How to Make Analytic Science-Engaged Theology an ASSET

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Abstract: This paper explores the relationship between analytic theology and science-engaged theology through a historical lens, connecting contemporary disagreements between analytic metaphysicians and philosophers of science to a disagreement about philosophical method between Carnap and Quine. After discussing philosophical issues of meaning and verification in early positivism, the paper goes on to suggest that the analytic-synthetic distinction underlying much work in analytic theology is difficult to maintain when engaging with empirical methods of knowledge production such as science. To move forward, then, analytic theologians who wish to pursue science-engaged theology need a constructive methodology that embraces a blurring of the analytic-synthetic distinction. A rough sketch of one such research program, analytic-synthetic science-engaged theology, is offered as a potential ASSET for systematic theologians who wish to engage with natural and human sciences.

Keywords: Carnap, Quine, Analytic theology, Science-engaged Theology, Positivism

Introduction

A first gloss on the meaning of analytic science-engaged theology suggests a straightforward classification: it is theology that is both analytic and science-engaged. Of course, this approach doesn't get us very far, unless we can clarify the terms "analytic," "science-engaged," and "theology."

Defining theology is outside the scope of this paper, though it's worth drawing attention to the difficulty one would have in attempting such a project. While etymology advises that theology is, roughly paraphrased, the study of god, the norms regarding the methodology of this study, the proper outputs of such inquiry, and the nature of its object (that is, whether it is a being, a concept, or something else

entirely) are points of contention between various theological traditions. Of course, this sort of internal disciplinary disagreement is not unique to (or intended as a criticism of) theology—similar disagreements exist in most, if not all, academic disciplines—but it provides a context for understanding analytic theology as a particular theological approach.

But while analytic theology (AT) emerged, in part, as space for conversations between philosophers and theologians with a shared interest in approaching particular theological questions (such as the nature of the trinity and the incarnation) in a particular way (namely through the use of ``clarity and rigor'' in the articulation of views and the subjection of said views to logical analysis), a clear definition of analytic theology itself—or the commitments its members share—has proved difficult to articulate.[1] In the introduction to the first published volume of analytic theology, Rea is careful to note "the contributors and co-editors of this volume do not share a perfectly uniform vision about the nature of analytic theology, about the shape or relative import of the 'main' objections against it, or even about what one ought to do (if anything) to find a place for it in the Academy."[2] For Rea, analytic theology is "theology done with the ambitions of an analytic philosopher, in a style that conforms to the prescriptions that are distinctive of analytic philosophical discourse, and in dialogue with the literature of analytic philosophy."[3]

According to Rea, the ambitions of analytic philosophy are "(i) to identify the scope and limits of our powers to obtain knowledge of the world, and (ii) to provide such true explanatory theories as we can for non-scientific phenomena."[4] These ambitions are taken together with a distinctive stylistic approach, fleshed out in five prescriptions that pick out paradigmatic cases of analytic philosophy:

1. Write as if philosophical positions and conclusions can be adequately formulated in sentences that can be formalized and logically manipulated. (Sometimes writing this way may involve actually trying to produce such formulations; sometimes it may involve presupposing in what one says, or doesn't say, about the positions and conclusions one is discussing that such formulations are possible.)
2. Prioritize precision, clarity, and logical coherence.

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[1] Rea describes this history in (Rea 2021, 2).
[2] (Crisp & Rea 2009, 26).
[3] (Rea 2021, 3).
[4] (Rea 2009, 4-5).

3. Avoid substantive (not merely decorative) use of metaphor and other tropes whose semantic content outstrips their propositional content.
4. Work as much as possible with well-understood primitive concepts, and concepts that can be analyzed in terms of those.
5. Treat conceptual analysis (insofar as it is possible) as a source of evidence.

While Rea takes these ambitions to apply to analytic philosophy broadly construed, they better pick out a narrow tradition within analytic metaphysics. A number of mainstream philosophers who identify as analytic (and some who identify analytic metaphysicians) would deny one if not both of these ambitions and at least some of the stylistic prescriptions. I'll discuss this a bit more later in the paper. Nevertheless, Rea would not view this as problematic as he takes these aims and prescriptions to fix a rough characterization rather than a set of sufficient and necessary conditions for analytic theology; he further claims this characterization is "entirely methodological" and does not carry with it any substantive philosophical (or theological) commitments.

This emphasis on a purely methodological notion of analytic theology distinguishes Rea's view from other, more substantive conceptions. For example, both William Abraham and Bill Wood have defined AT as a particular subspecies of Christian systematic theology.[5] Oliver Crisp originally described AT as including substantive philosophical and theological commitments, in particular "the presumption that there is some theological truth of the matter and that this truth of the matter can be ascertained and understood by human beings (theologians included!), and an instrumental use of reason."[6] However, in later work, Crisp clarifies that these substantive commitments are not themselves constitutive of AT as a methodology—acknowledging that AT can be done with a variety of theological commitments—but a sociological fact about AT in practice.

