://pdfs.semanticscholar.org/d459/f052625c233debf973b7c9f6c8b36f862a69.pdf>
- . (1961). The level-of-integration concept and ecology. *Ecology*, 42, 420-427,
doi:10.2307/1932098/
- Rowell, G. (1999). *The Earthrise photograph*. Interview with Australian Broadcasting Corporation. Retrieved from <http://www.abc.net.au/science/moon/earthrise.htm>
- Rushkoff, D. (2018, Dec. 13). How to be ‘team human’ in the digital future [video file]. *Ted Talks*. Retrieved from https://www.ted.com/talks/douglas_rushkoff_how_to_be_team_human_in_the_digital_future/transcript?language=en
- Schnieder, B. (1996). *Applied cryptography* (2nd ed.). Hoboken, NJ: John Wiley and Sons.
- Science History Institute. (2019). Conflicts in chemistry: The case of plastics. Retrieved from <https://www.sciencehistory.org/the-history-and-future-of-plastics>
- Scientific consensus: Earth’s climate is warming. (2018). NASA, retrieved from <https://climate.nasa.gov/scientific-consensus/>

- Scott, J. C. (2017). *Against the grain: A deep history of the earliest states*. New Haven, CT: Yale University Press.
- Sebastian-Coleman, R. (2017). The great pacific garbage patch poem. *High Grade Mines*. Retrieved from <http://highgrade.mines.edu/exclusives/2017/GarbagePatchPoem-RichardSebastianColeman.pdf>
- Seigel, M. A. (2004). 'One little fellow named ecology': Ecological rhetoric in Kenneth Burke's "Attitudes toward history," *Rhetoric Review*, 23, 390–401.
doi:10.1207/s15327981rr2304_6
- Selzer, J. & Crowley, S. (1999). *Rhetorical bodies*. Madison, WI: University of Wisconsin Press.
- Semiotic terminology. (2018). *The University of Vermont*. Retrieved from https://www.uvm.edu/~tstreete/semiotics_and_ads/terminology.html
- Sencindiver, S. Y. (2017, July 26). New materialism. *Oxford Bibliographies*.
doi:10.1093/OBO/9780190221911-0016
- Senda-Cook, S. & McHendry Jr., G. F. (2018). Embodying resistance: A rhetorical ecology of the fully cycle supper. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 87-115).
doi:10.1007/978-3-319-65711-0_4
- Shellenberger, M. & Nordhaus, T. (2005, Jan. 14). The death of environmentalism: Global warming politics in a post-environmental world, *Grist*, retrieved from <https://grist.org/article/dae-reprint/>
- Sibeon, R. (2004). *Rethinking social theory*. Thousand Oaks, CA: Sage.

- Smeele, W. (2018). The Victorian posthuman: Monstrous bodies in literature and science. Dissertation Retrieved from <https://etd.library.vanderbilt.edu/available/etd-05132018-171318/unrestricted/W.Smeele.pdf>
- Smith, T. S. (2018). Ecological ethics of care and the multiple self: Revisiting the roots of environmentalism. *Sustainability, Wellbeing and the Posthuman Turn*, 63-90. doi:10.1007/978-3-319-94078-6_4
- Stagliano, A. (2018). Toward a geopoetical rhetoric: The transborder immigrant tool and material tactics. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 289-314) doi:10.1007/978-3-319-65711-0_11
- Stormer, N. (2018). Afterword: Working in an ecotone. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 343-354). doi:10.1007/978-3-319-65711-0_13
- Streit Krug, A. (2018). *The Omaha language and the Omaha way: An introduction to Omaha language and culture*. Lincoln, NE: University of Nebraska Press.
- . (2017). *Plants we live by: Ecocriticism and American ethnobotanical literature*. ETD collection for University of Nebraska—Lincoln. AAI10271907. <https://digitalcommons.unl.edu/dissertations/AAI10271907>
- Sullivan, K. (2019, Feb. 25). Bernie Sanders says climate change is an existential crisis. *CNN*. Retrieved from <https://www.cnn.com/2019/02/25/politics/bernie-sanders-climate-change-existential-crisis/index.html>
- Swimme, B. T. & Tucker, M. E. (2011). *Journey of the universe*. New Haven, CT: Yale University Press.

