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WHY ‘WATER’ IS NOT AN INDEXICAL

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Adherents of two-dimensionalist semantics have devised a powerful argument to show that the Kripke-Putnam semantics is in need of an overhaul. Kripke and Putnam take “Water is H₂O” to be necessary as well *a posteriori*. But that cannot be true. For to claim that a proposition is necessary is to claim that it is true in all contexts, whilst to maintain that it is *a posteriori* or informative is to hold that there is at least one context in which it is false. In order to avoid the apparent contradiction, two-dimensionalists understand ‘water’ to be a context-dependent or indexical expression. We argue that *even if* one accepts the key ideas of a two-dimensionalist semantics, one need not and one should not maintain that ‘water’ is an indexical. On the one hand, we offer an analysis of the pragmatic role of indexicals that provides good reasons not to class ‘water’ with ‘I’ or ‘this monday’. From this we conclude that one should not maintain that ‘water’ is an indexical. On the other hand, we argue that the contradiction is only apparent since it stems from a flawed understanding of the *a priori*. We devise an adequate epistemic understanding of this notion and show that on this understanding the sketched contradiction does not arise. From this we conclude that one need not maintain that ‘water’ is an indexical.

The arguments put forth by Kripke in *Naming and Necessity* and by Putnam in his *The Meaning of ‘Meaning’* have established what has become the current orthodoxy on the semantics of natural kind terms and the metaphysics of natural kinds.¹ These arguments have been widely acknowledged to demonstrate that there are sentences that are knowable only *a posteriori* although they are necessarily true. One example is “Water is H₂O”. According to the Putnam-Kripke stance the following claims hold true:

- (1) The English sentence “Water is H₂O” is necessarily true.
- (2) The truth of “Water is H₂O” can be known only *a posteriori*.

The truth of (1) results from the fact that

- (3) The English expression ‘water’ rigidly designates H₂O. (The same holds for the English expression ‘H₂O’)

These claims are of course meant to hold for the mentioned English expressions as well as for all of their utterances. According to the Kripke-Putnam orthodoxy, if someone uses the English term ‘water’, its linguistic reference will be H_2O ; and no one uttering the English “Water is H_2O ” can ever say something that is not necessarily true. Even though Kripke and Putnam might not have put their ideas in precisely these words, their theory of reference fixing makes it obvious that this is how they are to be understood (cf. Kripke 1980: 96f, 121). It is anyway natural to understand their ideas along these lines. For the only exception to the rule that designation and truth remain stable across utterances are indexicals such as ‘I’, ‘here’ or ‘now’ and other context-dependent terms – and we simply have no reason at all to class ‘water’ or, for that matter, ‘tiger’ with words such as ‘yesterday’.²

However, it has become popular to reject the orthodox Kripke-Putnam account. Especially adherents of what we would like to call ‘two-dimensionalism’³ rebuff the orthodoxy. They maintain that one cannot consistently hold on to (1) – (3), given that these claims are meant to hold across the board. They reason thus (cf. Jackson 1998: 70ff; Haas-Spohn 1997, esp. 333-337): According to the Kripke-Putnam orthodoxy, any utterance of ‘water’ rigidly designates H_2O . Since the same is true of ‘ H_2O ’, any utterance of “Water is H_2O ” is necessarily true. Hence, any utterance of “Water is H_2O ” will be true in the context it is uttered in. Yet a sentence is *a posteriori* only if it is informative, and it is informative only if it excludes some possibilities. That is, a sentence *s* is *a posteriori* only if there are contexts *c* such that *s* as uttered in *c* is false. Hence, the English sentence “Water is H_2O ” can be informative only if it is *not* the case that any utterance of the English “Water is H_2O ” will be true in the context it is uttered in. Thus, whoever wants (1) – (3) to hold across the board lands himself in an inconsistency.

Since they share the Kripkean belief that “Water is H_2O ” is necessarily as well as *a posteriori*, the adherents of two-dimensionalism think that there is but one way to avoid this inconsistency: We have to take ‘water’ to be an indexical. More precisely, we have to model the semantics of our term ‘water’ on the semantics of expressions such as ‘I’, ‘here’ and ‘now’. What these terms designate depends on the context they are uttered in, yet any of their utterances, Kaplan has urged, refers rigidly. Two-dimensionalists believe that precisely the same is true of ‘water’, ‘gold’, ‘tiger’ etc.: their designation varies systematically with the context they are uttered in, yet any of their utterances designates rigidly (cf. Chalmers 1996: 57; Jackson 1998: 39f, 49ff; Haas-Spohn 1997: 339ff). They hold that this would resolve the problem at hand. For if the designation of ‘water’ does so vary, some utterances of the English term ‘water’ will *not* designate H_2O , and hence some utterances of “Water is H_2O ” will be false — which apparently is precisely what we need if we want to hold that “Water is H_2O ” is *a posteriori*.

We agree that turning ‘water’ into an indexical would resolve the sketched dilemma. However, we doubt that there is a problem in the first place. We confess that we

are in general rather sceptical about two-dimensionalist semantics, but we are happy to leave our worries to one side. We think that even if one embraces the two-dimensionalist framework, as we will do for the sake of the argument, one should neither be impressed by the alleged predicament nor by the solution proposed. We will deal with these claims in reverse order. Firstly, we will argue that there are substantial reasons for denying that the English expression ‘water’ is an indexical (section 3). It consequently is simply a bad idea to model the semantics of ‘water’ on the semantics of, say, ‘I’. Secondly, we will go on to argue that the alleged predicament is but apparent – stemming, as it were, from an implausible understanding of ‘*a priori*’ (section 4). We will, among other things, propose a different explication of ‘*a priori*’ and point out its virtues. The upshot of our discussion will be that even if one accepts the key ideas of two-dimensionalism, one need not and one should not maintain that ‘water’ is an indexical. However, we will begin with a closer look at two-dimensionalist semantics, the argument offered and the idea that ‘water’ is an indexical (sections 1 and 2).

1. Since two-dimensionalism is rooted Kaplanian ideas, we would like to start off with a brief reminder on some well-known aspects of Kaplan semantics (cf. Kaplan 1977; Kaplan 1989). Kaplan distinguishes quite generally (i) the meaning or semantic rule of an expression which is what, together with a context, determines the semantic value of an utterance from (ii) the semantic value thus determined. He calls the former kind of semantic property *character* and models it as a function from contexts to semantic values. The semantic value of an expression as uttered in a context is called its *content* by Kaplan, and he understands contents to be intensions rather than extensions. Even though this distinction applies to any kind of expression, it can be used to define what an indexical is: An indexical is an expression whose content varies with the context it is uttered in. In short, an indexical is an expression that has a variable character. One can also define what a rigid designator is: A rigidly designating utterance is one with an invariable content.

