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A Priori truth in the natural world : a non-referentialist response to Benacerraf's dilemma

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CHAPTER 2

Methodological Preliminaries: Adequacy Conditions for a Construal of *A Priori* Truth

Introduction

In this chapter, I shall present the most important methodological assumptions that I wish to adopt and follow during my quest for a viable account of the nature of *a priori* truth in the subsequent five chapters of this work.

In section 1, I shall advance some general methodological principles that I think should guide our systematic belief formation concerning any particular segment of the world, and then indicate what I think the application of these principles amounts to in the context of our current investigation. My primary aim in this section is to clarify why I think that the best way to start an inquiry into the nature of *a priori* truth is to compile a relatively extended list of the most obvious and striking characteristics of truth in our paradigm *a priori* discourses, and then regard the potential to support a reasonable explanation of all these characteristics as a minimal condition of adequacy for an account of *a priori* truth in general.

In section 2, I shall put forward such a list of what I regard as the most important *explananda* for a proper theory of *a priori* truth. My subsequent claims about the inadequacy of standard referentialism and the minimal adequacy of a particular version of non-referentialism about truth in the semantics of our paradigm *a priori* discourses will rely on the observation that only the suggested non-referentialist conception supports a viable account of all the phenomena that I shall briefly characterise in this part.

1. General Methodological Principles

The primary purpose of a theory of a certain subject or field is to state explicitly or imply everything that can be truly said about the purported subject matters. A proper theory, however, cannot include arbitrary claims. Whatever it says about its purported subject matter must be based on some evidence. Some claims seem to be accepted on the basis of simple observations, while the confirmation of others requires serious theoretical considerations. Claims of the former type are usually called “observational statements”, as they are supposed to state the obtaining of some “directly observable” conditions.¹ Those of the latter type are, in contrast, usually denoted as “theoretical statements”, as they are supposed to state the obtaining of some conditions whose relation to what we can directly observe is itself dependent on theoretical assumptions. Putting it otherwise, while the obtaining or absence of the truth conditions of observational claims is supposed to be directly observable for us, that of the truth conditions of theoretical claims is not.² Our reasons for believing in the obtaining of the latter conditions are rather (more or less) theoretical: we believe in this obtaining, because we believe that it is (at least partly) responsible for the obtaining of those directly observable conditions whose actual obtaining we regard as a supporting evidence for these claims.

The first major claim, accordingly, that I should suggest here is that the relation of a certain theory to its evidential base is never one-directional. Rather, it is always justificatory and explanatory at the same time: while the occurrence of a certain piece of evidence confirms a certain theoretical belief, the truth

of this belief is supposed to contribute to the explanation of the occurrence of that piece. Note that this observation implies an important methodological principle as well: namely, a theory can be supported by reference to a certain piece (or pool) of evidence only if its truth can be supposed to contribute to an appropriate explanation of the occurrence of this evidential ground. In absence of this explanatory significance, what we can directly observe cannot provide any support to the theoretical assumption under scrutiny. The moral to be drawn from this principle is that if we want to assess the adequacy of a certain theory, then (beyond checking its consistency) what we have to examine first and foremost is whether its truth contributes to a reasonable explanation of what we can directly observe concerning its purported subject matter.

The correctness of the above methodological principle presupposes that there is an epistemic hierarchy among our beliefs, and our observational beliefs possess a more basic position within this hierarchy than our theoretical beliefs. Also, the principle seems to assume that beliefs of the former kind are based merely on direct observations, while beliefs of the latter kind are adopted on theoretical considerations, by drawing various types of inferences (e.g. inductions, deductions or abductions). Some may observe that the acceptance of this picture amounts to the embracement of a foundationalist programme in epistemology. Of course, in so far as our observational beliefs are not meant to be infallible, the picture implies no commitment to the traditional strong version of foundationalism. Nevertheless, assuming the existence of epistemically basic, non-inferentially confirmable beliefs is a defining characteristic of foundationalism. So, the suggested conception seems to entail at least a weak, fallibilist, version of foundationalism.

In fact, the methodological framework that I shall adopt does not presuppose the sharp separability of observational and theoretical beliefs or, in other terms, the existence of strictly observational (i.e. non-inferentially confirmable) beliefs. What it does assume is that there is an epistemic hierarchy among our

¹ Note that an observational claim, at least in the currently intended sense of the term, need not be empirical. Some of our paradigm *a priori* claims in pure logic and mathematics, for instance, are accepted on the basis of simple “intuitions” (i.e. without reliance on serious theoretical considerations), and their role in our purportedly *a priori* theory formation is similar to that of our basic perceptual claims in our theorising about the spatiotemporal world.

