

DEARFT. To appear in *Zygon: Journal of Religion and Science*.

ISLAM AND SCIENCE:

THE PHILOSOPHICAL GROUNDS FOR A GENUINE DEBATE

by Ali Hossein Khani

Abstract

What does it take for Islam and science to engage in a genuine conversation with each other? This essay is an attempt to answer this question by clarifying the conditions which make having such a conversation possible and plausible. I will first distinguish between three notions of conversation: the trivial conversation (which requires sharing a common language and the meaning of its ordinary expressions), superficial conversation (in which although the language is shared, the communicators fail to share the meaning of their theoretical terms), and genuine conversation (which implies sharing the language and the meaning of ordinary as well as theoretical terms). I will then argue that our real concern with regard to the exchange between Islam and science is to be to specify the conditions under which their proponents can engage in a genuine conversation with each other and that such a conversation to take place essentially requires sharing a common ontology. Following Quine, I will argue that Muslims, like the followers of any religion, would have no other choice but to work from within science. Doing so, however, would not prevent Muslims from having a genuine conversation with the proponents of other worldviews because when the shared ontology fails to offer any potentially testable answer to our remaining questions about the world, the Islamic viewpoint can appear as a genuine alternative among other underdetermined ones, deciding between which would be a matter of pragmatic criteria.

Keywords: Donald Davidson; Islam and science; naturalism; Willard Van Orman Quine; underdetermination

1. Introduction

The relationship between Islam and science, especially with regard to what such a relation has been and how it should be, has been under investigation for many years. The question as to what the relationship between Islam and science is, or has been, is a (descriptive) question

which concerns the historical relationship between the two, while the second question, that is, how such a relationship should be, is a different (normative) one. The main purpose of my essay is to deal with this second question. I will argue that in order for a genuine conversation between Muslims and scientists to take place, certain conditions should be met, the most important one of which is sharing the meaning of the theoretical terms they employ in their theories, as well as a common ontology. In order to argue for this claim, I will use a variety of theses from important analytic philosophers, such as Ludwig Wittgenstein (d. 1951), Willard Van Orman Quine (d. 2000), Donald Davidson (d. 2003), Saul Kripke (b. 1940) and Hilary Putnam (d. 2016). Following Quine's remarks on underdetermination and naturalism, I will argue that such an ontology has to be naturalistic. However, this ontological commitment, I will also show, does not imply that Islam cannot appear as a genuine alternative worldview. My discussion in this article, thus, is first of all *semantical* and then *ontological*, rather than epistemological. I will not be concerned with scientific versus religious methods of inquiry. I would mostly focus on what it takes, semantically and ontologically speaking, for two groups of people to have a genuine conversation on a subject matter, rather than the methods and justifications they may employ to explain or investigate it. Two people may reach the same conclusion using different paths of reasoning and sets of evidence, as, for instance, they may reach a destination using different forms of transport. What matters, however, is that they *intend* to reach the same destination. Nor will I intend to engage in a long discussion of the historical relationship between religion and science. Rather, I will focus on the requirements for having a genuine *disagreement* between the two. Also, I will not, primarily at least, make any claim about what sorts of ontology are to be preferred, though, following Quine's remarks on naturalism, I will then argue that we have no other way than to work from within science.

I will distinguish between three notions, "trivial," "genuine," and "superficial" conversations between the proponents of Islam and science – conversations, as we may all agree, take place between people, rather than worldviews, ideologies, or paradigms. In its trivial sense, anyone can succeed in having a conversation with another simply by sharing a common language, that is, if they are capable of making well-formed simple and complex expressions in that language (i.e., if they have acquired command of the syntax of the language) and sharing the meaning of its ordinary expressions (commanding the semantics of the language). It can even establish between two people speaking different languages if they are capable of translating (and hence understanding) the expressions of each other. Although such sharing might naturally be taken to be necessary for the existence of any sort of linguistic communication between two people,

it certainly is not *sufficient* if our concern is the requirements of forming a serious conversation between Islam and science. One may call such sorts of conversation a “debate,” through which alternative explanations and descriptions of the world can be offered. In order to form a genuine conversation, or a debate, not only should the debaters share a language and the meaning of its ordinary expressions, but they should also intentionally and knowingly share the meaning of their basic *theoretical* or *technical* terms, such as those of “real,” “universe,” “object,” “evidence,” “proof,” “cause,” and so on. In a superficial conversation, however, the communicators allegedly think they are using similar theoretical terms, or using them similarly, but they really mean different things by them because such terms are applied to, and hence linked with, different sorts of things throughout the world. They have failed to intentionally share the meaning of their theoretical terms. This conception of a conversation can lead to a dangerous sort of relativism about concepts and truth since the question then arises as to whether we are talking about the same things, possessing the same concepts, and entertaining the same thoughts when we use such theoretical terms. This relativism is destructive because it would block the path to any serious dialogue between Islam and science. This danger and the urge to avoid it motivate the importance of explaining the conditions under which a genuine debate can emerge. In order to avoid the unwelcome relativism, we need to be assured of being speaking of the same things in a common world. Otherwise, we really are talking about different things—as if we are living in different worlds—so that one point of view to describe the world may remain completely incomprehensible to the other. The complexity of clarifying such preconditions makes it difficult to imagine how a genuine debate between Muslims and scientists can take place.

This problem would be sharpened once we consider the relation between a genuine debate and a genuine disagreement. A genuine debate depends on the possibility of the emergence of a genuine disagreement. Otherwise, either we agree on all that is at issue or we have a superficial conversation since, instead of being in a disagreement about the same thing, we talk about different things. The emergence of such a genuine disagreement essentially relies on a background of *agreement* on many things, among which agreement on the meaning of our words and the things we apply them to is salient. Otherwise, again, it would just *seem* to us that we are engaging in a genuine conversation, while we are not—a doctrine which has been developed by Wittgenstein and Davidson.¹ In other words, it just seems to us that we are

¹ As Wittgenstein puts it in his discussion of rule-following, for a solitary person who has never had the chance of checking with others whether her responses agree with theirs, there would be no such thing as using a word correctly or incorrectly and hence no meaning at all: “to *think* one is obeying a rule is not to obey a rule. Hence it

successfully communicating with each other via using a certain string of words to talk about a certain sort of thing, while the appearance of success can simply be explained to be a matter of using a common language. But by a debate, a genuine conversation, we intend to go beyond this trivial sort of having a conversation. Nor can a superficial conversation be what we are after because how can we genuinely disagree on something if we lack an agreed-on criterion to evaluate whether we are talking about the same thing? We need a fixed point, relative to which our disagreement can be measured.² In this sense, sharing what we mean by our theoretical terms, which requires sharing a common ontology, would turn into an essential feature of the sort of genuine conversation we are looking for.³

2. On Conversation, Meaning, and Agreement

In its most general sense, a “conversation” can be taken to be the process of exchanging a certain sort of content or thought between (at least two) people by means of a language. It is a form of linguistic interaction or communication about a certain sort of subject matter. In fact, one should bear in mind that the sentences and expressions we utter are nothing but the physical products of human beings, a series of written or acoustical items. As Davidson puts it, “indeed, we all talk so freely about language, or languages, that we tend to forget that there are no such things in the world; there are only people and their various written and acoustical products” (1992, 108). A form of words, in one language, can be meaningful and, in another, meaningless: “Schnee ist weiss” is meaningless in English, but meaning something specific, i.e., *snow is*

is not possible to obey a rule ‘privately’: otherwise thinking one was obeying a rule would be the same thing as obeying it” (Wittgenstein 1953, §202). For such a person, there is no distinction between what seems right to her and what is actually right independently of what she thinks. Wittgenstein puts this problem in the form of a paradox: “This was our paradox: no course of action could be determined by a rule, because every course of action can be made out to accord with the rule. The answer was: if everything can be made out to accord with the rule, then it can also be made out to conflict with it. And so there would be neither accord nor conflict here” (§201). See also Davidson (1992, 116) and Davidson (1994, 119).

² This is the paradox which seems to lie behind the idea of conceptual (and truth) relativism. As Davidson puts it, “the dominant metaphor of conceptual relativism, that of differing points of view, seems to betray an underlying paradox. Different points of view make sense, but only if there is a common coordinate system on which to plot them; yet the existence of a common system belies the claim of dramatic incomparability” (1974, 6). Hence, we need a fixed-point, such as an agreement on meaning and ontology, and once we find it, the danger of relativism seem to vanish.

³ This is one reason why I think we should not start our inquiry into the relationship between Islam and science by an investigation of the relation between the Islamic versus scientific methods. I think the relationship between Islam and science needs to be revisited and revised, but it would be wrong to start such a revision by reconsidering the relationship between their methods and approaches. Rather, I believe, the discussion of methods and approaches would arise only after we settle on the question when Islam can be considered as a genuine alternative worldview.

white, in German. Sentences and expressions employed by the users of a particular language are supposed to be meaningful, conveying a certain sort of information. What gives these linguistic items meaning? There is a long history of discussion with regard to what makes an utterance meaningful and what such a meaning is—from Frege, Russell, Wittgenstein, Strawson to Quine, Grice, Davidson, Dummett, Kripke, and others. The limitations of space do not permit me to discuss such different views in this essay and we do not need to do so. Rather, we can simply agree on the (Davidsonian) claim that the meaning of an uttered sentence is the content or the thought which the speaker of a language intends to convey in her conversation with others. Such a meaning can be captured in the conditions under which the sentence is or would be true, that is, its “truth-condition.” This in turn implies that understanding a sentence depends on knowing under what conditions the sentence would be true. As Davidson says, “to give truth conditions is a way of giving the meaning of a sentence. To know the semantic concept of truth for a language is to know what it is for a sentence — any sentence — to be true, and this amounts ... to understanding the language” (1967, 310). For instance, the sentence “It’s snowing” as uttered by me at time *t* is true if and only if it’s snowing around me at *t*. When I utter the sentence “It’s snowing,” I want to convey or communicate the thought *that it’s snowing*. Therefore, we understand each other’s utterances if we understand what information this utterance is conveying or what thought the speaker intends to share with us by using that sentence.