In accordance with this distinction, Kaplan’s account makes the semantic properties of an utterance containing an indexical depend on its *context of use* as well as on the respective *circumstance of evaluation*, also called an *index*. Ontologically, contexts and indices are on a par. An index simply is a possible world, and a context is a possible world with a centre assigned, i.e. with at least a speaker, a time, and a place highlighted. Moreover, since there is just one set of possible worlds, contexts and indices are the same worlds characterised in a different manner. These different characterisations stem from the different roles they play. The context of an utterance is the situation it is made in. Taken together with the character of the respective expression type, the context determines the content of the utterance. An index is a possible situation relative to which the content thus determined can be evaluated as being true or false. Hence, utterances

are made *in* contexts and evaluated *at* indices. One of the indices an utterance is evaluated at is of course the context it is made in, and some sentences are peculiar in that their utterances are always true at that index (even though they are not true at all indices). This holds, for instance, of the sentence “I am here”.

Two-dimensionalism takes its inspiration from Kaplan semantics, incorporating its characteristic two-tier structure as well as Kaplan’s crucial distinctions. Two-dimensionalists distinguish contexts from indices, and just like Kaplan, they understand the former to be centred possible worlds and the latter to be possible worlds *simpliciter*.⁴ They also take up Kaplan’s distinction between characters and contents. Yet they transform it into a distinction between two kinds of meanings — or more precisely: two kinds of intensions. This modification paves the way for the central idea shared by two-dimensionalists: They believe that the meaning of any expression can be factored into two intensions – its *primary* and its *secondary intension*.⁵

An expression’s *secondary intension* is what Kaplan calls a content. Secondary intensions are assigned to expressions as uttered in contexts, and they are understood to be functions from indices into extensions.⁶ The secondary intension of a sentence uttered in a context can consequently be equated with the proposition it expresses, i.e. the set of indices or possible worlds the utterance is true at. This kind of meaning does sometimes depend on the non-semantic aspects of the context and may thus be unknown to a competent user of an expression. For instance, the English term ‘water’, as uttered in our present context, yields as secondary intension a function from possible worlds to H₂O. This is due to the decidedly non-semantic fact that the stuff in the local lakes and puddles happens to be H₂O. Yet a competent user of ‘water’ does not have to know that there is H₂O in our puddles and lakes. Hence, she isn’t guaranteed to know the term’s secondary intension. The *primary intension* of an expression corresponds to Kaplan’s character; but it rather is what Stalnaker calls a *diagonal* (cf. Stalnaker 1978: 317-319). Primary intensions are assigned to expressions rather than to utterances, and the primary intension of an expression is a function that yields for every possible context the extension the expression has *at that very context*. The primary intension of a sentence can hence be understood to be the set of all contexts *c* such that the sentence, as uttered in *c*, is true at *c*. This kind of meaning is exhausted by purely semantic facts, and according to two-dimensionalism, it must be known by anyone who understands the term in question. As we have seen, a competent user does not have to know which stuff the English expression ‘water’ designates in the present context, since this depends on non-semantic facts. But according to two-dimensionalism, she has to know *how* the designation of ‘water’ depends on the respective context it is uttered in. That is, she has to know what ‘water’ designates if uttered in a context that happens to be so-and-so. This is precisely what the term’s primary intension is thought to capture.

The distinction between primary and secondary intensions — or as we will alternatively say: between contents and diagonals — shapes the semantic framework two-dimensionalists share. Two-dimensionalists rely on this very framework in their introduction of the terms ‘necessary’ and ‘*a priori*’ (cf. Stalnaker 1978: 320; Haas-Spohn 1997: 335f; Chalmers 1996: 62-65). Employing the technical means outlined and taking up the idea that a sentence is necessarily true if and only if the proposition expressed by it is the set of all possible worlds, two-dimensionalists define necessary truth as follows: A sentence as uttered in a context is necessarily true if its content is the set of all possible worlds. More interesting and potentially controversial is the way they introduce the notion of an *a priori truth*, explicating it thus:

(AP_{TD}) A sentence is *a priori* true if and only if its diagonal is the set of all possible contexts.

We are going to worry about AP_{TD} at great length in sec. 4. For the moment, we would like to point out that AP_{TD} is *not* entailed by the fundamental ideas that make up the two-dimensionalist framework outlined above. Even though all two-dimensionalists we know of are happy to embrace it, it rather is an additional thesis. We would also like to stress that AP_{TD} plays a crucial role in the argument put forth by two-dimensionalists. In fact, one will hard pressed to spot an inconsistency in the orthodox view unless one subscribes to this idea of the *a priori*. That is what we turn to now.

2. The Kripke-Putnam orthodoxy endorses the claims (1) – (3), and it of course wants them to hold across the board. Hence, anyone who advocates the orthodoxy ends up with an inconsistent view — or so two-dimensionalists argue. This argument becomes more transparent once one employs two-dimensionalist resources to recast it. Anyone who adheres to the orthodox claims (1) – (3) is bound to hold that the English expression ‘water’ as uttered in any context *c* designates H₂O in *c*, and that the English sentence “Water is H₂O” as uttered in any context *c* will be true at *c*. Given the above explications, the orthodox Kripke-Putnam account thus implies the following:

- (1*) The diagonal of the English sentence “Water is H₂O” contains all possible contexts.
- (3*) The diagonal of the English expression ‘water’ is a constant function that assigns to any context the H₂O in it. (The same holds for ‘H₂O’)

The proponents of the orthodoxy do also believe “Water is H₂O” to be *a posteriori*. On the two-dimensionalist definition of ‘*a priori*’, this idea entails that

- (2*) The diagonal of the English sentence “Water is H₂O” does *not* contain all possible contexts.