² The most influential “anti-realist” objections to this picture will be addressed and responded to in detail in chapter 5.

beliefs, and that in most cases it is more rational for us to assess the adequacy of our less basic beliefs in view of the more basic ones than the other way around. Clearly, this assumption is compatible with an anti-foundationalist perspective in epistemology as well. In particular, it is compatible with the anti-foundationalist claim that there are no beliefs whose justification can be regarded as purely observational. The fact that some beliefs are more fundamental than others does not mean that we cannot occasionally have reason to revise them in view of what follows from, or can be explained by means of, the others.³

A further methodological point to be noted is that we can never actually develop a complete picture of the evidential ground of a serious theory (of some segment) of the world. No matter how many observable characteristics we specify, whose collective explanation constitutes an adequacy condition for a theory of a certain subject, we will never be in possession of all evidence that is significant to the assessment of the theory under consideration. Accordingly, we must recognise that the appraisal of a theory which can contribute to a reasonable explanation of all observed characteristics of its subject matter can never be higher than “minimally adequate”.

On the other hand, the more inclusive our evidential ground for assessing a certain theory is, the more likely it becomes that the evaluation based on this ground is correct. Accordingly, if we want to enhance the conclusiveness of our argumentation for or against a theory of a certain subject, then the best we can do is to collect as many crucial *explananda* for the theory in question as we can.

In this work, I shall follow the previous methodological principles while developing an account of the nature of *a priori*

truth. First of all, I shall suppose that a certain conception of *a priori* truth cannot be adequate unless it supports a reasonable explanation of everything that we can safely establish by observation of this particular subject matter. The observations in question may be fallible, and in principle even revisable on theoretical considerations, but practically they will be very likely true, and thus naturally contribute to the suggested evidential base.

As I already mentioned in chapter 1, in order to ensure the greatest initial agreement among readers with slightly divergent notions of apriority, I shall first concentrate on the observable characteristics of truth as it is attributed to our *paradigm a priori* representations, most importantly to our logical and mathematical claims or beliefs about abstract states of affairs. I shall take it that supporting a reasonable explanation of the occurrence of all these characteristics is a minimal condition of adequacy for not merely a theory of the examined paradigms, but also for a construal of *a priori* truth in general. Once we have developed an understanding that satisfies this minimal adequacy condition, we can consider whether it supports an explanation of those specific features as well that we can observe about the less canonical instances of *a priori* truth. If this extension of our evidential base does not necessitate any change in the candidate account, then the contested instances can be simply classified as *a priori* too. If the new *explananda* undermine the adequacy of our conception, then we can either disqualify the instances or revise the account.

My list of the most important *explananda* for a theory of *a priori* truth will be relatively inclusive. On the one hand, I believe it will include sufficient material for me to show the inadequacy of what I shall call the standard referentialist conception of *a priori* truth. On the other hand, it is meant to contain all those characteristics as well, whose occurrence may prompt philosophers to query the adequacy of the alternative naturalistic construal of this subject that I shall advocate below. In accordance with the last methodological consideration mentioned above, I shall suppose that by imposing a relatively demanding constraint upon the envisaged construal of *a priori* truth, we can

³ One may wonder whether this hierarchic conception of rational belief formation can play a regulative role in our cognitive practice, and if it can, then how. The idea that in a naturalistic methodological framework there is no room for the establishment of substantive and informative epistemic norms has been recently defended by Knowles (2003). My brief reaction to the sceptical arguments advanced in that book can be found in Novák (2006).

substantially enhance the conclusiveness of our argumentation in the remaining chapters of this work.⁴

Having argued that the best way to start an inquiry into the nature of *a priori* truth is to compile a relatively extended list of the most obvious and striking properties of truth within our paradigm *a priori* discourses, and then assess the alternative accounts of the subject on the basis of their explanatory potential with respect to this evidential ground, in the following section, I shall specify the envisaged *explananda* (i.e. collect those observable phenomena, whose joint explanation I shall regard as a minimal condition of adequacy for a construal of *a priori* truth).