Moreover, since each term or sub-sentential part appears in many different sentences, it follows that “only in the context of the language does a sentence (and therefore a word) have meaning” (Davidson 1967, 308).⁴ Meanings are holistically interrelated. Understanding the meaning of “snow is white” depends on understanding the semantic properties of its parts and the way they are put together to construct a well-formed sentence in that language. For instance, the terms like “snow,” “trees,” “Michael,” and so on have reference as their semantic property: they refer to a certain sort of thing, such as a person, an object, or a group of them; hence when I use the word “snow,” I am talking about a certain sort of thing in the world, that is, snow. Similarly, when I utter “Jones is a good person,” by using the name “Jones” I intend to talk about a certain person, Jones. The predicate “... is white” is also true of certain things only: it is satisfied by white objects. Such objects fall under the *extension* of this predicate. Thus, in understanding what “snow is white” means, we understand that a certain sort of thing, snow,

⁴ In a similar way, Quine also believed that “the unit of empirical significance is the whole of science” (Quine 1951, 39).

has a certain sort of property, being white. Philosophers sometimes say that meaning is *normative*: the term “snow” is used *correctly* only if it is applied to certain things and not to others, just as “is white” is satisfied by a certain class of objects. As Boghossian famously puts it, the normativity thesis states that “meaningful expressions possess conditions of *correct use*” (1989, 148). We can say the same thing by using the notion of rules. There are certain rules governing the application of our words: we are not free to use words in whatever way we may; rather, if “snow” means *snow*, then applying “snow” to a table is *wrong*. Our expressions are meaningful if they are used correctly, in accordance with certain rules. Otherwise, they do not mean what they are supposed to do. This is generally a Wittgensteinian view, which is supported by, for instance, Dummett and Kripke.⁵

Now if there was no such thing as snow in the world, either we had no word for it to use in any sentence (simply because we did not have such a concept) or we had no reason to think that a sentence with “snow” in it has any truth-condition and hence any meaning at all. There is, in other words, an important connection between our language and the world, our linguistic expressions and the things in the world to which we apply them. Learning a first language naturally starts by “ostensive learning,” the process through which we learn how to use our words via ostension.⁶ As Wittgenstein says, “when they (my elders) named some object, and accordingly moved toward something, I saw this and I grasped that the thing was called by the sound they uttered when they meant to point it out” (1953, §1). In this process, “I gradually learnt to understand what objects they signified; and after I had trained my mouth to form these signs, I used them to express my own desires” (1953, §1). This is the process through which the basic link between language and the world is established. These issues lead to the discussion of ontology, of what there is, since, as previously indicated, our languages’ expressions, at least in the most basic cases, are linked to and are supposed to be about certain objects and events in the world, that is, the things we take the world to contain. Only after such a connection is established, can we use them to express our feelings, intentions, desires, and so on. As Russell puts it, “all thinking has to start from acquaintance; but it succeeds in thinking *about* many things with which we have no acquaintance” (1905, 480).

Therefore, in order for someone, my hearer, to understand what I mean by my utterance, s/he should be able to at least recognize the things to which I applied my uttered words. Unless my

⁵ See Dummett (1986, 474), Dummett (1996, 98, 116, 160), and Kripke (1982, chapter 3).

⁶ See, for example, Wittgenstein (1953, §§1–6, 257) and Davidson (2000, 13–14).

hearer understands that by “Jones” I mean a specific person, *Jones*, and not anything else, she fails to have a successful communication with me, a communication which is about Jones. In order to conduct a successful conversation with someone else, the meaning of our words must be shared. This claim does not necessarily lead to the conclusion that we all need to mean the same thing by the same word. Rather we need to *agree on* and hence *understand* what the other intends her utterance to mean or to be interpreted: “What must be shared is the interpreter’s and the speaker’s understanding of the speaker’s words” (Davidson 1986, 96). Davidson’s “interpersonal view”⁷ of meaning and understanding concentrates on the way in which an individual speaker speaks and intends to be understood by another person. What is basic for Davidson is that the speaker is understood in the way she intends her utterance to be understood. Kripke, however, believes that we cannot decide whether one’s use of words is correct—and hence whether her utterance is meaningful—unless we share a similar way of applying words, that is, unless we follow the same rules for the use of our words: “each person who claims to be following a rule can be checked by others. Others in the community can check whether the putative rule follower is or is not giving particular responses that they endorse, that agree with their own. The way they check this is, in general, a primitive part of the language game” (Kripke 1982, 101). According to this view, a speaker in order to mean something specific by her utterance must conform to the way her speech-community uses the words. Although the views mentioned above differ in detail, they all share a common point; they all take speaking a language to be essentially a social activity, in the sense that the existence of a certain sort of agreement between the communicators is fundamental to the existence of any successful communication between them, agreement on the way they respond to the world. Sharing a common ontology, a common set of entities, is essential to the existence of such linguistic practices. Our *disagreement* on whether something has a certain property is grounded on a background of *agreement on*, among others, whether there is such a thing in the world. In a similar vein, Davidson clarifies the notion of irrationality as follows:

the possibility of irrationality depends on a large degree of rationality. Irrationality is not mere lack of reason but a disease or perturbation of reason. (1982, 99)⁸

The same is true in the case of the possibility of disagreement on a subject matter; unless we agree on many things, we cannot disagree on a certain thing.⁹

⁷ See Verheggen (2006, 203). See also Hossein Khani (2020).

⁸ See also Davidson (1999, 125).

⁹ The notion of disagreement has been the subject of many philosophical discussions,

3. Primitive, Superficial, and Genuine Conversations

We already discussed how understanding the speech of others depends on sharing the meaning of their words and sharing a common world or ontology with them. People communicate with each other on a variety of issues, from ordinary to complex ones. A trivial conversation is the one in which any two persons sharing a common language can communicate with each other on ordinary, everyday issues. You and I utter “It’s snowing.” We understand each other because we both use the ordinary words of our common language in a similar way. Having such a conversation does not depend on the interlocutors’ religious, moral, political, or economical viewpoint. A theist and an atheist both can make assertions about how cold the weather is, how far a destination is, and what color an object has. Ordinary communication depends on following similar rules governing the application of our ordinary words, such as “green,” “table,” “cold,” “white,” and the like. The ability to engage in a trivial conversation is vital: our lives depend on it. As Kripke says, “our entire lives depend on countless such interactions, and on the ‘game’ of attributing to others the mastery of certain concepts or rules, thereby showing that we expect them to behave as we do” (1982, 93). Once we are accepted by the members of a speech-community as a reliable user of their language, we can then live in that society, buy things, sell things, learn things, and so on.

When our concern is success in engaging in a genuine conversation, or a debate, between the advocates of two different disciplines arguing for their theoretical competence to explain a specific subject matter, the ability to establish a conversation in its trivial sense does not suffice for such a debate to proceed successfully and for a real disagreement between them to emerge. The most important part of such a debate is agreement on the use of *theoretical terms*. Debates are the sort of conversations in which the debaters either try to argue against the other party’s view or attempt to defend their own alternative one. If it is so, then we need a deeper and more fine-grained notion of success in communication since in ordinary communications theoretical terms are not normally used or if they are used, they are not employed in a way clearly defined by the experts: when *I* say the universe is huge and when an *astrophysicist* says the same thing, our understanding and definitions of “the universe” differ dramatically. What is crucial for my debate with such a person and the emergence of a genuine disagreement with her is whether

especially in political philosophy. On this, see, for example, Pittard (2019), Loughheed (2020), Machuca (2012), Kraft (2012), and Matheson (2015).

we share the same meaning of these terms, such as “space,” “time,” “gravity,” “cause,” “fact,” “nature,” “evolution,” and so forth, and whether we agree on what the universe is and includes. In ordinary conversations, even if we intend to use such terms, we at best take for granted a sort of standard, “dictionary-based” meaning for them. For instance, an “object” is defined as “a thing that can be seen and touched, but is not alive” (Oxford Dictionary Online). As we will see, some Polish logicians would not agree with this definition. Or “reality” is defined as “the true situation and the problems that actually exist in life, in contrast to how you would like life to be” (Oxford Dictionary Online). David Lewis (largely known as a modal realist) would certainly disagree. For Lewis, the possible worlds or “the other worlds are of a kind with this world of ours” (Lewis 1986, 2). Nonetheless, he refers to an important remark which is related to our discussion of the essentiality of sharing meaning and ontology. According to Lewis, since he believes that other (possible) worlds are as real as our world, “doubtless you will expect me to say that possible worlds and individuals are concrete, not abstract. But I am reluctant to say that outright. Not because I hold the opposite view; but because it is not at all clear to me what philosophers *mean* when they speak of ‘concrete’ and ‘abstract’ in this connection. Perhaps I would agree with it” (Lewis 1986, 81; emphasis added). Lewis’s point is that unless we reach an *agreement* on what such theoretical and technical terms mean, we cannot decide whether we are on board with each other on a claim. We use these terms in ordinary conversations with a general meaning in mind; we are not concerned with their technical meanings or definitions. Ask a physicist: “Isn’t it true that the whole universe is an object?” He will probably reply by “What do you mean by an ‘object’?” You would face the same question if you ask a theologian: “Isn’t it true that the God is an object (entity) after all?” What determines the meaning of these terms is related to the ontology we work with.