From this, two-dimensionalists conclude that the orthodox Kripke-Putnam account is beset with an inconsistency. For (1*) and (2*) are obviously inconsistent, and a little reflection shows that the same holds for (2*) and (3*). These inconsistencies are not brought about by the two-dimensionalist framework employed. All this framework provides is a clear way of putting matters; it does not add anything substantial to the claims made. That is not true of the invoked understanding of the *a priori*. In drawing on their definition, two-dimensionalists in fact add an additional premise to the argument — even though they seem to be oblivious to this fact. We will come back to this point in due course. Just yet we would like to take a closer look at the solution two-dimensionalists offer for the sketched problem. They think that we have to assume that the diagonal of our term ‘water’ is *variable* function from contexts to extensions. That implies that ‘water’ does not always designate H₂O, and that “Water is H₂O” is not always (necessarily) true. Before we are going to argue that this is not a good idea, we would like to spell out in some detail how this is supposed to work.

Let us rehearse the orthodox background first. The core idea of Kripke-Putnam semantics is that the intension of a natural kind term is fixed by an objective sameness relation to the paradigmatic instances we relied on in introducing the term (cf. Putnam 1975: 229-238.). In the case of ‘water’, its extension in any world is thought to contain just those elements that bear the relation *is-of-the-same-kind-of-liquid-as* (‘same_L’, for short) to the water-samples used in introducing the expression. According to the orthodox view, then, spelling out the intension of the English expression ‘water’ comes down to this:

(KP) For any world w and any x it holds: The English expression ‘water’ applies to x in w if and only if x bears same_L to the water samples picked out *in our world*.⁷

The samples in question might be determined indexically — e.g. “*This* is water” — or via a reference-fixing description — e.g. “The stuff in Lake Michigan is water”. In either case the linguistic device serves only to pick out certain items; it does not contribute anything to the intension of ‘water’ beyond this. Two aspects of this idea are to be noted. On the one hand, the intension of ‘water’ is not affected by anything we believe about the stuff in question. The intension of the term is rather fixed by how things objectively are. On the other hand, the designation of ‘water’ in any possible world is anchored *in our actual world*. Imagine a world that contains a stuff that plays precisely the role water plays in our world — it fills puddles and lakes, quenches thirst, flows from taps etc. This world will not contain water unless the stuff in question bears the relation same_L to *our samples*. Since the samples in our world consist of H₂O, the orthodox stance implies that the intension of ‘water’ is a function from possible worlds onto H₂O.

All this can easily be translated into the two-dimensionalist framework. Generalising (KP) to cover utterances, we arrive at the following proposition:

(KP*) For any context c , any world w , and any x it holds: The English expression ‘water’ as uttered in c applies to x in w if and only if x bears same_L to the water samples picked out in our world.

This proposition characterises the secondary intension of ‘water’, and the primary intension can be obtained from it — all one has to do is to take the world w in question to be the respective context c . What is more, this account does not only state *that* the English expression ‘water’ has a constant rather than a variable diagonal. It moreover explains *how* this comes about. That is, the orthodox Kripke-Putnam account illuminates how the semantic properties of natural kind terms are fixed such that the expressions ‘water’ and ‘tiger’ in any possible context designate H_2O and tigers, respectively. Since it wants to offer a credible as well as explanatory semantics of natural kind terms, two-dimensionalism aspires to accomplish the same.

Two-dimensionalists claim *that* ‘water’ is an indexical expression. More precisely, they maintain that the diagonal of the English term ‘water’ is a variable function from contexts to substances. It is, however, far from simple to come up with a believable account of *how* the semantic properties of ‘water’ are fixed such that the term’s designation varies across contexts. For two-dimensionalists agree that the designation of the English term ‘water’ is not allowed to vary *erratically*; the variation in designation has rather to be systematic and within certain (and hard to specify) bounds.⁸ As in the case of the common indexical ‘I’, there must be a *rule* that governs the designation of ‘water’ that one can plausibly expect any competent English speaker to know, and we can be sure that whatever rule there is for our expression ‘water’, it will never ever allow this term to designate, say, *gold*. This is why we cannot simply assume that the English expression ‘water’, as uttered in a context c , applies to something x in a world w if x is of the same kind as the water samples picked out in *in* c . Since this account does not put any restrictions on the samples chosen, it allows for the English term ‘water’ to be introduced by pointing to, say, gold. This would lead to the English expression ‘water’ to designate gold in some contexts — which it certainly does not.

Two-dimensionalists have devised two strategies to deal with this problem. Haas-Spohn proposes to restrict our account to contexts in which the same *community* as in our world makes the same *use* of ‘water’ as in our world. She thinks that this holds for a context if the English people exist in it and the English speakers’ response patterns toward their environment and their communication patterns that concern their word ‘water’ are the same as they are in our actual context.⁹ She thus ends up with the following proposal: The English expression ‘water’ as uttered in a context c applies to something x in a world w if and only if (i) in c , the community ‘water’ is used in, and the use made of that term, are the same as in our context and (ii) x bears same_L to the water samples picked out in c . This proposal evidently implies that the diagonal of the English term

‘water’ will be *undefined* for the vast majority of contexts. In fact, the only contexts this function will be defined for are the ones that are inhabited by our community and are epistemically indistinguishable from our actual context. We think that this invalidates the proposal. For it implies that we are not modelling the semantics of ‘water’ on that of our common indexicals. The diagonal of any other indexical of course yields a value for any context there is. We should not expect precisely the same from a natural kind indexical. But we cannot allow their diagonals to be, as it were, *extremely* partial functions.

Jackson and Chalmers propose a different way to tame the variation of designation. Their idea is that natural kind terms are *defined* by the role the kinds in question are supposed to play. For instance, the diagonal of ‘water’ is thought to capture the role of the colourless and odourless liquid that fills the lakes and oceans, falls from the sky around here, quenches thirst, is called ‘water’ etc. Using the idea that ‘water’ is defined by this water role, we arrive at the following proposal:

(TD) For any context c , any world w , and any x it holds: The English expression ‘water’ as uttered in c applies to x in w if and only if x bears same_L to the stuff that plays the water role in c .

The viability of this idea of course depends on the assumption that there is a suitable role to be found. We very much doubt this, but we are not going to argue our case here. We grant that *if* such a role can be found, (TD) evidently amounts to what we have been looking for. This account states that the designation of the English term ‘water’ depends on the context it is uttered in, and it explains how the ensuing variation can be guaranteed to be systematic as well as within certain bounds. It moreover provides a meaning-rule that one could expect ordinary speaker to know, *viz.* “‘water’ designates in a context the stuff that plays the water role in it”. This, then, is how two-dimensionalists propose to resolve the predicament they believe to have found in the orthodox Kripke-Putnam account. To repeat, we do not think that there is a problem to begin with, but we will come back to that later. Right now, we are going to argue that there are substantial reasons *not* to believe that the English expression ‘water’ happens to be an indexical.