Whether or not analytic theology is taken to have substantive philosophical (and or theological) commitments may turn on whether one is primarily interested in thinking of analytic theology as a social kind, a stylistic approach or as a distinctive (and *reliable)* method for producing constructive theology. Insofar as one is interested in the latter, it is hard to see how to justify the reliability of the rhetorical approach of AT without some further substantive commitments about, for example, the nature of knowledge and truth. As Crisp, Arcadi, and Wessling note

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[5] See (Abraham 2009) or (Wood 2021).
[6] (Crisp 2009, 35).

> We have seen that one of the central ambitions of analytic theology is to provide true explanatory theories on matters of the faith. This ambition, of course, naturally lends itself to conceiving of theology as truth-apt and truth-aimed.[7]

However, there are certainly philosophers and theologians who engage with AT that question or eschew some of these core substantive commitments but maintain a general adherence to the stylistic prescriptions.

For our purposes here, I take analytic theology to be a methodological approach to theology that (generally) follows Rea's ambitions and prescriptions. While this description of analytic theology requires no substantive commitments, I will follow Crisp, Arcadi, and Wessling in noting that a majority of analytic theologians tend to adhere to "some form of theological realism; some claim about the truth-aptness, and truth-aimed nature of analytic theology; and some claim about the importance of providing theological arguments for substantive doctrinal claims that reflect the sort of intellectual virtues and sensibilities prized by analytic theologians."[8] Later in the paper I will address whether substantive commitments become more (or less) relevant in the pursuit of analytic science-engaged theology.

Having sketched what it means for theology to be analytic, let us now turn our attention to the notion of science-engaged theology (SET). In *What is Science-Engaged Theology*, John Perry and Joanna Leidenhag claim that to practice SET is to "study narrowly-focused theological questions that are already entangled with scientific theories and findings."[9] Perry and Leidenhag do not take SET to be a theological school—such as AT or Radical Orthodoxy—but a supplemental toolkit that is friendly to a variety of theological orientations. To do science-engaged theology is to pinpoint the places where one's preferred approach to theology makes assumptions about the "empirical world" and engage with scientific research concerning the topic at hand. As a motto for the special issue, they offer a quote from Alvin Plantinga:

> The world as God created it is full of contingencies. Therefore, we do not merely think about it in our armchairs, trying to infer from first principles how many teeth there are in a horse's mouth; instead, we take a look.[10]

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[7] (Crisp et al 2019, 16).

[8] (Crisp et al 2019, 15).

[9] (Perry & Leidenhag 2021, 247).

[10] (Plantinga 1997, 18), cited in (Perry & Leidenhag 2021, 248).

This motto and description imply a picture in which theologians turn to science as a helpful fact-checking device to assist in theological bookkeeping. However, Perry and Leidenhag are quick to resist this view and highlight their awareness to its many problems. They deny that "theological ideas and scientific findings are easily disentangled or that disciplines exist in hermetically sealed bubbles," and insist "scientific findings both presume and require interpretation."[11] Science, they claim, should be conceived of as "a *source* for theology alongside Scripture, tradition, reason and experience."[12]

Elsewhere, John Perry and Sarah Lane Ritchie introduce Science-Engaged Theology as a willingness to engage with empirical science on its own naturalistic terms. They propose we "set aside methodology, just for a minute, and start with some particular claim that is at home in one or another specific subdiscipline, and then work out, as needed, points of methodology on an *ad hoc* basis. This would be Science-Engaged Theology."[13] A large part of this program, Perry and Ritchie urge, involves accepting that knowledge can be "verified" in multiple ways. They point to a quote from Edgar Brightman: "There is more than one kind of verification. Each science has its own concept of verification, which may differ from that used in another science. A mathematician verifies his results by one type of procedure, a physicist by another, an historian by another."[14] The science-engaged theologian is open to facts that have been empirically verified by the standards of science and integrates such claims into her theological picture. Perry and Ritchie appeal to a rather pragmatic view of knowledge, drawing an analogy to a swiss army knife.

> The point of our analogy is, like the famous knives, seeking knowledge involves a collection of different, well-defined tools . . . there are all sorts of questions that cannot be adequately answered except by using multiple tools. Swiss Army Knowledge enables us to see that the tools are different, but inseparable, at least for complex tasks.[15]

Given these characterizations of what it means for theology to be analytic and science-engaged, what should we make of analytic science-engaged theology? The science-engaged theologian will find places where theology intersects with empirical data and engage with the verified facts, using a pragmatic approach to

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[11] (Perry & Leidenhag 2021, 248).
[12] (Perry & Leidenhag 2021, 248).
[13] (Perry & Ritchie 2018, 1086).
[14] (Brightman 1937, 149), cited in (Perry & Ritchie 2018, 1071).
[15] (Perry & Ritchie 2018, 1087).

solve particular problems. But AT aims to "to provide such *true explanatory theories* as we can for *non-scientific* phenomena," calling for theologians to shift their focus *away* from the empirically entangled and aim at truth rather than pragmatic success. This puts forward a methodological tension. Are AT and SET non-overlapping magisteria?

