Demarcation and Definition

The Metaphysics of Projects and Their Management Considered

A THESIS

SUBMITTED TO THE FACULTY OF THE

UNIVERSITY OF MINNESOTA

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS

Peter Hanks, Adviser

MAY, 2021

Dedication

To Dr. George Englebretsen and the (recently) late Dr. Mario Bunge. Their work has granted an absolutely incorrigible metaphysical naturalist such as myself a comfortable place on which to lay his head.

And to my late father, Michael L. Tebbitt, who was the first to teach me to think for myself and with whom I disagreed about almost everything, except the importance of decency, integrity, respect, and compassion.

Acknowledgements

Chief thanks are due to my advisor, Peter Hanks, whose kind patience, friendly insight, and critical feedback have proven both valuable and enjoyable throughout the process of formulating my theories and committing them to writing, as well as to my graduate career generally. His willingness to not only listen as I proffer my rather intensive physicalist brand of skepticism, but to encourage me never to lose my willingness to question the structure of even the most established of philosophical edifices was especially heartening and something for which I am continually grateful.

My lovely partner, Lindsey Olsen, herself a mechanical engineer and a seasoned large-scale project manager, has spent many hours listening to my thoughts and engaging with my ideas about the nature of projects and their management. Her willingness to share her own experience, perspective, and practical expertise on the topics addressed by my thesis has been invaluable, and I am not only grateful to her for her continual love and support with regard to the process of producing this thesis, but also with regard to my philosophical pursuits overall.

Ágúst Magnússon has been a great source of advice and friendship since my time at UW Milwaukee as an undergraduate student. His friendly, open, and passionate teaching style, as well as his existential and human-centered approach to philosophy, made a lasting impression on me and permanently instilled in me that a love of wisdom is ultimately the pursuit of a better life—not merely the manipulation of symbols and the solving of abstruse puzzles. From him I have learned not to be satisfied or obsessed with simply the possession of many tools, but with the adept use of them to build something of human value and

meaning. He remains the only teacher under which I have studied who has actively encouraged me to pursue philosophy, and it is not an exaggeration to say that he changed my philosophical life.

Grant Buse has been my dear friend for over two decades, and has listened to me verbally download all of my many thoughts, musings, and ideas since I was seventeen years of age. He has been, and continues to be, a source of encouragement to me, not only personally but professionally as well. If not for our many hours of conversation and discussion in all-night diners throughout the years, and especially during the last three, this thesis may not have been possible.

My dearest and only son, Silas Tebbitt, who himself has matured into quite the young man, an independent thinker and rigorous skeptic, has become an almost daily philosophical sparring partner for me on a broad range of metaphysical, epistemological, and ethical questions—the discussion of which has served as a needed stimulus throughout the development of my own theories. Not only has he become someone who keeps me continually on my intellectual toes, but he has also become my friend. I look forward to the bright future which is so obviously ahead of him, and hope that my own accomplishments will serve him as monuments to what is possible and benchmarks for him to go beyond.

Although I am not acquainted with him personally, I would like to express my gratitude to J. Davidson Frame for his paper "Philosophy of Project Management: Lessons From the Philosophy of Science" which was critically essential for my own work and, in my humble opinion, represents a monumental step forward in the development of the

philosophy of project management. His paper was my central inspiration, from the first paragraph of this thesis to its last.

I would also like to thank the other members of my committee, aside from Peter Hank, Brian Bix and Tamara Fakhoury, for their time and generosity in conducting the defense, and Anita Wallace for her dedication and kindness in answering all of my many administrative questions since my admission to the department as an graduate student.

Finally, I owe incalculable thanks to other of my dear friends for their personal encouragement: Jon Gill, Chris Sanny, Stuart Blessman, Meagan Shegstad, Libby McJunkin, and Noemi Plantz.

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'Tis ambition enough to be employed as an under-laborer in clearing ground a little, and removing some of the rubbish, that lies in the way to knowledge.

(John Locke, *An Essay Concerning Human Understanding*, The Epistle to the Reader)

I. Prologue

If philosophy is conceived as a sort of landscape, individual theories like houses, and branches or sub-fields of philosophy like neighborhoods, then the philosophy of project management has yet to enjoy much more than a pushpin in a non-descript location on the map of its topography, indicating where it ought to be. Sure, the construction of the project management district on that landscape has been suggested, and its possible designs have been conceived of in the minds of a few visionary architects, but so far not a hammer has been put to nail nor any mortar to brick in the actual formation of anything resembling a house or a neighborhood. Presently, the philosophy of project management consists in a few rough sketches filed away in a drawer, but not much more than this. Please don't misunderstand, these sketches are useful, and what they suggest is aesthetically pleasing, but an active and planned neighborhood they do not of themselves make.

The goals I have set for myself here belong to somewhat of a tall order. Until now, the application of analytical philosophy to project management has only been hypothetically discussed among a relatively small number of project management professionals and academicians, and only several of those who have contributed to the discussion understand its implications or think it a worthwhile pursuit. To my knowledge, a philosopher proper has yet to weigh in, and so I intend to be the first. There is a certain excitement in the prospect of pioneering a new area of philosophy, but to be first also means

setting a place where you can invite others to join you. Otherwise, with whom shall one "do" philosophy? At present, however, despite any such excitement, I find myself standing in front of an overgrown vacant lot with a considerable amount of clearing to do before anyone can begin to build. But I am determined to build, using the best sketches (in my determination) as a guide.

One such sketch, and the sketch serving as the basis and impetus for the much of the course taken in the essay that follows, is a paper by J. Davidson Frame, Academic Dean at the University of Management and Technology in Arlington, VA, entitled "Philosophy of Project Management: Lessons From the Philosophy of Science" which was published in a special issue of the *Project Management Journal* (Vol. 47, No. 3, 35–47) in 2016 (to which I shall return momentarily). This special issue is dedicated to the discussion of the relationship between project management and philosophy and, according to its introductory editorial by Kostantinou and Müller, is focused on a broad consideration of such questions as "*Why should we be interested in philosophy? Why should we be interested in philosophy in project management? What does philosophy have to offer to us as project management professionals and academics?*"[1] Most of the contributors to the issue view philosophy as either unnecessary, optional, or of merely existential import[2], and

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[1] Kostantinou and Müller, "The Role of Philosophy in Project Management," *Project Management Journal*, Vol. 47, No. 3, p. 3 (italics original)

[2] E.g. Jensen, Thuesen, and Geraldi, "The Projectification of Everything: Projects as a Human Condition" (attempts to existentially assess the human condition through the idea of a "project"); Rolfe, Segal, and Cicmil, "An Existential Hermeneutic Philosophical Approach to Project Management" (draws mainly on Heidegger and Rorty, expresses basic opposition to any "scientific prism" or "rules of logic and science," and hails unexpected disruptions to projects as beneficial); van der Hoorn, "Let's Discuss Aesthetics for Projects" (approaches aesthetics existentially and makes no mention of philosophy); Kvalnes, "Living with the Unknown Unknown: Uncertainty in Projects" (draws mainly on Kierkegaard and Wittgenstein, highly critical of planning models, and advocates that "unknowns" should not be viewed as a threat to projects but opportunities for creativity); Floricel and Piperca, "Project Management Between Will and Representation"

those authors who express sentiments to the effect that philosophy *is* important appear to misunderstand its implications, nearly altogether.

In their extensive guest editorial, Kostantinou and Müller, while indicating that an advanced focus on philosophy in project management is needed, readily reveal that what they refer to when referring to "philosophy" is not to the dialectic of philosophers, but something else entirely. They speak of "philosophies" in the plural and define them as "different ways of living life and practicing [professionally],"[3] and repeatedly synonymize "philosophy" with "approach."[4] In other words, their sense of what philosophy *is* is essentially that which project managers professionally *do* and *how* they do it, rather than a theoretical accounting of relevant metaphysical, logical, and epistemological questions. As such, their view is descriptive of what already takes place and relate to the literature of philosophy (both from the analytic and continental traditions, but primarily the latter) as a toolbox or a menu from which project managers can choose what seems best to them in aiding the performance of their professional duties. According to them, "philosophy has a very clear role to play in practice: to offer and propose *a range of ideals that can be developed into entire philosophies that can guide and inform practice*. Different ideals will produce different philosophies, which apply in some cases but not in others."[5] These "philosophies" refer to the individual approaches and methods deemed useful by each project manager. In fact, Kostantinou and Müller advocate that project managers "play an

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(based in the existentialism of Schopenhauer, advocates the view that the physical world has a "magic underground," and is ultimately focused on psychology, not philosophy)

[3] Kostantinou and Müller, "The Role of Philosophy in Project Management," p. 5

[4] Ibid., pp. 5, 6, 7, and 8

[5] Ibid., p. 7 (italics original)

active role in defining their professional philosophy."[6] From statements such as this, it would seem that the working definition of "philosophy" is primarily colloquial, while the role and import of the academic sense, and its referent, are misunderstood—and therefore left aside—almost entirely.

Elsewhere in the special issue, Ika and Bredillet adopt a similar view as that of Kostantinou and Müller, arguing that "metaphysics can help clarify our underlying ideas about the world or the universe"[7]—help clarify them, not direct them. Ika and Bredillet view the relationship between the methodology of the project manager and classical philosophy to be largely analogical. For instance, their paper features several charts, one of which lists various philosophers along with a summation of their respective metaphysical theories along the right,[8] from Thales ("Reality is ultimately water") to Berkeley ("Reality is an idea in the mind of God"). In the opposite column of this particular chart are statements representing the authors' suggestions as to what the basic ontologies of projects arising from each listed philosopher's theory would be. The list of proposed ontologies ranges from the simplistic (e.g. "A project is ultimately inputs"– derived from Thales) to the unhelpful (e.g. "A project is ultimately a community of souls"– derived from Leibniz) to the absurd (e.g. "A project is ultimately an idea in the mind of God"– derived from Berkeley). In the body of the paper itself, after presenting a range of conceptions, theories, and approaches to metaphysics (which the authors separate into "process" and "thing" metaphysics), Ika and Bredillet conclude that precision in answering metaphysical

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[6] Ibid., p. 5

[7] Ika and Bredillet, "The Metaphysical Questions Every Project Practitioner Should Ask," *Project Management Journal*, Vol. 47, No. 3, p. 87

[8] Ika and Bredillet, "The Metaphysical Questions Every Project Practitioner Should Ask," p. 91

questions is inconsequential for project management professionals: "Ultimately, we suggest that the above-mentioned awareness can allow project practitioners to play with the two metaphysical worldviews [i.e. "process" and "thing"] … acknowledging that it is more a matter of relative importance than an 'either/or' alternative."[9] The major difficulty with such a conclusion is, of course, the suggestion that contradictory metaphysical theories may be, or possibly should be, alternately adopted at the individual inspiration of every project manager. More comprehensively, Ika and Bredillet betray a fundamental misunderstanding of the import of philosophy (ontology in particular) and their attempts at applying it to project management are, in my view, entirely unsuccessful.

Another sketch, a paper by Idler, is a significant improvement over these in that he makes a case for the methodological use of conceptual analysis within project management, specifically with respect to establishing the necessary attributes for a given outcome or deliverable. Idler's concerns in this regard are similar to my own, especially as regards their essential logic. The conception of philosophy he espouses, however, is that of a valuable external tool (viz. a methodology; an exercise) instead of a systematic account of projects themselves, and thus he offers no interest in the development of a philosophy of project management proper. For Idler, philosophy is just one of many "handmaidens" of project management, borrowing a metaphor from Aquinas whom he openly paraphrases to this effect in the concluding paragraphs of his essay.[10]

Such sketches envision the building of houses, as it were, in such a way that it is optional *to* build them, it is optional *how* they are built, it is optional *where* they are built,

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[9] Ibid., p. 98

[10] Idler, "Why Distinctions Matter: What Does Philosophical Analysis Have To Do with Project Management?", *Project Management Journal*, Vol. 47, No. 3, p. 84

and even if the decision should be made definitively to build them and in particular locations, it is further optional to *occupy* them. This vision of the philosophy of project management is in reality not a vision of it at all, but a redefinition. In fact, it may be suggested that this redefinition serves to undermine the construction of a distinctive branch of philosophical inquiry altogether—and I believe that it does. This is where the sketch by Frame, not at all hastily drawn, stands out. In his paper, he introduces his own idea for the development of "a meaningful philosophy of project management," namely, that it should progress along similar lines and ask similar questions as has the philosophy of science. For Frame, this means the presence of several key aspects: (i) a realist approach (although he allows that a realist-antirealist debate may credibly take place within the philosophy of project management), (ii) empirical methods of investigation, (iii) essential foci of metaphysics (ontology) and epistemology, and (iv) the consideration of important questions related to demarcation as central to its dialectic. Each feature of the history and content of the philosophy of science (at least those of its features which are offered in summary by Frame) is conceptualized by him as a "lesson," or perhaps a cue, that philosophers of project management should take from philosophers of science in building on their plot. Frame's sketch, his vision for a robust and lively future neighborhood where many theorists live and work, is one that I can get behind—as well as those ideas which I have chosen to generally adopt as points of departure in the shaping and advancement of my own ideas.

What I have undertaken is to clear the landscape currently before me of brush and overgrowth, to build a house in that clearing, and to add a unique address along the path of philosophical investigation. My intention, however, is to clear more space than is needed

for myself and the one house that I build, in hopes that the construction of my intellectual homestead will invite and encourage others to build alongside me. As the first to settle in this particular area, I fully expect what I build to be inspected, cited, and perhaps even torn down entirely. So long as those who tear down also build another livable structure in its place, or on their own lot next door, I wholeheartedly welcome their efforts. In fact, I am hopeful that the following essay will evoke such attentive responses from other philosophers, fellow pioneers in this new territory, such that our fledgling development will be bustling in no time.