3. The advocates of two-dimensionalism believe that natural kind terms are indexical expressions, a view they elaborate with respect to the English expression ‘water’. We do not think that this is a feasible idea. In order to show this, we will raise three objections to it.¹⁰ These objections do not dwell on the specifics of the two-dimensionalist approach; since they arise from, as it were, a scrutiny of the semantic surface properties of our language, they rather are perfectly general. Hence, they provide reasons to reject *any* analysis that wants us to believe that ‘water’ is an indexical.

Objection 1: The expression ‘water’ does not fit in with the common indexicals.

What is an indexical? This question is usually answered by an enumeration of paradigm expressions such as ‘I’, ‘you’, ‘now’, ‘tomorrow’, or ‘here’. These terms are syntactically simple, and they can be used to form complex indexicals such as ‘my most beloved dog’ or ‘over there’. If ‘water’ is to be an indexical, it certainly belongs to the class of syntactically simple indexical expressions. However, these expressions have semantic peculiarities in common which ‘water’ does not share. First, the semantic values of common indexicals are *overtly* context-dependent. Common indexicals, as it were, do not hide. It is obvious that the semantic value of, say, ‘I’ changes relatively to the one who speaks. Second, a competent speaker who has mastered expressions such as ‘I’, ‘tomorrow’, or ‘here’ *must know* that their respective semantic values are context-dependent. No one who does not know this can be considered to know the meaning of a common indexical. For, third, at least part of the meaning of a common indexical is that it systematically *locates* an entity relatively to a certain context of communication. This localisation typically is functional, spatial, or temporal. ‘I’ and ‘you’ locate persons functionally, i.e. by the respective roles they play in a certain communication. ‘Now’ and ‘yesterday’ locate times relatively to the time of the communication, and ‘here’ and ‘there’ locate positions. This idea can be found in Strawson (cf. Strawson 1950: 336ff), but it is especially prominent in Kaplan. Kaplan conceives of character as a semantic *rule*, and the noteworthy peculiarity of the character-rules for indexical expression is that they single out referents in a context by their functional, spatial, or temporal locations in that context.

The localising feature of common indexical expressions accounts for another of their traits. Taking up statements that contain indexical expressions requires, fourth, systematically exchanging indexicals for indexicals. If I want to say what you said uttering “I am hungry”, I have to utter “You are hungry”; and if you want to take up what you said yesterday uttering “Today is a fine day”, you will have to utter “Yesterday was a fine day”. Since indexicals locate persons, times, and places relatively to the very context they are uttered in, such systematic change is to be expected. For one quite obviously needs a *converse* localization if one wants to take up what has been uttered from a *converse* location. That is why indexicals come in clusters.

The term ‘water’ shares none of these features. It thus is odd to class ‘water’ with terms like ‘tomorrow’ or ‘you’. Admittedly, this does not amount to a decisive argument against the indexicality thesis, for their adherents programmatically suppose ‘water’ to be a *hidden* indexical. Some deviations are thus accounted for in advance. But this is a cheap rejoinder. To begin with, we think that anyone who wants to change well-established semantic classifications is in need of very good reasons to do so, especially if changing classifications means (i) overriding what can be called the surface

semantic facts as well as (ii) inventing what effectively is a new semantic category, in this case the category of a hidden indexical. We think that it is a maxim of good methodology to stick to the facts of surface semantics unless ignoring them has explanatory virtues or is necessitated by substantial theoretical pressure. We cannot see any explanatory virtue arising from the claim that ‘water’ is an indexical, and we do not think that there is any theoretical pressure to assume that ‘water’ is an indexical. The only theoretical virtue this assumption has is that it allows to defuse the inconsistency we have milled over quite some time. Since we will argue in sec. 4 that there is no such inconsistency to begin with, there is no theoretical merit left for the indexicality thesis to earn.

Objection 2: ‘water’ cannot be used to perform the pragmatic role of a common indexical expression.

It is not just that ‘water’ lacks some features ‘I’ and ‘now’ share. Our language contains common indexicals for a reason. The reason plausibly is that they serve a certain pragmatic function, i.e. that they can be used to perform a distinctive function in communication. This pragmatic function is easily identified, for what common indexicals can be used to do can be gleaned from the semantic properties they share: common indexicals can be used to locate objects relatively to the respective context of communication. Take, say, the indexical expression ‘there’. Imagine Kurt says to you “Please put the cake on the table over there”. The complex indexical ‘the table over there’ locates a certain table with respect to your shared situation, and it therefore is a suitable means to pick out the table which Kurt asks you to put the cake on in a simple and convenient way — a means that can in different contexts be used to pick out quite different tables. Just try to imagine what lacking expressions like that would mean. We would stand in need of different expressions for each of all the different tables we might want to refer to. Hence, it is just about obvious that common indexicals make life (and language) a whole lot easier.

This points to a reason why our language contains such expressions as ‘I’ or ‘now’. Our language contains indexical expressions because they can play a certain pragmatic role, and it is for the pragmatic role they can play that indexical expressions are worth having. However, an expression cannot play the pragmatic role alluded to unless it is overtly context-dependent. An utterance of “Please put the cake on the table over there” affects communication just because anyone who understands it knows that the indexical involved locates certain objects relatively to the shared situation. An utterance like “Water is H₂O” cannot play such a pragmatic role. For the indexicality of ‘water’ is assumed to be non-overt. The hidden indexical theorist thus has to acknowledge that even though she claims that ‘water’ shares the semantics of common indexicals, this expression cannot perform the pragmatic role characteristic of common indexicals.

There again is no conclusive *a priori* reason why our language could not contain such terms. However, we would like to point out that there is no *point* in having such a hybrid expression in one's language. Natural languages might be rather disorderly affairs, but we think that it is a sound rule of thumb to assume that the meaning of a natural language expression and its pragmatic role usually conform to one another. This does not rule out that 'water' actually is a hidden indexical. Yet we think that the sketched train of thought provides reasons to consider a theory that assigns 'water' a meaning that corresponds to the pragmatic role the term actually does play superior to the hidden-indexical account. Any alternative account of natural kind terms would, as Evans has nicely put a similar point, "allow them to get up to tricks they never in fact get up to" (Evans (1979), 190). Not managing to keep semantics and pragmatics in step with one another certainly is a weakness of a theory. And a rather embarrassing one, for that matter.