In genuine conversations, we expect theoretical terms (and ordinary terms used in a particular technical way) to be clearly defined and understood. The starting point of such debates is an agreement on such definitions since it is only by having such an agreement in the background that a real disagreement may emerge. The lack of this agreement leads to a superficial conversation, an alleged debate in which it just seems to the contributors that they talk about the same thing and understand what the other means by the terms, while they actually do not. Regardless of their intention to do so, no genuine disagreement between them can emerge *because* they have failed to form an agreement on what the theoretical terms they use mean. One may insist that “evolutionary biology aims to convince us that, on the basis of a certain sort of evidence, our ancestors were all monkeys” and the other may insist that “there is no

evidence to prove that we are all descendants of Eve.” They use the term “evidence,” but do they mean the same thing by it? A genuine debate starts by agreement on meaning and ontology. The facts which each ontology allows for would count certain things as “evidence.” Identifying a concept as the concept it is, such as the concept of “evidence,” relies on the type of application conditions we have for it: a “chair” is the concept it is partly because it is (as intended by the speaker) applicable to certain things only (i.e., chairs) and not to other things. But, as Davidson adds, if we have two radically different criteria, rules, or application conditions for using the (supposedly) same concept or expression, or “if what is apparently the same expression is sometimes correctly employed on the basis of a certain range of evidential support and sometimes on the basis of another range of evidential support (or none), the obvious conclusion would seem to be that the expression is ambiguous” (Davidson 1987, 16). Although Davidson’s concern here is the application of mental terms (such as “x believes that”) and the problem of self-knowledge, his remark is quite general. As he continues, “if it is ambiguous, then there is no reason to suppose it has the same meaning when applied to [something] that it has when applied to another” (1987, 16–17). We need to avoid such ambiguities: we need to agree on the application conditions of our theoretical terms if we are to have a genuine debate on a subject matter at all. Once such an agreement emerges, there is room for a genuine disagreement between us to appear.

4. On Relativism

What if we fail to share meanings? What if we take the world to consist of seriously different objects? Let me answer this question by appealing to Putnam’s famous example about ontological relativism. Imagine a world in which there are three individual objects, x_1 , x_2 , and x_3 . How many *objects* are there in this world? The answer seems to be obvious: there are three individual objects. Hence, Putnam says, as we know—that is, as we agree on—what “objects,” “individuals,” and the like mean, “we can identify ‘individual’, ‘object’, ‘particular’, etc., and find no absurdity in a world with just three objects which are independent, unrelated, ‘logical atoms’” (1987, 70). As a result, we seem to be able to communicate with each other about these objects: we can say “there are three objects,” “there it is x_1 ,” “look at x_2 and x_3 ,” “ x_1 is blue,” “ x_3 moves fast,” and so forth. When we utter that “ x_1 is blue,” what we mean is that x_1 is *blue* and we are both talking about, and referring to, x_1 as one of those three individual objects.

What we mean by these utterances and whether they are true or false is related to the ontology we accept: our utterance of “there are three objects” is true if and only if there are three objects.

Putnam, however, contends: “But there are perfectly good logical doctrines which lead to different results. Suppose, for example, like some Polish logicians, I believe that for every two particulars there is an object which is their sum” (Putnam 1987, 70). Let us use the notion of a “set” here. According to such a Polish logician, for example, Stanisław Lesniewski (d. 1939), for every two objects there is a new object consisting of the set of the two. Now, again, how many *objects* are there in this world? Putnam replies, we “will find that the world of ‘three individuals’ ... actually contains *seven* objects” (1987, 70). The world now consists of x_1 , x_2 , x_3 , $x_1 + x_2$, $x_1 + x_3$, $x_2 + x_3$, and $x_1 + x_2 + x_3$. You may even be among those logicians who believe that there is also a “null object” (or, say, a “null set”), in which case the world consists of *eight* objects. It seems as if we live in different worlds containing different objects. Thus, it appears that there is no determinate answer to the above question and the reason, as Baghramian puts it, is that “any reply would depend on how we *interpret* the word ‘object’” (2004, 183; emphasis added). This example summarizes the main point in my discussion of superficial versus genuine conversations, the significance of sharing meanings of our theoretical terms, and their relation to the ontology we concede. The word “object” can be *interpreted* differently. You may take the term to apply to different things; you may follow different rules regarding the application of this term and thus *mean* different things by it; all this *depends on* your ontological standpoint. Failing to share the same set of concepts, by which we organize, predict, and explain the world, leads to a dramatic failure in communication and understanding. Conceptual or ontological relativism in this sense implies that there can be different conceptual schemes, that is, different sets of interrelated concepts, in each of which a term may mean different things or none and our sentences may have different truth-conditions or no truth-condition at all. Such a set of concepts, or conceptual schemes, can be taken to be embodied in our languages, in our total theories of the world, or in our basic sets of beliefs. Those who think there are three objects have a different set of beliefs and a different theory of the world from those who believe that there are eight objects. This is the reason why conceptual relativism can be called semantical, ontological, or cognitive relativism.

Conceptual relativism deals with the relation between the subject and the world. Subjects, in this context, are rational beings with linguistic abilities to speak and to understand the speech of others. To be rational is to have a rich set of propositional attitudes, such as beliefs, desires, and intentions: “to be a rational animal is just to have propositional attitudes” (Davidson 1982,

318). Propositional attitudes are also holistically related: “one belief requires many beliefs, and beliefs demand other basic attitudes such as intentions, desires, and, if I am right, the gift of tongues. ... The intrinsically holistic character of the propositional attitudes makes the distinction between having any and having none dramatic” (Davidson 1982, 318). For Davidson, in order to have such a rich set of beliefs, the subject needs to have a language, that is, to be in linguistic communication with others like herself. As he says, “rationality is a social trait. Only communicators have it” (Davidson 1982, 327).¹⁰ Given these points, the relativist’s claim would be that the world is divided, categorized, organized, or carved up by the subject’s set of concepts or conceptual schemes and “conceptual schemes ... can differ massively — to the extent of being mutually unintelligible” (Davidson 1988, 39–40). There can be incommensurable sets of concepts, beliefs about the world, theories of the world, points of views, or untranslatable languages.

Whether or not the existence of radically different conceptual schemes is intelligible is a matter of controversy. For instance, Wittgenstein seems to believe in such a relativism when he says “if a lion could talk, we could not understand him” (1953, 225). Davidson thinks that “we cannot intelligibly say that schemes are different” (Davidson 1974, 20).¹¹ I do not intend to engage in such a discussion here. Rather, we can agree that if our conceptual schemes, languages, or theories of the world were radically different, we would not be able to understand each other. If we fail to share a common conceptual scheme — or a common language (in the sense of sharing the same rules governing the correct use of our theoretical terms), the same theory of the world (in the sense of a total theory which tells us what exists in the world and how they interact), or a similar set of basic beliefs about the objects and events in the world— we would fail to have any genuine conversation with each other and surely no genuine disagreement between us would emerge.

In order to keep our distance from such unwelcome consequences of relativism, we need to agree on or share meanings and thereby the same ontology. We can then claim that two groups of people who share the same language or conceptual scheme can at least have a conversation in its trivial sense since they have shared the meaning of their language’s basic expressions. If they intend to engage in a serious debate on a subject matter, they have to share what their

¹⁰ For Davidson’s (triangulation) argument for this claim, see, for example, Davidson (1982, 1992, 1999). For similar views, see also Wittgenstein (1953), Dummett (1996), and Kripke (1982).

¹¹ For different discussions of relativism and its intelligibility, see, for example, Putnam (1987), Goodman (1996, 1978), Quine (1969), Malpas (1989), Bar-On (1994), Child (1994), Ricketts (2011), Baghramian (2004), and Baghramian and Coliva (2019).

relevant theoretical terms mean too. Our Polish logicians, who share the same conceptual schemes—that is, divide and organize the world in the same way—and use their theoretical terms, such as “object,” in the same way, would understand and successfully communicate with each other. I think this remark from Davidson can nicely sum up our discussion in this part:

To understand the speech of another, I must be able to think of the same things she does; I must share her world. I don't have to agree with her in all matters, but in order to disagree we must entertain the same propositions, with the same subject matter, and the same concept of truth. Communication depends on each communicator having, and correctly thinking that the other has, the concept of a shared world, an intersubjective world. (1982, 327)

In order to have a genuine debate on a subject matter, we need to work from *within* the same theory, ontology, or language.

5. Ontological Preference, Naturalism, and Underdetermination

The difference between Islamic and scientific ontologies is clear. The first one takes the world to include not only the physical, but a variety of spiritual entities, while the latter conceives it as containing mostly physical entities (plus some specific abstract ones such as sets for specific theoretical and explanatory reasons). A total theory of the world aims to explain how the world, nature, or the universe works, what sorts of laws there are and how they govern it, how it is structured, how different objects and events interact, and so on and so forth.