II. Introduction

Project Management

What began as a specialized methodology for accomplishing goals at NASA and the US Department of Defense in the 1950s and 60s, has now become more or less the standard business model for the accomplishment of corporate tasks worldwide. Project management may now be found in nearly every sector of business, from kitchen remodeling to civil engineering to software development. The path to the desired outcomes or products of a business venture are conceived of as "projects" which are defined by their respective deliverables (scope), along with the allowable time frame for their completion (schedule) and the resources available to produce them (budget). These three constraints (viz. scope, schedule, and budget) are what I refer to as the "hallmark constraints" of any project.

At the helm of every project, regardless of how many iron workers, carpenters, mechanics, electricians, engineers, programmers, managers, or administrators (etc.) are working on each of its respective phases and components, is the project manager—and sometimes multiple project managers are assigned to a single project. Each project manager or project management team makes use of various tools and approaches to walk the project through from beginning to end, in effort to produce the desired results, on time, and within budget. The project manager may be viewed as the person entrusted with the aerial view of an entire project, and tasked with making sure that every individual process coalesces into a purposeful and productive whole, resulting in a defined deliverable or set of deliverables by a given date.

Prior to the advent and mainstreaming of project management, corporate tasks were generally conducted in a highly bureaucratic fashion with layers of committees and tiered management, all of which needed to be consulted and satisfied for each step of the process. It was laborious and time-consuming, and often resulted in expensive undertakings that were delayed and mired in unnecessary administrative protocol. Even more problematic was the inflexible culture among many executives that prevented them from accepting change or embracing new and more effective organizational structures.[11] Project management, as a mode of accomplishing the ends of business, presented models and methods that were far more lean, direct, and more in touch with not only the desired objectives, but the constraints within which such objectives were able to be profitable.

Philosophy of Project Management

The philosophy of project management, though it has been proposed as a distinct area of formal study, has not yet formally taken shape. And although discussions have already begun within project management circles regarding the relevance and applicability of philosophical inquiry to their craft, philosophers have yet to formally weigh in. As a specialized area of philosophy, then, the philosophy of project management is largely uncharted and underdeveloped—and its central questions are unasked, and where they are asked, they remain mostly unanswered. So far as I am aware, what follows constitutes the initial attempt at an actual, formal discussion of the philosophy of project management itself, a move from meta-philosophizing to theorizing that will hopefully lead to a grand opening of discussion and elicit both collaboration and sharp dissent.

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[11] Cf. Harold Kerzner, *Project Management: Twelfth Edition* (Wiley, 2017), p. 1

Until now, philosophy has been viewed by project managers as a strictly academic discipline, external to the practice or "art"[12] of project management, with some practitioners viewing it as a potentially valuable source of inspiration, others expressing more or less ambivalence toward it, and still others apparently misunderstanding what philosophy is—and what its application implies—altogether. In the currently available literature on the intersection of philosophy and project management, which is relatively limited, "philosophy" is conceived of as a synonym for "method," "strategy," "outlook," "approach," etc. The focus where philosophy has been embraced is on the existential experiences of individual project managers, not on project management itself. Other than a few vitally important proposals for what theory development and project management as an area of philosophy might look like, the topic has remained mostly hypothetical.

My goals in this essay are fairly straightforward and intentionally delimited:

i. Engage and expand on the presentation of Frame in his important paper (which will be discussed in more detail below).
ii. Consider questions of demarcation with regard to projects and their management.
iii. Consider questions of project ontology.
iv. Present a novel theory of projects.

A thorough examination of all issues related to project management and a complete development of the philosophy of project management would require a massive tome perhaps spanning several volumes. Such a project, though worthy, is beyond the scope of

[12] For an example of the characterization of project management as an "art", see Foulkes, J. (2000). "Art or Science?: How—And Even Does—the Pharmaceutical Industry Apply the Discipline of Project Management?" Paper presented at PMI® Research Conference 2000: Project Management Research at the Turn of the Millennium, Paris, France. Newtown Square, PA: Project Management Institute.

the current essay. Consequently, I have decided to focus on a few central questions of fundamental importance to this endeavor, which I hope will serve as a strong start and a cordial invitation for future efforts. A beginning, not a conclusion.

Project Management Journal, Volume 47, Number 3

In 2016, the Project Management Institute (PMI) produced a special issue of its *Project Management Journal* devoted to the exploration of the relationship between philosophy and project management. Among the ten or so essays published in this special issue is a paper by J. Davidson Frame, academic dean at The University of Management and Technology in Arlington, VA, entitled "Philosophy of Project Management: Lessons From the Philosophy of Science". In his paper, Frame suggests that a philosophy of project management, should it be developed into a distinct branch of inquiry, ought to take cues from, borrow conceptual models from, and generally develop along similar lines as did the philosophy of science, and that it should even consider similar questions. He suggests that since project management is the accomplishment of measurable goals within the actual world, the focus of an apt philosophy of project management should be to answer questions of metaphysics (ontology) and epistemology, as well as to demarcate project management from other disciplines. Frame does not emphasize the importance of settling metaphysical and epistemological questions generally, but specifically those questions which are relevant to the philosophy of science, which he considers to be likewise relevant for a philosophy of project management, such as those related to demarcation (as already mentioned) and the realism/anti-realism debate.

It should be stated that this essay is not meant as a critique of Frame *per se*. I will mainly highlight where I agree with Frame or have used his paper as an apropos for the development of my own ideas. Leaving direct criticism for the most part aside, any differences which I have with Frame that are mentioned here are intended to serve a functional, clarificatory purpose such that the difference is noted and explored in order to provide important context and to illustrate where it contrasts with my own understanding. My efforts will thus be primarily focused on affirming, building on, and recapitulating Frame, which generally means that I will take what I consider to be useful for present purposes and leave the rest for perhaps another essay. Practically speaking, there is far more material in Frame's paper than I am reasonably able to comment upon here, so I will attempt to develop and carry forward some key aspects of his suggestions while leaving much of it undeveloped (or underdeveloped). The reason for this less imperious approach is that the philosophy of project management is still in its initial stages of development and is not yet an area that is able to sustain rigorously critical debates, since the majority of its objectives, methods, and questions are still yet to be determined and defined.

I fully expect that what I present here may be vociferously argued against at some future juncture. Indeed, I truly hope that this will be the case. At such a time when a philosopher argues with my theories and analyzes them in philosophical terms, this I believe will be the signal that more comprehensive debates on various questions within the philosophy of project management may be adequately accommodated and sustained. Until now, project management professionals and academicians have argued amongst themselves and have discussed the question of whether there could or should ever be a formal philosophy of project management, and the result thus far has been to become

largely mired in the process of defining what project management means to them in existential terms. Rather than robust theory development efforts with regard to projects, the focus has been on the phenomenological experience of the project manager.

As already noted, this essay is to my knowledge the first contribution of a philosopher to the discussions of project management and philosophy that have taken place so far; a bridge of sorts to a different sort of exchange under particularly analytical auspices. The apparent resistance to theory development within the field of project management is, and has been, a major source of setbacks and has stunted progress within the field itself. Koskela and Howell have stated without reserve that "it is the poverty of current theory that explains the other problems of project management, such as frequent project failures... lack of commitment towards project management methods... and a slow rate of methodological renewal... Thus an explicit theory is the crucial and single most important issue for the future of the project management profession."[13] As such, my focus will be on the development of a general theory of projects, both in terms of ontology and demarcation, since this seems, in my view, to be the logical crux of any meaningful philosophy of project management.

General Overview

- To create essential context, I will first provide a disclosure of the metaphysical and epistemological theories that lie in the background of my theorizing, on the basis

[13] Koskela, L. & Howell, G. A. (2002). "The underlying theory of project management is obsolete." Paper presented at PMI® Research Conference 2002: Frontiers of Project Management Research and Applications, Seattle, Washington. Newtown Square, PA: Project Management Institute.

of which I have developed my theory of projects and their management, as well as the analytical approach that will be offered in regard to both.

- Second, I will address essential questions of demarcation, such as projects versus processes (as well as project *management* versus process *management*)[14] and project management psychology versus ontology. Several problems with the traditional understanding of projects and their management will also be discussed.
- Third, I will attempt to answer the central ontological question "What is a project?" (without the answer to which "What is project management?" cannot be constructively answered) with a theory of projects; a theory which I have decided to call the Propositional Theory of Projects, or simply Propositional Theory (PT).
- Fourth and finally, I will ask the question "Why do projects fail, in philosophical terms?" and my answer will be in the form of an application of PT to two of the most common reasons for project failure: scope creep and incomplete requirements gathering/poorly defined requirements.

Background Assumptions

Throughout his seminal paper, Frame emphasizes the centrality of ontology and epistemology to any future philosophy of project management, and appears to argue for a realist approach to both, noting that "philosophy of science is grounded in real-world experience" and that "no one is counting how many angels dance on the head of a pin,

[14] These answers to these two questions of demarcation, already directly related, are also *entangled* to a certain degree.

unless they have developed a solid evidence-supported theory suggesting that angels do, indeed, dance on pinheads!"[15] In this same realistic spirit, I actively adopt the following:

i. Metaphysical theory—a species of physicalism; Practical Realism (Baker[16])

ii. Epistemological theory—Scientific Realism

iii. Perceptual theory—a species of Scientific Direct Realism

iv. Theory of truth—a species of Correspondence Theory (Englebretsen[17])

For the sake of maintaining a manageable discussion, I will not make the case for each of these theories here, but I will nevertheless be assuming their veracity throughout. Essentially, in brief, I hold that the universe is all that exists (it is the only real "world"), that it is entirely physical, that we actually perceive it (albeit not immediately[18]), and that sentences are true inasmuch as their contents correspond to facts, which are constitutive properties of the world.[19]

Although I will not make much direct use of these theories, they should nevertheless help to indicate my philosophical orientation, broadly construed. I will note, however, that despite any of the problems facing these theories philosophically, I believe that they (or a similar set of working theories) are nevertheless pragmatically necessary for any effective approach to managing projects, a view that I will briefly explain below, toward the end of this essay.

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[15] Frame, "Philosophy of Project Management: Lessons from the Philosophy of Science," *Project Management Journal*, Vol. 47, No. 3, p. 36

[16] Baker, *The Metaphysics of Everyday Life: An Essay in Practical Realism* (Cambridge, 2007), p. 15

[17] George Englebretsen published a revision to correspondence theory in *Bare Facts and Naked Truths* (Routledge, 2017), and it is specifically his unique formulation that I have adopted here.

[18] Cf. Bunge (2016), p. 22, "That is, we distinguish, with Kant, the *thing in itself* from the various concomitant *things for us* – but we do not follow Kant in claiming that the former is unknowable, let alone non-existent."

[19] Englebretsen, *Bare Facts and Naked Truths* (Routledge, 2017), p. 168

III. Demarcation

Novelty and Uncertainty Theory

Much of what has been written regarding the development and practice of project management has assumed that since project management is ultimately a form of *management*, its theoretical basis should be, and perhaps must be, found in Management Theory. Management Theory is primarily focused on the organization and motivation of human resources to accomplish professional tasks, and modernly invokes the outcomes of research in Industrial and Organizational (I/O) Psychology. Of course, the research conducted in the interest of I/O Psychology and its findings are fundamentally important to project management when viewed from the perspective of the project manager as she interacts with members of her team, stakeholders, foremen, and other humans involved in a given project, but a focus on psychology to the near exclusion of metaphysics, logic, and epistemology falls short of what a robust philosophy of project management requires.

It might be said that up until now, any philosophizing about project management has focused on "management" while mostly neglecting "project," leading to an extensive emphasis on the human element of the various functions required for a given project, rather than an analysis of what projects *are* and thus what in particular might be required of those human agents who are working on them, so far as their reasoning about them is concerned. As such, a considerable weight has been placed on the uncertainty of projects (i.e. "unknowns" and even "unknown unknowns"[20]). In my view, such an emphasis is really an inflation of the fact that humans can be potentially unpredictable due to their inability to

[20] For example, see Kvalnes, "Living with the Unknown Unknown: Uncertainty in Projects," *Project Management Journal*, Vol. 47, No. 3, 101–108

read minds or manage all the factors of their lives at any given time, a fact which has been projected onto project management as a defining feature, leading to conception of project management as a mysterious "art" rather than a rational endeavor.[21] This conception of project management, that it is somehow irreparably opaque and even somewhat mystical, has even led to a general resistance to formal theory development with the field, which in turn contributes to project failure[22]. It would seem that this trend is what happens when a field is philosophically out of balance such that it does not include an accounting of even basic ontological and epistemological questions, let alone the development of theories specific to the object(s) of its study. Theorizing about project management thus far in its development has led, in my opinion, to an overemphasis on the people involved, but not so much the objects, conceptual structures, and non-human resources involved in achieving or producing the deliverables to which project managers relate when they oversee the various tasks and phases of a project. Indeed, it appears everything has been examined aside from a project *qua* project.

This has led to a neglect of what I believe to be the central metaphysical question and the proper fountainhead of every other relevant element and question in a philosophy of project management: "What is/is not a project?" This question is necessarily entangled with a similar question: "What is/is not project management?" Although these questions are entangled for more or less obvious reasons, my focus will be on the former, and on the latter only by implication or explicitly when it is necessary for the sake of clarifying or filling out the former.