Objection 3: Suppose that 'water' is an indexical. How can we learn that it is?

Natural languages are learned. Crudely though plausibly, learning a language includes getting to know the meanings of the words and sentences of that language. On a Kaplanian semantics, this comes down to the claim that to learn a language *L* includes getting to know the characters of the expressions of *L* (cf. Kaplan 1977: 505). The advocates of two-dimensionalism do not quite agree; they rather think that a competent speaker knows the diagonals of all the expressions she understands. For the sake of the argument, we will accept this idea. Diagonals thus are what is known by the competent language user. Hence, everyone who studies to become a competent user of a certain language has to learn for any context *c* what extension an expression *e* of that language has at *c* when uttered in *c*. Consider now for example how Arabella comes to acquire the diagonal of, say, 'George Bush'. (We do of course presume that 'George Bush' has a constant diagonal.¹¹) Arabella encounters many utterances of 'George Bush', and after a while she figures out that people who use that name are always talking about a certain man. (She also learns that people believe that this very man is president of the United States and that he used to be governor of Texas. But that is incidental.) Arabella thus learns that 'George Bush' designates a certain individual, *viz.* George Bush. Leaving details to one side, it seems rather plausible that Arabella could acquire the diagonal of 'George Bush' this way. She ends up with a piece of semantic knowledge that can be modelled by a function that assigns to any utterance of 'George Bush' the man George Bush. We think this to be a rough though straightforward description of how this diagonal is learned.

Now imagine that Arabella tries to acquire the diagonal of 'I'. She encounters many utterances of 'I'. But she is puzzled. For people using 'I' do *not* always talk about one and the same person. The designation of their utterances rather varies. However,

after a while Arabella figures out that the designation of utterances of ‘I’ varies in a systematic fashion. The referent of utterances of that expression is, she comes to believe, the very person who utters the expression. Again it seems rather plausible that Arabella could acquire the diagonal of ‘I’ this way. Hence, she ends up with a piece of semantic knowledge that can be modelled by a function that assigns any utterance of ‘I’ the person who produced the token in question. The question now is this: Could Arabella have come to believe that the referent of ‘I’ changes in a systematic fashion even if all utterances of ‘I’ she witnessed in fact designated one and the same person? We do not think so. Imagine that the only person interfering with Arabella’s learning history who uses the expression ‘I’ is George Bush. Consequently, all utterances of ‘I’ she witnesses refer to George Bush. She thus has absolutely no reason to believe that the designation of ‘I’ varies from context to context. She will rather generalise from the cases witnessed that ‘I’ is another name for George Bush, thus assigning it the constant diagonal mentioned above.

We think that this examples supports the following principle: A person can assign a variable diagonal to an expression only if she has reason to believe that she has encountered utterances of that expression with divergent referents during her learning history.¹² Hence, in order for her to learn that ‘water’ is an indexical, Arabella’s learning history must include at least one confrontation with an utterance of ‘water’ such that the following is true: (i) the uttered expression ‘water’ is an expression of the English language, (ii) the expression is uttered in a context *c* where the extension of ‘water’ is not H₂O, and (iii) Arabella possesses evidence that leads her to believe that (ii) is the case. On two-dimensionalist ideas account, this is impossible. For Arabella of course learns *our* language in *our* actual context, and around here, the stuff that plays the water role is *always* H₂O. On two-dimensionalists premises, ‘water’ is, as it were, a *lazy* indexical: Its designation varies with a features of the environment that remains stable within the confines of our actual world — or at least within that part of the actual world we and Arabella inhabit. In short, if Arabella were to learn that ‘water’ is an indexical, she would have to possess evidence of a kind she cannot possibly possess, *viz.* evidence for variances in the designation of the term ‘water’ in *our* context. The moral, we think, is this: If ‘water’ happens to be a hidden indexical, one cannot learn that it is one. We would like to draw a stronger conclusion still, reasoning thus: If the learning history of every single speaker in our community is such that it does not support assigning a variable diagonal to ‘water’, then the term ‘water’ as used in our community cannot have a variable diagonal. However, one might want to shy away from this conclusion (maybe because one suspects that this conclusion rests on the claim “No difference in meaning without difference in use”). In any case, it turns out that the adherent of the hidden indexical view cannot explain how one can learn that ‘water’ is an indexical, given that it is one.

We think that our objections provide ample reason to rebut the idea that the English expression ‘water’ is an indexical. Hence, one should not maintain that the English expression ‘water’ is an indexical. If one takes this lesson to one’s heart, it immediately follows that the two-dimensionalist account of the semantics of ‘water’ as summarised in (TD) is inadequate. For if ‘water’ is not an indexical, the intension assigned to utterances of ‘water’ is not allowed to vary from context to context. However, rejecting the idea that ‘water’ is an indexical of course implies that we have to tackle the original problem anew. That is what we are going to do now.

4. The problem we are believed to face is this: If one adheres to the orthodox Kripke-Putnam semantics, the claims that “Water is H₂O” is necessarily true and that “Water is H₂O” is *a posteriori* turn out to be inconsistent. Yet we do have very good reasons to believe either, since Putnam and Kripke provide powerful arguments to this effect. We moreover have strong reasons not to reconcile these claims by maintaining that the English term ‘water’ is an indexical expression, since this violates the way we use and learn our language, as we have just seen. What are we to do, then? Well, we think that very little needs to be done. For there actually is no problem. All there is is an apparent problem, and this stems from two-dimensionalism’s unfortunate way to define ‘*a priori*’ that is captured in AP_{TD}. That is what we are going to argue in this section.

We would like to begin with a brief glance at the standard account of the *a priori*. The current understanding of this notion has been shaped by a tradition of philosophical thought running from Kant to Kripke. According to this tradition, ‘*a priori*’ is an epistemic notion that in its prime use qualifies knowledge. Kripke consequently treats ‘*a priori*’ as an epistemic concept throughout, and he takes up the traditional Kantian explication according to which “*a priori* truths are those which can be known independently of any experience”(Kripke 1980: 35). This definition has evident shortcomings: It does not specify the modality invoked, it does not explain how ‘experience’ is to be taken, and it characterises ‘*a priori*’ in a purely negative fashion. Kripke sets out to remedy this. On the one hand, he proposes a positive characterisation of *a priori* truths that can be put thus: An *a priori* true sentence is a sentence that can be known to be true simply “on the basis of *a priori* evidence”(Kripke 1980: 35). On the other hand, Kripke devises an account of what it is to possess *a priori* evidence (cf. Kripke 1980: 54-57). Though he is not quite explicit on this, he evidently holds that the knowledge one acquires by understanding a language is to be counted as *a priori* evidence.¹³ Taken together, these strands give rise to the following definition:

(AP_K) A sentence *s* is *a priori* true if (and only if) anyone who understands *s* thereby alone knows that *s* is true.

