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

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A Priori Truth in the Natural World

A Non-Referentialist Response to Benacerraf's Dilemma

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Zsolt Novák

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To my Mum and Dad

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Budapest, May 2010

To suppose that philosophy divides into separate compartments labeled "philosophy of mind", "philosophy of language", "epistemology", "value theory", and "metaphysics", is a sure way to lose all sense of how the problems are connected, and that means to lose all understanding of the sources of our puzzlement.

Hilary Putnam
(*The Threefold Cord*, p. 69)

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INTRODUCTION

The difference between *a priori* and empirical truth, knowledge, justification and evidence is one of the central contrasts encountered in modern philosophy. Still, if someone asks what philosophers commonly mean by the apriority of a piece of truth or knowledge, an honest answer can hardly include more than the classic negative characterisation of this property: a certain truth is meant to be *a priori* in so far as one can acquire *a priori* knowledge of it, and a piece of knowledge is *a priori* if it can be justified without reliance on the deliverances of experience. If the interrogator wants to learn something positive about the nature and extension of the alleged non-experiential form of justification, then she must soon realise that her interlocutors have only vague and divergent views about this subject. Even worse, they have no clear and commonly held conception of what counts as a piece of experience, and they have no consensus either about the sense in which (or the extent to which) the evaluation of an *a priori* belief must be independent of what we can learn from experience.

What is relatively clear and commonly accepted is that the paradigms of *a priori* truth, knowledge, justification and evidence occur in pure logic and mathematics. Even if one denies the existence of *a priori* truth and knowledge, what one usually wants to emphasise and argue for is that our knowledge of logical and mathematical truths is also based on experience. In view of this implicit agreement, one may wonder why it is so hard to develop a positive account of the nature and extension of *a priori* truth and knowledge. Couldn't we simply examine the cognitive mechanisms underlying logical and mathematical belief formation and decide which features of these mechanisms we regard as the defining characteristics of apriority? The decision in question would determine also which other truths can be known without reliance on experience, so we could establish a relatively sharp line between experiential and non-experiential justifications (or pieces of evidence) as well.

Simple as it may sound, the proposal just mentioned proves quite hard to realise. This is mainly because philosophers have no clear notion of what knowledge acquisition in pure logic and mathematics consists in, and thus what exactly it is that could be systematically examined at the beginning of a search for an appropriate positive account of *a priori* truth and knowledge. In contrast to the case of empirical belief formation, whose types (such as perception, recollection, and introspection) are commonly supposed to occur in the empirically observable spatiotemporal world, it is rather obscure which facts we actually interact with, and by means of which cognitive mechanisms, when we develop our beliefs in pure logic and mathematics.

In philosophy of mathematics, the problem has been nicely articulated by Paul Benacerraf in a paper on mathematical truth. In Benacerraf's reconstruction, what is puzzling about mathematical knowledge is that the standard view of what one knows in pure mathematics seems to be incompatible with the received (scientific) conception of the nature of human knowledge acquisition. According to the latter conception, human knowledge is a natural phenomenon, which requires causal interaction between the knowing mind and the obtaining truth conditions of the known propositions. The standard (referentialist) view of these truth conditions, however, is that they are always identical with those states of affairs that the relevant beliefs are about. The truth conditions of the belief *that zebras are herbivores*, for instance, are supposed to be the conditions that zebras are herbivores. If these conditions obtain, then the belief is supposed to be true, if not, then false. In the case of pure mathematics, this means that the relevant conditions are abstract mathematical conditions, whose obtaining or absence has no causal impact on anything else in the world. If mathematical knowledge amounted, indeed, to knowledge of the obtaining of such conditions, and knowledge required causal contact, then mathematical knowledge would be impossible. But this sounds absurd. An account that entails that we cannot know that two plus three equals five can hardly be regarded as adequate. Consequently, at least one of the two fundamental assumptions

must be wrong. Either knowledge does not require causal interaction between minds and obtaining truth conditions, or the truth conditions of mathematical beliefs are not identical with what these beliefs purport to be about (and thus what we know in pure mathematics is not the obtaining of the intended abstract states of affairs).