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[21] The metaphysical and epistemological outlook of a project manager will be discussed in greater detail below.
[22] Koskela and Howell, "The underlying theory of project management is obsolete" (2002), Introduction.

The answer to "What is/is not a project?" is multi-layered and complex. The working definition of "project" used by the Project Management Institute (PMI) is "A temporary endeavor undertaken to create a unique product, service, or result."[23] One of the difficulties with this definition of "project" is that it is vague and lends itself to arbitrary identification. For instance, remodeling a kitchen or bathroom might be a project, as well as endeavors like the development of a new software application or the decarbonization of a university campus, but then again how "unique" does the remodel, the app, or the environmental engineering need to be in order to qualify as a project? Does it depend on some unique feature of the project itself, or is it still considered a project in a case where hundreds of project managers have overseen the exact same product, service, or result before, but the particular project manager undertaking in the current instance has not? How is anyone to answer such questions, and by what criteria? The working definition offered by PMI does not answer these questions and provides no clear way to apply it to a given endeavor, designating it assuredly as a project.

The importance of uniqueness to the conception and definition of projects is also suggested by Frame. Aside from mentioning "novelty" and "discovery," he divides the potential uncertainties which, in his understanding, accompany a project proper into "uncertainties of execution" and "uncertainties of discovery"—two categories which he derives analogically from philosophy of science.[24] According to Frame, "uncertainties of discovery," which he views as the primary form of uncertainty to be found in projects

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[23] Richardson and Jackson, *Project Management Theory and Practice: Third Edition* (CRC Press, 2019), p. 3

[24] Frame, "Philosophy of Project Management," p. 39

according to his conception of them, "arise because scientists are exploring new terrain."[25] In projects, according to Frame, uncertainty of discovery "occurs with projects whose principle output is knowledge" (such as market research projects).[26] Processes, as opposed to projects (another aspect of demarcation that will be discussed in further detail below), are for Frame the primary bearers of uncertainties of execution, where potentially unforeseen events occur within even controlled environments, such as manufacturing.[27] The implications of these categories of uncertainty will not be examined here. However, suffice it to say that for Frame some unique aspect is necessary for the project under consideration to qualify as a "bona fide project" as opposed to something that "technically qualifies as a project"[28] but is really only a "routine work effort."[29] According to Frame, "The project of catering a wedding is routine, as is a project to organize a conference for a professional society—both have been executed many times before, and over time, their implementation has been reduced to following a number of prescribed steps."[30] This supposition, that the presence of novelty (and therefore uncertainty—Frame assumes that uncertainty arises from the presence of novelty) is the defining mark of projects, is a theory unto itself, or it at least appears to imply such an underlying theory, and so I have decided to assume as much in making comparisons and offering criticism. I have further assumed that this underlying theory is also at work in the definition offered by PMI, and is therefore more or less assumed by project management professionals and academicians broadly.

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[25] Ibid., p. 38
[26] Ibid.
[27] Frame, "Philosophy of Project Management," p. 39
[28] Ibid., p. 38
[29] Ibid., p. 39
[30] Ibid., p. 38

Aside from statements to these effects, Frame does not explicitly set out any specific or cohesive theory of project ontology. In fact, he seems to vacillate in his definition of a project between what actually *is* a project and what is simply *called* a project. Nevertheless, without some sort of theory with which to argue or engage, it would be difficult to proceed. This being the case, for the sake of moving the discussion along, I have constructed a general theory of projects from Frame's ideas for the purposes of generating debate (even if it may not technically be attributed to him), and have decided to call it Uncertainty Theory (UT). This theory of projects takes for granted the fundamental (or, "hallmark") constraints of a project, (i.e. scope, schedule, and budget), but then proposes an additional criteria: the presence, in some degree, of novelty and uncertainty. According to my formulation of UT, the novelty of a project is what drives the uncertainty related to it, whether uncertainty of discovery or execution.

The decision to derive an ontological theory of projects and then argue against it is not merely practical as far as generating discussion is concerned, it is also a necessary step toward the formulation of a "demarcation litmus test," which is suggested by Frame: "...Current approaches employed by project management authorities to define project management might not pass a well-formulated philosophy of project management demarcation litmus test, if one existed."[31] It would seem that Frame here intends to include his own approach to projects and their management under "current approaches," and it is my belief that, upon analysis, UT presents several debilitating errors that make it insufficient as a general theory of projects.

[31] Frame, "Philosophy of Project Management," p. 40

Any test of demarcation will necessarily be theory-driven, and any theory should be general, sufficient, and parsimonious. It should be *general* in that it is as broad as possible, *sufficient* to explain all the relevant elements of a project, and *parsimonious* in that it is devoid of unnecessary complexities. This accords with Frame's own suggestion for a philosophy of project management, that "like philosophers of science, the philosophers of project management should consider taking a lean approach and avoid excessive complexity."[32] Much like the singular criterion of falsifiability, theorized by Popper as the demarcation between science and pseudo-science, Frame opines that philosophers of project management should seek similarly uncomplicated and straightforward criteria for distinguishing projects and their management from other disciplines and endeavors.[33] As such, in offering my own theory, I have made every effort to be as broad and as uncomplicated as possible, not only in linguistic formulation but in the amount of criteria it involves numerically.

Projects and Processes

Previous conversations among project management professionals and academicians regarding the demarcation between projects and non-projects have unwittingly taken place in terms of the difference between "projects" and "[mere] processes," "project management" and "process management," with each contributor to the conversation presenting their own distinction between the two.[34] This conversation was

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[32] Ibid.

[33] Ibid., pp. 39-40

[34] The availability of published materials on this distinction is limited, but one such example is a paper presented at a PMI conference in 2010 entitled "Project and process integration: how to usefully combine two work management models" presented by Stefano Setti—who cites his own work five separate times.

unwitting because it was not formulated in terms of demarcation, although this is precisely what was under discussion. Frame doesn't quite state the problem in such clear terms, although he does set "project management" opposite "process management."[35] According to him, it isn't the term "project" that is so important, apparently allowing anyone who claims to be working on a project to be justifiably doing so. Instead, Frame chooses to modify "project" with "bona fide" in the case that his criteria for what truly constitutes a project have been satisfied. Thus, for him "projects" (in name only) belong to "process management" and "bona fide projects" belong to "project management."[36]

I have decided not to adopt the terminological distinction of "project" and "bona fide project" for several reasons: (a) I find it muddled and perhaps one that lends itself to confusion, (b) it is focused on naming rather than ontology, and (c) it doesn't easily connect with the broader discussion among project management professionals, which uses the more readily distinct "project" and "process." For these reasons, I have decided to depart from Frame here and to make use of the project/process distinction which is already common in the available literature and readily familiar to project managers and those familiar with the discipline.

It bears mentioning that I do not take Frame's unusual and inexact distinctions to be indicative of anything except the yet nascent status of the philosophy of project management. Frame himself advises that the "philosophy of project management should strive to demarcate project management in well-defined terms that can be justified

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Most of what there is consists in unofficial publications on blogs and marketing websites. A simple Google search for "projects vs processes" will yield numerous such examples.

[35] Frame, "Philosophy of Project Management," p. 39

[36] Ibid.

philosophically."[37] Thus, I have chosen what seems to be the simplest and most well-defined terms available for the consideration of questions related to demarcation. In my opinion, until this area of philosophy is substantially developed through the further participation of formally trained philosophers, terms within its discussions will continue to vary.

Problems of Identity and Novelty

Regarding the project/process distinction, Frame states the following:

> "Projects that do not generate new knowledge experience lower levels of uncertainty of discovery. Included here are projects to upgrade a kitchen, to install a computer software package, to build townhouse number 25 in a project consisting of 32 townhouses. While technically qualifying as projects, these are routine work efforts carried out according to well-established processes."[38]

If projects and their management are only genuine (or, "bona fide") because they are somehow marked by uncertainty *ex* novelty, such that the uncertainty leads to technical delays and obstacles, then two major problems arise, which I will call [a] the identity problem and [b] the novelty problem.

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[37] Ibid., p. 40

[38] Ibid., p. 38

- *Identity problem* – A criterion of uncertainty seems to require that projects and project management may only be defined as such *post facto*, posing a problem of identity.
- *Novelty problem* – If uncertainty (again, which stems from novelty) is *not* such that it necessarily introduces delays, creates budget problems, or generally presents potential obstacles to delivery, then uncertainty in the context of the project seems only nominal, not actual—posing a problem of the significance of novelty.[39]

These problems are closely related and indicate that if uncertainty or novelty are essential components of projects (and therefore essential components of their management), then as either is removed from relevant processes (i.e. via attaining greater or total control over their variables), then "project-ness"[40] is also removed to a similar degree. Such would indicate an essential correlation between "project-ness" and uncertainty or novelty, possibly in degrees, at least so far as UT is concerned. Does improvement in project management mean a progression toward its elimination? Is project management just an earlier stage that lacks proficiency or experience before some other activity, e.g. process management? At the point that a project manager has learned to anticipate and manage unknown factors, does this indicate that they are no longer engaging in project management? An apparent outcome of UT is that it seems necessary for someone

[39] For example, it is not as if project managers overseeing a market research project are blindly taking random action toward a goal. Rather, there are procedures and methods for conducting market research already in place. Perhaps a particular product or service has not yet had the benefit of market research, but the uncertainty is only in how all the details will play out, not in the project *qua* a project.

[40] The use of "project-ness" is not meant to imply any transcendent or Platonic sense, but only a conceptual one, i.e. those properties that must be present in an endeavor such that it properly constitutes a "project."

espousing the theory (let's call them a U-theorist) to admit that project management is unattainable in instances of efficiency. But this would make projects *actual projects* if and only if they are novel, thereby making project management into something like "the management of novel endeavors" (whatever that means), which doesn't seem to meet the basic needs of a meaningful theory of projects and their management. Additionally, it is important to note that this is another instance of the current tendency to shift the philosophical focus from the project itself onto the human execution of a project; a shift of focus from ontology to psychology which subtly underlies UT.

To illustrate the problems of identity and novelty faced by UT and U-theorists, I have constructed two examples, the *Twin Projects* case and the *Nearly-Twin Projects* case.

1. *Twin Projects*—Two identical projects, P1 and P2, are successfully completed. Despite their sameness, P1 is completed on time and within budget, while P2 experiences unforeseen problems along the way. Although P2 was still a success in that it produced the desired deliverable at a profit, it nevertheless went over budget and its value was therefore strained. Given the circumstances, may both P1 and P2 be identified as "projects"? According to UT, it would seem that only P2 is a "project" while P1 is merely a routine endeavor or perhaps only process management. At the very least, U-theorists would need to make an essential distinction here and maintain that P1 might have been *nominally* a project, but not *actually* a project, since it lacked signs of uncertainty.

The first difficulty with this assessment by would-be U-Theorists is that P1 was called a "project" from the outset, and seemed to have all the elements of a project: it was conceived as a project, it had constraints of scope, schedule, and budget, was managed by a project manager, etc. However, since everything was predictably completed without any delays or difficulties, this designation was in error, as in fact it turned out to not actually be a "project" according to UT.

The second difficulty is similar to the first, but is present in the case itself. Is it possible according to UT that two novel projects be proposed, with the same scope, schedule, budget, goals, etc., and *both* be called "projects"? Do they have to vie for the title? If they are both able to be properly called "projects," then how is the novelty requirement fulfilled? If it is claimed that no two projects are ever exactly alike, then this defeats the purpose of a criterion of novelty and uncertainty to identify projects since every new endeavor is novel by definition already, in which case UT is uninteresting and unuseful because it tells us nothing. This leads back to the problem of whether or not we can ever know if a project is truly a "project" at the outset or if projects may only truly be identified as such *post facto*, since U-Theorists still maintain a distinction between "projects" and "bona fide projects."

A third problem is that if P2 is the only one of the two that is genuinely a project, then projects and their management—which are essentially construed in terms of the quantification of and attention to the hallmark constraints, respectively—are only genuinely so when these constraints are either breached or nearly-breached. This seems to make project management into something that one should *not* set out to do. But hundreds of thousands of people set out to manage projects every day, and these project managers

set out specifically to abide by the hallmark constraints, not violate them. UT appears to undermine this intention as fanciful and construes project management as accidental, not intentional.

2. *Nearly-Twin Projects*—Similar to the Twin Projects case, this case involves two projects, P1 and P1+, which are identical with the exception of a single detail. P1 has been successfully completed many times in the past, but P1+ (again, P1 with the alteration of a single detail) has never been attempted. Is P1+ truly a novel project? How much novelty is enough to make a routine endeavor or a mere process into a project, according to UT? Or conversely, how much novelty is enough to keep a project from being designated a mere process? We know from our analysis of the Twin Projects case that the criterion of novelty cannot be met with a citation of the discrete segments of spacetime that projects inhabit; a citation of the fact that every new action is new even if it has been performed the same way in the past. This is true regardless of theorizing and does not require theory of projects to inform us of it. It also leads to everything, including processes, routine work efforts, and the like being "novel" enough to be considered projects, which undermines demarcation entirely. So, it would seem that the question of "How much novelty is enough novelty?" (and by extension "How much uncertainty is enough uncertainty?") is still an open one for U-theorists.

The Nearly-Twin Projects case highlights another possible difficulty for UT. Hypothetically, a completely unprecedented project (such as P1+) may go off without any

significant hitch, as it were, while a project that has extensive precedent (like P1) may be fraught with setbacks for any number of reasons. In such a case, novelty or prospective uncertainty would be entirely negated and even a novel project would not seem to qualify as a project for U-theorists.