We think that (AP_K) aptly captures the traditional understanding of the *a priori*. This understanding entails what we consider to be a widespread view of the notion ‘*a posteriori*’ (cf. Casullo 1992: 1; Moser 1999b: sec. 1): A sentence *s* is *a posteriori* true if and only if no one who understands *s* thereby alone knows that *s* is true.

On the face of it, two-dimensionalism’s definition AP_{TD} defies this understanding. For AP_{TD} does not characterise ‘*a priori*’ as an *epistemic* notion — there is no epistemic concept to be found in its definiens. However, we are convinced that appearances are deceiving and that two-dimensionalists intend their definition to be taken in an epistemic sense. But if the two-dimensionalist definition of ‘*a priori*’ is to be taken epistemically, it is phrased in a very misleading manner. If two-dimensionalists want to endorse an overtly epistemic understanding, they had better phrase their definition thus:

(AP_{NB}) A sentence *s* is *a priori* true if and only if anyone who understands *s* thereby alone knows that for any possible context *c*, *s*, as uttered in *c*, is true at *c*.

At least, this is how we would like to explicate matters, given the background of two-dimensionalist semantics we have spelled out. This proposal has some striking virtues. First, (AP_{NB}) clearly captures the common idea that being *a priori true* is an epistemological property of a sentence. Second, (AP_{NB}) explains why the initial definition had an air of plausibility to it. For just like (AP_{TD}), (AP_{NB}) implies that any sentence that is true *a priori* has a diagonal that contains all possible contexts. (But, of course, the reverse does not hold on (AP_{NB}).) Third, (AP_{NB}) nicely fits in with Kripke’s ideas concerning the *a priori* rehearsed above, since it keeps the structure of (AP_K). To be sure, (AP_{NB}) amends Kripke’s account. For it takes to heart the insight that a sentence can be *a priori* true only if it cannot be uttered falsely. (AP_{NB}) thus secures an intuition that two-dimensionalist make quite a lot of, for the definition classifies sentences such as “I am here” as *a priori* true. Fourth, (AP_{NB}) offers an explication of why we intuitively class such sentences as *a priori* true. We have seen that common indexicals locate entities relative to contexts and that any speaker who masters an indexical must know this. Hence, anyone who understands “I am here” knows that for any possible context *c*, “I am here”, as uttered in *c*, is true at *c* because she knows that, whatever else may true at *c*, it certainly will be true that whoever utters “I am here” is where she is.

Their preferred semantics thus does not bar two-dimensionalists from endorsing the common idea that *a priori* is an epistemic notion. They can simply take up the definition AP_{NB}. However, if the adherents of two-dimensionalism are to accept an epistemic understanding of the *a priori*, they apparently undercut their own argument. More precisely, if they accept the offered definition of the *a priori*, they cannot claim that the orthodox Kripke-Putnam view yields an inconsistency. Let us explain. Put simply, two-dimensionalists think that the sentence-type “Water is H₂O” cannot be necessary as well as *a posteriori*. For if it is necessarily true, its diagonal must contain all possible worlds,

and if it is to be *a posteriori*, its diagonal cannot contain all possible worlds. In the end, then, their argument rests on a single crucial implication (or rather, to be precise: on its contraposition). The implication is this:

(IP) The diagonal of a sentence s is the set of all contexts $\rightarrow s$ is *a priori* true

On the understanding of the *a priori* presented in (AP_{TD}), this implication turns out to be trivially true. On the overtly epistemic understanding presented in (AP_{NB}), however, (IP) appears to be spurious – to say the least. It is the very core of the epistemic understanding of the *a priori* that the fact that a sentence's s diagonal contains all context is by itself *not* sufficient for the s 's being *a priori* true; this moreover requires that anyone who understands s knows this fact. Yet it simply is implausible to assume that someone who understands a sentence will know that its diagonal contains all contexts whenever it in fact does. Take for example “Whales are mammals”. Its diagonal certainly contains all possible contexts. Yet someone might very well understand this sentence without knowing that this is the case. Even a competent speaker might strongly believe that whales are fish. But if that is true, the strong link between semantic and epistemic facts envisaged in (IP) won't hold and the problem we began with won't materialise.

Two-dimensionalists of course disagree. They think that (IP) does hold even on an epistemic understanding of the *a priori*, for they believe that anyone who understands a sentence whose diagonal contains all contexts must know this. In other words, two-dimensionalists think that there is a strong link between the respective semantic and epistemic facts involved — and they do argue their case. As far as we can see, two-dimensionalists present two different lines of thought to establish (IP). The one can be traced back to Jackson. The other might be attributed from Chalqmers. In the remainder of this section, we will argue that neither is conclusive.

Jackson's argument (cf. Jackson 1998: 70-77) rests on the idea that the desired strong link between semantics and epistemology can simply be established by the following inference:

- (i) The diagonal of a sentence s is the set of all possible worlds. That is, for any possible context c , s , as uttered in c , is true at c .
- (ii) Anyone who understands s thereby alone knows its diagonal.
- (iii) Hence, anyone who understands s thereby alone knows that for any possible context c , s , as uttered in c , is true at c .

This appears to be a straightforward piece of reasoning. But a closer look reveals that it is not legitimate to infer (iii) from (i) and (ii). This has got nothing to do with either premise. Both are perfectly fine. The argument's invalidity rather stems from the fact

that in order to infer (iii) from (i) and (ii), one has to rely on an implausibly rigorous account of what it is to know the diagonal of a sentence. For one has to accept this:

(U) S knows the diagonal of $s \rightarrow S$ knows *of* any possible context c whether or not s , as uttered in c , is true at c .

At first sight, this principle may appear innocuous. Yet it becomes evident that (U) offers a rather rigorous account once it is contrasted with another account of what knowing a diagonal comes down to. Just compare (U) to this principle:

(U*) S knows the diagonal of $s \rightarrow S$ knows *how* any possible context c *must be* such that s , as uttered in c , is true at c .