Note that the same problem arises in the case of any knowledge candidate that is supposed to be about real entities that have no causal impact upon our actual cognitive capacities. Logical beliefs, for instance, are often supposed to be about abstract and mind-independent propositions and their inferential relations, conditions that obtain in a causally inert domain too. Ethical and other normative properties are also sometimes construed as causally inert real entities. Finally, beliefs about what must or may be the case are sometimes understood as beliefs about conditions obtaining in various equally real but non-actual worlds that are also causally separated from the one in which we develop these beliefs.

Faced with the difficulty, philosophers have tried to save their uniform referentialist conception of truth in a number of different ways. Deflationists about truth have argued that a proper theory of truth is metaphysically neutral, and has no substantive role in the systematic explanation of cognitive and other truth-related phenomena. Less esoterically, their view is that, for instance, by maintaining that the truth conditions of the belief *that zebras are herbivores* are the conditions that zebras are herbivores we do not say anything about what we think we actually discover (by real cognitive mechanisms) when we learn that zebras are herbivores. Anti-realists about truth hold that the truth conditions specified in terms of the relevant intended referents are in some way epistemic, so their obtaining or absence need not causally affect the mind for knowledge to be realised. Finally, platonists about logical and mathematical truth either assume that we have special cognitive capacities to acquire knowledge of the obtaining of causally inert (extra-mental) truth conditions, or simply deny that knowledge requires interaction between obtaining truth conditions and the knowing mind.

Notably, none of these reactions helped the community develop a clear understanding of what knowledge acquisition in pure logic and mathematics consists in. To say that mathematical states of affairs are deflated or in some sense mental, or that their obtaining can be grasped by the exercise of some specific capacity, such as intuition, or that mathematical knowledge does not require any contact between obtaining truth conditions and knowing minds does not clarify what philosophers (or scientists) could examine in order to develop a positive account of the nature and extension of *a priori* truth and knowledge. Moreover, the proposals just summarised give rise to a number of other explanatory puzzles that are at least as disturbing as the one they were supposed to resolve.

But how about the alternative route? Why couldn't philosophers simply abandon the standard referentialist construal of the truth conditions of these problematic beliefs? What is so implausible in the assumption that the truth conditions of correct logical and mathematical beliefs obtain in the actual spatiotemporal world, rather than in the abstract domains that these beliefs purport to be about, and we can acquire knowledge of these truths by means of some natural cognitive mechanisms that are (in principle) no less observable than those underlying the existing types of empirical belief formation?

According to Benacerraf, the main reason for which philosophers had better insist on the standard (broadly Tarskian) referentialist understanding of truth is that this theory is the only available, articulate and *prima facie* plausible, general conception of the subject. In absence of such a construal, one can hardly motivate the assumption that certain conditions are the *truth* conditions (as opposed to, say, the rational acceptability conditions) of some beliefs.

Beyond this conceptual point, there are other explanatory challenges as well that an advocate of the non-referentialist option has to face. One may wonder, for instance, what makes it the case that the truth value of logical and mathematical beliefs seems necessary in character if the truth conditions of these beliefs are supposed to obtain contingently in the spatiotemporal

world. Further, one may ask how people could acquire *a priori* knowledge of any fact in the natural world. Finally, one may wonder how the obtaining of some presumably finite natural conditions could guarantee the truth of a theory about an infinite and abstract domain.

In view of these and other explanatory difficulties, today most philosophers believe that the proper response to Benacerraf's dilemma must preserve the standard referentialist construal of truth. My primary purpose in this work is to show that this belief is mistaken.

In my view, the appropriate reaction to Benacerraf's challenge is neither the deflation or epistemisation of truth, nor the postulation of exotic cognitive capacities, nor the denial of the received contact theory of knowledge. Instead, the proper response to the puzzle is to recognise that the truth conditions of some beliefs are not identical with those conditions that these beliefs purport to be about. Beyond explaining why I think that the conceivable referentialist strategies to escape the dilemma are equally mistaken, in this work I shall also put forward a particular non-referentialist construal of logical and mathematical truth that arguably satisfies *all* major explanatory requirements one can reasonably set for such an account. The construal will provide a relatively clear notion of what logical and mathematical knowledge acquisition consists in, and it will inspire a scientifically specifiable positive view of the nature and extension of *a priori* truth, knowledge, justification and evidence as well.