For now, let us remain hopeful they are not. It's reasonable to suspect this tension is an oversimplification: even the question of what constitutes non-scientific phenomena presumably requires engagement with the empirical, and perhaps finding truth requires pragmatism. I suspect precisely these worries—and their history within the halls of analytic philosophy—surreptitiously influence the characterizations of both analytic and science-engaged theology found here. Within analytic philosophy, the metaphysical program generally associated with analytic theology and the pragmatic naturalism of science-engaged theology trace themselves to a common ancestor: Willard Van Orman Quine.[16] But despite sharing an ancestry, there is notable disagreement between these two schools. This, of course, raises the question of whether there is some legitimate tension in trying to combine AT—at least as it has been practiced so far—with the type of naturalism SET encourages theologians to embrace.

In what follows, I evaluate the potential of analytic science-engaged theology through a philosophical and historical lens. I begin by reconstructing a history of analytic theology that focuses on important work from the logical positivists about meaning and verification. I will argue that the program of positivism is surprisingly similar to a naïve conception of analytic science-engaged theology (despite disagreements over theism.) I then discuss one of the most significant *internal* criticisms to positivism, framed by the famous conflict between Rudolf Carnap and Willard Quine: namely, whether the analytic-synthetic distinction is a coherent oneNext, I sketch how Quine's denial of the analytic-synthetic distinction (and the influence of Saul Kripke) resulted in (at least) two very different and competing approaches to the role of conceptual analysis and rational reflection in philosophy. I then turn my attention to a few problems this history lesson raises for integrating SET and AT. It turns out there are legitimate tensions in these two conceptual frameworks, at least as they have been characterized so far. To pursue the integration of analytic science-engaged theology requires rethinking both approaches. Finally, argue that the only way forward for the analytic science-

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[16] Rea takes the project of analytic philosophy to be aligned with Quine (Rea 2009), as do philosophers of an empirical stripe. For more on this shared history see (Callender 2011) or (Price 2009).

engaged theologian is to embrace Quine's denial of the analytic-synthetic distinction and pursue instead an analytic-synthetic science-engaged theology.

The Road to Positivism is Paved with Analytic Science-Engaged Intentions

While analytic theology often traces its roots to the rise of Christian analytic philosophy in the sixties, that movement is merely one chapter in a much longer story. Perhaps a more natural starting point for this narrative is the discovery of the predicate calculus by Gottlob Frege (and Peirce, independently). Prior to the *Begriffsschrift*, it was common to believe "that no great advance [in formal logic] had been made since Aristotle, and that none, therefore, was likely to occur in the future."[17] However, the formalization of predicate logic brought a renewed hope in the search for the very nature of truth. In the words of Frege,

> All sciences have truth as their goal; but logic is also concerned with it in a quite different way: logic has much the same relation to truth as physics has to weight or heat. To discover truth is the task of all sciences; it falls to logic to discern the laws of truth.[18]

Armed with this new technical apparatus for tracking how truth moves through propositions, philosophers were in search of a way to latch on to true propositions about the empirical world; after all, logic itself, the early analytics thought, has no empirical content. In 1921, Wittgenstein published the *Tractatus Logico-Philosophicus*, which crystalized this view, and pointed towards a potential solution. As Richard Creath writes,

> Wittgenstein's no-content theory of logic suggested that all of the real claims, the ones that had genuine content, could be appropriately supported by experience, and the logical and hence mathematical claims had no content to support. This seemed to open the way for a thoroughgoing empiricism in which the logical and mathematical fit in with the ordinary claims of physics and biology in a harmonious way.[19]

According to Wittgenstein, truths about the world are verified by experience, and abstract truths are verified through analysis alone (without the need of experience.)

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[17] (Russell 2020, 434, originally published 1903).
[18] (Frege 1918, 351).
[19] (Creath 2021).

Therefore, to develop a true theory or description of the world, philosophers must find a reliable way to translate experience into language; once these truths of experience are represented, the laws of truth can be used to model their consequences.

Science offered a hopeful way for transcribing experience into a precise, technical language, given that it is, as Frege writes, also "aimed at truth" and (most philosophers assumed) verified by observation. Analytic truths are verified by logical analysis. A conjunction of these two types of knowledge might, they hoped, produce the rigorous, technical description of the world foreshadowed by the predicate calculus. These motivations (and others) fueled the philosophical movement known as logical positivism (also called logical empiricism.)[20]

Logical positivism was a diverse and shifting school of philosophy and cannot be adequately defined by any concrete set of assumptions or commitments. Nevertheless, it is almost always associated with some version of a verificationist criteria of meaning. The general idea behind verificationism, as summarized by Quine, "is that the *meaning* of a statement is the method of empirically confirming or infirming it. An analytic statement is that limiting case which is confirmed no matter what."[21] Statements which cannot be verified by experience or analytic proof are, according to the positivists, "meaningless metaphysics," a pejorative category which the claims of theology exemplify. The two main tasks of positivism were (1) generating rigorous, formal algorithms for turning our sensory experiences into propositions, and (2) further elucidating the movement of truth in language.

It is interesting to compare the ambitions and prescriptions of positivism with those described by Rea. The positivists share Rea's first ambition for analytic philosophy, "(i) to identify the scope and limits of our powers to obtain knowledge of the world," and while they also aim to develop true theories, Rea's metaphysician restricts her focus to explanatory theories of non-scientific phenomena while the positivists take scientific phenomena to exhaust the category of knowledge.