The difference between (U) and (U*) is the difference between knowing a set by *enumeration*, i.e. by knowing every single one of its elements, and knowing a set by knowing what *condition* an object must satisfy in order to belong to it. One can of course have knowledge of the latter kind without having knowledge of the former.¹⁴ For instance, any of us knows the set of all prime numbers by knowing that a prime number can be divided by 1 and itself only. Yet nobody knows this set by enumeration.

What is important about all this is that linguistic knowledge is arguably of the latter kind. By understanding a sentence s , we agreed, one gets to know its diagonal, i.e. the set that contains all the contexts c at which s , as uttered in c , is true. But one for sure does not get to know this set by an enumeration of its members.¹⁵ Think of somebody who understands the sentence “George Bush owns a dog”. Having grasped the diagonal of this sentence, she knows a certain set of contexts. But she certainly cannot *enumerate* the members of the set. That is, she does not know *of* certain worlds that they belong to it — her knowledge is knowledge by description rather than knowledge by acquaintance. All our competent speaker knows is *how* a context *must be* in order for the sentence to be uttered truly in it. That is, she knows the diagonal by knowing what condition a context must satisfy in order to belong to that set. But if that is the case, then (U) cannot be a correct account of what it is to know a sentence’s diagonal and we have to settle for (U*). Yet on this principle, all one can infer from (i) and (ii) is this:

(iii*) Anyone who understands s thereby alone knows how a possible context c *must be in order for* s , as uttered in c , to be true at c .

Given this conclusion, Jackson’s argument admittedly yields a link between semantics and epistemology. But it does not yield the strong link two-dimensionalism requires. For the proposition (iii*) does not imply that s is *a priori* true.

To be sure, sometimes it suffices to know how a context must be for a sentence to be true in it to know that the sentence in question will be true in any context. Consider the sentence “I am here”. Anyone who understands it knows that a context c must be

such that the speaker is where he is for the sentence to be true in c . Given that any speaker knows what a context is, he will be able to infer that “I am here” is true in *any* context. This is not true for the sentences we are concerned with. Take “Water is H₂O”. Since its truth does not pivot on *essential* aspects of contexts, someone who understands this sentence and hence knows how a context must be for it to be true in it might very well not know that this sentence holds in any context. Hence, on a feasible understanding of what it is to know the diagonal of a sentence, it turns out that we cannot infer from the fact that the diagonal of a sentence s is the set of all context that anyone who understands s thereby alone knows that s is true in any context.

The argument we would like to attribute to Chalmers proceeds along quite different lines (cf. Chalmers 1999b, esp. 482f). Chalmers offers an indirect proof of the claim that anyone who understands a sentence whose diagonal contains all contexts must know this — at least this is how we do understand his position, piecing together ideas that figure prominently in Chalmers’ writings.¹⁶ Consider for instance the following two propositions:

- (i) The diagonal of sentence s contains all possible contexts. That is, s is true at any context.
- (ii) Kurt understands s but might believe that there’s a context at which s is false.

We understand Chalmers to argue that any such pair of propositions will simply be inconsistent. Relying on his modal metaphysics, Chalmers maintains that the latter assumption can be shown to entail that the former is false.¹⁷ Sticking to our example, let’s assume that Kurt understands the sentence s and that he might believe that s is not true at any context. Given these assumptions, Chalmers reasons as follows:

- (iii) Kurt might believe that there is a context at which s is false only if he can conceive that there is a context at which s is false.
- (iv) Kurt can conceive that there is a context at which s is false only if there is a context at which s is false.
- (v) Hence, since there is a context at which s is false, the diagonal of s does not contain all possible contexts.

This conclusion directly contradicts (i). If the argument is compelling, one thus cannot consistently hold that someone does understand a sentence whose diagonal contains all possible contexts without knowing that this is the case. There is no need to worry, though. For we do not think that Chalmers’ argument is compelling.

Chalmers’ argument pivots around the notion of conceivability.¹⁸ Very roughly, to conceive that p means to, as it were, dream up a situation that verifies p by relying on

the concepts one possesses. The importance of conceivability stems from the fact that it is widely acknowledged to be a (or even: the) guide to conceptual possibility: Philosophical folklore has it that something's conceptual possibility is bound to its being conceivable. However, one must be cautious, for there are two senses of 'conceivable'.¹⁹ On the one hand, there is "conceivability on ideal rational reflection" (Chalmers 1999b: 477 Fn 1). Since ideal rational reflection is presumably unconstrained by time, memory and computing power, conceivability of this kind is indefeasible and hence a firm guide to conceptual possibility. On the other hand, there is conceivability on mundane human reflection. This kind of conceivability is constrained by time, memory and computing power, and it of course is defeasible.

The distinction between i-conceivability and d-conceivability, as we shall call them, will help us get clearer about the claims in question. Take Chalmers' premiss (iii). It states that Kurt cannot believe that not- p unless he can conceive that not- p . On reflection, however, it turns out that what we are concerned with here is d-conceivability rather than i-conceivability. Imagine that Kurt is a perfectly competent mathematician who hasn't heard that Fermat's last theorem has finally been proven. Kurt might very well believe that Fermat's last theorem is false. However, since Fermat's last theorem is in fact true, and hence conceptually true, one cannot i-conceive that it is false. Or imagine that Kurt is a linguistically perfectly enlightened member of our community but simply doesn't know that Cary Grant and Alexander Archibald Leach are one and the same person. Yet if we may assume that ordinary proper names do not have descriptive senses, it follows that there won't be a context in which "Cary Grant = Alexander Archibald Leach" is false.²⁰ One thus cannot i-conceive that Cary Grant is not Alexander Archibald Leach. From these examples it follows that (iii) is at best true on a d-conceivability reading: Kurt cannot believe that not- p unless he can d-conceive that not- p .

In the end, this already undermines Chalmers' argument. If what a competent speaker might or might not believe is constrained by d-conceivability, not by i-conceivability, there simply won't be an inconsistency between (i) and (ii), for one can perfectly well d-conceive things that are conceptually impossible. However, Chalmers' argument founders on a more mundane matter. Take proposition (iv). It evidently can be true only on an i-conceivability reading. This proposition states that if Kurt can conceive that p , there will be a context in which p is true. But if Kurt merely d-conceives that p , there might very well *not* be a context in which p is true, simply because p isn't conceptually possible, as is the case with the negation of Fermat's last theorem. Only i-conceiving that p can ensure the existence of a context in which p is true. But this lands Chalmers with an equivocation. Since (iii) is true only on a d-conceivability reading, whereas (iv) is true only on an i-conceivability reading, it simply is illegitimate to infer (v).