The central claim of the envisaged construal is that the truth conditions (as opposed to the intended referents) of logical and mathematical beliefs are natural conditions in human heads. In particular, they are analytic relations among representations that subjects develop in their heads in the course of their cognitive engagement with their direct natural environment. In view of this assumption, I shall call the proposal a *representationist* construal of the relevant truths. The construal preserves the realist idea that the truth value of logical and mathematical beliefs is independent of anyone's actual opinion of this issue. It subscribes to the moderate empiricist claim of the analytic nature of logical and

mathematical beliefs, but it identifies the factual basis of analytic truths in the actual natural world. As an essential component, the construal assumes that a subject can detect the obtaining or absence of the relevant representational conditions in her head without actually thinking about them. This is how these conditions can serve as non-referential truth conditions for those beliefs. Finally, being natural in character, the obtaining or absence of these conditions can causally influence the subject's cognitive capacities, which means that the construal is compatible with the received "contact theory" of knowledge acquisition as well. Truth and knowledge in pure logic and mathematics emerges as a natural phenomenon, which can be subject to systematic empirical investigation.

Having defended this particular non-referentialist construal of the paradigms of *a priori* truth and knowledge, at the end of this work, I shall argue that the critical feature of representationality can be more than a contingent characteristic of *a priori* truths. In fact, there are good reasons for us to take this feature as an essential, defining trait of apriority, and thus as a necessary characteristic of *a priori* truths. According to the resulting representationist construal of apriority, a certain truth qualifies as *a priori* (i.e. *a priori* knowable) exactly when it consists in the obtaining or absence of some conditions in the realm of representations within a subject's head, while a piece of evidence, or the justification that it provides for a belief that is based on its recognition, or the knowledge achieved by this justification, qualifies as *a priori* exactly when it is generated by an (in principle) observable cognitive mechanism within a subject's head that conveys reliable information of the obtaining or absence of representational truth conditions to the subject's mind.

This work is divided into seven chapters. The first two contain preliminary material for the argumentation developed in the remaining five. The preliminary chapters are meant to clarify the major conceptual and methodological assumptions of the subsequent reasoning. The argumentative part starts with chapter 3, which presents Benacerraf's dilemma and delineates those theoretical options that one might adopt in response to the

dilemma. The remaining four chapters of the work are devoted to the evaluation of the *prima facie* viable response candidates. Chapters 4, 5 and 6 contain my arguments against the standing referentialist responses, while chapter 7 focuses on the specification and defence of the proposed non-referentialist alternative. To conclude this introduction, let me summarise what I shall do in the seven chapters in somewhat more detail.

In chapter 1, I shall put forward the central tenets of this work and elucidate seven key notions whose proper understanding may be essential for a heedful assessment of the position to be advocated here. In section 1, I shall address some issues concerning our idea of *apriority*. In section 2, I shall summarise what I maintain, and will also defend, of the notion of *truth*. In section 3, I shall clarify the sense in which I will talk about *realism* and show how this sense can be retained and communicated in the face of the most recent (quasi-realist) challenge to metaphysical thought. In section 4, I shall explain what I understand by *reference* (and referentialism about truth) in this work. In section 5, I shall specify what I will mean by *abstract* and *natural* referential domains. Finally, in section 6, I shall review what the representationist construal of *a priori* truth and knowledge to be advocated here presupposes in philosophy of mind concerning the existence, the nature, and the semantic content of *representations*.

In chapter 2, I shall turn to the most important methodological assumptions of this work. In section 1, I shall advance those general methodological principles that I think should govern theory formation about any particular segment of the world, and specify what the application of these principles amounts to in the context of the current investigation. The primary purpose of this section is to clarify why I believe 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 the major *explananda* for a construal of *a priori* truth. It will be against the background of these explanatory adequacy conditions that, in the remaining five chapters, I shall evaluate the alternative construals of *a priori* truth.