Additionally, conceptual analysis holds a very particular role in the empiricist program. Analytic truths, those true in virtue of meaning alone, are proven by means of conceptual analysis. However, the bulk of true theories involved claims with empirical content, and those require observational verification (at least in principle). Therefore, with synthetic truths, conceptual analysis is not used as

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[20] I treat "logical empiricism" and "logical positivism" as interchangeable terms, though this has been a topic of much debate. For a more thorough discussion of these two distinct but overlapping movements, see (Uebel 2013).

[21] (Quine 1951, 35, emphasis mine).

"evidence" but as tool to reduce complex empirical claims into raw observational components.

Such differences are symptoms of the core conflict between these two programs: while Rea describes philosophy as *aiming* at metaphysics (i.e. "explanatory theories of non-scientific phenomena,") the positivists denied that metaphysical questions were of genuine philosophical interest. Although contemporary analytic philosophers may take themselves to continue the naturalism of the early analytic tradition, the inclusion of (and focus on) metaphysical questions is not original to the project. Moreover, some say this shift is problematic and incompatible with the larger aims of philosophical naturalism. To evaluate whether this is correct and/or has implications for the pursuit of analytic science-engaged theology, it's important to retrace this philosophical shift.

Many claim it was Quine who, at the very least, pointed philosophers in a metaphysical direction.[22] Interestingly, even Rea cites Quine in his depiction of analytic philosophy.[23] The reason that Quine is considered the impetus of contemporary metaphysics has to do with his critique of Carnap's anti-metaphysical stance. But while some take Quine to have renewed metaphysical hope, others view him as the forefather of contemporary naturalism which often finds itself at odds with the aims of metaphysics. In the next section, I turn to this disagreement between Carnap and Quine, in the hopes that it will clarify some of the crucial methodological aims at stake in analytic science-engaged theology.

Speculating About Carnap, Quine, and Metaphysics

One of the most notorious dismissals of metaphysics comes from Carnap's paper "Empircism, Semantics, and Ontology." The critique arises in Carnap's later period, *after* he has given up his commitment to the construction of the *Aufbau*—a single deductive system which could represent the whole of knowledge—and embraced a framework pluralism grounded by the *principle of tolerance*. Carnap first introduced the principle in *Logic and Syntax of Language*:

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[22] For example see (Putnam 2004, 78-79) or (Price 2009).

[23] ". . . it will be mostly in the sciences rather than in philosophy that we will find the details of the grand explanatory theory that analytic philosophers are collectively (more or less) working toward. The contribution made by philosophers is precisely that of clarifying, drawing out consequences, and building theories that, as Quine puts it, 'fill out interstices of [scientific] theory and lead to further hypotheses that are testable'" (Rea 2009, 17).

> Principle of tolerance: It is not our business to set up prohibitions, but to arrive at conventions.[24]

Phrased as such, the principle itself sounds rather mysterious (especially in the context of a logic book.) A few paragraphs later, Carnap elucidates his view:

> *In logic, there are no morals.* Everyone is at liberty to build up his own logic, i.e. his own form of language, as he wishes. All that is required of him is that, if he wishes to discuss it, he must state his methods clearly, and give syntactical rules instead of philosophical arguments.[25]

One might notice a striking similarity between Carnap's description of frameworks and Perry and Ritchie's notion of "Swiss Army Knife Knowledge." There are all sorts of languages for interacting with the world—no need to try and unify them. However, Perry and Ritchie take this type of pluralism to be welcoming to metaphysics (and theology). After all, if we are all free to build a linguistic system of our choosing, why resist metaphysics? Isn't the metaphysician also entitled to build her own language?

Interestingly enough, Carnap's principle of tolerance is not in tension with—but actually the grounds of—the anti-metaphysical stance he takes in "Empiricism, Semantics, and Ontology." As Alan Richardson notes, "a plurality of formal, logical systems trains the philosopher's eye on the essential change of method urged by Carnap: the domain of philosophical enquiry is the logico-syntactic structure of linguistic systems. *No further deeper question about the relation of any such system to the antecedently and independently available world can be raised.*"[26]

Carnap's framework pluralism was deeply pragmatic. While he began with the hopes of finding a single, unified syntactical language, he came to believe (for largely technical reasons) that such a language does not exist.[27] The job of the philosopher, then, is not the development of one universal language, but the construction of

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[24] (Carnap 1937, 51).

[25] (Carnap 1937,52).

[26] (Richardson & Isaacson, 68, emphasis mine).

[27] Richard Creath has emphasized (personal discussion) that while Carnap began with an interest in a unified language, he never took such a language to bear some kind of direct correspondence with the world. Rather, he was always a Kantian and supposed humans shared a single linguistic lens through which the world could be represented. However, in later work, he no longer took this unfiied approach. One noteable reason for Carnap's shift was Gödel's incompleteness theorems, which suggest there cannot be a single language which contains all formal truths.

various linguistic frameworks; whether a particular linguistic framework ought to be used in describing some domain is a *pragmatic* question.