In general, there are two ways of evaluating such theories. We may have some objective criterion to appraise the success (or failure) of such theories in accomplishing their goal—which is, we may agree, to offer a plausible (and one may add, true) description of the world. Such a criterion can be taken to be the theory's success in predicting the world and its being constantly supported by the data or evidence we can collect from the world. Depending on the theory and the sort of things it aims to explain, such evidence or data may differ: it can be the observable behavior of a subject, the behavior of an object, the opinions and actions of people, the change in appearances of certain things, and so on. Let's, for now, take them to be some sort of observable (or in principle observable) evidence, in the sense that it should be capable of being manifested, collected, and measured in some way. One theory may succeed in explaining part of an event but fails to successfully predict the future behavior of it. One theory may succeed in telling how medium-sized objects interact but fails to explain the behavior of,

and the interaction between, large-sized or subatomic objects. One theory (like ancient ones) might take the universe to consist of four basic elements and explain the world's structure and behavior on that basis but, with further discoveries, it turns out that it has been offering a wrong picture of the world. In such cases, the theory's success or failure to predict, explain, and accommodate the old as well as new evidence decides whether the theory is working successfully. The theory is wrong if no compensation, no improvement, and no further change in the theory suffices to accommodate the new series of evidence. The theory collapses since it turns into an internally incoherent one. Let me clarify these points by drawing on Quine's remarks on holism and underdetermination.

Quine's famous "Confirmational Holism" says that one individual statement about the world cannot be tested, confirmed, or disconfirmed independently of other parts of the theory. Rather, "our statements about the external world face the tribunal of sense experience not individually, but only as a corporate body" (Quine 1951, 38). There are always other factors involved in such a decision. Our theory contains auxiliary hypotheses or assumptions about, for instance, the conditions of the experiment or the evidence collected, who has done it, when and where it is done, how many times it has been repeated, and the like. Theories, we can basically assume, are nothing but a bunch of sentences which are holistically related. The most important part of a theory is its observational sentences, the sentences which are about immediate observable events and objects in the world.¹² The theory also contains theoretical sentences, the sentences that are less directly connected to observables, for instance, those about neutrinos, dark matters, and so on. According to Quine's holism, if your theory faces some data or evidence standing against it, it does not mean that you necessarily have to give up on your theory. Rather you can in principle hold onto any part of your theory, *provided that* you can make proper compensations elsewhere in the theory (so that your theory can keep its consistence and coherence). This means that, for any set of data, you can always have alternative theories which are compatible with that set but incompatible with your theory simply because there are different ways of making such compensations. Now imagine that your set of data includes all *possible* evidence, the *totality* of all possible data from the past to the future. Suppose also that you have a theory, a total theory of the world, which is compatible with such a set. Confirmational holism implies that there can always be competing theories which are incompatible with your theory but compatible with all such data. This is called the "Strong

¹² See, for example, Quine (1987, 6).

Underdetermination” of theory by evidence.¹³ Your theory is always underdetermined even by having the totality of all possible evidence. As Quine says, physical theories “can still vary though all possible observations be fixed. ... In a word, they can be logically incompatible and empirically equivalent” (1970, 179). Since these theories describe the world, you can claim that there can always be different competing descriptions of the world.

It is, however, a difficult philosophical task to answer the question which theory is true and what our criterion for such a decision is. Some, like Quine himself, at least at some point, believed that it is our own theory that is true, though he later claims that all such theories can be considered as true theories. Consider, for instance, his famous “Myth of a Museum” analogy which he uses to show the difference between scientific theories and semantic theories. For him, in scientific theories, we only face the problem of underdetermination, while in the case of meaning, we face a radical sceptical problem, that is, the indeterminacy problem which results in the conclusion that there is no fact of the matter about meaning or correct translation between theories.¹⁴ For Quine, the underdetermination problem is an epistemological problem: the fact that scientific theories are underdetermined by all possible evidence does not imply that there is no fact of the matter about the world. According to the myth of a museum analogy (applied to the case of meaning), it seems as if there is a museum in which “the exhibits are meanings and the words are labels. To switch languages is to change the labels” (Quine 1969, 27). According to Quine, if semantic theories—that is, the theories which are supposed to specify the meaning of a speaker’s utterances (such as their truth-conditions) on the basis of the speaker’s verbal responses to the world—were like scientific theories, that is, “if the museum myth were true, there would be a right and wrong of the matter; it is just that we would never know, not having access to the museum (Quine 1969, 29–30). What we can learn from these remarks, regardless of the details about Quine’s semantical view, is that there are facts of the matter about the world — they are like the exhibits in the museum — but the totality of all possible evidence may fail to lead us to choose one among the rival ones as correct. Although the museum’s door is locked, one may say, it does not mean that the exhibits are not there.¹⁵ Davidson, on the other hand, believes that all such theories are to be counted as true simply

¹³ It is called “strong” because the theory is underdetermined by all “possible” evidence. There are weaker versions of this doctrine too. See, for example, Allen (2010), Hossein Khani (2018), Bergström (1993), and Laudan (1990).

¹⁴ Our discussion can proceed independently of the details about this metaphysical problem about meaning. On the indeterminacy problem, see, for example, Quine (1970, 1987). See also Kirk (1969, 1977, 1973), Bergström (1990, 1993), Darmstadter (1974), Kemp (2006), Davidson (1997), Friedman (1975), Harman (2014), Hylton (1982), Pagin (2014), Miller (2006), and Soames (1999).

¹⁵ On this, see Quine (1986), especially for his distinction between the sectarian position and the ecumenical position. See also Gibson (1988, 113–24) and Bergström (1993, 1990).

because they are all compatible with all possible evidence; we need nothing more than such compatibility in order to decide whether a theory is true or false: “for a theory to fit or face up to the totality of possible ... evidence is for that theory to be true” (Davidson 1974, 15).¹⁶ Regardless of these differences, the important point here is that all such philosophers agree that the problem of underdetermination is an *epistemological* problem, not a metaphysical one — and, hence, the form of relativism such underdetermination may amount to, if any, is epistemological. It does not lead to scepticism about the world, about the ordinary objects we take the world to contain. Although our favored theory of the world, which *we* think provides the best explanation of the world, is naturally underdetermined by all evidence, such underdetermination does not undermine the reality of what our chosen theory describes. If our theory says that there are atoms, molecules, planets, and so on in the world, we concede their existence because these are the *posits* of our best scientific theory: it is by assuming the existence of such entities that our theory can work and proceed in describing, predicting, and explaining the world. Now, what is our criterion to choose among these theories? We have no decisive evidence to help to choose one of such theories. At best, we can choose among these theories on *pragmatic* grounds: we may think that one of them is simpler, less complex, more familiar, elegant, and the like.¹⁷ As Kemp puts it, “each of the changes [in our total theory] would result in a different *theory*. ... Since the question of which revisions to make is not answered by a statement that is part of the theory, it must be recognized as a *pragmatic* matter: in choosing revisions, we strive for simplicity of theory, economy of basic concepts, intuitive ease of understanding, a minimum of change to our beliefs, continuity or analogy with otherwise accepted theory, and so on” (Kemp 2006, 26).

It is also important to note that, following Davidson and for different reasons, we may reject the intelligibility of conceptual relativism but still hold onto the distinction between trivial, superficial, and genuine conversations.¹⁸ Even in the superficial conversations, we share the meaning of our basic ordinary terms. Such a distinction does not rely on taking the Islamic and scientific theories to be incommensurable, to be about two radically different worlds. A rejection of relativism implies that if something is a conceptual scheme, a language or a total theory of the world, it cannot be so radically different from ours that remains completely

¹⁶ Newton-Smith, on the contrary, believes that none of such theories is true. See Newton-Smith (1978).

¹⁷ See, for example, Quine (1976, 132).

¹⁸ For Davidson’s argument against conceptual relativism, see Davidson (1988, 1974). See also Baghramian (2004, Section 7), Baghramian (1998), Bar-On (1994), and Child (1994).

mysterious or incomprehensible to us.¹⁹ As indicated before, we can assume that we all share a common conceptual scheme and even a common language but engage at most in a trivial conversation. We may share the meaning of the ordinary terms of our common language, but fail to share the meaning of the theoretical terms we employ in a seemingly genuine debate. A superficial conversation is the one that seems like a genuine one but fails to turn into a genuine one because of the divergence in the meaning we take our theoretical terms to possess. This sort of conversation may bring in some of the unwelcome consequences of conceptual relativism: divergence in ontology and meaning results in failure in understanding and communication. But, still, we can follow Davidson in rejecting conceptual relativism as an unintelligible position and thus remove the worry about remaining completely incomprehensible to each other but continue to believe that such a rejection does not imply that we are all necessarily successful in sharing what we mean by our words, especially if the words are theoretical ones employed in a theory of the world.

Now, the question is: Can Islamic ontology, say, its theological view of the world, be counted as one of such *underdetermined* theories?

6. The Shared Ontology and Naturalism

A claim that one may make at this point is that the Islamic worldview can be taken to be a genuine, rival description of the world simply because both the scientific and Islamic views can be counted as underdetermined by all evidence. This can be a plausible claim and indeed my aim is to argue for a more or less similar view. But we have an initial problem to deal with. First of all, the claim that the Islamic worldview can be said to be compatible with all the evidence we have collected so far, or even with all possible evidence, would not by itself be enough to show that it can be counted as an alternative, underdetermined theory, *unless* we can say that it aims to accommodate *the same set of evidence or data*. The set of evidence we are concerned with, even if we talk about all possible such evidence, has to be an agreed-on set of evidence, not a radically different one. Such an agreement on what can legitimately be counted as evidence is essential if the proponents of the Islamic worldview intend to engage in a genuine debate, and hence form a genuine disagreement, with scientists on how to explain such evidence and how to deal with the questions which would go beyond it.

¹⁹ If something can be called a language or a theory of the world, it is to confirm that we have already understood it as a language or a theory.