2. Major Explananda for a Construal of A Priori Truth

A proper account of *a priori* truth must explain, either in itself or as part of a larger theory, two kinds of characteristics of its intended subject matter: those which are possessed by truth within any discourse whatsoever, and those which are specific features of the *a priori* instances under scrutiny.⁵ In the first part of this section, I shall briefly review the most important elements of the former class.

1. Fit with a General Construal of Truth

The first thing that a proper account of any kind of truth must clarify is what makes the particular sort of instances under

⁴ Note, however, that my list will not include the (broadly Tarskian) observation that, for any sentence (or proposition) *p*, *p* is true if and only if *p* (where *p* is the metalinguistic name of *p*). I take it that this observation of the correct use of our notion of truth (or our predicate ‘is true’) in the above type of representational context is also obviously true, and thus also to be accounted for by an adequate construal of (*a priori*) truth. The reason for which I shall neglect this *explanandum* here is that its existence seems to provide no explanatory challenge to any account that I intend to discuss in the rest of this work.

⁵ Many of these *explananda* are brought into relief in the context of philosophy of mathematics by Shapiro (2000).

scrutiny instances of truth in general. In other terms, an account of any kind of truth must fit with a general construal of truth.⁶ According to the received referentialist construals, truth characterises its bearers in virtue of the obtaining of those conditions that the bearers in question are supposed to be about. In view of this background theory, an account of the specified paradigms of *a priori* truth can meet the current adequacy condition if it implies that the instances under study characterise their bearers in virtue of the obtaining of the relevant referential conditions. If the account does not imply this conclusion, then the only way to establish the required harmony is to modify the above referentialist conception of truth. In this work, I shall argue for the appropriateness of the latter strategy, and instead of adopting a referentialist construal of truth in the semantics of pure logic and mathematics, I will rather offer an alternative understanding of the nature of truth in general.

2. Objectivity of Truth

The second feature to be explained by an adequate construal of virtually any kind of truth is the objectivity of the truth value of the relevant truth-apt representation. The epistemically basic observation in this case is that the paradigms of *a priori* truth characterise their bearers independently of what anyone actually thinks about this issue.⁷ In other words, no actual epistemic states

⁶ Benacerraf (1973), 666, Shapiro (2000), 31.

⁷ The only case in which truth may appear as an epistemic property is when it characterises a representation of a reflective epistemic state, such as the claim *that I am aware of my current state of mind*. The idea that truth is objective is often understood as an essential tenet of realism about truth. According to Shapiro, for instance, realism about truth (in his terminology: realism in truth-value) is the doctrine “that mathematical statements have objective truth-values, independent of the minds, languages, conventions, and so on of mathematicians” and “[p]art of what it is for mathematical statements to be objective is the possibility that the truth of some sentences is beyond the abilities of humans to know this truth”. Shapiro (2000), 29-30. Accordingly, for him, realism about truth is *defined* in terms of objectivity, while objectivity in terms of verification transcendence (in Dummett’s sense of the term). This is why he does not take objectivity as an

concerning the truth value of an *a priori* belief are constitutive of the latter's possession of that value. Putting it briefly, it seems that in pure logic and mathematics (as in most other truth-apt discourses) no epistemic agent is *conceptually* prevented from committing an epistemic mistake. The most natural way of explaining this characteristic is to maintain that the facts determining the truth value of these representations obtain in the real world (i.e. independently of our actual beliefs about these circumstances). The main reason for which I shall suggest, in chapters 4 and 5, the rejection of any deflationist or anti-realist form of mainstream referentialism about truth is that these accounts cannot explain the above characteristic of this semantic property. In chapter 7, on the other hand, I shall argue that the naturalistic account advocated in this work of the nature of *a priori* truth provides sufficient explanatory resources to satisfy this second adequacy condition as well.