This picture led to Carnap's deflation of metaphysics in "Empircism, Semantics, and Ontology." Framework pluralism allows for two types of questions about existence: internal questions and external questions. Internal questions are just questions about what is happening within the framework. Do quarks exist? This is really a question about whether the term `quark' appears in the domain of our chosen language in a way that refers to experience. In Carnap's words,

> The concept of reality occurring in these internal questions is an empirical scientific non-metaphysical concept. To recognize something as a real thing or event means to succeed in incorporating it into the system of things at a particular space-time position so that it fits together with the other things as real, according to the rules of the framework.[28]

In addition to internal questions, we might ask external questions, such as whether the framework describes "reality." This is the sort of question Carnap takes "only philosophers" to raise. For Carnap, such questions are fundamentally mistaken. Although they are framed in the language of existence, what they really point to is "not a theoretical question . . . but rather a practical question, a matter of a practical decision . . . We have to make the choice whether or not to accept and use the forms of expression in the framework in question."[29] Therefore, to ask whether a particular framework describes reality is just to ask a pragmatic question about theory choice, not about some correspondence relation between that framework and reality.

It's worth noting the tension between Carnap's pragmatism and the view of theology as "truth-apt and truth-aimed" that Crisp et al. indicate. Carnap grants we can ask whether certain terms point to an integral part of the language we use to describe the world—the internal question of reality—but there is no further question about whether the language gets at "the real truth of things." This is a significant departure from the early vision of Frege, who thought science would provide us with truth and logic would allow us to model its consequences. Although the positivists in general—and Carnap in particular—attempted Frege's program with the utmost rigor, they discovered that the world did not conform to their vision. This led Carnap to a more pragmatic view, claiming the job of philosophers is to work out a variety of technical languages which lend themselves to the description of different phenomena.

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[28] (Carnap 1950, 22).
[29] (Carnap 1950, 23).

While Quine offers several critiques of Carnap's picture, the key move in favor of speculative metaphysics is his rejection of the analytic-synthetic distinction. According to Quine, the analytic-synthetic distinction is a central and problematic feature of the positivist program. It implies the carving up of "truth" into two general categories: statements which are true purely in virtue of their meaning (analytic) and statements whose truth depends on empirical facts and are verified by experience (synthetic). Quine rejects this division by questioning the very notion of analyticity; no facts, according to Quine, are true in virtue of meaning alone. All facts, including apparently analytic statements like "all bachelors are unmarried," are a contingent part of the language we use and as such are subject to potential revision if feedback from our experience requires it. As Huw Price writes,

> No issue is ever entirely insulated from pragmatic concerns about the possible effects of revisions of the framework itself. Pragmatic issues of this kind are always on the agenda, at least implicitly. In the last analysis, all judgements are pragmatic in nature.[30]

While Carnap assumes that we develop and justify the analytic framework of language independently—sequestered away from worries about the content of experience—Quine denies analyticity this privilege. Our entire epistemic framework is vulnerable to revision in light of experience. However, Quine maintains Carnap's more general pragmatism: this epistemic framework is an ever-evolving attempt to interact with nature rather than a perfect reflection of its metaphysical essence.

But how could a thoroughgoing pragmatism ground robust metaphysical disputes about "realism?" The short answer is: they don't. However, Quine opens a (restricted) space for metaphysics with respect to *internal* questions. Remember, on Carnap's view, the syntax of a language (the rules that govern its logic) are proven purely by analysis, independent of any empirical content. But on Quine's view, such logical rules and apparently analytic statements are themselves just as contingent as the facts of experience; deep internal adjustments to the linguistic framework are what Quine describes as metaphysics.

Additionally, Quine rejects Carnap's framework pluralism: it is not the case that there are a series of "pure" frameworks, but one, holistic framework. This further undermines Carnap's deflation of metaphysical questions to "external questions." As Craig Callender notes,

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[30] (Price 2009, 326).

> If Quine (1951) is right, then there isn't a sharp distinction between conceptual/linguistic truths and factual/contingent truths. This was bad news for the conceptual analysis that dominated philosophy at the time (since there would be no purely conceptual truths). However, it was good news for the possibility of metaphysics. The reason is that Carnap's notion of a framework presupposed the analytic-synthetic distinction. No frameworks, no framework pluralism – and no place to banish metaphysics.[31]

But while Quine blocks Carnap's attempt to annihilate metaphysics, his naturalized epistemology offers little justification for the robust metaphysical projects we see today. As Callender points out in the quote above, Quine salvages metaphysics at the cost of conceptual analysis.

This can hardly be seen as founding the sort of analytic program described by Rea. A further leap in establishing contemporary analytic metaphysics came from a renewed focus on modality, initiated largely by Saul Kripke's work on modal logic and necessity. As Callender quips, "Quine cleared the room for metaphysics, while Kripke furnished it."[32]

Around the same time Quine was developing his naturalized epistemology, positivism was falling out of favor in the academy for a variety of reasons. At this crucial moment in the history of philosophy, Kripke accomplished the impressive technical feat of developing a semantics for modal logic. This fueled a renewed interest in questions about possibility and necessity, and eventually provided new footing for conceptual analysis. The full story is a bit long and technical for this space, but here's a quick gloss.

Pre-Quine, positivists analytic philosophy played a unique role in the scientific program by unpacking the analytic truths of scientific language. Quine's critique called this into question. For Quine, there is no distinctive role for the philosopher because science and philosophy are entirely continuous. However, modal logic held promise for a new philosophical kingdom that fell outside the domain of science: questions of necessity. Necessary truths were perceived as wholly independent of empirical facts and therefore accessible by conceptual analysis alone. The role of the armchair philosopher was salvaged.