This issue leads to the discussion of the *goal* of our theories, of whether these two worldviews pursue the same goal. For instance, Smith says “religion and science both necessarily share a common aim. Both aim to provide us with, among other things, true descriptions and explanations about the world. It follows that we can compare the distinctive methods of religion and science insofar as they are effective at achieving that aim” (2019, 3). This claim, as it stands, can be question-begging if it presupposes the meaning of the crucial theoretical terms which appear in it, such as “truth,” “description,” “the world,” and so on, since it is not at all clear whether these two disciplines or views mean the same thing by them. In order to make such a claim plausible we need to determine in what sense they claim to be *describing* the world and what they mean by a *true* description of it. Unless we both aim to reach a specific destination, no comparison between different paths to reach that destination can be made. But insofar as we *agree* on what such a destination is and we agree that it is only reaching that destination that matters, it would not really matter which method or path is preferred among the alternatives. Recall the epistemological problem of underdetermination: *insofar as* both theories are compatible with all possible evidence, it does not really matter how complex, strange, or unfamiliar our chosen one is. It is more reasonable, as it seems to *us* as a group of people, experts, or believers, to choose the simplest one, just as it is more reasonable to one to choose the shortest path to reach a destination; but many other factors may also be involved in making such a decision. As indicated before, when there is no further evidence which can provide an objective criterion to decide between underdetermined theories, we are left with *pragmatic* criteria. But our original question still remains unanswered: who is to say that both theories aim to do the same thing? Two theories compete to describe, explain, or accommodate the same body of evidence *if* they agree on what counts as evidence. We can compete to reach a destination if we agree on what that destination is. This issue takes us back to the discussion of ontological and semantical agreements. What can legitimately be taken to be the “evidence” or “data,” which the Islamic and scientific views supposedly aim to describe, explain, or accommodate? What do they mean by “evidence,” “real,” “explanation,” “theory,” “truth,” and the “world”? Without sharing the meaning of such terms, a genuine disagreement between them cannot emerge and in order to share such meanings, the ontological basis of the theories needs to be shared. Two radically different theories which take radically different ontologies for granted cannot disagree on whether, for instance, some set of collected “evidence” is enough to “confirm” any statement in the theory since different things are referred to by their use of such terms. Once an ontology is agreed on, the epistemological problem of underdetermination has a chance to emerge, that is, whether there can be any further *evidence*

which decides between the rival theories. But if each takes radically different things to fall under the extension of “evidence,” one theory may be confirmed, or strongly supported, by a set of evidence and the other fails to be so sustained. If the difference remains at the level of ontology, we cannot expect a genuine disagreement about a subject matter to arise.

The above claim, however, does *not* mean that the ontologies, once shared, cannot be improved or changed. We do not need to talk about total theories of the world and their compatibility with all possible data. It is hard to imagine having such a theory yet. We can rather talk about our current theories’ attempt to cope with our current problems, such as the origin of the universe, the sense in which the universe is fine-tuned, the origin and evolution of life, the existence of consciousness, afterlife, and so on. In order for the Islamic worldview to be counted as an alternative to science’s, it needs to start from *within* science (i.e., share its ontology) and apparently *vice versa*. But which ontology is to be chosen? So far, nothing has been said which can lead us to prefer one ontology over the other.

Quine, however, has famously declared that “I see philosophy not as an *a priori* ... groundwork for science, but as continuous with science” (1969, 126). Although Quine talks about what he calls “first philosophy” here,²⁰ by that he does not mean a very narrow notion of philosophy, or a particular philosophical point of view. For him, first philosophy points to a general approach: a way of looking at the world in which one seeks, and thinks there can be found, a foundation for our knowledge over and above what our best scientific theory of the world can tell, as if there is a viewpoint outside our theory to stand at, look at the world, and evaluate the theories describing it. Quine’s general target is any view which gets close to the Cartesian foundationalism, that is, the “Cartesian Dream” to find a certain ground for our knowledge, from which we can rebuild all other things. Quine, together with Dewey, Wittgenstein, Davidson, Putnam, and many others, counts himself as an anti-Cartesian: “I am of that large minority or small majority who repudiate the Cartesian dream of a foundation for scientific certainty firmer than scientific method itself” (Quine 1990, 19). This claim discloses Quine’s naturalism, which implies an “abandonment of the goal of a first philosophy. It sees natural science as an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method” (Quine 1981, 72). We have no other choice, for Quine, but to *work from within* our best scientific theory, our best working theory of the world. Any question we may

²⁰ See Quine (1981, 21–22, 40, 72).

ask about the world, or human's knowledge of it, "is in turn a question within science" (Quine 1981, 72). For Quine, a philosopher, like the advocate of any other discipline, "begins his reasoning within the inherited world theory as a going concern. He tentatively believes all of it, but believes also that some unidentified portions are wrong. He tries to improve, clarify, and understand the system from within" (1981, 72). Quine sees such a person as a busy sailor adrift on Neurath's boat, which is an example Quine uses to summarize his view: "I see philosophy and science in the same boat – a boat which ... we can rebuild only at sea while saying float in it. There is no external vantage point, no first philosophy" (1969, 126–27). The legitimacy of philosophy, history, religions, and all other such views — some proponents of which may allegedly treat them to be providing a certain foundation for human knowledge — are to be seen from this point of view simply because we can have no other option: we are born within our scientific theory and attempt to understand the world through it. If we see the world as containing certain sorts of objects, such as atoms and electrons, genes and DNAs, and chairs and tables, it is because these are the *posits* of our best theory of the world. Having granted that, anyone who aims to describe and explain the world "no longer dreams of a first philosophy, firmer than science, on which science can be based; he is out to defend science from within, against its self-doubts" (Quine 1973, 3). Hence, "all ascription of reality must come rather from within one's theory of the world; it is incoherent otherwise" (Quine 1981, 21). It is incoherent because it would be question-begging: even the skeptic, who questions our knowledge of the external world, is inevitably working from *within* science. She talks about things which are the posits of our best scientific theory: "the skeptical challenge springs from science itself" (Quine 1973, 3). In putting forward her doubts about science, the skeptic already presupposes a great deal of it: even "skepticism, in its more primitive way, likewise challenged science *from within*. The skeptics cited familiar illusions to show the fallibility of the senses; but this concept of illusion itself *rested* on natural science, since the quality of illusion consisted simply in deviation from external scientific reality" (Quine 1973, 2–3; emphases added).

Quine's view does not imply that everything that science may say is necessarily true. He gives another famous example: "for my part I do ... believe in physical objects and not in Homer's gods; and I consider it a scientific error to believe otherwise. But in point of epistemological footing the physical objects and the gods differ only in degree and not in kind" (1951, 41). Both Greeks' gods and the things our current science tells us exist, such as atoms, are the posits of the best scientific theory we have had at the time. We now all believe in the existence of physical objects (though he prefers to call it "the myth of physical objects") and

we seem to have good reasons for such a belief: “the myth of physical objects is epistemologically superior to most in that it has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience” (1951, 41). At the end of the day, however, there can be found no science-independent point of view.²¹ Our current theory is far more successful, than the Greek-gods theory, in describing and predicting the world. And this is the reason why we now talk about physical objects’, rather than the gods’, interactions in certain ways to explain, for instance, the phenomenon of raining. From our current point of view, such an ancient theory is wrong: its posits, the gods and goddesses, fail to offer a plausible picture of the structure and function of the universe. At their time, however, they were the Greeks’ best attempt to explain the world; ancient Greek people were committed to the existence of what their theory postulated. As Quine says, “everything to which we concede existence is a posit from the standpoint of a description of the theory-building process, and simultaneously real from the standpoint of the theory that is being built” (1960, 22). Science is like “a boat which, if we are to rebuild it, we must rebuild plank by plank, while staying afloat in it. The philosopher and the scientist are in the same boat” (1960, 3).²² And we can add, the philosopher, the Muslim theist, and the atheist scientist are all in the same boat.

Having granted that, we can see that, for instance, Plantinga’s evolutionary argument against naturalism, which aims to show that evolutionary naturalism is not rationally affirmable, is a work from within: he appears as a critic who grants the ontology of science and attempts to argue against a specific subject matter within that area. He is not a skeptic who questions science itself since, as Quine argued, in order to repudiate science, you are bound to presuppose a great part of it. This is the reason why Plantinga can engage in a genuine debate with other philosophers and scientists on the matter of naturalism and evolutionary theory.²³ Fodor’s argument against Darwinism is another example.²⁴ The defenders of the Flat Earth or Young Earth movements, however, are those who wish to work from outside of science, *as if* there is a point of view to look at the world that is free from the posits and the descriptions which our best scientific theory has offered. Either those who aim to work from outside of science accept this fact, in which case their position (like that of the skeptic) is incoherent, or they refuse to

²¹ It is worth noting that Quine does not apply “science” to physics alone. In his reply to Haak’s question about how widely Quine intends “science,” he says “very widely almost always – even including history” (Quine 1997, 571).

²² See also Quine (1981, 22). For more on this, see especially Verhaegh (2018).

²³ For his argument, see Plantinga (1993, 2011). For discussions of it, see, for example, Fitelson and Sober (1988) and Beilby (2002).

²⁴ See Fodor (2011).

accept it, in which case there would be no chance for them to start a genuine debate with scientists and philosophers of science. They fail to come up with an ontological and semantical agreement with science and to appreciate the fact that they are already working from within science and that it is science itself that gives meaning to the theoretical terms they use, such as “momentum,” “flatness,” “sphere,” and so forth. Failing to see this results in a superficial conversation, if any. No serious, genuine debate between scientists and the proponents of other disciplines, religions included, can begin by questioning the existence of physical objects, atoms, galaxies, molecules, and the like. The real challenge between Muslim or Christian creationists and atheist scientists begins by the questions which arise from within science, the questions which science itself seems to be incapable of answering, such as whether there is a singular beginning point for the universe, and if there is, what did cause it in the first place? Why is there something rather than nothing? Is there only one universe? Why should the universe be the way it is? Can science explain why the universe is so fine-tuned? What is consciousness and why is that certain physical states come up with conscious (non-physical) qualia? What does happen after one dies? Are we fully physical?