In chapter 3, I shall set the stage for the argumentation advanced in the last four chapters by presenting what I take to be the most influential explanatory challenge to the standard referentialist construal of truth in the semantics of our paradigm *a priori* discourses and then developing an exhaustive doctrinal map of the conceivable responses to this challenge. In section 1, I shall reconstruct an updated and generalised version of Benacerraf's original dilemma about mathematical truth, which demonstrates that, unless the received contact theory of knowledge is false, a substantive realist and referentialist construal of truth in the semantics of discourses that involve knowledge or reliable belief formation about causally inert domains cannot be adequate. In section 2, I shall spell out the most important semantical and epistemological assumptions of this case, and review those theoretical positions that one might take in response to it. Some of these alternatives I shall eliminate as non-starters. The remaining options I shall divide into two groups: four of them I shall classify as *prima facie* plausible referentialist responses, and one as the non-referentialist alternative. Having developed this doctrinal map, in the final part of this chapter, I shall briefly explain my argumentative strategy in the rest of this work.

In chapter 4, I shall argue against the deflationist responses to Benacerraf's dilemma, which attempt to save the idea that truth conditions can always be specified in terms of intended subject matters by denying that our notion of truth represents a substantive property whose nature and metaphysical status can be further characterised, and thus by refraining from a realist interpretation of the truth conditions of our beliefs. My main objection to this strategy will be that an advocate of deflationism can provide no suitable explanation of the objectivity of truth, which means that her construal of *a priori* truth violates at least one major adequacy condition set for such an account in chapter 2. In section 1, I shall develop my case by examining the most

fully elaborated version of deflationism to date, Paul Horwich's minimal theory of truth. Beyond arguing for the claim that a proper explanation of objectivity requires a substantive realist construal of truth, I shall also show that Horwich's positive "use-regularity conception" of meaning together with his commitment to what is expressed by the uncontroversial instances of the equivalence schema 'it is true *that p* if and only if *p*' entails a realist use-theoretic conception of truth that preserves the idea that truth and falsity characterise their bearers independently of what anyone actually thinks or knows of this particular circumstance. A further important aspect of this conception is that it does not stipulate the referential character of truth, and thus remains compatible with the non-referentialist construal of the paradigms of *a priori* truth that I shall argue for in chapter 7. In the second section of chapter 4, I shall defend the received realist correspondence theory of truth against the so-called "slingshot arguments", which are meant to demonstrate that all true beliefs refer to the same thing, and therefore cannot be made true by the obtaining of their own separate truth conditions. As I shall show, the arguments exploit the collapse-generating aspects of our highly coarse-grained (Fregean) notion of reference, which is clearly different from that fine-grained concept of symbols-world relation which is operative in a referentialist construal of truth.

In chapter 5, I shall turn to the conceivable anti-realist responses to Benacerraf's dilemma, which might be thought to be able to save the standard referentialist construal of truth by maintaining that the truth conditions of our beliefs are in some way epistemic, so their obtaining or absence need not causally affect the mind for knowledge to be realised. My main objection to these conceptions will be the same as my objection to their deflationist alternatives: in so far as one abandons realism in the sense clarified earlier, one can provide no suitable explanation of the objectivity of truth, which means that one's construal of *a priori* truth must violate a major adequacy condition set for such an account in chapter 2. In the two extensive sections of chapter 5, I shall defend the realist conception advocated in this work against a number of influential arguments that are often regarded