3. Emergence of Semantic Content

The third general *explanandum* that I wish to invoke is the emergence and existence of those semantic relations that turn particular facts into the obtaining intended referents and/or obtaining truth conditions of particular beliefs. Without these semantic relations, our thoughts and sentences could not be about and/or made true by the obtaining of anything in the world. One received way of accounting for this *explanandum* is to

undisputed characteristic of mathematical truth. After all, some philosophers believe that there are no unprovable mathematical truths. In contrast, my notion of objectivity does not appear in the *definiens* of realism about truth, and neither of these notions is defined in terms of verification transcendence. Further, I suppose that objectivity (on the adopted construal) is a virtually undisputed characteristic of mathematical (and most other) truths and falsities, whose presence has to be observed and explained by any account of these truths. An anti-realist or a deflationist may query the realist construal of the truth conditions of our truth-apt representations, but it is very unlikely that any of these opponents would want to hold that the truth value of those representations is determined by someone's actual judgement of this value.

invoke the idea of acquaintance. In particular, one may argue that the semantic relations between representations and their intended referents or truth conditions are established by the mind while it is acquainted with those *relata* (once they obtain) in the course of its cognitive interaction with its environment. Of course, this account can be accepted only if we can legitimately assume the existence of this epistemic contact between the above *relata*. In chapter 6, I shall argue that a platonist construal of the truth conditions of our purely logical and mathematical beliefs undermines all explanatorily useful concepts of such an epistemic contact. On the other hand, in chapter 5 as well as in chapter 7, I shall also argue that acquaintance is merely the most basic, but not the only way in which our mind can establish its semantic relations to various aspects of the world. In fact, I believe that, in possession of their alternative concept-forming resources, human minds can develop representations whose truth conditions obtain in a platonic realm. Accordingly, the main reason for which I shall suggest, in chapter 6, the rejection of all platonist forms of referentialism about truth in the semantics of our paradigm *a priori* discourses is *not* that these accounts cannot explain the emergence of semantic relations between platonic facts and human minds, but instead that they cannot explain how we could know of the obtaining or absence of the relevant platonic conditions. In chapter 7, I shall devote a separate section to explaining how our paradigm *a priori* beliefs acquire their non-referentialist (i.e. non-platonic) truth conditions, largely because a proper understanding of this phenomenon provides us with key ideas for explaining some other crucial characteristics of these *a priori* truths as well.

4. Knowledge / Reliability of Evidence

In many discourses, we can reasonably suppose that we have knowledge of the target domain. A piece of propositional knowledge is always knowledge of the obtaining or absence of some truth conditions, or, in other words, the truth or falsity of some representations. Due to this conceptual link between

knowledge and truth, a suitable account of any knowable kind of truth must support a proper explanation of this potential knowledge as well.⁸ The received view today is that an acceptable explanation of knowledge must include an intelligible account of why our actual evidence for a piece of knowledge is a reliable indicator of the obtaining of the relevant truth conditions, and the account in question can hardly be given without assuming a suitable link, a one-way influence or identity, between obtaining truth conditions and observed epistemic grounds. If this view is correct, then an understanding of a certain kind of truth can meet the current adequacy condition only if it construes its subject matter either in an anti-realist way, or in terms of the obtaining of some causally efficient conditions. An alternative approach to this *explanandum* is to adopt a non-causal epistemology, which is compatible with an anti-naturalist construal of truth conditions as well. While in the semantics of our broadly physicalistic discourses realist forms of the standard referentialist construal of truth are compatible with a broadly causal explanation of knowledge, in the semantics of our paradigm *a priori* discourses they are apparently not. As I mentioned above, the main reason for which I shall suggest, in chapter 6, the rejection of all realist forms of referentialism (i.e. platonism) about truth in the semantics of our paradigm *a priori* discourses is that these accounts, in my view, cannot explain how the obtaining of the alleged platonic truth conditions could in any way influence, and thus reliably inform, the development of our paradigm *a priori* beliefs. In chapter 7, on the other hand, I shall argue that the non-referentialist account advocated in this work can clearly meet this explanatory requirement as well.

⁸ Together with the first *explanandum*, this requirement is at the heart of Benacerraf's famous dilemma about mathematical truth. Benacerraf (1973), 667. The case will be presented in more detail in chapter 3. Shapiro invokes this *explanandum* together with apriority as part of a complex phenomenon: the possibility of *a priori* knowledge of mathematical domains. Shapiro (2000), 22-23.