The attempts to answer such questions are genuine attempts and this is the reason why scientists too can do no better than offering some hypothetical *model* or some *description* in their attempts to deal with these problems — which may sometimes get too strange for us to embrace.²⁵ This is the point I think the Islamic worldview can be considered as a genuine alternative to the scientific one. They both are now *underdetermined* by the totality of all (agreed-on) evidence and hence can be counted as alternatives to each other, as different models or descriptions of the world. Each can try in different ways to enrich the *so-far-shared* ontology in order to offer alternative answers to the questions mentioned above. Our best scientific theory of the world seems to fail to expand our knowledge of the world any further. By this failure, I do not mean its current incapability of explaining certain matters, but its complete incapability to offer any potentially testable and objectively verifiable explanation of them. We work from within science by sharing its ontology and the meaning of its theoretical terms, but its ontological power is limited. The shared ontology can now be improved by replacing some of its entities with alternative newer ones or expanded by adding extra entities to it, of course provided that it does not result in an inconsistent and incoherent view.

²⁵ The Multiverse model, Parallel Universes, the theory of a Universe from Nothing, and the like might be considered to be among such attempts. See, for instance, Krauss’s “A Universe from Nothing” (2013), Brian Greene’s “The Hidden Reality: Parallel Universes” (2011), and Hawking’s “The Theory of Everything” (2007).

One may claim that it is not the only option: some scientists may choose to remain silent, to become a quietist about a certain sort of subject matters by claiming that the questions which science cannot even in principle answer would not be scientific anymore; they go beyond the reach of science, which means, for them at least, that dealing with these questions would go beyond the humans' epistemic powers. These people form one group, though they seem to neglect the fact that these questions arise from within science itself and if they *choose* to treat these questions as unscientific, it does not vanish the urge to answering them. A different group of them keeps trying to offer alternative *hypothetical models* of the universe, the models which can remain faithful to the naturalistic-scientific ontology as much as possible. Another option, however, is to enrich the ontology and enter the realm of the religious one by taking the world to contain a metaphysical first-cause, an intelligent designer, a creator, and the like. The point is that such rival worldviews are at the same level of *explanatory* power since they are all underdetermined theories, though some may look less familiar or more complex. Some may seem to a group of scientists useless and unreasonable, but to others advantageous and valuable in many ways. Such opinions, claims, and decisions, however, are not made on an objective ground; rather, since these theories are underdetermined in the sense we have so far considered, such opinions at most rely on *pragmatic* and *practical* criteria: which theory does look more reasonable to *us* to accept, which one is more ontologically parsimonious, which one is simpler or more delicate, which one is easier to understand, to teach and to learn, which one is psychologically more comforting, and so forth?

7. Norms of Rationality and the “God of the Gaps”

At this point, some like Nietzsche may object that the creator, the God, or any such sort of entities which you may add to the shared ontology is nothing but the old “God of the gaps”:

into every gap they had plugged a delusion, their stopgap, whom they named God. (Nietzsche 2006 [1883], 71)

The view that I have been pursuing here would not be susceptible to such an objection because it has this assumption in the background that these theories are all underdetermined by all evidence. We have all accompanied science to the point where it becomes *ontologically* incapable of dealing with our remaining questions about the world. At this point, the Islamic

worldview is a genuine underdetermined one among alternatives. The injection of a God or any other sort of extra (spiritual) entities into our so-far-shared ontology is thus a legitimate move and immune to the “God of the gaps” accusation.²⁶ Moreover, the so-called “God of the gaps” problem has a deeper problem. We have learnt a general lesson from Quine: the “God of the gaps” has been our best attempt to explain the world at different stages of our history. As previously indicated, for Quine, even the Greek gods were the Greeks’ best scientific theory of the world aiming to offer the most intelligible explanation of it at that time. From our current point of view, the Greek-gods theory is wrong since it cannot compete the explanatory power of our current scientific theories.

Another objection may also be put forward: if we are bound to apply the norms of rationality, that is, whether a position is rational or reasonable, from *our own point of view*, then it seems that the advocates of each view, for example, atheist scientists and theist Muslims, can simply take their own view to be rational and the other to be irrational. This is in general true that we evaluate the reasonableness of any claim from our own point of view, that is, from within our own theory. But this would not be a problem, *provided that* the alternatives can be considered as genuine underdetermined ones: insofar as the alternatives fail to be evaluated on the basis of any objectively testable data or evidence, each is free to count its own view of the world as the reasonable one. After all, we need to choose among them and we have been left with nothing else to rely on but such norms of rationality, which are applied from a specific point of view, i.e., our own. The important point here is that we should not be confused about *when* this criterion can be treated as the only criterion left to be used. Davidson and Quine have famously employed the “Principle of Charity” in their discussion of linguistic understanding. For Davidson, “charity prompts the interpreter to maximize the intelligibility of the speaker” (Davidson 2001, xix). In ordinary cases of communication, a speaker may deviate from the standard way of speaking. For instance, she has been applied “table” to tables. This time, she applies it to a chair in view. The interpreter or the hearer of her utterance faces two choices: one choice is to take the speaker to have true similar-to-him beliefs about the world—that she too believes that there is a chair, and not a table, in view—but this time she intends to mean a

²⁶ If some insist that this God is to be named the “God of the gaps,” it would be fine because such gaps would not be the ones which can even in principle filled by science. Also, at this stage, the God of the gaps problem, if it can be considered as a problem anymore, would be a problem for *all* such alternative worldviews, not just the religious ones. The claim that our universe has come from “nothing” is quite a powerful metaphysical claim, which injects a sort of strong entity (i.e., “nothing as the origin of everything”) into our shared ontology just as the claim that there is an “infinite” number of universes, in one of which we live.

different thing by “table,” that is, to mean *chair* by it. The other choice is to take her to mean the same thing, *table*, by “table” as she did in the past but to attribute to her a false, different belief about the world—that she falsely believes that there is a table in view. Charity forces the interpreter to choose that option which makes the behavior of the speaker most intelligible. Sometimes it is better to interpret her as having a false belief about the world than meaning something bizarre by her words. In ordinary cases, when our concern is *trivial conversation*, we can easily understand the speaker regardless of such deviations (of course, if they are not too dramatic). This is the reason why Davidson says that “charity is forced on us; whether we like it or not, if we want to understand others, we must count them right in most matters” (Davidson 1974, 19).²⁷ The point is that when a *genuine* debate is concerned, charity would imply a more rigid agreement on meaning, that is, meanings of theoretical terms.

When we have no objective criterion at hand to decide between alternative underdetermined worldviews, we are left with nothing but pragmatic criteria. Such norms or criteria would help *us* to decide between the theories (just as it helps the *interpreter*, and is applied by her, to make a choice when there is no further evidence for her to rely on). Such a decision is made from our own point of view: for some, simplicity makes a view more reasonable to choose, while for others, being psychologically comforting is the criterion to work with. At this point, we can even talk about our *faith* in the truth of our chosen worldview because once you choose your theory among underdetermined ones, you have conceded that this theory is true — though here we can still follow Davidson in the claim that all other such theories are also true. One may believe that “an atheistic, fact-based science is permanently at war with a faith-based religion” (McGrath 2004, 87), but this is not accurate. After a point, science and religion can be considered as genuine alternatives to each other, to be in competition to convince the other that one worldview is more rational, simple, helpful, and so on. If it is a “war,” it is a war in the space of reason and rationality.

8. On Future Exchanges between Islam and Science

Our discussion of the conditions on a genuine debate between Islam and science may lead to a narrow possibility of treating the Islamic worldview as a genuine alternative to the scientific one. For the Islamic worldview can be taken to be a genuine alternative only if it can be treated

²⁷ See also Davidson (1987, 38).

as one among underdetermined views of the world. What does it tell us about future exchanges between the two? On the basis of an imaginary future, Daneshgar assumes that “Muslims will have three alternatives: to ignore scientific discoveries, as has been done by many creationists in the face of evolutionary theory; to ascribe the majority of scientific discoveries to Islam, as was pronounced by [the Egyptian thinker] Tantawi Jawahari [d. 1940]; or to follow metaphorical Qur’anic exegesis, one focusing on ethics and goodness and ignoring the physical world” (Daneshgar 2017, 152). For the most part, I agree with him. In an imaginary future, Muslims would not face enough promising choices. The view I have been arguing for here treats the first two alternatives as implausible for Muslims to embrace because they lead to nothing but, at best, superficial debates between Muslims and scientists. Islam seeks, like any other religion or general worldview, to follow science as far as possible and this, in one sense, leads to the third alternative mentioned in the above passage. But it does *not* mean that the Islamic worldview has no chance to engage in any sort of genuine debate about the physical world. Rather, Muslims *can* be involved in such a debate and I tried to discuss some of the main conditions under which this possibility can be treated as a real one. This is important because suppose that Muslims choose the third alternative and decide to ignore the physical world, following metaphorical Qur’anic exegesis focusing on ethics and goodness. The issues about ethics and morality too cannot be seen as entirely independent of science and its discoveries. Scientists working on neuroethics and bioethics have attempted to explain some aspects of morality in terms of the way humans have evolved. Churchland, for instance, has argued that “morality originates in the neurobiology of attachment and bonding” (2011, 71).²⁸ If neuroscience or neurobiology succeeds in explaining why human beings are moral, or care about morality and its relevant issues, even the above third alternative would vanish and Muslims would be left with nothing but entirely implausible alternatives. However, as I showed, although Muslims should work from within science (as human beings’ best ongoing endeavor to understand the world), there is a point at which Muslims would be as entitled as scientists to offer their own descriptions of the world, and this happens when the shared ontology of science fails to offer any promising explanation of the further perplexities about the world, that is, explanations which can be considered as verifiable on the basis of any sort of objective or evidentially grounded criterion. (Recall that we began by an agreement with science on what “evidence,” “verification,” “confirmation,” and the like mean.)