This renewed interest in "necessary truth" ushered in a new era for Christian analytic philosophy. While positivism's stipulated atheism left little room for Christian philosophical theorizing, questions of necessity and possibility naturally connect to longstanding traditions of Christian thought. Moreover, Kripke's modal

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[31] (Callender 2011, 35).

[32] (Callender 2011, 35).

semantics offered a new way to formalize old arguments about God as a necessary being, etc. It is no mere accident that the majority of early Christian analytic philosophy focuses on questions of divine *necessity*; the grounds for conceptual analysis as a source of evidence was inherently linked to modality.

Another key feature of the modal turn involved the role of essentialism—the view that objeccts bear a more intimate tie to some of their properties than to others. Quine famously criticized quantified modal logic, because he thought it required a commitment to essentialism, a view he found absurd. While most think Quine was wrong about the technical relationship between quantified modal logic and essentialism, there is a strong socio-historic tie between the rise of modal logic and the tendency to embrace an essentialist picture.[33] As Callender writes, "A kind of essentialism is resurrected. If water is actually H_2O, we are told, then it couldn't be anything else. The *couldn't* represents *metaphysical* necessity, and Kripke is credited with discovering a posteriori necessities."[34] Callender claims it is precisely the combination of modality and essence that undergird the contemporary picture of analytic metaphysics as "the science of essences," pointing to a quote from Lowe describing metaphysics as "a primarily *a priori* discipline concerned with revealing, through rational reflection and argument, the essences of entities, both actual and possible, with a view to articulating the fundamental structure of reality as a whole." It is this picture, it seems, that resonates with the vision of analytic philosophy (and analytic theology) Rea describes.

Of course, not all analytic philosophers are on board with this modal turn; many philosophers of science maintain a strong resistance to the newly emerging empire. These analytic philosophers also trace their history to Quine, arguably more consciously and directly, but the legacy they champion is less about speculative metaphysics and more about practice-based naturalism. Callender associates this trend in philosophy with the empiricism-forward approach described in Penelope Maddy's Second Philosophy. As opposed to Descartes' first philosopher, who searches for indubitable, foundational truth, the second philosopher "begins from commonsense perception and proceeds from there to systematic observation, active experimentation, theory formation and testing, working all the while to assess, correct, and improve her methods as she goes."[35] Like all other disciplines, philosophy of science is heterogenous in its approach, but many philosophers of science tend to emphasize scientific inquiry as a starting point for philosophical

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[33] Both Ruth Barcan Marcus and Terrence Parsons offered versions of quantified modal logic that seem to resist Quine's worry. See, for example (Marcus 1967) and (Parsons 1969).

[34] (Callender 2011, 36, emphasis his).

[35] (Maddy 2007, 2).

investigations. Some view the pursuit of philosophical knowledge as purely pragmatic—embracing the positivist attitude towards metaphysics—while others pursue metaphysical questions in a limited form, taking science (most often lower-level physics) as the grounds for all metaphysical inquiry.[36]

For the sake of clarity, I will refer to analytic philosophers who loosely follow Kripke as "the essentialists" and those who adopt some form of second philosophy as "empiricists." However, I introduce this terminology with a proviso about the limits of such classifications. Many essentialists take empirical enquiry quite seriously---after all, Kripke is credited with discovering *a posteriori* necessities which are necessary truths discovered through scientific activity. But the significant difference is that essentialists view these necessities, once discovered, as *metaphysical* truths, rigidly fixed, and suppose the modal (and metaphysical) implications of such discoveries can be hashed out by rational reflection. In contrast, philosophers of the empiricist stripe often resist a strong metaphysical interpretation of claims like "water is H_2O." This resistance varies in degree, but there is a general consensus that the structure and terminology used in scientific theories is at least partially dependent on contingent facts about the history of science (and scientists) and the logical implications of these terms are, like the rest of the theory, open to revision in light of further empirical investigation.[37]

Although both essentialists and empiricists identify the philosophical project with what Quine describes as "filling out the interstices of scientific theory," they interpret this project quite differently. For the essentialists, this means the philosopher pursues metaphysical questions of truth and necessity, often through conceptual analysis, leaving it to scientists to determine facts that provide clues about which possible world we occupy.[38] Empiricists, however, find this approach

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[36] For examples of science-based approaches to metaphysics, see (Ladyman & Ross 2009), (Ney 2012), and (Ney & Albert 2013).

[37] Examples of the variations in this view include Bas van Fraassen's (1980) constructive empiricism, according to which theories aim for empirical adequacy, Hasok Chang's (2012) active realism, which he describes as a "normative doctrine" according to which "science should strive to maximize our contact with reality and our learning of it, and Mark Wilson's (2008) view, a type of patchwork realism, which claims we can, in certain domains, construct very good word to world fits although this process usually involves very little conceptual analysis but relies instead on a variety of different empirical, mathematical, and linguistic tools.