I will return to these problems below.

IV. Project Ontology

What is a project?

In place of the working definition of a project put forward by PMI, Kerzner offers the following, more detailed definition:

> "A project can be considered any series of activities and tasks that:
>
> - Have a specific objective, with a focus on the creation of business value, to be completed within certain specifications
> - Have defined start and end dates
> - Have funding limits (if applicable)
> - Consume human and non-human resources (i.e., money, people, equipment)
> - Are multifunctional (i.e. cut across several functional lines)"[41]

This definition, similar to the much shorter definition of PMI cited above, is constructed around, and is essentially a restatement of, the hallmark constraints. It is true

[41] Kerzner, *Project Management* (2017), p. 2

that attention to these three elements is indispensable to project management, and that the elements of any project must be categorized and stated in terms of these constraints. Nevertheless, the hallmark constraints by themselves do not constitute the ontology of a project because of their ability to be cited *qua* functional limitations, such that what is required and available to accomplish tasks generally may be stated in terms of them, in both the private and corporate sectors. Perhaps it could be said that the hallmark constraints comprise a sort of weak ontology of projects, but since they may be abstractly applied to tasks which themselves do not qualify as projects, they are inadequate as a litmus test of demarcation (again, when they are stated or noted by themselves).

For example, running an errand to find window treatments may be quantified in terms of how much is available to spend on them, what size and material they are, and how much time may be taken to complete the errand before needing to pick up the children at their friends' house. But a Sunday afternoon errand to procure window treatments is not a "project." Neither is making a sandwich, paying a utility bill on time, or walking to the corner store to buy milk and eggs, yet all of these may be quantified in terms of limitations which correlate to the hallmark constraints. In this way, the hallmark constraints may be found, in a sort of deflated sense, in nearly any task undertaken. Despite their inadequacy for a robust ontology of projects, they are nevertheless essential to any project and function as variables that must eventually be replaced by concrete values. Therefore, project ontology does necessarily involve these constraints, although it cannot be strictly limited to them.

The reason that the conception of hallmark constraints as simple limitations is unuseful for theorizing about projects is that they are not simply what is to be

accomplished, along with what is needed to accomplish it and an amount of time in which it should or might be accomplished. Though the "what," "how long," and "how much" of a task may indeed be referred to respectively as "scope," "schedule," and "budget", to use these terms outside of a business enterprise undertaken for a useful or profitable goal is to simply apply the terminology of projects in a broad sense. Used broadly in this way, they become unhelpful since they are thereby applied outside the immediate context of our discussion, which is project ontology. The fact is that these constraints have their relevance with regard to certain tasks undertaken within the context of a business enterprise. All other usages are attempts to construe general tasks in terms of projects and are analogous at best.

To assign each constraint a concrete value, it is necessary to practically reckon what a project requires (or is likely to require) in order for it to be completed and for its deliverable(s) to be satisfactorily produced.[42] The requirements of a project stem primarily from the desires of the stakeholders and what these desires will realistically entail. The process of gathering the requirements for a project is highly complex in and of itself, and has in some industries led to a specialty known as "requirements engineering," which is quickly becoming a sort of subfield or sub-specialty within project management itself.[43] A detailed explanation of requirements engineering will not be given here. However, requirements *qua* stakeholder desires, in aggregate, are indeed what comprise the scope of a project.

After the requirements of the scope have been gathered, it then becomes possible to determine the schedule (i.e. the time it will take to complete the scope) and the budget

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[42] That is "produced" in a business context, not merely produced in the sense of "made" or "constructed."
[43] Cf. Knauss, Eric. "Requirements Engineering & Project Management." Eric Knauss, WordPress, December 31, 2012. oerich.wordpress.com/2012/12/31/requirements-engineering-project-management

(i.e. the financial resources it will take to complete the scope on schedule). The schedule and budget are first and foremost derived from the practical implications of the gathered requirements of the scope, but for other reasons (e.g. marketing schedules, allotted funds for research and development) the budget and schedule may be increased beyond just what is minimally necessary to complete the scope, yet they their actual values will not be indefinite. The schedule and budget, once given actual values, become further requirements, in addition to those comprising the scope.

In the usual way that projects are proposed and funded, a change in the concrete value of one of the hallmark constraints necessitates a change or adjustment in at least one of the other two—this is a rigid operational principle among project managers. For instance, it may normally take a given amount of time to produce a certain outcome, but in order to shorten that amount of time (if it is possible to do so) it will likely also be necessary to increase the budget for human resources and any needed equipment to work on whichever task(s) concurrently, with the required amount of people to complete them. For example, if construction on a bridge was initially set to be completed within 12 months with a budget of $60 million, but for some reason it became necessary for construction to be completed within 8 months, this change would almost certainly require an increased budget of at least several million dollars to properly allot the workers (and other resources) needed to move up the completion date and cut the schedule by a third. No doubt other costs would also arise from such a schedule change. Aside from just the number of people completing the relevant tasks and any special equipment or building materials that may need to be used by them in doing so, the companies providing construction services may also need to be compensated for time lost on other active jobs that will need to be slowed

or temporarily put on hold while the bridge is being completed in two-thirds the original timeframe. There are numerous other possible examples in these regards. This correlation between the actual values of hallmark constraints is especially acute when determining the threshold time and resources for the requirements of the scope, which are the bare minimum amounts to complete the desired deliverable(s).

Propositional Theory

Conceptually, then, projects may be viewed as lists of requirements, not only the direct requirements of the scope of the deliverable(s), but any corresponding requirements of schedule and budget as well. In other words, when scope requirements are duly gathered and accounted for, the requirements indicating the remaining hallmark values will logically emerge. Each requirement may be written as a declarative sentence, expressing a proposition that signifies one or more facts.[44] Each sentence may be categorized as either an initial statement or an entailment of an initial statement. The initial statements that make up the scope will logically entail further statements about both schedule and budget (since the hallmark constraints are conceptually correlated), and these statements, in aggregate, make up the project. As such, a project may be understood fundamentally as a set of statements, or expressed propositions, that stand in logical relation to one another, and are valid inasmuch as they accurately correspond to facts of the world relative to the requirements of a deliverable. This is the essence of what I will call the Propositional Theory of projects, or Propositional Theory (PT).

[44] The wording of expression and signification here is drawn from Englebretsen (2017).

When project managers refer to a "project," in my view they are not only referring to the entire set of propositions which state what is required in order to successfully complete it, but to the totality of resources that is materially necessary to produce or achieve a deliverable. However, in my opinion it is nevertheless more fitting to use "project" to refer to the construct of propositions since projects are human undertakings which cannot exist apart from a cognitive being which employs conceptual reasoning to follow a plan for accomplishing them. Therefore, it is the set of propositions that may justifiably be referred to as either "in a project," or simply as "the project," for all intents and purposes, with the recognition that the propositions do not exist by themselves and must correspond to facts, having no actual existence or significance otherwise.[45]

I have devised a compound example to illustrate the ontology of projects in PT, which follows. Since an actual project can include far too many requirements to form a realistic case, I have greatly simplified the example(s) for the sake of manageability. In practice, even relatively small projects can involve hundreds of requirements, and in large-scale projects, possibly thousands. To compose such intricate and extensive examples is unnecessary anyhow, since PT is thoroughly demonstrable via a simplified one, and perhaps better than it might be if it were more complex. The following compound example involves a hypothetical case, utilizing variables, and a roughly corresponding case which is less schematic, though it is likewise hypothetical.

[45] That is, PT neither involves nor makes any theoretical recourse to idealism.

Project Σ (Setting Up the Project)

[i] Project Σ has three stakeholders, γ, δ, and ε, each with their own particular requirement, which will be called **A**, **D**, and **P**, respectively. To accomplish **A**, **D**, and **P** requires a budget of *y* and a schedule of *z*, and the stakeholders require a schedule of *w*. The project manager assigned to project Σ, William, having fully gathered and accounted for **A**, **D**, and **P**, is confident that, barring any unforeseeable occurrences, will finish on schedule and within budget.

[ii] Set of propositions that comprise project Σ:

[a] Stakeholder a requires **A**.

[b] Stakeholder b requires **D**.

[c] Stakeholder c requires **P**.

[d] Requirements **A**, **D**, and **P** require a budget of *y*.

[e] Requirements **A**, **D**, and **P** require a schedule of *z*.

[f] Stakeholders γ, δ, and ε require a schedule of *w*.

Logic Industries (Setting Up the Project)

{i} Logic Industries has undertaken to produce a cutting-edge vehicle as a collaborative effort. The project has three stakeholders, each a company with a separate interest that has its own representative engineer: one concerned with aerodynamics, another with aesthetics, and another with ecological efficiency. The project has been named "Modern Car."

Each engineer has been tasked with the maximization of their own aims in relation to the aims of the others in the design of the car—minimal drag, maximal visual appeal, and

minimal climate impact, respectively. The endeavor will be allotted a budget of $120 million and a projected schedule of approximately 3 years, while the stakeholder companies need to begin production after initial marketing campaigns in just under 5 years.

The project manager assigned to the project, Erica, having fully gathered and accounted for the necessary requirements relative to the budget and time allotments, has initially determined (based on the best estimation data available) that the completion of Modern Car will entail the following:

{ii} Requirements that comprise project Modern Car:

[a] The aerodynamics engineer requires minimal drag.

[b] The aesthetic engineer requires maximum visual appeal.

[c] The ecological engineer requires minimal climate impact.

[d] A design that meets the requirements of minimal drag, maximal visual appeal, and minimal climate impact will require a budget of at least $85 million.

[e] A design that meets the requirements of minimal drag, maximal visual appeal, and minimal climate impact should require at least 3 years to complete.

[f] The stakeholder companies, represented by the aerodynamics engineer, the aesthetic engineer, and the ecological engineer require a production schedule commencing in just under 5 years from the project launch.

I will return to this compound example below, when discussing the causes and implications of project failure according to PT.

Demarcating Processes and Projects

It is important at this point to examine just what a process is. In doing so, the demarcation between processes and projects should become clear, as should the essential relationship between projects and processes. As noted previously, I have chosen to focus on "project" versus "process" because the distinction has already been used in unwitting discussions of demarcation among project management professionals and academicians. My adoption of this distinction, however, should not imply that I divide up the world of endeavors, as it were, in such a way—as many who discuss it seem to do. In my view, "process" is not the exhaustive category of whatever cannot be classified as a "project", but rather refers to something conceptual in nature, as I will explain below. As for how everything outside of the category of "project" should be classified, categorized, or defined, that is another discussion entirely and one which does not concern me here.

It is my contention that process, as such, is unavoidable. Anything that is accomplished, either effectively or ineffectively, involves processes, which are ordered sets of steps to complete actions or tasks. To accomplish something efficiently is to use an efficient process or perhaps multiple such processes, and when something is accomplished inefficiently it is due to "sloppy," erratic, or inefficient processes. Thus, the degree of efficiency or inefficiency of a process is relative to a specifically desired outcome, and not just the outcome itself but the mode in which it is achieved. It is just plain impossible to avoid the presence of process—the presence of at least a modicum of necessary order—when taking an action or working toward a goal. This is not unlike the conception of logic that Wittgenstein presents in the *Tractatus* as permeating the world:

> "Logic fills the world: the limits of the world are also its limits.
>
> We cannot therefore say in logic: This and this there is in the world, that there is not.
>
> For that would apparently presuppose that we exclude certain possibilities, and this cannot be the case since otherwise logic must get outside the limits of the world: that is, if it could consider these limits from the other side also."[46] (5.61)

The main point of this passage is to say that the world (reality, thought, etc.) has a structure and that it is not possible for anything to either exist, be imagined (i.e. represented as a picture in the mind), or be spoken about without it having some sort of ordered structure, viz. "logic." So it is with processes vis-à-vis tasks or goals. Therefore, projects and their management will necessarily involve processes and process management, respectively.

It is important to note here my working assumption that to qualify as a "process," a set of steps must lead to a sensible and useful outcome, and I do not think that this is a difficult assumption to substantiate. If a series of steps bear no logical relation to one another and in the end produce nothing useful or coherent, then that series of step isn't a process at all (and its steps are probably not "steps" either)—it is just a random grouping of actions taken in temporal proximity to one another. A process, if the word is to have any rational meaning at all, must be a set of steps that leads to some sort of useful and coherent outcome, however inefficiently it may do so. For example, a process for making buttered toast might involve a many-stepped Rube Goldberg machine, or it may involve relatively few steps when the elements of the process are handled directly, but since they both lead to buttered toast they are both processes for buttered toast. If making buttered toast was a

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[46] Wittgenstein, Ludwig. *Tractatus Logico-Philosophicus*. Translated by C. K. Ogden, Mineola, New York, Dover Publications, Inc., 1999, p. 88

project, then one process would be considered more efficient than the other (although, if it were to be an ancillary goal of the project, for whatever reason, to increase entertainment value while implementing its processes and attaining its goal, then in such a case a Rube Goldberg route might be a more efficient process toward this end out of however many options), but outside the context of a project these processes simply are what they are, regardless of how they are carried out or the amount of steps they contain, since in any case they are sets of ordered steps.