²⁸ See especially Chapter 8 of Churchland (2011): Religion and Morality. See also Churchland (2019). For more on this, see, for example, Clausen (2008), Clausen and Levy (2015), Farah (2005, 2010), and Illes (2006).

Such a view seems to imply an inversion in the direction of interpreting Islamic teachings, especially those of the Qurʾān: instead of trying to interpret science in such a way that the majority of scientific discoveries can somehow be ascribed to Islam, Islam and the Qurʾān have to be construed by Muslims in a way that compatibility with science can be preserved. Although both options seem similar, there is a significant difference between them. The attempt which, according to Daneshgar, those like Jawahari have made, will lead to *finding* evidence, especially textual, in Islam and the Qurʾān which can be interpreted *as if* the Qurʾān already *contained* what science has claimed to discover in centuries of theorizing and experimenting.²⁹ Philosophically speaking, however, such attempts are not entirely pointless because they tell us that even Muslims defending this approach implicitly believe that they have no other way but to follow science and work from within it. Otherwise, what would be the advantage of their attempts to attribute these discoveries to the Qurʾān? Nonetheless, this view always takes credit for scientific discoveries, rather than contributes to them. In addition, scientific findings are never taken to be absolutely true; they may be ruled out in the course of future evidence and discoveries. Even the most rigid and widely accepted ones are not taken to be entirely immune to any change. Hence, there is also the danger of ascribing something to the Qurʾān that may turn out to be false. Moreover, Muslims have had and will continue to have serious problems in ascribing those scientific discoveries to Islam that stand against specific Qurʾānic verses.³⁰ In such cases, because the project of *ascribing* such discoveries to Islam has failed, Muslims seem to have no other choice but to ignore the world as conceived by science, as well as scientific discoveries.

The second option introduced above, that is, interpreting Islam and the Qurʾān in accordance with our ongoing science, differs from this latter project. At the outset, it does not aim to *ascribe* any scientific discovery to Islam or to *extract* such discoveries from any Qurʾānic verse. Nor does it aim to offer any *scientific reading* of the Qurʾān or to claim that there is a Qurʾānic science or anything similar. Rather, this approach makes a very modest claim: it tries to offer a charitable interpretation of the Qurʾān which avoids *contradiction* with science. Qurʾānic verses are not required to be interpreted in such a way in that they can be considered to already contain whatever science has discovered and will discover. Muslims just need an interpretation

²⁹ This is related to the notion of *Ijʿāz* (inimitability). On this subject see, for example, Bigliardi (2017, 2016), Larkin (1988), and Guessoum (2008).

³⁰ See, for example, Daneshgar (2017, 7–8, 151–52).

that *does not stand in plain conflict* with science. Nothing more constructive needs to be offered. After that, under the conditions discussed throughout this article, that is, when the Islamic worldview can legitimately be considered as an underdetermined one among others (at least regarding a certain sort of problems), it has the chance of proposing a genuine description of the world and engage in a genuine conversation with the proponents of other alternative models. The Qur'an and its verses need to avoid, through a proper interpretation, a plain contradiction with our so-far-successful scientific theory of the world since we have no other choice but to work from within it; but it does not mean that, at the right stage, an alternative Islamic worldview cannot offer itself as a genuine alternative picture of the world. I can make no claim as to whether such an interpretation is possible, or if possible, plausible. This issue is subject to a different sort of investigation. It does not, however, affect the claim that, philosophically speaking, there is a possibility for a genuine debate between Islam and science. Although some may believe that “no a priori or once-and-for-all answer can be given about how science and religion should be related” (Stenmark 2004, 268),³¹ from a philosophical point of view, a genuine conversation can always take place between the two.

9. Conclusion

In this article, I argued that the proponents of Islam and science can engage in a genuine debate with regard to describing and explaining the world. This is possible, provided that Muslims start working from within science and continue to do so up to the point where the shared-with-science ontology fails to offer any model or description of the world which can in principle be confirmed or falsified by any agreed-on sort of evidence. The Islamic worldview can now appear as a genuine alternative model among other underdetermined ones aiming to offer solutions to the problems which the shared ontology and its supported theory fail to cope with.

Acknowledgments

I am grateful to Majid Daneshgar for valuable comments on this article. I would also like to thank Yaser Mirdamadi for helpful discussions.

³¹ For more on this issue, see, for example, Harrison (2015, 2010), Coyne (2015), Ayala (2007, 1997), Proctor (2005), and Sweet and Feist (2007).

References

- Allen, Sophie R. 2010. "Can Theoretical Underdetermination Support the Indeterminacy of Translation? Revisiting Quine's 'Real Ground'." *Philosophy* 85: 67–90.
- Ayala, Francisco J. 2007. *Darwin's Gift to Science and Religion*. Washington, DC: Joseph Henry Press.
- Baghramian, Maria 1998. "Why Conceptual Schemes?" *Proceedings of the Aristotelian Society* 98: 287–306.
- . 2004. *Relativism*. London: Routledge.
- Baghramian, Maria, and Annalisa Coliva. 2019. *Relativism (New Problems of Philosophy)*. New York: Routledge.
- Barbour, Ian G. 1997. *Religion and Science: Historical and Contemporary Issues*. San Francisco: Harper Collins.
- . 1990. *Religion in an Age of Science: The Gifford Lectures 1989–1991*. London: SCM Press.
- Bar-On, Dorit. 1994. "Conceptual Relativism and Translation." In *Language, Mind and Epistemology: On Donald Davidson's Philosophy*, edited by G. Preyer et al., 145–70. Dordrecht: Kluwer.
- Beilby, James K., ed. 2002. *Naturalism Defeated?: Essays on Plantinga's Evolutionary Argument Against Naturalism*. Ithaca; London: Cornell University Press.
- Bergström, Lars 1990. "Quine on Underdetermination." In *Perspectives on Quine*, edited by R. Gibson and R. Barrett, 38–52. Cambridge: Blackwell.
- . 1993. "Quine, Underdetermination, and Skepticism." *Journal of Philosophy* 90: 331–58.
- Bigliardi, Stefano 2016. "The 'Scientific Miracle of the Qur'an': Map and Assessment." In *Islamic Studies Today: Essays in Honor of Andrew Rippin*, edited by M. Daneshgar and W. Saleh, 339–53. Boston: Brill.
- . 2017. "The 'Scientific Miracle of the Qur'an,' Pseudoscience, and Conspiracism." *Zygon: Journal of Religion and Science* 52: 146–71.
- Boghossian, Paul 1989. "The Rule-Following Considerations." *Mind* 98: 507–49.
- Child, William 1994. "On the Dualism of Scheme and Content." *Proceedings of the Aristotelian Society* 94: 53–71.
- Churchland, Patricia 2011. *Braintrust: What Neuroscience Tells Us about Morality*. Princeton: Princeton University Press.
- . 2019. *Conscience: The Origins of Moral Intuition*. New York: W. W. Norton Company.
- Clausen, Jens 2008. "Moving Minds: Ethical Aspects of Neural Motor Prostheses." *Biotechnology Journal* 3: 1493–501.
- Clausen, Jens, and Neil Levy. 2015. *Handbook of Neuroethics*. Netherlands: Springer.
- Coyne, Jerry A. 2015. *Faith versus Fact: Why Science and Religion are Incompatible*. New York: Penguin.

Daneshgar, Majid 2017. *Tantawi Jawhari and the Qur'an: Tafsir and Social Concerns in the Twentieth Century*. New York: Routledge.

Darmstadter, Howard 1974. "Indeterminacy of Translation and Indeterminacy of Belief." *Philosophical Studies* 26: 229–37.

Davidson, Donald 1967. "Truth and Meaning." *Synthese* 17: 304–23.

———. 1974. "On the Very Idea of a Conceptual Scheme." *Proceedings and Addresses of the American Philosophical Association* 47: 5–20.

———. 1982. "Rational Animals." *Dialectica* 36: 317–28.

———. 1986. "A Nice Derangement of Epitaphs." In *Truth and Interpretation: Perspectives on the Philosophy of Donald Davidson*, edited by E. Lepore, 433–446. Cambridge: Blackwell. In Davidson (2005), *Truth, Language, and History* (Oxford: Clarendon Press), 89–108. Reprinted in Davidson (2005), 89–108, to which page references apply.

———. 1987. "Knowing One's Own Mind." *Proceedings and Addresses of the American Philosophical Association* 60 (3): 441–58. Reprinted in Davidson (2001), 15–38, to which page references apply.

———. 1988. "The Myth of the Subjective." In *Bewusstsein, Sprache und die Kunst*, edited by M. Benedikt and R. Berger. Edition S. Verlag der Osterreichischen Staatsdruckerei. Reprinted in Davidson (2001), 39–52, to which page references apply.