5. Intersubjectivity of Semantic Content

The fifth adequacy condition for a construal of any kind of truth is to support an account of the intersubjectivity of the semantic content of our mental and physical representations. The basic observation here is that different people can entertain thoughts with the same semantic content. One traditional account of this *explanandum* is the Fregean idea that the shared aspects of semantic contents are platonic entities (i.e. elements of an epistemically accessible intersubjective abstract realm).⁹ Of course, the acceptability of this account presupposes that we can develop an epistemic access to platonic entities. In chapter 6, I shall argue that we have no reason to suppose that the latter condition obtains. Therefore, in line with what I said in the last section of chapter 1, in this work, I shall reject this Fregean view of semantic contents. Instead, I shall suppose that semantic contents are constituted of two conceptually separable semantic correlates of our mental and physical symbols: the first is constituted by the declarative use conditions, while the second by the (fine-grained) intended referents of these representations. If the declarative use conditions of a certain symbol can be specified in terms of its intended referents, then the two correlates actually coincide. In chapter 6, I shall concede that the standard referentialist and realist (i.e. platonist) construal of these correlates in the semantics of our paradigm *a priori* discourses provides a relatively simple account of the current *explanandum* as well. Nonetheless, in chapter 7, I shall show that the alternative non-referentialist construal of the paradigms of *a priori* truth that is advocated in this work can meet this adequacy condition (i.e. support a proper explanation of the intersubjectivity of the relevant semantic contents) as well.

⁹ Frege's use of the term 'content' is not uniform. In his early writings, he takes content to be either the referent or the sense of a certain symbol. Later he abandons the notion, and clarifies his terminology by the consistent application of his contrast between sense/thought and reference/truth value. Cf. Frege (1879) and Frege (1892).

6. Observable Convergence of Beliefs

The next feature that a proper account of any kind of truth must, within a larger theory, explain is the observable measure of convergence among the relevant kind of beliefs. In the case of logic and mathematics this convergence is strong, while in the case of other discourses, such as ethics or aesthetics, it seems considerably weaker. For those who maintain a cognitivist construal of these discourses, both sorts of phenomenon call for an explanation. Since convergence and divergence are supposed to characterise beliefs with shared semantic contents, any account of the current *explanandum* must be brought into harmony with the earlier explanation of how we can entertain thoughts with shared semantic contents. Further, since the most natural way of accounting for the (more or less strong) convergence of semantically equivalent beliefs is by reference to the (more or less strong) reliability of those epistemic capacities that underlie the formation of these beliefs, a proper account of (the observable measure of) convergence within our paradigm *a priori* discourses must fit with the former explanation of knowledge acquisition about these domains as well. If semantical platonists had an acceptable account of our alleged epistemic access to intersubjective platonic facts, their construal of the paradigms of *a priori* truth would easily satisfy the current adequacy condition too. The inadequacy of platonist theories of knowledge, which I shall argue for in chapter 6, however, undermines the corresponding platonist accounts for convergence as well. In chapter 7, therefore, I shall provide an alternative account of this *explanandum*, and show how a non-referentialist, representationist construal of the paradigms of *a priori* truth can fit into that account, and thus satisfy the current adequacy condition as well.

7. Infinity of Semantically Non-Equivalent Truth-Apt Representations

The last general feature of truth that I shall include in the current list of major *explananda* for a suitable construal of *priori* truth is the infinity of semantically non-equivalent truth-apt

representations. In our paradigm *a priori* discourses, as well as in our empirical discourses about the natural world, there seems to be no upper limit for the formation of semantically distinct true (or false) beliefs. Accordingly, a proper account of *a priori* truth must ensure that these semantic properties can, in principle, characterise infinitely many different beliefs. In chapter 6, I shall argue that the standard platonist construal of the examined paradigms of *a priori* truth can meet this explanatory requirement by endorsing a simple referentialist construal of the semantic content of our paradigm *a priori* claims and observing that the intended referential domain of these truth-apt representations is infinite in character. In chapter 7, on the other hand, I shall show that the infinity of semantically distinct *a priori* truths does not require the infinity of the domain of obtaining *a priori* truth conditions, and that a non-referentialist, representationist construal of these conditions supports a suitable account of the current *explanandum* despite the presumable finiteness of the crucial representational domain in our heads.

Beyond these general features of truth, whose proper explanation is an adequacy condition for a construal of virtually any species of this semantic property, some further characteristics pertain specifically to *a priori* truths, or at least the paradigm instances of them, and thus constitute an *explanandum* only for an account of this particular type of truth. In the remaining part of this section, I shall briefly review the most important examples of these specific *explananda* as well.