Processes are usually more general and involve a single outcome, as opposed to projects, which may involve many such processes, each included and evaluated as necessary in relation to not only the deliverable *qua* outcome but in relation to the hallmark constraints (which a mere process lacks). For example, there is an ordered set of steps to assemble an automobile, and these steps constitute the process for making a car. However, should stakeholders set out to produce a certain amount of a specific model of automobile by a certain date for a given financial sum, it would be a project due to the presence of the hallmark constraints, as instantiated by their actual values, which arise from actual requirements of the deliverable, not simply series of steps. Processes are also hypothetical in nature and are only limited by what is possible and what is minimally necessary to attain their intended outcomes. As technology progresses, steps in a process may be reduced or simply change. There may be multiple ways to order steps to achieve an intended outcome, but none of them may be evaluated and sorted into categories of appropriate, efficient, useful, etc., until they are subjected to the constraints of scope, schedule, and budget—that is, when they have been incorporated into a project and therefore stand in relation to a specific deliverable or set of deliverables.

A process is thoroughly conceptual, while a project is ultimately actual. As I noted at the beginning of this section, this is where I differ with current project management circles and their use of this distinction in their folk-theorizing[47] regarding it thus far. A process represents the logic of accomplishing something in terms of steps, a project is the implementation of processes within the context of a business venture in relation to the actual values of hallmark constraints. Regarding processes, there may be many possible orders of steps to accomplish a given task or to produce a given thing, all of which are equally valid so long as they result in the accomplishment of whatever they are a set of ordered steps to attain. Since they cannot be evaluated in any meaningful way except in relation to a deliverable, i.e. within the context of a project, processes *qua* conceptual objects or constructs[48] bear no relation to the hallmark constraints, either hypothetically or to their actual values, which pertain precisely and only to projects.

A Negative Criterion for Project Identity

Similar to the criterion of falsification or falsifiability that Popper offered as a solution to the question of the demarcation between science and pseudo-science, I propose a negative criterion of sorts to simply, adequately, and meaningfully distinguish projects from processes: *failability*. While it is certainly the case that a process can be so inefficient that it is ineffective, it cannot of itself fail due to scope creep, and potential failure due to scope creep is specifically what failability is concerned with. In order for the accomplishment of a given outcome to be a project and not merely a process, it has to be

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[47] It is "folk-theorizing" because it occurs outside of a rigorous philosophical context.
[48] See Bunge, Mario. "The Status of Concepts (1981)." *Scientific Realism: Selected Essays of Mario Bunge*, edited by Martin Mahner. Prometheus Books, 2001, pp. 92-102.

subject to failure not just due to inefficiency or ineffectiveness of its process(es), but has to be subject to failure specifically due to scope creep.

"Scope creep" (which is examined in more detail below) occurs when the requirements of a project are either changed or added during the course of a project. In moderation, this can be a positive force in the production of valued deliverables, but in most cases where it is either not managed properly or not properly accounted for, or it happens on too broad of a scale at too rapid a pace, it becomes a negative force that leads in very many cases to project failure. According to studies on project failure, scope creep continues to be at the top of the list of its causes.[49]

If scope creep is of no consequence to the accomplishment of a task or goal, then by implication neither are schedule or budget, as the presence of one hallmark constraint is predicated on the presence of the other two. Indeed, processes may be refined or be ineffective, perhaps grossly so, but such judgments can only be made *within* the context of a project relative to its deliverable, as noted above. Outside of a project, a process simply is what it is and involves what it involves—any merit or demerit it may possess is determinable only in relation to a desired outcome with constraints on time and resources. Failability implies the presence of the hallmark constraints, which in turn entail the context of a business venture. Thus, as a singular criterion of projects, failability indicates that *a project may fail due to scope creep, and that a process is such that scope creep will not, and indeed cannot, lead to its failure*.

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[49] See Abbasi, Wajid, Iqbal, and Zafar. "Project Failure Case Studies and Suggestion," International Journal of Computer Applications (0975 – 8887), Volume 86 – No 6, January 2014.

Based on the above, I put forward the following:

> A *project* is that which is subject to failure due to scope creep (because scope creep is predicated on the presence of the hallmark constraints), a *process* is such that scope creep will not and cannot lead to its failure. In carrying out any task, process of some quality and quantity is unavoidable. Therefore a project will be a series or conglomeration of processes—each judged as either efficient or inefficient relative to the deliverable(s). In this way, project management *is* process management on a grander scale, with strictly-determined constraints, and in a configurative capacity—i.e. processes *a*, *b*, *c*, and *d* will be arranged so that the deliverable(s) of a project P, as determined by its scope, will be produced within the constraints of schedule and budget.

The use of failability as a negative criterion (i.e. "negative" in the sense that a project is *not im*pervious to failure[50]) to identify and demarcate projects from processes fills out PT and avoids the problems of using uncertainty or novelty, as illustrated by the *Twin Projects* and *Nearly-Twin Projects* cases above. Complete with a relatively simple demarcative litmus test of failability, PT allows a project (a) to be accurately defined as such at the outset (i.e. prior to its undertaking and execution), (b) for project management to be an intentional activity that one sets out to do and which is not logically predicated on breaching or nearly-breaching the hallmark constraints, and (c) is theoretically useful and interesting. The Propositional Theory of projects completely removes any consideration of novelty-thus-uncertainty from project ontology and demarcation, allowing for a project to

[50] Similar to Popper's falsifiability, viz. that science (as opposed to pseudo-science) is *not im*pervious to falsification.

indeed be a project irrespective of whether it goes well, is fraught with setbacks, or fails altogether.

The concern for novelties and unknowns (and even "unknown unknowns"[51]) in regard to projects is real, but such concern is not a matter of project ontology so much as it one of professional excitement over potential experiences with project diversity and the integration of various relevant skill sets. Those project managers who prefer a high level of discovery and disclarity in their work will seek out those projects with a high degree of novelty and potential uncertainty. However, those project managers who oversee the construction of the 25th house in a 100-house building project, using the same or similar blueprints for each house, are indeed managing a "bona fide" project, albeit perhaps a less rigorous or sophisticated one—and for project management challenge and thrill-seekers, a more monotonous one—but a *project* nonetheless.

V. Project Failure In Terms of Propositional Theory

In this section, my aim is to state two of the leading causes of project failure in philosophical terms and analyze them in light of PT. According to Abbasi, Wajid, Iqbal, and Zafar,[52] two of the key reasons for project failure are scope creep and unclear project requirements, and I will examine these in order.

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[51] Kvalnes, "Living With the Unknown Unknown: Uncertainty in Projects," *Project Management Journal*, Vol. 47, No. 3, p. 102

[52] "Project Failure Case Studies and Suggestion," *International Journal of Computer Applications* (0975 – 8887) Volume 86 – No 6, January 2014

Scope Creep

In their article on common reasons for project failure, Abbasi, Wajid, Iqbal, and Zafar define "scope creep" as "an increase in what you have to deliver, without a corresponding increase in resources or an extension to the project timeline."[53] According to Kerzner,

> "Scope creep is the continuous enhancement of the project's requirements as the project's deliverables are being developed. Scope creep is viewed as growth in the project's scope. The larger and more complex the project, the greater the chances of significant scope creep."[54]

Kerzner also notes that "scope creep is a natural occurrence for project managers,"[55] something that any project manager must accept as inevitable due to "the nature of humans not to be able to completely describe the project or the plan to execute the project at the start."[56] Thus, for Kerzner, the best we can do is not to halt scope creep altogether, but to manage or gain control over it, anticipating and responding to changes as constructively as possible.

In making the claim that scope creep of some kind is usually inevitable, Kerzner does propose a distinction between "scope change" and "scope creep," which I find to be both valuable and meaningful:

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[53] Ibid, p. 34
[54] Kerzner, *Project Management* (2017), p. 751
[55] Ibid.
[56] Ibid.

> "…we can argue that scope creep is not just allowing the scope to change but an indication of how well we manage changes to the scope. If all parties agree that a scope change is needed, then perhaps we can argue that the scope simply changed rather than creeped. Some people view scope creep as a scope not approved by the sponsor or the change control board."[57]

Although Kerzner himself does not consistently apply the distinction he suggests between "scope change" and "scope creep" (he continues to use them interchangeably throughout the remainder of that section), I think that the distinction is not only a valuable and meaningful one but an essential one as well. Thus, in discussing scope creep, my reference is specifically to change that is *un*managed, *un*approved, or *un*accounted for.

Expressed in terms of PT, scope creep is the alteration, replacement, or addition of propositions in a project either without analysis or with insufficient analysis vis-a-vis other propositions of the project (of either the original set pertaining to the scope or to their entailments). Insufficient analysis, or an absence of analysis altogether, of the set of propositions as they are changed or modified over the life of the project can lead to contradictions between the propositions, which often leads to a reduction in the profitability of the deliverable, or complete project failure.

[57] Ibid, p. 751

Change and Project Identity Through Time

It is important here to briefly address metaphysical questions of identity with respect to the changes which occur in projects over time. As we have seen, changes in projects necessarily equate to changes in requirements, which result in changes to the propositions which conceptually make up the project. If a project *is* a set of propositions, as PT proposes, then wouldn't the change or alteration of any one of the propositions in it constitute a *new* project, consisting of the new set of propositions, which are different from those in the project prior to the change? And, if this is case, wouldn't this make "scope creep" essentially impossible, since every subsequent change would result in a completely new project? These are valid questions, but it is my contention that they are predicated on a conception of identity which is not relevant to project ontology.

In terms of the classical metaphysical puzzle of Theseus's ship, a project may be viewed as a ship and its set of propositions as the boards and other elements which make up that ship. The question of whether the replacement of a single board is an affront to the identity of the ship as "the ship of Theseus" (i.e. *the* ship once owned and used by Theseus) is a problem that has no relevance to project ontology because it (a) presupposes an object that does not currently have an owner, and (b) is concerned with some past event. If Theseus were to be the current owner of the ship, and replaced one or more boards from its hull, it would still be "the ship of Theseus" even if it were to not be the *exact* ship which he used to sail back from his conquest of the Minotaur. The question of whether the ship (as an object) maintained a synchronic identity in relation to some event of the past was important for the Athenians, who monumentalized the ship of Theseus because of this relation, but it would bear no relevance as to who is the current owner of the ship, who, as

we are currently supposing, is still Theseus (at least for some time after he returned from Crete). So long as it had a bow, stern, mast, hull, keel, and sails—and still belonged to Theseus—it would still rightly be a ship that belongs to Theseus (that is, it would be "the ship of Theseus") despite any repairs or replacement of its boards.

Scope creep is possible within a project because the only type of identity that is relevant to its existence as a project is diachronic—synchronic identity is all but meaningless to projects. A project remains a project (and indeed the same project) so long as it has the same deliverable or goal and is tasked by the same stakeholders. Until a set of stakeholders makes the determination that the deliverable has shifted such that it is no longer the same project, it remains the same project (the same initiative) irrespective of any changes to the requirements/propositions which comprise it. Similar to the ship of Theseus becoming the ship of another once it has become the property of another, one project becomes another when a transfer of "ownership" between stakeholders takes place, or if the requirements become the logical components of another goal with another deliverable entirely. I suppose this might be likened to dismantling a ship and using its parts to construct a house, viz. something altogether different from a ship.

In PT, a project is a diachronic construct, the identity of which is preserved by its goal or deliverable, as well as the owners, as it were, of the actual values of the hallmark constraints related to it, who are the stakeholders. The goal of a project may undergo slight modification, as might its intended deliverables, without affecting the identity of *project x* as *project x*. If, however, the goals and deliverables of *project x* change to the point that the stakeholders of the project deem that it is no longer the project they initially constructed, then *project x* may become *project y*. The ability to determine the synchronic identity of

project x at a given time *t* may be useful in the tracking and management of changes as they occur or have occurred in the past (viz. to prevent "creep"), but it has no practical relevance to functional project identity from the perspective of PT. Scope creep is possible because a project is not a set of propositions at a given point in time, but a set of requirements for a goal or deliverable within the actual values of its scope, schedule, and budget, as determined by the stakeholders.

Let's return now to our theoretical example to illustrate the nature of the problems created by scope creep in terms of PT:

Project Σ (Making Changes to the Project)

[iii] Two months into the schedule of project Σ, stakeholder ε decides that he would also like to include **B** as part of the project. The nature of **B** is such that it further requires **C** (**B→C**), and **C** happens to conflict directly with **A**—i.e. if **A** then not **C** (**A→¬C**) and therefore also not **B** (**A→¬B**). But William does not discover the conflict between **B** and **A** because he does not duly investigate **B** or its implications before agreeing to its addition to the project.

Despite its functional conflicts with **A**, **B** and **C** require an additional budget of *m*, and additional time *t*, facts that are likewise evaded. Nevertheless, the stakeholder inserts the requirement into the project and places his confidence for working out any details in William, who, although suspecting that it could affect one or more of the existing requirements (**A**, **D**, and **P**), decides that "it will work out" and that "somehow things

always do." As a result, he evades any consequences of the addition and continues to manage the project as before.

Without any analysis post-additions, William lists the requirements of project Σ as follows:

[a] Stakeholder γ requires **A**.

[b] Stakeholder δ requires **D**.

[c] Stakeholder ε requires **P** and **B**.

[d] Requirements **A**, **D**, and **P** require a budget of y.

[e] Requirements **A**, **D**, and **P** require a schedule of z.

[f] Stakeholders γ, δ, and ε require a schedule of w.

[iv] At this point, the scope of the project has definitely shifted ("crept"). Instead of consisting of only **A**, **D**, and **P**, it is now **A**, **D**, **P**, and **B** (*and* **C**, as necessitated by **B**, and not **A**, as necessitated by **C**, whichever juncture is arrived at first). The addition of these requirements will require the addition of more time and resources, which equates to a shift from a budget of y to y_2 ($y+m$) and a schedule of z to z_2 ($z+t$).