as anti-realist challenges to this position. In section 1, I shall examine Michael Dummett's acquisition and manifestation arguments against the standard realist assumption that the truth conditions of our beliefs can be verification-transcendent in character. First, I shall show that the real target of Dummett's criticism is not so much the realist as the referentialist construal of truth, so his semantical programme cannot help the advocates of referentialism escape Benacerraf's dilemma. Second, I shall argue that Dummett's cases rely on a limited view of our capacity to develop and communicate new ideas of truth conditions, and therefore cannot demonstrate the inadequacy of standard referentialism in the semantics of discourses about verification-transcendent domains. In section 2, I shall turn to Hilary Putnam's internal realist argumentation against metaphysical realism and the correspondence theory of truth. First, I shall observe that Putnam's internalist perspective cannot help the referentialist escape Benacerraf's dilemma either, since it also embraces realism in the relevant sense of the term, and thus leads the referentialist to the same explanatory difficulties as its metaphysical realist counterpart. In spite of this, I shall admit that Putnam's reasoning is still significant for the concerns of the current work, since it queries the viability of the correspondence theory of truth, something that is clearly endorsed by the adoption of the realist use-theoretic construal advocated in chapter 4. In the second part of this section, therefore, I shall examine Putnam's three sub-arguments for the claim that a metaphysical realist cannot explain how representations can refer determinately to particular aspects of the world, and specify why I think that the argumentation fails to eliminate a broadly causal theory of reference determination. The main tenet that I think the results of this chapter illuminate is that the real problem with referentialism in the semantics of our paradigm *a priori* discourses is not that the advocates of this doctrine cannot explain how we can develop ideas of causally inert domains, but instead that they cannot explain how we can acquire knowledge of, or develop reliable beliefs about, such domains.

In chapter 6, I shall focus on the standing platonist responses to Benacerraf's dilemma. As mentioned before, these responses attempt to save the standard referentialist construal of truth by querying some of the epistemological premises of Benacerraf's case: they either assume that subjects can have a non-causal epistemic contact with platonic domains, or deny that knowledge requires interaction between obtaining truth conditions and the knowing mind. What I intend to show in this chapter is that these responses cannot fulfil their dialectical role either. In section 1, I shall briefly review the most important explanatory considerations in favour and against the platonist construal, and argue that in absence of a viable account of knowledge or reliable belief formation about abstract domains, a platonist may not be able to explain some other striking characteristics of our paradigm *a priori* beliefs either. In section 2, I shall examine the proposed platonist epistemologies, and expound why I think that these accounts cannot save the adequacy of standard referentialism about truth either. Putting it briefly, the non-causal contact theories will be rejected on the ground that they are *ad hoc* and uninformative, and they open the door for parallel stipulations in the case of knowledge claims about any exotic domain, while the no-contact theories will be abandoned because they provide us with no reason for taking anything that occurs in our mind as a reliable indicator of the actual obtaining or absence of the alleged platonic truth conditions of our logical and mathematical beliefs. With the elimination of these epistemological responses, I shall complete my case against the standard referentialist interpretation of the truth conditions of our paradigm *a priori* beliefs. If the conclusions of my three polemic chapters are correct, then the adequate response to Benacerraf's dilemma must be non-referentialist in character.

In chapter 7, I shall show that a specific naturalist version of non-referentialist realism about the paradigms of *a priori* truth can satisfy all major explanatory adequacy conditions set for such a construal in chapter 2. As stated above, I shall call this version a representationist construal of the relevant truths, since it

supposes that the truth conditions of our purportedly *a priori* claims about abstract domains obtain (if they do) in the realm of representations within the subjects' heads. In section 1, I shall observe that our actual cognitive and linguistic practice manifests no analytic link between the notion of truth conditions and the notion of intended referents, which means that a non-referentialist construal of certain truths cannot be rejected on conceptual grounds. In section 2, I shall elaborate the details of the envisaged representationist construal while developing an empirically confirmable naturalist account of the emergence of the semantic content of our paradigm *a priori* beliefs, one of the eleven *explananda* set for a construal of *a priori* truth in chapter 2. In section 3, I shall confront the suggested representationist construal with the other explanatory requirements specified in chapter 2, and explain how I think the construal can satisfy those requirements, and thus qualify not merely as a suitable response to Benacerraf's dilemma, but also as a minimally adequate construal of the relevant truths. Finally, in section 4, I shall briefly return to the original broader perspective of this investigation and argue that by reference to the emphasised feature of representationality philosophers can provide a minimally adequate specification of the nature of *a priori* truth, knowledge, justification and evidence in general as well. At the end of the chapter, I shall put forward the proposed definitions, and highlight what the resulting notion of apriority retains from its past epistemological connotations.

Having finished the argumentation, in the conclusion, I shall briefly review the most important assertions of this work, and elucidate what the collected findings may teach us about some neighbouring issues in the current literature and about the role of empirical inquiry in the development of concepts with major philosophical significance.