[38] I have focused largely on the modal version of essentialism. However, Kit Fine has introduced, and there is a growing literature around, non-modal essentialism, according to which a thing's essence grounds its modal nature (rather than the other way around.) The general idea is that modal correlations are not fine-grained (pun intended) enough to capture essential dependencies. While this is a version of essentialism that is not explicitly modalist, both its motivation and articulation rely on the sorts of *a priori* modal arguments of discussion here, and I take it to be vulnerable to the same

incoherent, taking all knowledge---including modal knowledge---to be ultimately determined empirically. As Callender writes,

> Knowledge of the modal structure of reality, when based largely on reflection and intuition, potentially offends against much of what those in the second group believe. Naturalists will want to know how creatures like us gain reliable modal knowledge . . . [and] will not see a separate pathway to ontology apart from science.[39]

In this section I have sketched a distinction between essentialists who believe there is space for empirically-independent metaphysical inquiry via conceptual analysis and *a priori* reflection and empiricists who take all knowledge claims, even metaphysical ones, to be subject to revision in light of experience. I take *both* essentialism and empiricism to be categories of analytic philosophy from a historical perspective, finding a shared philosophical heritage in their common ancestry. However, I take analytic theology to be aligned primarily with the essentialist tradition while science-engaged theology embraces an empiricist approach. In the next section I will take up what this methodological divide implies in the context of analytic science-engaged theology.[40]

Tension and Hope for Analytic Science-Engaged Theology

While some may find the history I sketch here long-winded and tangential to the question of analytic science-engaged theology, others will be quick to note the many important threads I have left out. The history of analytic philosophy is rich and full of sundry significant developments; for example, I have not even ventured into subdisciplines like ethics where these questions play out quite a bit differently.

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empiricist worries. For Fine's articulation of the view, see Fine (1994, 1995)). For a helpful summary, see Mason (2021).

   [39] (Callender 2011, 37).

   [40] While both essentialism and empiricism are analytic traditions from the vantage point of philosophy, analytic theologians, in practice, have engaged almost exclusively with analytic philosophy of the essentialist stripe. This tendency is particularly apparent in Rea's claim that one of the ambitions of analytic philosophy is "to provide such true explanatory theories as we can for non-scientific phenomena." The empiricist philosopher will find herself confounded as to what might populate the category of "non-scientific phenomena," assuming that scientific phenomena just is empirical phenomena, and all knowledge is bounded by experience. While much of the focus on essentialist philosophy in analytic theology can be explained by socio-historic factors (e.g. Rea being from an essentialist tradition and spearheading much work in analytic theology,) I suspect it is no accident that essentialist philosophy found a natural home in certain theological traditions where knowledge of God is often seen as independent of (and perhaps even contrary to) experience.

However, the task at hand is sorting out analytic science-engaged theology, and this particular historical reconstruction helps clarify what's at stake in this venture.

What morals can we draw from this history? First, if analytic science-engaged theology requires transcribing scientific claims into "sentences that can be formalized and logically manipulated," this program was attempted before and met unresolvable complications. This was, after all, precisely the hope of the positivists. Additionally, analytic theology imports much of its approach from the branch of analytic metaphysics that views itself as the "science of essences," presupposing the world is populated by essences that can be determined via *a priori* reflection. Science, on the other hand, has had very little success in uncovering such essences—which is not to say that science has been unsuccessful.

This history also problematizes the picture of science-engaged theology depicted in the quintessential Plantinga quote, which insinuates science discovers contingencies like number of teeth in a horse's mouth. It's worth noting that this quotation perfectly depicts the top-down picture of the essentialist: philosophy (and/or theology) aim at the "necessary" while scientists busy themselves with the "contingent." But it's worth asking, on such a picture, who decides what counts as a 'horse' or a 'tooth'? Does 'horse' name a natural kind which we can access through reflection? Or do we learn about the concept of a horse—and how this concept interacts with other concepts—by observing the world and attempting to systematize that experience.

Perhaps the best way to bring this difficulty to light is Quine's famous illustration of the indeterminacy of translation. Suppose 'gavagai' is a term used by a group of speakers each and every time they see what an English speaker would dub 'rabbit'. It would seem, Quine points out, this implies 'rabbit' and 'gavagai' have the same meaning. The problem, however, is that "a whole rabbit is present when and only when an undetached part of a rabbit is present; and also when and only when a temporal stage of a rabbit is present."[41] Were an English speaker to translate this new language, she may wrongly assume that 'gavagai' has the same meaning as 'rabbit' even if native users of 'gavagai' take it to mean "temporal slice of a rabbit" or perhaps "undetached rabbit parts." Moreover, one could never resolve this failure to communicate by means of ostension alone—it requires fleshing out the entire conceptual framework within which 'gavagai' operates.

This poses quite the problem for the science-engaged theologian who aims to "start with some particular claim that is at home in one or another specific subdiscipline, and then work out, as needed, points of methodology." After all, how

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[41] (Quine 1969, 30).

is one to know what a claim at home in specific sub-discipline *means* without having some deeper understanding of the conceptual framework within which it operates? This problem only amplifies if one takes Perry and Ritchie's view that there are sundry independent conceptual frameworks which must be engaged for a single problem.