8. Apriority of Evidence

A defining characteristic of any *a priori* knowable truth is that we can establish its presence or absence without reliance on sensory experience.¹⁰ Our claims about abstract states of affairs are the

¹⁰ As it has been emphasised in the first section of chapter 1, the *a priori* knowability of certain truths and falsities does not imply the *a priori* acquirability

primary examples of truthbearers with *a priori* knowable truth values. So, the first specific adequacy condition for an account of *a priori* truth is that it must support a proper explanation of how the distribution of this semantic property can be discovered without reliance on sensory experience. The requirement can be understood as a specification of the former condition of explaining knowledge acquisition. Accordingly, a suitable account of the apriority of evidence in pure logic and mathematics can be taken as a specification of a suitable account of the reliability of that evidence. An account, for instance, which stipulates the existence of a specific *a priori* source of evidence can meet this adequacy condition only if it supports a suitable understanding of why the deliverances of this source are reliable indicators of the relevant *a priori* truth conditions. This is why I believe that the arguments to be advanced in chapter 6 against semantical platonist accounts of knowledge acquisition can undermine the standard platonist conceptions of apriority as well. On the other hand, the *explanandum* imposes a substantial constraint upon the suggested naturalistic construal of *a priori* truth too. In particular, as we shall see in chapter 7, it will provide the main motivation for adopting a representationist construal of *a priori* truth (i.e. an account according to which the truth conditions of our *a priori* claims in general obtain in the domain of representations in human heads).

9. Necessity of (the Paradigms of) A Priori Truth

The second specific feature of the paradigms of *a priori* truth that a proper construal of them must, within a larger theory, explain is that the relation of this semantic value (or its opposite) to its bearers is necessary in character.¹¹ In the standard referentialist framework, this requirement is usually taken to be met by stipulating that the truth conditions of paradigm *a priori* beliefs

obtain (or not) in an abstract realm, whose facts are all necessary in character. A representationist construal of *a priori* truth can, of course, hardly rely on such stipulations, since the natural facts that it takes to be the factual ground of *a priori* truths are supposed to exist contingently in the actual world. In chapter 7, I shall show that the construal can nevertheless meet this adequacy condition as well, since the modal contrast between the paradigms of *a priori* truth, on the one hand, and the paradigms of empirical truth, on the other, can be explained without reliance on the distinction between contingently and necessarily obtaining states of affairs.

10. Applicability of A Priori Knowledge in the Empirical Sciences

The third often cited specific feature of the paradigms of *a priori* truth to be explained by a proper construal of the subject is the applicability of our knowledge of these paradigms in the development of our empirical theories of the natural world.¹² How is it that our knowledge of abstract objects and properties, and thus of the distribution of the corresponding paradigm instances of *a priori* truth, can help us discover the truth value of claims about the spatiotemporal world? In a referentialist semantical framework, one may try to explain this phenomenon by supposing that the abstract facts that determine the truth value of our logical and mathematical claims stand in a suitable metaphysical relation with the spatiotemporal facts that determine the truth value of our empirical claims about the natural world. This explanation, however, is rather contestable in the light of the alleged metaphysical gap between the relevant abstract and natural realms. In fact, I believe that beyond the problem of explaining how we could gain knowledge of platonic objects and properties, this *explanandum* provides the most serious challenge to a realist (i.e. platonist) version of referentialism concerning the paradigms of *a priori* truth. The two explanatory

of the conceptual elements of the relevant truthbearers. The *explanandum* currently at issue is merely the former phenomenon. Shapiro (2000), 22-23.

¹¹ Shapiro (2000), 21-22.

¹² Shapiro (2000), 23, 33-39. Steiner (1998) provides a more sophisticated characterisation of this *explanandum*.

puzzles are clearly independent of each other. Even if there were an acceptable platonist theory of *a priori* knowledge acquisition, in absence of a suitable characterisation of the metaphysical link between the intended abstract and natural domains (in a referentialist semantical framework), the applicability of logical and mathematical knowledge in the empirical sciences would still appear as a miraculous coincidence. Although my arguments against a platonist construal of *a priori* truth will not draw on the former observation, nevertheless I suppose that a full case against that doctrine could also include the objection that a platonist construal of *a priori* truth cannot account for the applicability of logical and mathematical knowledge in the empirical sciences either. In chapter 7, on the other hand, I shall show that a naturalistic explanation of the emergence of semantic content within our paradigm *a priori* discourses provides us with a suitable account of this *explanandum* as well.