In reality, the scope of project Σ has crept and will likely continue to creep, but regardless it has a certain *terminus ad quem* at which point **C** will either cancel out **A** or **A** will cancel out both **B** and **C**. Once this contradiction is discovered, a decision will have to be made regarding the viability of the project; the budget may be blown, and the schedule may also break down. In the end, the project will likely either falter or fail. Either way, stakeholder

requirements will not be met unless renegotiated in light of practical realities presented by the requirements.

[v] If William had examined the addition of each new requirement in light of all the existing requirements, and engaged in proper analysis, he would have seen what is clear, viz. that **A** and not **A** cannot both be entailed by the same project. Not only this, but any adjustment or addition to **A**, **D**, or **P** will necessarily result in a change to *y* and *z* (budget and schedule constraints, respectively).

Had William properly assessed the situation, he would have recognized that the updated project proposal (i.e. subsequent to the tentative addition of **B**) was as follows:

[a] Stakeholder γ requires **A**.

[b] Stakeholder δ requires **D**.

[c*] Stakeholder ε requires **P** and **B**.

[d] Requirements **A**, **D**, and **P** require a budget of *y*.

[e] Requirements **A**, **D**, and **P** require a schedule of *z*.

[f] Stakeholders γ, δ, and ε require a schedule of *w*.

[g] **B** requires **C**, and **C** directly conflicts with **A**.

[h] Requirements **B** and **C** require an additional budget amount of *m*.

[i] Requirements **B** and **C** require an additional time allotment of *t*.

William should have noticed that **C** (and therefore **B**) conflicts directly with **A**, and that the inclusion of **B** would require at the very least a significant modification of **A** to accommodate it, or perhaps a determination would need to be made between them. Also, William should have considered whether the addition of either m or t is practically feasible, both in the availability of resources and the profitability of the resulting deliverable, as well as whether a budget shift from y to y_2 ($y+m$) and from a schedule of z to z_2 ($z+t$) might somehow undermine w, etc.

Logic Industries' Modern Car (Making Changes to the Project)

{iii} In the course of the project, the stakeholder company represented by the aesthetic engineer decides that it would like to utilize one of its sister companies, located overseas, to produce keys elements of the interior and exterior design pieces of the Modern Car in place of the local manufacturing facility which was designated for these tasks when the project was set up.

The problem with this decision is that the environmental regulations and methods of manufacturing in the region where the sister company is located are not the same as the regions which represent the target market for the Modern Car, and allows for much higher emissions and environmentally irresponsible waste disposal practices. When the impact of production via this sister company is taken into account, rather than *only* the impact of the car itself after production, it all but negates the designs provided by the ecological engineer, making the actual negative impact of the car per unit such that it is not a significant improvement over current automobiles.

Upon hearing of the intention of the stakeholder to utilize their overseas sister company for manufacturing, Erica, the project manager assigned to oversee Modern Car, welcomes the suggestion without much thought because she immediately notices that it will cut costs and present an advantage in terms of overall budget concerns. She did not investigate the sister company and assumed, either consciously or unconsciously, that the environmental regulations on manufacturing in the region overseas where it is located were similar to those of the market regions.

Without any analysis post-changes, Erica lists the requirements of project Modern Car as follows:

[a] The aerodynamics engineer requires minimal drag.

[b] The aesthetic engineer requires maximum visual appeal, and overseas production of interior and external design elements at a sister company.

[c] The ecological engineer requires minimal climate impact.

[d] A design that meets the requirements of minimal drag, maximal visual appeal, and minimal climate impact will require a budget of at least $85 million.

[e] A design that meets the requirements of minimal drag, maximal visual appeal, and minimal climate impact should require at least 3 years to complete.

[f] The stakeholder companies, represented by the aerodynamics engineer, the aesthetic engineer, and the ecological engineer require a production schedule of 5 years (or less).

{iv} At this point, unbeknownst to Erica and the other stakeholders, the scope of the project has shifted ("crept"). Instead of consisting of a car with minimal drag, maximum visual appeal, and minimal climate impact, the project now also includes low-cost overseas manufacturing of interior and exterior design elements. While this will cut costs to their short-term budget, it could potentially nullify a major goal of the entire project since the overseas production cancels out the desired minimal environmental impact required by the stakeholder represented by the ecological engineer (and the market demand at large). As a result, if the overseas manufacturing decision is implemented, the Modern Car will be nothing more than a fast and sporty car with a decent fuel economy, like so many cars already on the market, and will not be the "Modern Car" planned at the outset.

{v} If Erica had thought to examine the price, as it were, of her budget savings in the area of manufacturing, and its implications for the net environmental impact of the Modern Car, then she would not be faced with the failure of her project on its account, as she would have recognized the conflicting requirements.

Erica or one of her team members may still detect the contradiction. However, if the realization does not happen fairly soon in the life of the project, it may cost her more in resources, since relocating manufacturing not only takes additional setup time but such setup will likely also incur significant costs, affecting both budget and schedule.

Unclear Project Requirements

Similar to scope creep, the presence of unclear project requirements involves either disclarity within a project as to *what* needs to be accomplished or *what it will take* to accomplish what needs to be accomplished, that is, a lack of clarity regarding necessary resources. Each of these can easily breed contradictions, which can lead to the breakdown of a project if they are not detected, accounted for, and resolved in a timely and effective manner. In terms of PT, unclear project requirements are disclarities within the set of propositions, such that any analysis of them will be insufficient, or the content of the propositions themselves is insufficient or unclear so that it prevents proper analysis to be conducted or few if any definitive determinations to be made.

In light of what has already been presented thus far, this is fairly straightforward, but to illustrate such an occurrence within projects, here are some sample propositions stated in an unclear fashion.

Project Σ (Unclear Version)

[a**] Stakeholder γ has not yet decided between **A** and **C**, but is **fairly sure** they will require one of them.

[b**] Stakeholder δ **may** require **D**, but **might also** require **F**.

[c**] Stakeholder ε **may** require **P**.

Due to the vagueness and disclarity of [a**], [b**], and [c**], the following statements are inadequate entailments of the scope:

[d] Requirements **A**, **D**, and **P** require a budget of *y*.

[e] Requirements **A**, **D**, and **P** require a schedule of *z*.

[f] Stakeholders γ, δ, and ε require a schedule of *w*.

Astonishingly, some project management firms will proceed with work on projects made up unclear requirements similar to these in hand, figuring that they will clarify their content on the way to the deliverable. In reality, however, there is no clear deliverable to be produced, only a fuzzy outline of it, with many of its important aspects still needing to be ironed out, and no reasonable guarantee that the goal is even attainable. Without a set of clear propositions/requirements (or propositions/requirements which are clear to a very high degree), it is not possible to sufficiently analyze them for potential contradictions or to reckon the actual values of the second and third hallmark constraints, namely budget and schedule. Thus, it is not possible to really manage such a project at all.

VI. Project Management In Terms of Propositional Theory

The primary concern of this essay is not to provide an answer to the question of what constitutes project management, nor is it to develop a theory of project management *per se*, so what follows is intentionally brief and not meant to be an exhaustive treatment of the topic whatsoever. However, as the ontology of projects and a theory of their management are necessarily entangled, and since a theory of projects is considerably weaker without at least a modicum of practical application, I will briefly discuss what PT broadly implies regarding the role of the project manager and the practice of project management generally.

Project Manager as Logician

As the questions of "What is a project?" and "What is project management?" are necessarily related, so PT makes certain correlating demands on the project manager, and these demands together comprise what might be taken as a basic theory of project management. Most basically, the project manager, under PT, is a sort of logician; she is theoretically responsible for possessing a sufficient familiarity with the entire set of propositions within a project, for ensuring that they do not contain any contradictions, and for guaranteeing that new propositions are not added without due analysis. These responsibilities make technical demands on the project manager, such as an adequacy of communication skills, adeptness in the use of terminology and the correct application of technical definitions, capability in the identification and amelioration of problems, and aptitude for resolving any potential errors, contradictions, or fallacies which may arise within a project. But it is not only these semantical and logical skills which PT requires of the project manager, but also a thorough familiarity with the real-world content and technical information in various scientific and trade disciplines to which the propositions of a project refer. If the project manager herself does not possess such expertise, then she must continually consult subject matter experts (SMEs) in each respective area or trade for the purpose of ensuring that the project requirements, as reflected in the set of propositions, reflect *reality*.

Project management, broadly construed according to PT, is the [a] construction, [b] clarification, and [c] analysis of propositions within a project, each of which corresponds to a project requirement, and the continual process of [a] [b] and [c] in light of additional propositions and/or changes to existing propositions as they arise over the life of the

project, as well as familiarizing each stakeholder or project team member with the sub-set of propositions that pertains to their interests or assigned tasks. There are, of course, many potential details and flows of communication which relate to project management when its components are considered *in toto*, as well as situational quirks and differences that will vary between projects, but [a] [b] and [c] and the due articulation of their outcomes to various parties connected to the project is a basic overview of project management as conceived by PT.

Propositional Theory presents an implied methodology to project managers. It is not likely that an entire project may feasibly be represented according to the ontological structure offered by PT, which would require the construction and comparison of thousands of sentences. This, however, is unimportant since if a project manager is continually aware of what logic requires and relates to their projects as sets of propositions in logical relation to one another, then they will be able to spot and resolve contradictions, as well as be on guard against fallacious reasoning.

Philosophical Outlook as Inevitable

An important aspect of theorizing about project management in general is the recognition that some kind of logic, some theory or outlook, is unavoidable. Each individual, whether consciously or unconsciously, operates on the basis of ideas—thoughts and actions do not simply occur in a vacuum devoid of all theory. Rather, each person who acts does so within the context of a broad range of ideas and assumptions, and is driven by their values (whatever they happen to be). As such, some kind of philosophical outlook is inevitable; if one does not actively adopt or determine one, then they will passively accept

the one into which they were socialized, making folk-judgments from a place of intellectual familiarity. The topic of how people acquire and change their modes of thinking is a potentially broad one and I have no intention of delving into the breadth of it here. My purpose in making mention of it is to note that any proposal that philosophy is something optional or external to project management is decidedly false. Project managers act in service of an objective, and they take action on the basis of reasons, and those reasons ultimately derive from an ontology and an epistemology which are either explicit or implicit in their minds.

Since some sort of theory and outlook is unavoidable, it behooves project managers to approach philosophical investigation, not as something external, merely a tool, or as some exotic source of "inspiration," but as a necessary doorway to the reasons behind thought and action that can either be explicit and principled or implicit and instinctual, as it were. As Kostantinou and Müller have well stated, "Any theory is contingent on a philosophy, an antecedent stance, from which a theory is developed."[58] It isn't so controversial to claim that there are good ideas and bad ideas, that they are distinguishable one from another, and that sorting through why one believes what they believe (and hopefully replaces bad ideas with good ones) is a worthy exercise. But doing so requires reflection, analysis, and an honest engagement with logic. In my strong opinion, one simply cannot be an effective project manager without adopting the approach of PT (along with its various theoretical bases and assumptions) or a yet-to-be formulated theory with similar requirements of logical analysis between actions taken and the requirements of scope—at least not without pragmatically compartmentalizing such an approach for use in their

[58] Kostantinou and Müller, p. 5

practice of project management. Such a pragmatic adoption of scientific realism[59] and PT is what I refer to as "thinking cap" methodology.

Thinking Cap Methodology

Despite my own arduous personal subscription to scientific realism, as well as my contention that such realism is indispensable to successful project management, I do think that it is possible for an antirealist project manager (that is, someone who practices project management while maintaining a personal outlook that is antirealist) to be effective in their management of projects—however, not while operating on their own mystical and antirealist assumptions. Rather, it should be possible for an otherwise antirealist project manager to be effective so long as they decide to pragmatically operate *as if* realism were true while engaging in project management. Thus, they may pragmatically decide to compartmentalize their true feelings about the world and operate professionally in such a way that affirms realism *as if they ascribed to it*. For example, there are physicians and physicists who espouse deeply religious beliefs which either contradict the findings of science or make claims which defy scientific methods of testing their veracity. Such individuals invest their entire lives into such values and belief systems, yet when they engage with their respective endeavors professionally, they operate as if the only legitimate findings are those produced by proper scientific inquiry. This kind of compartmentalization is similar to Stephen Jay Gould's concept of religion and science as non-overlapping magisteria (NOM); each authoritative, but only as it pertains to its particular domain of

[59] I use this term because of Frame's suggestion that the realism-antirealism debate in the philosophy of science also pertains to philosophy of project management, but what I broadly intend here is some sort of metaphysical naturalism, materialism, or physicalism. The terms "realism" and "anti-realism" can be a bit elusive in their specific applications.

enquiry. This may also be conceptualized in terms of keeping separate the rules of checkers and chess, and considering it off-limits while playing the latter to “double-jump” using a pawn, a move that might be allowed while playing the former—i.e. each game and its outcomes are maintained and separated by its rules. Such a dualistic mindset may allow even those who do not personally hold to metaphysical naturalism, scientific realism, or a correspondence theory of truth, to nevertheless put on a “cap” so to speak and approach project management as if in fact they do.

Conclusion

This thesis is an attempt at an inauguration of sorts; the inauguration of a new branch of philosophical investigation: the philosophy of project management. Its goal is not one singular end, but a group of ends; not so much a firm conclusion as the setting of a stage for a dialectic exchange which is yet to formally emerge. It is the premier offering from a philosopher to a conversation which has thus far transpired among project management professionals and academicians alone.