- Talbott, S. L. (2018). A physicist, a philologist, and the meaning of life: Do we have a home in the vast cosmos? *In Context*, 39, 12-19. Retrieved from <http://natureinstitute.org/pub/ic/ic39/meaning.pdf>
- Thacker, E. (2011). *Horror of philosophy (book 1)*. Blue Ridge Summit, PA: Zero Books.
- The Ocean Cleanup. (2019). *The largest cleanup in history*. Retrieved from <https://www.theoceancleanup.com/>
- Thompson, A. (2018, Sept. 4). From fish to humans, a microplastic invasion may be taking a toll. *Scientific American*. Retrieved from <https://www.scientificamerican.com/article/from-fish-to-humans-a-microplastic-invasion-may-be-taking-a-toll/>
- Thoreau, H. D. (2012). *The writings of Henry David Thoreau: Journal, ed. by B. Torrey, 1837-1846, 1850-nov. 3, 1861*. Charleston, SC: Nabu Press.
- Tyson, N. d. (2014, Jan. 15). *What is dark matter? Neil de Grasse Tyson tries to explain* [Video file]. Retrieved from <https://www.youtube.com/watch?v=N4x6N0uAkTQ>
- Ulanowicz, R. E. (2017, June 12). *Bridging the chasm*. [PowerPoint slides]. Salina, KS: The Land Institute.
- . (2009a). *A third window: Natural life beyond Newton and Darwin*. West Conshohocken, PA: Templeton Foundation Press.
- . (2009b). Process and ontological priorities in evolution. In G. Auletta, M. Leclerc, & R. A. Martinez (eds.) *Biological evolution: Facts and theories. A critical appraisal 150 years after "The Origin of Species."* Gregorian & Biblical Press. Retrieved from <https://people.clas.ufl.edu/ulan/files/Vatican.pdf>
- UN News. (2017, Feb. 23). *'Turn the tide on plastic' urges UN, as microplastics in the seas now outnumber stars in our galaxy*. Retrieved from

<https://news.un.org/en/story/2017/02/552052-turn-tide-plastic-urges-un-microplastics-seas-now-outnumber-stars-our-galaxy#.WLA81BLyvBJ>

Understanding evolution. (2018). *University of California Museum of Paleontology*. Retrieved from https://evolution.berkeley.edu/evolibrary/article/history_05

Valdés, L., Peterson, W., Church, J., Brander, K., Marcos, M. (2009). Our changing oceans: conclusions of the first International Symposium on the Effects of climate change on the world's oceans, *ICES Journal of Marine Science*, 7, 1435–1438.
doi:10.1093/icesjms/fsp134

Veldhuis, M. P., Berg, M.P., Loreau, M., & Olf, H. (2018). Ecological autocatalysis: A central principle in ecosystem organization? *Ecological Monographs*, 88, 304-319.
doi:10.1002/ecm.1292

Vitek, B., & Jackson, W. (Eds.). (2008). *Virtues of ignorance: Complexity, sustainability, and the limits of knowledge*. Louisville, KY: The University of Kentucky Press.

Walker, B. (2008). *Optical engineering fundamentals* (2nd ed.). Bellingham, WA: SPIE Press.

Wells, J., McGreavy, B., Senda-Cook, S., & McHendry Jr., G. F. (2018). Introduction: Rhetoric's ecologies. In B. McGreavy, J. Wells, G. F. McHendry Jr., & S. Senda-Cook (Eds.), *Tracing rhetoric and material life: Ecological approaches* (pp. 1-36).
doi:10.1007/978-3-319-65711-0_1

Wessels, T. (2006). *The myth of progress: Toward a sustainable future*. Burlington, VA: University of Vermont Press.

Whitehead, A. N. (1979). *Process and reality* (2nd ed.). D. R. Griffin & D. W. Sherburne (Ed.). New York, NY: The Free Press.

---. (1938). *Modes of thought*. New York, NY: The Free Press.