11. Abstractness and Infinity of Intended Domains

The last specific feature of the paradigms of *a priori* truth that I wish to include to the current list of major *explananda* is that the bearers of these paradigm instances are about an abstract and often infinite domain.¹³ One may wonder how the instances under scrutiny actually relate to this specific sort of subject matter, and what makes it the case that they can characterise bearers with such subject matters. In fact, this *explanandum* can be understood as the specification of the third presented above. It imposes specific constraints upon a proper account of the emergence of semantic relations between representations and aspects of the world. It requires that the account in question explain the emergence of semantic relations between our paradigm *a priori* beliefs and their abstract and often infinite subject matter. As mentioned before, the received view today is that truth in general is to be understood along referentialist lines.

¹³ Shapiro (2000), 28-29.

If this referentialist construal is correct, then a proper account of the emergence of referential relations between our paradigm *a priori* representations and their abstract and infinite subject matters will *eo ipso* explain how these representations acquire their truth conditions as well. In chapters 4, 5 and 6, however, I shall argue that the paradigms of *a priori* truth do not admit of a referentialist construal. Accordingly, an adequate construal of these truths must be compatible not merely with an account of the emergence of semantic relations between the relevant beliefs and their truth conditions, but also with an account of the emergence of determinate referential relations between them and their intended abstract and infinite subject matter. In chapter 7, I shall show that the naturalistic construal of the paradigms of *a priori* truth advocated in this work satisfies this adequacy condition as well, since it supports a suitable explanation of how we acquire the capacity of thinking truly about abstract and infinite domains.

In the following chapters, I shall regard the eleven characteristics specified above as the primary *explananda* for a proper construal of *a priori* truth. As I emphasised in section 1, the list is far from complete. It merely includes those features whose explanation usually occurs as a striking *desideratum* in the literature on the relevant *a priori* truths. There are definitely a number of other observable facts, whose proper explanation could be taken as a further condition of adequacy for an account of the current subject.¹⁴ Nevertheless, I believe that the constraints imposed by the above explanatory requirements will be sufficient for us to realise that a viable construal of what we take to be the paradigms of *a priori* truth must be non-referentialist and representationist in character.

¹⁴ One may observe, for instance, that a proper account of truth in the semantics of our paradigm *a priori* discourses has to support an explanation of the epistemological significance of proofs in pure mathematics, and the successful applicability of thought experiments in the development of our scientific theories of the spatiotemporal world as well.

Summary

In this chapter, I presented the most important methodological assumptions that I wish to adopt in this work.

In section 1, I advanced those general methodological principles that are supposed to inform my argumentation in the following chapters. First, I argued that the relation of a certain theory to its evidential base is justificatory and explanatory at the same time, and therefore a theory can be supported by reference to a certain piece (or pool) of evidence only if its truth can be supposed to contribute to an appropriate explanation of the occurrence of this evidential ground. Second, I highlighted that my argumentative strategy will not presuppose the sharp separability of observational and theoretical beliefs, but will assume that there is an epistemic hierarchy among our beliefs, so in most cases we can assess the adequacy of our less basic beliefs by considering whether they are in harmony with the more basic ones. Third, I conceded that our actual evidential ground for a serious theory of (some aspect of) the world can never be complete, and therefore the most that we can claim about a theory that can contribute to a reasonable explanation of all striking characteristics of its subject matter is that it is minimally adequate. Finally, I observed that the more inclusive our evidential ground at the assessment of a certain theory is, the more likely it becomes that the assessment relying on this ground is correct, so that if we want to enhance the conclusiveness of our argumentation for or against some theories of a certain subject, then the best we can do is to collect as many crucial *explananda* for these theories as we can. Applying these general principles to our current subject, I concluded that the best way to start an inquiry into the nature of *a priori* truth is to compile a relatively extended list of the most obvious and striking characteristics of truth in our paradigm *a priori* discourses, and then regard the potential to support a reasonable explanation of all these characteristics as a minimal condition of adequacy for a construal of *a priori* truth in general.

In section 2, I provided a brief characterisation of the envisaged major *explananda* for a theory of *a priori* truth. In view of this evaluative ground, in the remaining part of this work I shall argue for two major claims: first, that the standard referentialist construals of *a priori* truth are equally inadequate, since neither of them can support an appropriate account of all characteristics specified above; and second, that a non-referentialist, representationist construal of the examined paradigms of our subject can satisfy all advanced explanatory requirements, and thus amounts to a minimally adequate account of *a priori* truth.