I began in Section II with an introduction to project management, to the proposal for a philosophy of project management, to the literature which has thus far been produced on the topic of the relationship between philosophy and PM, and with a general overview of the structure and intention of this essay. This introduction was as much for the philosophers whom I hope will come to read and engage with this thesis as it was for any other reader. I have found in the course of my research that many project practitioners and academicians do not have an accurate or comprehensive understanding of the nature and import of philosophy, and I suspect that a similar situation exists among most philosophers with regard to project management. Most importantly, I introduced a paper by J. Davidson Frame, which contains various recommendations for the course that a future philosophy of project management should take with regard to the questions it should answer and the basic metaphysical and epistemological orientation it should adopt in seeking its answers.

In Section III, I broached the topic of demarcation and its central importance to the philosophy of project management, and noted its similar prominence within the philosophy of science. I discussed the general meta-distinction between philosophy of project

management and philosophy of management (which is based in psychology), and laid the groundwork for what Frame refers to as a "demarcation litmus test," namely, a rigorous determination of what is and is not a project in philosophical terms. To further allow for a constructive discussion as to the nature of projects, I formulated a basic theory of projects representing current ideas in the field that novelty and uncertainty are important defining features of projects. I dubbed this theory Uncertainty Theory (UT) and developed a couple of problems—the *identity problem* and the *novelty problem*—to illustrate the difficulties and inadequacies presented by UT in defining and demarcating projects, and I provided hypothetical cases for each of them (the *Twin Projects* case and the *Nearly-Twin Projects* case, respectively).

In Section IV, beginning with a definition for "project" offered by current mainstream project management literature, I proceeded to lay out the Propositional Theory of Projects (PT). Essentially, PT states that projects are lists of requirements in logical order relative to a goal, and dictated by the actual values of its hallmark constraints, i.e. scope, schedule, and budget, as determined by its stakeholders and their collective desired outcome (the deliverable). Since each requirement may be stated as a declarative sentence, expressing a proposition, a project may be conceived as a set of propositions in logical relation to one another. I then proceeded to answer a central issue of demarcation for a philosophy of project management: the distinction(s) between projects and processes.

Processes, I concluded, are thoroughly conceptual in that they are the logic of accomplishing something in terms of steps. Although processes indeed point to a goal, as projects do, they lack specificity of outcome since they are, of themselves, divorced from hallmark constraints, and much less their actual values. As such, processes, whatever they

entail, are immune to failure due to "scope creep" (i.e. the addition of requirements due to the modification of an outcome), since (a) they do not properly possess a "scope" and (b) simply are what they are, being neither "efficient" nor "inefficient", "necessary" or "unnecessary" apart from actual values of hallmark constraints, which in turn relate directly to the deliverable. This is the singular criterion of failability which demarcates clearly and parsimoniously between processes and projects: the former is such that scope creep will not and cannot lead to its failure, while the latter is subject to such failure via scope creep.

In Section V, I applied PT to two common reasons for project failure: scope creep and unclear project requirements. The first and most common foil of projects is scope creep. First, I distinguished, based on Kerzner, between "scope change" (which is nearly inevitable and can be a positive force within a project) and "scope creep" (which is unmanaged and unaccounted for change that often leads to project failure). I noted that any unmanaged change to the scope of a project is problematic because it is a functional principle that change in the actual value of a single hallmark constraint nearly always results in the need for corresponding changes in at least one of the other two, and the undermining of a single constraint undermines the presence of the other two entirely. I posited that, in terms of PT, scope creep is the alteration, replacement, or addition of propositions in a project, either without analysis or with insufficient analysis vis-à-vis other propositions of the project, leading to contradictions between the propositions, which readily leads to a reduction in the profitability of the deliverable, or complete project failure altogether.

At this point, I addressed a possible objection to the formulation of projects according to PT, namely that since a project is a set of propositions, and it would seem that

if those propositions are modified they do not remain the same set post-modification. In other words, an objection might be raised based on concerns for synchronic identity that each change to the expressions of requirements of a project result in an entirely new project, making scope creep (viz. change within a single project) impossible. In response to this potential objection, I made it clear that according to PT, a project is a diachronic construct for which a synchronic conception of identity at any single point in time bears little if any practical relevance. The identity of a project is preserved by its goal or deliverable, which is determined by the owners, as it were, of the actual values of its hallmark constraints, the stakeholders.

The second reason for failure addressed in Section V was that of unclear project requirements. As I noted, the problem of unclear project requirements is similar to that presented by scope creep in that a proper analysis of the propositions within a project does not take place. However, whereas with scope creep analysis simply does not occur, with unclear project requirements proper analysis is *prevented* by disclarities within the set of propositions. Due to the presence of disclarities in their essential details, any analysis of them will be insufficient, preventing necessary determinations from being made. This, too, may lead to the presence of contradictions, but more likely such circumstances will lead to the undermining of one or more of the hallmark constraints, effectually nullifying the project altogether.

In Section VI, I very briefly discussed what the implications of PT were for the nature of project management and discussed my opinion that some sort of philosophical outlook is inevitable for a project manager (and human agents generally) and that attention to logical relations between requirements/propositions is their primary charge. I also

suggested the utility of pragmatically adopting a scientifically realist approach, compartmentalized to the practice of project management for the sake of success in the field, even by an individual who otherwise views the world in an antirealist fashion. I referred to such a pragmatic maneuver as "thinking cap methodology."

What I have attempted here is a genesis, the provision of a rugged but substantial beginning for, in the words of Frame, "an aspiring, though not yet realized, philosophy of project management... which appeals to philosophers and practitioners alike."[60] I have centered my efforts here on theory development and matters of demarcation, which are the broadest and most basic concerns for a future philosophy of project management, in hopes that "addressing demarcation in [a philosophy of] project management would help establish the foundations of a fruitful debate."[61] I emphatically concur with Frame that the solicitation and generation of debate from both philosophers and project managers is a key measure of the success of this nascent branch of philosophy, as he has aptly stated:

> "One measure of the success of philosophical inquiry is the extent to which it stimulates a spirited debate within the communities of philosophers and practitioners. If both communities become actively engaged in the discussions, the dialogue will move forward and evolve through its own momentum; it will become enriched with side-shoot explorations, heated disputes, and a growing consensus about which issues are important and which are not. If a philosophy of project management reaches this point, it will be a great success."[62]

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[60] Frame, p. 43
[61] Ibid., p. 49
[62] Ibid., p. 43

As an expression of engagement on the part of a philosopher with the community of project practitioners, this thesis is a kind of success in and of itself, no matter what hereafter ensues. Whether or not my engagement leads to momentum toward the success of bringing about useful disputes remains to be seen. Although, I sincerely hope that it will.

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Appendix: Thoughts on the Realism/Antirealism Debate within the Nascent Philosophy of Project Management

> "The… discussion on scientific realism versus antirealism illustrates the dynamics of philosophical give-and-take in one area of philosophy of science and offers a scenario of the kind of debate that a future philosophy of project management might foster. The scientific realism versus antirealism debate has been a spirited one. It is an appealing subject to both philosophers and practicing scientists because it looks carefully at the intriguing connection between theory and reality."
>
> (J. Davidson Frame, *Philosophy of Project Management: Lessons From the Philosophy of Science*)

In his paper, Frame introduces the realism-antirealism debate from the philosophy of science as paradigmatic of the types of questions that a philosophy of project management will likewise need to wrestle with, stating that "it has a bearing [on project management], because it raises basic epistemological and ontological questions central to philosophical discussion" generally.[63] Frame further suggests that philosophers of project management should "strive to identify where the pursuit of philosophy of project management will take them… [and] should consider looking carefully at the scientific realism versus antirealism debate to see what aspects of it contribute to maintaining a vibrant philosophy of science."[64] In other words, philosophers of project management

[63] Frame, p. 45
[64] Ibid.

would do well to take a strong cue from the tenacity and centrality of this debate and its focus on fundamental issues and work to reflect them in their own area of philosophical pursuit.

Pursuant to this suggestion, I offer the following (admittedly rather tenacious) thoughts on the realism-antirealism debate as it pertains to the emergent philosophy of project management and various sentiments related to it, which have been expressed in the currently available literature.

Frame's Conception of the Realism/Antirealism Debate for PM

Aside from being far-reaching, complex, and "spirited," the realism-antirealism debate in the philosophy of science is multi-faceted and may engage one or more areas of theoretical commitment, be they metaphysical, semantical, or epistemological.[65] Frame seems to have a primary concern for epistemology in his brief summary of the realism-antirealism debate in the philosophy of science: "Scientific realism versus antirealism… [is] understanding the role of observable versus unobservable entities in explaining phenomena."[66] And he carries this emphasis, as well as the distinction between "observable and unobservable entities," into his application of the debate to the philosophy of project management:

> "Does the scientific realism versus antirealism debate have a direct bearing on a philosophy of project management? Clearly its significance is not as

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[65] See Chakravartty, Anjan, "Scientific Realism", *The Stanford Encyclopedia of Philosophy* (Summer 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2017/entries/scientific-realism/>.
[66] Frame, p. 37

> momentous as it is in the philosophy of science, which is focused on understanding and explaining how the physical world works. But yes, it has a bearing, because it raises basic epistemological and ontological questions central to philosophical discussion. It reminds us that the information we employ to strengthen our understanding of the theory and practice of project management varies substantially in quality. Some insights held by project decision makers are based heavily on solid experience and established practice (observables: e.g., documented project processes, system test results), whereas others depend heavily on poorly supported speculation (unobservables: e.g., team morale, corporate culture, office politics). As with the case of scientific explanation, the value of the project decision makers' insights depends on how effectively they integrate information generated by observable and unobservable entities."[67]

I certainly agree that the quality of information, as well as the acknowledgement of its limits and degree of precision, is key to how such information is integrated and is ultimately able to be used toward the effective planning and management of projects. I further agree that epistemological and metaphysical questions are fundamental to any philosophical discussion. Despite this broad agreement, I do nonetheless disagree with Frame here on several points:

i. As an ancillary point, I would not categorize morale, culture, or politics, as "unobservables." Though they are certainly invisible and intangible in as much as

[67] Ibid., p. 45

they are concepts, these are nevertheless observable, subject to analysis, and are amenable to certain metrics.

ii. In my view, the applicability of the realism-antirealism debate to project management is weak insofar as so-called observables and unobservables are concerned, and is much stronger when applied in terms of its broader metaphysical implications.

iii. The primary emphasis (in any case, but in a philosophy of projects and their management specifically) should be on metaphysics rather than epistemology since an emphasis on epistemology tends to engage in a subtle fallacy of conceiving the nature or composition of the perceiver/knower as fundamentally distinct from what is perceived or known (i.e. because a consistent commitment to a worked-out metaphysic is functionally absent).

I have not simply elected for an emphasis on metaphysics here out of a personal preference. Rather, I am responding to the direction that the currently available literature has generally taken in this regard, which has been essentially to eschew any notion that reality is truly accessible to minds, or assuredly exists independently of them. Frame could not have known that the discussion among project management professionals and academicians would push in the direction and develop along the lines that it has. This is primarily due to the fact that a large part of the available literature was published concurrently with his own seminal paper. Thus, when he suggests that the applicability of the realism/anti-realism to the philosophy of project management is most relevant in terms of direct observability, he is doing so without foreknowledge of the predominant trend which was yet to emerge at the time of his writing. But since a distinct trend has emerged,

the application of the realism-antirealism debate may be applied, and justifiably should be applied, so as to respond to that trend.

It is with due respect, then, that I shift the application of the realism-antirealism debate as it has developed in the philosophy of science away from talk of "observables" and "unobservables", a distinction which is the legacy of a positivist agenda that has largely exited the philosophical scene, to a more direct (and primary) consideration of metaphysics—and subsequently, of course, epistemology. As such, my thoughts below will be offered on the basis of the following two commitments of scientific realism, understanding the debate regarding them to be of primary interest to the philosophy of project management:

a. "Metaphysically, realism is committed to the mind-independent existence of the world investigated by the sciences."[68]
b. "Epistemologically, realism is committed to the idea that theoretical claims (interpreted literally as describing a mind-independent reality) constitute knowledge of the world."[69]

Antirealism as the Current Predominant Trend

I have already strongly affirmed a scientific realist orientation at the outset of my thesis, not only specifically in relation to the development of the Propositional Theory of projects but also broadly, as a holistic approach to all of existence and knowledge (viz. metaphysically and epistemologically). In this, at least in so far as the philosophy and practice of project management are concerned, I follow Frame's own rigorously realistic

[68] Chakravartty (2017).
[69] Ibid.

outlook. Such a realist orientation, however, is not the predominant trend among project management professionals and academicians. The strong trend, as reflected in the currently available literature, is one of stark *anti*realism and explicit derisions of reason, rationality, and the centrality of scientific methods, as well as traditional planning models of project management.

In their 1996 book, "What Made Gertie Gallop: Learning from Project Failures," Kharbanda and Pinto write explicitly that "most, if not all major failures on projects can be traced to inadequate planning, and/or blind adherence to originally formulated plans regardless of how the environment has changed in the interim"[70] and that, as a result of their in-depth consideration and analyses of failed projects, "one of the important messages we would convey to… project managers… is to acknowledge the necessity of sufficient advanced planning prior to project activities."[71] Planning, along with all of the tools of rationality and reason which are necessary for it, "is considered to be the essence of project management"[72] and project management, in turn, "is the life-cycle management of the project (that is, the planning, executing, and controlling of the project), with a focus on both planning and outputs."[73] Despite this, resistance against realism and the more or less standard planning models of project management feature strongly in the available literature that examines the relationship between philosophy and project management.