———. 1992. "The Second Person." *Midwest Studies in Philosophy* 17: 255–67. Reprinted in Davidson (2001), 107–122, to which page references apply.

———. 1994. "The Social Aspect of Language." In *The Philosophy of Michael Dummett*, edited by B. McGuinness, 1–16. Dordrecht: Kluwer. Reprinted in Davidson (2005), 109–126, to which page references apply.

———. 1997. "Indeterminism and Antirealism." In *Realism/Antirealism and Epistemology*, edited by C. B. Kulp, 109–22. Lanham, MD: Rowman and Littlefield. Reprinted in Davidson (2001b), 69–84, to which page references apply.

———. 1999. "The Emergence of Thought." *Erkenntnis* 51: 7–17. Reprinted in Davidson (2001), 123–134, to which page references apply.

———. 2000. "Truth Rehabilitated." In *Rorty and His Critics*, edited by R. B. Brandom, 65–74. Cambridge: Blackwell. Reprinted in Davidson (2005), 3–17 to which page references apply.

———. 2001. *Subjective, Intersubjective, Objective*. Oxford: Clarendon Press.

Dummett, Michael 1986. "'A Nice Derangement of Epitaphs': Some Comments on Davidson and Hacking." In *Truth and Interpretation: Perspectives on the Philosophy of Donald Davidson*, edited by L. LePore, 459–76. Cambridge: Blackwell.

———. 1996. *The Seas of Language*. Oxford: Clarendon Press.

Farah, Martha J. 2005. "Neuroethics: The Practical and the Philosophical." *Trends in Cognitive Sciences* 9: 34–40.

———. 2010. *Neuroethics: An Introduction with Readings*. Cambridge, MA: MIT Press.

- Fitelson, Branden, and Elliott Sober. 1988. "Plantinga's Probability Arguments against Evolutionary Naturalism." *Pacific Philosophical Quarterly* 79: 115–29.
- Fodor, J. 2011. *What Darwin Got Wrong*. Picador Paper.
- Friedman, Michael 1975. "Physicalism and the Indeterminacy of Translation." *Noûs* 9: 353–74.
- Gibson, Roger 1988. *Enlightened Empiricism: An Examination of W.V. Quine's Theory of Knowledge*. Tampa: South Florida University Press.
- Goodman, Nelson. 1978. *Ways of Worldmaking*. Indianapolis: Hackett Publishing Company.
- . 1996. "On Starmaking." In *Starmaking: Realism, Anti-Realism, and Irrealism*, edited by P.J. McCormick, 143–50. Cambridge, MA: MIT Press.
- Greene, Brian 2011. *The Hidden Reality: Parallel Universes and the Deep Laws of the Cosmos*. New York: Vintage.
- Guessoum, Nidhal 2008. "The Qur'an, Science, and the (Related) Contemporary Muslim Discourse." *Zygon: Journal of Religion and Science* 43: 411–31.
- Harman, Gilbert 2014. "Indeterminacy, Relativity, and Behaviorism." In *A Companion to W.V.O. Quine*, edited by G. Harman and E. Lepore, 219–35. UK, West Sussex: Wiley.
- Harrison, Peter, ed. 2010. *The Cambridge Companion to Science and Religion*. Cambridge: Cambridge University Press.
- . 2015. *The Territories of Religion and Science*. Chicago: University of Chicago Press.
- Hawking, Stephen 2007. *The Theory of Everything: The Origin and Fate of the Universe*. Beverly Hills, CA: Phoenix Books.
- Hosseini Khani, Ali 2018. "Quine on the Indeterminacy of Translation: A Dilemma for Davidson." *dialectica* 72: 101–20.
- Hosseini Khani, Ali. 2020. Davidson's Wittgenstein. *Journal for the History of Analytical Philosophy* 8 (5): 1–26.
- Hylton, Peter 1982. "Analyticity and the Indeterminacy of Translation." *Synthese* 52: 167–84.
- Illes, Judy 2006. *Neuroethics: Defining the Issues in Theory, Practice, and Policy*. Oxford: Oxford University Press.
- Kemp, Gary 2006. *Quine: A Guide for the Perplexed*. London: Continuum.
- Kirk, Robert 1969. "Translation and Indeterminacy." *Mind* 78: 321–41.
- . 1973. "Underdetermination of Theory and Indeterminacy of Translation." *Analysis* 33: 195–201.
- . 1977. "More on Quine's Reasons for Indeterminacy of Translation." *Analysis* 37 : 136–41.
- Kraft, James 2012. *The Epistemology of Religious Disagreement: A Better Understanding*. New York: Palgrave.
- Krauss, Lawrence M. 2013. *A Universe from Nothing: Why There Is Something Rather than Nothing*. New York: Atria Books.

- Kripke, Saul 1982. *Wittgenstein on Rules and Private Language*. Cambridge: Harvard University Press.
- Larkin, Margaret 1988. "The Inimitability of the Qur'an: Two Perspectives." *Religion & Literature* 20: 31–47.
- Laudan, Larry 1990. "Demystifying Underdetermination." In *Scientific Theories*, edited by C. Wade Savage, 267–97. Minneapolis: University of Minnesota Press.
- Lewis, David 1986. *On the Plurality of Worlds*. Oxford: Blackwell.
- Lougheed, Kirk 2020. *The Epistemic Benefits of Disagreement*. Cham: Springer.
- Machuca, Diego E. 2012. *Disagreement and Skepticism*. New York: Routledge.
- Malpas, Jeff 1989. "Ontological Relativity in Quine and Davidson." In *The Mind of Donald Davidson*, edited by Johannes Brandl and Wolfgang Leopold Gombocz, 157–78. Atlanta: Rodopi.
- Matheson, Jonathan 2015. *The Epistemic Significance of Disagreement*. UK: Palgrave Macmillan.
- McGrath, Alister 2004. *The Twilight of Atheism: The Rise and Fall of Disbelief in the Modern World*. New York: Doubleday.
- Miller, Alex 2006. "Meaning Scepticism." In *The Blackwell Guide to the Philosophy of Language*, edited by M. Devitt and R. Hanley, 91–113. Malden, MA: Blackwell Publishing Ltd.
- Newton-Smith, William 1978. "The Underdetermination of Theory by Data." *Proceedings of the Aristotelian Society* 52: 71–91.
- Nietzsche, Friedrich Wilhelm. 2006 [1883]. *Thus Spoke Zarathustra*. Edited by A. D. Caro and R. B. Pippin (2006). Cambridge: Cambridge University Press.
- Pagin, Peter 2014. "Indeterminacy of Translation." In *A Companion to W.V.O. Quine*, edited by G. Harman and E. Lepore, 236–62. UK, West Sussex: Wiley.
- Pittard, John 2019. *Disagreement, Deference, and Religious Commitment*. Oxford: Oxford University Press.
- Plantinga, Alvin 1993. *Warrant and Proper Function*. Oxford: Oxford University Press.
- . 2011. *Where the Conflict Really Lies: Science, Religion, and Naturalism*. Oxford: Oxford University Press.
- Proctor, James D. 2005. *Science, Religion, and the Human Experience*. Oxford: Oxford University Press.
- Putnam, Hilary 1987. "Truth and Convention: On Davidson's Refutation of Conceptual Relativism." *Dialectica* 41: 69–77.
- Quine, Willard Van Orman 1951. "Two Dogmas of Empiricism." *Philosophical Review* 60: 20–43.
- . 1960. *Word and Object*. Cambridge, MA: MIT Press.
- . 1969. *Ontological Relativity and Other Essays*. New York: Columbia University Press.
- . 1970. "On the Reasons for Indeterminacy of Translation." *Journal of Philosophy* 67: 178–83.
- . 1973. *The Roots of Reference*. La Salle, IL: Open Court.

- . 1976. *The Ways of Paradox*. Cambridge, MA: Harvard University Press.
- . 1981. *Theories and Things*. Cambridge, MA: Harvard University Press.
- . 1986. “Reply to Roger F. Gibson, Jr.” In *The Philosophy of W. V. Quine*, edited by L. E. Hahn and P. A. Schilpp, 155–57. La Salle, IL: Open Court.
- . 1987. “Indeterminacy of Translation Again.” *Journal of Philosophy* 84: 5–10.
- . 1990. *Pursuit of Truth*. Cambridge, MA: Harvard University Press.
- Quine, Willard Van Orman 1997. “Response to Haak.” *Revue Internationale de Philosophie* 51 (202): 571–72.
- Ricketts, Thomas 2011. “Roots of Ontological Relativity.” *American Philosophical Quarterly* 48: 287–300.
- Russell, Bertrand 1905. “On Denoting.” *Mind* 14: 479–93.
- Smith, Tiddy 2019. *The Methods of Science and Religion: Epistemologies in Conflict*. Lanham, MD: Lexington Books.
- Soames, Scott 1999. “The Indeterminacy of Translation and the Inscrutability of Reference.” *Canadian Journal of Philosophy* 29: 321–70.
- Stenmark, Mikael 2004. *How to Relate Science and Religion: A Multidimensional Model*. Grand Rapids, MI: Wm. B. Eerdmans Publishing Co.
- Sweet, William, and Richard Feist. 2007. *Religion and the Challenges of Science*. Aldershot, UK: Ashgate.
- Verhaegh, Sander 2018. *Working from Within: The Nature and Development of Quine’s Naturalism*. Oxford: Oxford University Press.
- Verheggen, Claudine 2006. “How Social Must Language Be?” *Journal for the Theory of Social Behaviour* 36: 203–19.
- Wittgenstein, Ludwig 1953. *Philosophical Investigations*. Translated by G. E. M. Oxford: Blackwell.