- . (1933). Adventures of ideas. *Philosophy*, 8, 326-344, Retrieved from <http://www.jstor.org/stable/3746227>
- . (1929). *Process and reality*. Charleston, SC: CreateSpace.
- Wolchover, N. (2011, Mar. 2). Why doesn't plastic biodegrade? *LiveScience*. Retrieved from <https://www.livescience.com/33085-petroleum-derived-plastic-non-biodegradable.html>
- Wong, J. (2018, April 2). *Trash Isles: The rhetoric of statehood*. [Speech Draft]. Retrieved from <https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Aacds%3AUS%3Ad3500cb0-d8d9-4d2c-b38a-4069d166c259>
- World Congress of Philosophy XXIII. (2013). Umberto Eco: Some remarks on a new realism. 1-13. Retrieved from https://nuovorealismo.files.wordpress.com/2012/12/eco_wcp.pdf
- Wulf, A. (2015). *The invention of nature: Alexander Von Humboldt's new world*. New York, NY: Vintage Books.
- Yi'an, S. (2013). A survey of Peirce semiotics ontology for artificial intelligence and a nested graphic model for knowledge representation. *Proceedings of the First Doctoral Workshop in Artificial Intelligence (DWAI 2013), an official workshop of the 13th International Conference of the Italian Association for Artificial Intelligence*, 9-18. Retrieved from <https://www.semanticscholar.org/paper/A-Survey-of-Peirce-Semiotics-Ontology-for-and-a-for-Yi'an/b6c783efe4b62c5ab117e4ec3cd439e24968434f>
- Young, V. A., Barrett, R., Young-Rivera, Y'Shanda, & Lovejoy, K. B. (2014). *Other people's English: Code-meshing, code-switching, and African American literacy*. New York, NY: Teacher's College Press.
- Zylinska, J. (2014). *Minimal ethics for the Anthropocene*. Ann Arbor, MI: Open Humanities Press.

Appendix A - Existential Credo

“Credo” comes from the Latin word meaning “I believe,” which is found as the first word in the Nicene and Apostles’ Creed. This section will begin with several “I believe” statements, followed by my personal philosophical, spiritual, and existential views at this point in my life. I include this as a blanket clarification of assumptions presented in this thesis for readers who may want it.

The fall

| A | B | C |
|---------------|----------|-------------------------|
| Current state | The fall | After fall; rebuilding? |

Figure 5.3 The fall of humanity timeline (Jensen, personal communication, Jan. 10, 2019)

We are treading water in period A, even though it is a time of prosperity and luxury. Although there is widespread inequality and ecological demise, in many ways the world is getting much better (Matthews, 2018). Period B is the fall. It could be a nuclear holocaust, widespread disease, famine, drought, ecosystem collapse, sea-level rise, mass power outages, or really any scenario we imagine and can see played out for us in apocalyptic, post-apocalyptic, and dystopian films.⁵¹ I trust the predictions of climatologists, scientists, and environmentalists who say some sort of fall is inevitable. I don’t believe they can predict when it will happen, but I do think they can predict that it will. We’re too far gone to do anything to prevent a fall.

Gary Snyder’s famous poem, “For the children,” is one way to illustrate the fall:

The rising hills, the slopes, / of statistics / of everything, going up, / up, as we all / go
 down. / In the next century / or the one beyond that, / are valleys, pastures, / we can meet
 there in peace / if we make it / one word to you, to / you and your children: / stay together
 / learn the flowers / go light.

⁵¹ One of the more believable illustrations of the fall is Octavia Butler’s (1993) *Parable of the Sower*.

“On the other side” means after the fall, and The Land Institute embraces this poem as canonical. I believe the debate going on in ecosphere studies right now hinges on whether the *primary* purpose of perennial polycultures and ecosphere studies is to 1) prevent or lessen the severity of the fall, or 2) to have agricultural, conceptual, and political models ready to implement widescale when the dust settles.

Life’s work

I’d estimate 99.99 percent of the world does not even think about B, believe it’s coming, think A is B, or that A can be improved. If you accept as I do that A, B, and C as I have presented them are true, then your life’s work fall’s into one of two choices—mitigate or prevent A, or prepare for what comes right after B. I will make my life’s work about preventing A, with post-B always in mind. Otherwise, I’m left feeling paralyzed, ostracized, and my well-being suffers. Plus, people who deeply believe in the predictions usually fall into three camps: They (1) are dismissed as crazy and ridiculous; (2) can be disastrous or downright evil. For instance, “eco-terrorists” take it upon themselves to bomb away environmental injustices, and there are extreme cases of authoritarian regimes or dictators who think they know what is best for humanity but torture and kill humans (like Thanos’ evil altruism); or (3) have a hard time working within the system. It’s not ideal to work within the system to prevent the fall, but that’s how I have to go about my day.