The current trend toward antirealism among project managers appears to stem, at least in part, from a fixation on "the unknown" in projects. Any attempts to diligently

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[70] Kharbanda and Pinto, "What Made Gertie Gallop: Learning from Project Failures" (1996), p. 68
[71] Ibid., p. 69
[72] Ika and Bredillet, "Metaphysical Questions," p. 96
[73] Ibid.

remove uncertainty from projects via planning are viewed as the futile and misled efforts of frustrated philosophers.[74] Kvalnes cites Wittgenstein's metaphor of a fly inside of a bottle, persistently running into its glass walls but never finding release; never arriving at the truth.[75] Science, too, is degraded as something mistaken and its methods dubbed a barrier to what is supposedly more important to successful project management than reason and calculation. Rolfe, Segal, and Cicmil adopt such a stark position openly:

> "It will be argued that it has been a historical mistake to view project management only through the dominant discourse of a scientific prism, which in its essence is focused on implementing a representation of a scenario designed in terms of the rules of logic and science rather than creating new possibilities in the context of disruption and the unforeseeable contingencies of day-to-day practice."[76]

Their proposal to "create new possibilities" is supposedly based in "existential disruptions" and "redescriptions," concepts which they have apparently adopted from Heidegger and Rorty, respectively.[77] The fact of the permanent separation of successive points in time from the current one, and the inability of humans to predict a fully-detailed future is conceptualized as the ultimate foil of models which are heavily focused on planning. To make matters worse, the absence of clairvoyance among humans (and project managers in

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[74] Kvalnes, p. 101
[75] Ibid.
[76] Rolfe, Segal, and Cicmil, "An Existential Hermeneutic Approach to Project Management," p. 48
[77] Ibid.

particular) is reified into a version of noumenal existence that may only obliquely correspond to a phenomenal one, if at all, being permanently unknown—and not merely unknown, but undiscoverable.

"There is so much '[that] which is not' in projects," claim Kostantinou and Müller. And this is not simply an affirmation that, at such time when a project is inaugurated, its managers are not aware of *exactly* how every phase and task will transpire. Rather, it is a claim that mysterious elements of the universe somehow inevitably permeate projects and, like the gremlins that are fabled to cause unwanted trouble and mayhem, make a reliance on project planning impossible, and even detrimental. "The academic world, which could be seen as a promising destination for philosophical alternatives and debate," Kostantinou and Müller write, "has been dominated for decades now by a rather unbearable over-reliance on evidence-based, 'scientific' research that significantly compromises our ability to envision and debate different philosophical positions about practice."[78] Drawing primarily on Parmenides for their conception of the undiscoverable parts of the universe which supposedly pervade projects, some project management professionals have proposed that there may be no contradiction or contradistinction between mysticism and science since "our world philosophers… were all mystics and scientists at the same time."[79] What this might imply, other than an apparent rationalization for the practical degradation of scientific methods in favor of mystical ones (whatever this might mean), I am not entirely sure.

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[78] Kostantinou and Müller, p. 6
[79] Ibid., p. 8

Perhaps the strongest statement from Kostantinou and Müller regarding the "that which is not" and its permanently opaque status within their working underlying metaphysic is found in their interpretation of Goethe (whose epistemological skepticism apparently grants them permission to adopt broad Parmenidean ontological categories):

> "For Goethe, the world is a cryptic entity—a reserved individual that remains silent and fundamentally unknown to us. Goethe alludes to that which is not known and cannot be known; to the ideas, meanings, mathematical equations, laws of physics, concepts, feelings, abstractions, and paradigms that we have yet to discover and to that 'which is not, but exists' and we cannot discover. For Goethe, and much earlier for Parmenides, the world consists not only of truths that can be discovered, understood (through science) and be learned, but also of that 'which is not' and cannot be examined via reason and experience—the illusion."[80]

This begs the question of how the supposed element of "which is not" might be accessed, if the unknown (equated here with the Parmenidean "which is not") is truly a part of projects, but is entirely impervious to reason and experience. Kostantinou and Müller suggest seriously that "one answer is religion" and that "that which cannot be explained and grasped has been addressed by humanity by the creation of religions, the creation of gods, and other deities."[81] Although they do not promote this specifically as the answer for

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[80] Ibid., p. 4
[81] Ibid.

project managers in relating to the unknown, they do nevertheless seem to promote it broadly, replacing the mythos of religion with "philosophies":

> "In a more fundamental reading and understanding of the world, it is philosophies—different ways of existing with the unknown—that prevail. Philosophies underlie our fears and the extraordinary potential of human beings to be inspired and create images and impressions of the unknown, while it persistently, stubbornly remains as such. Our philosophies help us dress up the unknown in ways, which comfort us in its presence, while it remains as such."[82]

Apparently, the unknown cannot be accessed or experienced, but only "existed with," and dressed up in whichever mythologies the project manager decides to fabricate or adopt for themselves. Project management, then, according to such a mystical outlook, is merely an attempt to "master [a] wildly emergent"[83] and non-teleological process which occurs against the backdrop of "a magic underground that influences phenomena in the world in intractable ways."[84]

Problems with the Current Antirealistic Trend

There are several obvious problems with such a metaphysical outlook and its attendant epistemology, and other problems—for project management specifically—that

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[82] Ibid.
[83] Floricel and Piperca, "Project Management Between Will and Representation," *Project Management Journal*, Vol. 47, No. 3, p. 145
[84] Ibid., p. 149

are less obvious. The first and most prominent problem with the claim of a permanently unknown and undiscoverable "which is not" element to the universe (i.e. an element that cannot be perceived or accessed via any sense organs or methods of logic) is that such an entity is likewise thoroughly impervious to any method of proof, whether empirical or logical. Such a metaphysical object or substance is thereby a pure fiction, since not only does its verbal description defy reality (since it fails to correspond to anything in reality), the nature of its supposed existence also categorically defies any method of knowledge—thus, it is known only by assertion, as pure fictions are.

It seems that if one were to propose, as these antirealists do, that there is an inescapable poverty of the mind and senses such that the "which is not" remains permanently *unknown*, while also purporting that it does in face exist, then they ought to somehow be able to functionally explain what it is and how it apparently works. Not only do the exponents of Parmenidean "which is not" among project managers make definitive metaphysical claims regarding it, but this "unknown" is also billed as the ultimate source of uncertainty within projects. This, too, seems to undermine reality since how can a permanently unknown, inaccessible, undiscoverable, and mysterious entity give rise to things which *are* ultimately identifiable? Would the unknowns in a project become known *post facto*, in the course of time? Without the ancient musings of Parmenides already available to modern reflection, how would one reasonably conclude that such an aspect of the universe exists at all? There are many such questions and difficulties for those who propose such a theory, but the goal here is to simply highlight a few of the prominent difficulties and to illustrate their contrariety in hopes of inviting a comprehensive response.

For scientific realists, antirealism fails from its conceptual outset, and this is certainly an important thing to note, but antirealism (specifically as it has been formulated by many in PM literature) has adverse practical implications for project management, on the grounds of which it likewise fails. To purport that there is a permanently unknown aspect of reality that [a] permeates projects, [b] can never be accessed or revealed, [c] is the source of unexpected problems for projects, [d] is never discoverable even in hindsight, and [e] may not be avoided but only somehow "existed with," results in the following conclusions: [i] rigorous planning of projects is futile, and [ii] assessing project failures in any comprehensive way is impossible. Any coherent adoption of either [i] or [ii] undermines project management, and certainly effective project management, almost entirely.

Assessing project failures, however, *is* possible. Detailed case studies are indeed produced, and analysis routinely points to sources of project failure based predominantly in scope creep and ill-defined project requirements, while accompanied by poor communication and poor management.[85] The Project Management Institute's 2017 annual *Pulse of the Profession* reported that in its sampling, 37% of project failures (referred to as "strategic initiatives") were due to "a lack of clearly defined objectives and milestones to measure progress," followed by 19% attributed to "poor communication."[86] Kharbanda and Pinto maintain that "one of the most obvious but overlooked early warning signs of

[85] Cf. Abbasi, Wajid, Iqbal, and Zafar, "Project Failure Case Studies and Suggestion," International Journal of Computer Applications (0975 – 8887) Volume 86 – No 6, January 2014, which highlights lack of senior management, unclear project objectives, scope creep, gaps in communication, and lack of visibility as "key reasons why projects fail."
[86] Pulse of the Profession, Project Management Institute (2017)

impending failure is the inadequacy of initial project planning."[87] And this is not a secretive revelation; it is the logical implication of any serious analysis. The antirealist project practitioner is in the predicament of making claims about a project while skeptically eschewing any means of perception or examination as regards the content of their claims. Of course, the antirealist project manager might reply to this that they of course admit to *some* ability to perceive and therefore can account *in general* for the elements of a project, but this then only begs the question of how one may know the difference between the parts of a project that are amenable to analysis and those which are not. This decidedly mystical employ seems to offer nothing more than a convenient patsy for project mishaps and failures of planning; a sort of "heads I win, tails you lose" algorithm that potentially exonerates the project manager and chocks any failures up to forces beyond any reckoning whatsoever. Such an approach may threaten the credibility of project management as a serious discipline, should its thinkers and exponents continue on such an antirealist tack.

Planning, like assessing project failures, is also possible. It is not only possible, but imperative and indispensable. According to Kerzner, "planning, in general, can be best described as the function of selecting the enterprise [i.e. project] objectives and establishing the policies, procedures, and programs necessary for achieving them."[88] In other words, to achieve a given goal G, it is necessary to account for all of the things $<T_1, T_2, T_3, T_n\ldots>$ necessary to achieve or comprise G. This is reckoned by the causal relations which obtain between events, based on the attributes of the objects involved, as discovered via scientific methods. I do not see any other way to think of or productively relate to the world, as

[87] Kharbanda and Pinto, p. 70
[88] Kerzner, p. 345

human cognition cannot be unlogical (to borrow a term from Wittgenstein via Ogden), though it does frequently make inferential connections which turn out to be existentially false. But then, false by what standard? The standard of reality; the standard of correspondence with facts, which are "constitutive properties of the world."[89]

It is obviously the case that all the planning in the world will not be sufficient to predict *all* the outcomes of *all* the processes involved in producing the deliverable or achieving the goal of a project, but this is only the case when the environment is not fully controlled and the processes involve the volitional actions of human beings as steps. In a fully-controlled environment where finely-tuned instrumentation carries out the necessary tasks, it is possible to predict a highly detailed future, as it were, with an equally high degree of certainty. So, it is possible in the physical world, in which we live and manage projects, to make a plan and to have it succeed. Well-planned endeavors succeed in the world all the time. There is, of course, no guarantee that plans will be carried out as intended, but this does not mean that planning is useless, futile, or misguided.

For example, if I decide to make a piece of peanut butter toast and then find upon reaching the cupboard that I have run out of peanut butter, it doesn't mean that some mysterious "unknown" and permanently undiscoverable aspect of the universe has reared its head and expressed itself in my situation. It means that I did not sufficiently prepare to make the toast by noting my dwindling supply of peanut butter. The necessary course of action is to go to the store and purchase more peanut butter and then to proceed with the processes necessary to achieve peanut butter toast. For the future, it means that I might need to be more diligent in the advance planning of my snacking habits. What it does not

[89] Englebretsen, p. 168

mean is that planning models for achieving the goal of peanut butter toast are futile and that the "existential disruption" of going to the cupboard and finding my peanut butter jar empty is an opportunity to make something else to eat—not when the desired deliverable is peanut butter toast. Of course I could make something else, but making something else is not the goal, and that option was already available at the outset.

Projects managed at a corporate level are much more involved than what it requires to make peanut butter toast, but the principle is the same. As Kerzner again states, "planning in a project environment may be described as establishing a predetermined course of action within a forecasted environment."[90] But, since variables and conditions within such a forecasted environment may change over the course of the project, "successful project managers realize that project planning is an iterative process and must be performed throughout the life of a project."[91] The entire point here is that as variables change, plans also need to change accordingly. To stop planning or to attribute poor planning (or failures to properly adapt plans over the life of a project) to forces beyond human control is unnecessary and without any coherent basis.

In my view, antirealism serves no positive purpose for projects and their management. Those antirealist project management practitioners or philosophers who wish to maintain otherwise, and to degrade scientific methods as merely one possible way of looking at a capricious, mysterious, and mystical universe, have quite a bit of explaining to do. Why do they plan at all? What is the purpose? How do they know when to stop planning because it is futile? How do they know that there is an "unknown" or "which is

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[90] Kerzner, p. 345
[91] Ibid.

not" that permeates anything, let alone projects? By what method do they discern this supposed part of the universe, which is impervious to sense organs and eludes logical analysis of any kind? Should project failures be assessed, and if so, then how? And how is it possible to know that a project has failed in the first place, since wouldn't such a determination involve some sort of counterfactual logic? If antirealists were to answer these questions productively (and by "productively" I mean in such a way that it allows those who are engaged with project management to interact efficiently with the world to achieve their existential goals), then they would find themselves, if not explicitly espousing realism, equivocating such that they would be functionally espousing realism without a clear verbal assent that fact. This is because realism is inescapable when carrying out empirical endeavors—or even most practical ones.

My advice, at the very least, is that every serious antirealist project manager get themselves fitted for a realist "thinking cap," even if they think that the milliners dealing in them are no more than mad hatters.