In the meantime, the analytic theologian may interpret Quine's worry as a bat signal over Gotham. If what's needed is the fleshing out of conceptual frameworks, who better to broach the task than she! This interpretation of Quine is precisely what drives the idea Quine reinvented metaphysics; Quine does take it to be the job of the metaphysician to work out and clarify these sorts of details. However, recall Quine does not take the ultimate end of this to be somehow unveiling a god's-eye-view of ontology by means of rational analysis, but one part of developing a predictive theory that is subject to empirical test.

Analytic science-engaged theology, then, faces a deep problem: if it takes on the essentialist commitments that have characterized analytic theology thus far, it is likely to saddle scientific terms with philosophical expectations that outstrip their proven empirical utility. Furthermore, it may suppose a distinction between the analytic and synthetic portions of theology which the history of philosophy has shown is us difficult to maintain. But perhaps this problem just means there is much work to be done. After all, a wise mentor once told me: "when we run out of problems, you run out of a job!"[42]

I think, here, the *other* legacy of Quine may offer some hope. Perhaps the analytic science-engaged theologian should adopt the empiricist approach of Maddy's "second philosopher" who begins with her experience and works towards systematic knowledge, all the while updating and improving her conceptual framework. For the confessional theologian, her "domain of experience" may include creeds, texts, traditions, and whatever else she is committed to; for the analytic science-engaged theologian, these sources will remain just as crucial to her systematic framework as scientific findings.[43] The goal of this second theologian, however, remains the same as the second philosopher: she wishes to organize and systematize the truths of her experience into a useful map for navigating the world.

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[42] Eternal thanks to Dr. Lincoln Lee for this bit of wisdom.

[43] Of course for Quine, scientific claims are themselves always on somewhat shaky ground. As Alyssa Ney puts it, "Quine argued for the equal footing of ontology and science by attacking the analytic/synthetic distinction . . . But he did this with the intended end result not of promoting ontological claims from the status Carnap assigned them, but instead by demoting scientific claims" (Ney 2012, 58).

This project requires both conceptual analysis and empirical test, but neither is seen as independent of the other.

But can the pragmatism espoused in this second theology be reconciled with the disposition of AT towards theological realism? While the second theologian may take seriously, for example, a commitment to particular creeds, the "ontological interpretation" of these creeds will not be fixed any more than the ontology of a rabbit is fixed by 'gavagai.' Is this a doorway into precisely the anti-realism many analytic theologians aim to avoid?

I don't think it has to be. While I grant that, for the pragmatist, language is not rigidly secured to an unshifting world of essences, there is still room for a mind-independent reality. Pragmatic realists, as I shall call them here, believe that their conceptual structure continuously improves through interactions with a world that is neither formulated in their imagination nor subject to their will; however, pragmatic realists deny that we come pre-equipped with the conceptual apparatus needed to navigate the complex structure of reality. As Mark Wilson writes,

> . . . the rotten element within Frege's exaggerated quest is not the notion of word/world correspondence per se, but the hidden assumption of classical invariance: the idea that when we learn the meanings of our words, we have thereby settled how all matters of correct use ought to be addressed. But this assumption is both wrong and foolish . . . the moral we should properly draw is that we can't achieve solid and useful word/world correspondence easily . . . Nonetheless, we can gradually improve our semantic lot considerably if we put a lot of hard (and variegated) work into the project over a long stretch of time.[44]

As Wilson points out, the pragmatist still aims to connect her language to a world that is distinct from her—and for the pragmatic realist theologian, this world will include a mind-independent God—but developing the concepts and syntactical framework needed for this connection is an ongoing project that involves a great deal of hard work: a project we might title analytic-*synthetic* science-engaged theology.

When described this way, the analytic-synthetic science-engaged theologian fails to embrace some of the aims and prescriptions of analytic philosophy—particularly the privileged role of conceptual analysis and the search for explanatory theories of non-scientific phenomena. She also rejects the presumption of SET that one can engage scientific findings on a case-by-case basis. Rather, the analytic-synthetic

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[44] (Wilson 2008, 621-622)

science-engaged theologian engages both science and theology holistically, and at deep conceptual and methodological levels.

For those who think their theological tradition rigidly fixes a particular ontology, analytic-synthetic science-engaged theology may seem too "constructive." On the other hand, the belief that doing theology may require adjustments to our conceptual framework as culture evolves is not at all foreign to systematic theology; in fact, some understand it as the heart of the theological project.

At the end of his attack on the analytic-synthetic distinction, Quine reflects:

> Each man is given a scientific heritage plus a continuing barrage of sensory stimulation; and the considerations which guide him in warping his scientific heritage to fit his continuing sensory promptings are, where rational, pragmatic."[45]

When held in a certain light, these musings reflect a secular version of *ressourcement* and *aggiornamento*; we return to the authority of our scientific heritage, updating it in light of experience in order to successfully engage in the world. For the confessional theologian, her heritage includes a broader tradition, which she continues to "rationally warp" to the demands of experience, with the hope of more firmly grasping truth. This process is not merely "analytic," but embraces the inseparability of analysis from its empirical context. In doing so, analytic theology is transformed into analytic-synthetic theology, which can then join with science-engaged theology to produce a new ASSET.

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[45] (Quine 1951, 43)

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