Grief

Going about my day while still grappling with the reality of B for future generations results in a unique kind of grief. We then spoke about how to deal with the grief on believing in a fall. I believe those who wade through the field of loss too easily are lost, so embrace grief. Because grief is inevitable. Wendell Berry’s says we “live our lives in the human estate of grief

and joy” (p. 106). “I wake up every morning in a state of profound grief,” Jim Koplín told Jensen. While talking with Robert Jensen about dealing eco-grief, he diagrammed this ABC figure (Jensen, personal communication, Jan. 10, 2019). It was similar to what I had been picturing in my mind (I imagined a fourth period, D), so I am now guided by it. While the figure is simplistic, it is profound, and I do not take its implications lightly.

Spiritual overtones

I believe the ecosphere is heaven here on earth. That’s why I sometimes default to spiritual language. If all cognition is material, cognitions have created deities and maintained their existence since the dawn of Sapiens (Abrams, 2015), there is an immanent God here.⁵² Ecosphere is God. She does not decide our actions or plan our lives; she just exists and dwells. I have to believe this because I want the ecosphere to be kind to humanity in C. This is why I drift into spiritual language, address the ecosphere’s sanctity, and say that it is our “maker, defender, and redeemer.” I realize this belief associates me with the rapture folk. Nearly half of Americans think the uptick in natural disasters signals that we are living in the “end times” (Petri, 2014). However, the worst is yet to come, and I arrive at “the fall” doomsday conclusion with an entirely different set of assumptions.

Readers should still accept my claims because these overtones are not based in religion. They are spiritual beliefs I’ve had to adopt from reading the science. Science can try to predict what the future holds if we continue down the path we are on. But science cannot know for sure what is to come. To deal with that uncertainty, I turn to the spirituality described here. It is fine

⁵² I also believe in a separate, yet connected transcendent God to explain non-immanent matters, like the philosophy of access, dark energy/matter, simulation and multiverse theories, mortality, and chiefly how something (big bang time) was created out of nothing,

to chafe at religion/spirituality—I do too. That doesn't negate that the ecosphere is not just a made-up heaven. It is scientifically verifiable.

Privilege of “the fall”

I recognize the immense privilege I have as a white, cisgender and heterosexual, able-bodied male living in the United States. I have never had to struggle for much, never been a victim of racism, sexism, or affected personally by the effects of climate change. These privileges have allowed me the mental energy to worry about the fall. And that is not to say more underprivileged people haven't thought about the looming fall ahead. But compared to people like me, they face higher rates of stop and frisk, microaggressions, transphobia, impaired mobility, sexual assault, rape, violence, starvation, displacement, and death. These threats are real because they are immediate. The fall is also real, but it doesn't seem like it because it is distant. Still, it is a distant reality set in motion.

And we need social justice to make the playing field more even for all and chip away at the power structures. Believing in the need for social justice and the real threat of fall is not mutually exclusive; it's a “yes, and.” I will continue to be a social justice advocate and ally while I think about the fall of humanity. It just so happens I'm thinking about social justice more and more these days in the context of the fall. Because the fall will not discriminate.

Team human

Let's be clear: I am on “team human” (Rushkoff, 2018), but there are two minutes left in the fourth quarter and we are down by 50 points. To the first statement, I do not want to live in a post- or trans- human society with more AI and robots. I do not want B to occur. And I am not like some tech billionaires whose first question to experts is not “where do I find alternative markets for my app?” but rather, “where do I build my bunker?” (Rushkoff). However, what I, or

any other human, wants is not the reality of the ecosphere. It does not matter whether human life survives into B. We are not the favorite creatures of this earth. We are not its protectors, guardians, or stewards. Even if we gave our best shot at extinction, the ecosphere would survive without us and start anew.

More germane to this thesis, the processes around us—objects, language, everything—matter because they matter to the ecosphere. They do not matter because they make human life possible; they matter for their own sake. Nobody can speak for the ecosphere; it can only speak for itself, though this thesis is me closely listening to it and putting a megaphone to its earthy mouth. Thus, this thesis fits squarely into the camp of people trying to mitigate the fall. When I write that certain authors are insufficient or need further developing, I'm not under the assumption that it's good or bad if we survive, though it's my desperate *hope* that we survive. Rather, I'm countering the claims that rhetoric can omit human symbol-use, among other things, precisely because I'm operating under the assumption of hope. I hope that if enough people start to realize their languages and subsequent actions aren't cutting it for the ecosphere that we'll gradually start to change. And maybe, just maybe if we change the tiniest bit, it'll make the fall less terrible.

Although I believe some sort of collapse is inevitable, I will not stop believing in humans. We are amazing creatures. Not special or unique, but still amazing: opposable thumbs, fire, big brain, speech, and tolerance for empathy, ambiguity, and contradiction. And yes, this is speciesist, anthropocentric, and the ecosphere does not believe these things. But I want them to be true because they maintain my hope of mitigating the fall. Plus, if we do prevent the fall and someone finds a copy of this Appendix that reads, "I don't believe in humans," well... I just don't want to be remembered as that person.

Why are we headed for the fall?

Sociologist Matthew Sanderson has the best answer to this that I have heard. It is the best because it is the most profound. And I'm not just saying that because he's on my committee. On the last day of his class, SOCIO536: Environment and Society, he said: "This [fall] is occurring because we are searching for meaning, but we're searching for it in all the wrong places" (Sanderson, personal communication, Dec. 6, 2018). If I'm understanding Sanderson correctly, we are searching for money, power, happiness, comfort, anything besides love for what the ecosphere has already provided us. We are where we are because we keep searching for meaning but can't find it in the right places.⁵³

Ecospheric existentialism

U.S. Vermont Senator and 2020 POTUS candidate Bernie Sanders (D) recently referred to climate change as an "existential crisis" (Sullivan, 2019). I think Sanders is right, the Bern is telling us to feel the burn. Climate change is existential just like the fall is. As conditions on this planet continue to worsen, we will be forced to turn more and more to existentialism for questions and answers. But instead of an existentialism that starts with a state of dread about a meaningless world (no thanks to Kierkegaard and Nietzsche), why not start with a state of peace about presence? The ecosphere gives us meaning first because we must have meaning before we can say what meaninglessness is—meaning's absence cannot first exist without first its presence. We have meaning because the ecosphere has meaning, and we are of the ecosphere. Circular logic for a circular ecosphere. Circular cosmic uroboros, circular time.

These are the ABC's of my cheery existential credo. In these ABCs I believe, for the children. I hope these clarify any noumenal question marks in my thesis.

⁵³ It's like when you lose your keys and overturn everything in your house to find them, but to no avail.

Appendix B - “The Great Pacific Garbage Patch”

By Richard Sebastian-Coleman (2017)

For what do I owe the pleasure of you in my body?
Tiny morsel picked by algae
Picked by fish
Picked by bird
Picked by salt

What tempest carried you into the gyre?
Bag and box swept by wind
Flushed by stream
Carried in current
Degraded under the sun

What flesh did you lodge in first?
Fecal plankton peppery stew
One quarter fish gut
One third shellfish
My body, ocean

Now defecated on land
PET, DDT, PCB
In the soil
In cave salt
In sea salt

See something eat you
Some little bug
Ideonella Sakaiensis
You may meet your end
With some small hope

To the sea you are sent
To the earth you return
To become
Blood of my blood
Flesh of my flesh

Why are you here?
We shot the albatross at Midway
We let you in
I let you in...
...I let you in...

...I let you in...
I let you in...
We let you in
We shot the albatross at Midway
Why are you here?

Flesh of my flesh
Blood of my blood
To become
To the earth you return
To the sea you are sent

With some small hope
You may meet your end
Ideonella Sakaiensis
Some little bug
See something eat you

In sea salt
In cave salt
In the soil
PET, DDT, PCB
Now defecated on land

My body, ocean
One third shellfish
One quarter fish gut
Fecal plankton peppery stew
What flesh did you lodge in first?

Degraded under the sun
Carried in current
Flushed by stream
Bag and box swept by wind
What tempest carried you into the gyre?

Picked by salt
Picked by bird
Picked by fish
Tiny morsel picked by algae
For what do I owe the pleasure of you in my body?