Anyone sympathetic to the two-dimensional variant of the Kripke-Putnam semantics – cf. (KP*) above – will have to draw the same conclusion. On this account, the diagonals of natural kind terms are determined externally, i.e. by the substances and items that we pick out in introducing ‘water’, ‘tiger’, and the like. A speaker hence simply won’t know the diagonals of these terms just in virtue of his linguistic competence. What a speaker can believe thus cannot possibly be constrained by what is conceptually possible. It hence cannot possibly be constrained by what is i-conceivable, given that i-conceivability is a firm guide to conceptual possibility. What a speaker might believe is thus at best constrained by what he can d-conceive. This, again, implies that we won’t end up with an inconsistency between (i) and (ii).

We would like to venture another – and rather different – criticism of Chalmers’ train of thought.²¹ As we have pointed out, Chalmers’ proposition (iv) can be true only on an i-conceivability reading. We will now argue that it might very well be false even on such a reading. On close scrutiny it becomes apparent that (iv) licenses a *de dicto* to *de re* transition: If someone can i-conceive that there is a context which is *F*, there will be a context which is *F*. It is, however, far from obvious that this transition should be legitimate. On two-dimensionalist assumptions, what one i-conceives if one i-conceives that so-and-so is a set of possible contexts. But for i-conceiving a set the distinction we have outlined with respect to knowing a set applies as well: One can either conceive a set directly by *enumerating* its members, or one can conceive a set as the set whose members satisfy a certain *condition*. As should be evident, it is implausible to construe i-conceiving along the latter line. Imagine Kurt i-conceiving that, say, Al Gore is President of the United States of America. This activity won’t get him into direct contact with a set of worlds. Kurt will rather envisage the respective set under the description ‘ $\{w \mid \text{in } w, \text{ Al Gore is President of the United States}\}$ ’.

But if that is so, then the *de dicto* to *de re* transition becomes spurious. Imagine Kurt i-conceiving that whales are fish. He thus i-conceives a set of worlds *w* under the description ‘ $\{w \mid \text{in } w, \text{ all whales are fish}\}$ ’. Yet unbeknown to Kurt, this set might very well be *empty*. The fact that Kurt i-conceives that *p* thus cannot entail that there is a world in which *p* is true. Put more generally, if i-conceiving is mediated by descriptions, opacity phenomena can arise. Just as Paul’s believing that Santa has a beard does not allow us to infer that there is somebody called ‘Santa’ whom Paul believes to have a beard, Kurt’s i-conceiving that whales are fish does not allow us to infer that there is a possible world in which whales are fish. In both cases, the *de dicto* to *de re* transition is invalid. It thus appears that Chalmers’ argument fails, and that it fails on precisely the same count as the more humdrum piece of reasoning presented by Jackson: It ignores the fact that the epistemic relations involved are not direct.

Chalmers denies this charge, and he offers a justification for the *de dicto* to *de re* transition. According to Chalmers, whenever I can ideally make up a scenario that veri-

fies p – that is, whenever I can i-conceive that p – there will be a possible world in which p is true simply because worlds are sliced as finely as powers of conceivability (cf. Chalmers 1999b: 482f). Hence, even though our epistemic relations to possible worlds are mediated by descriptions, we cannot fail to pick out a world if we manage to i-conceive something or other – or so Chalmers argues. However, we are not convinced. On the one hand, Chalmers’ move renders the disputed *de dicto* to *de re* transition true by stipulation. This implies that one can sidestep Chalmers’ idea simply by endorsing a different stipulation as to how to slice worlds. On the other hand, Chalmers’ stipulation is hard to square with the prominent idea that possible worlds are “ways the world might have been” (Kripke 1980: 18). Since there are evidently far more descriptions of properties than there are properties, the same distribution of properties over objects may be depicted in different fashions. Hence, there are more ways to depict how the world might have been than there are ways the world might have been. Chalmers’ way to individuate worlds contradicts this.

Consequently, we would like to conclude that Chalmers’ argument fails. In the end, then, Jackson’s and Chalmers’ arguments are not convincing because they rest on a mistaken assumption concerning what it is to know or conceive a set. There is, we think, a lesson to be learned from this: Epistemic relations to abstract objects such as sets are *never* transparent but *always* allow for opacity phenomena. Yet we won’t dwell on this. We would rather like to point out that our initial persuasion still stands: The proposition (IP) does not hold true, given that (AP_{NB}) is assumed. This of course dissolves the problem we began with, *viz.* the alleged inconsistency within the orthodox Kripke-Putnam account. If we rehearse the argument given above while sticking to the our epistemic understanding of ‘*a priori*’, it turns out that (2*) simply is a mistranslation. The correct rendering of the original proposition “The truth of ‘Water is H₂O’ can be known only *a posteriori*” is rather this:

(2**) It is not the case that anyone who understands “Water is H₂O” thereby alone knows that for any context c , “Water is H₂O”, as uttered in c , is true at c .

This proposition is consistent with (1*) as well as with (3*). Thus, if the two-dimensionalist definition of ‘*a priori*’ is to be read epistemically, the predicament alluded to at the beginning of this section does not materialise. Given an epistemic understanding of ‘*a priori*’, we can consistently hold on to both the claims that “Water is H₂O” is necessary and that “Water is H₂O” is *a posteriori*. There consequently is no theoretical merit to be earned for a semantics according to which ‘water’ is an indexical. One simply need not maintain that the English expression ‘water’ is an indexical.

There still is a loose end: Maybe two-dimensionalists do *not* want their definition of ‘*a priori*’ to be read epistemically. Maybe two-dimensionalists are inclined to defy tradition in a rather radical way and do indeed want their definition to be taken literally.

If so, they have to face quite serious consequences. To begin with, anyone who sets out to define the term ‘*a priori*’ non-epistemically is in very much the same predicament as someone who sets out to define ‘liberalism’ in a non-political manner: Since he jettisons all prevailing assumptions about this concept, he has to make do without any intuition that can possibly serve as conditions of adequacy on a definition. Any such project, we think, will be arbitrary and futile. However, the real problem is that even *if* two-dimensionalists adopt a non-epistemic understanding of ‘*a priori*’, their argument appears to be flawed. Let us explain. Two-dimensionalists are happy to embrace the Kripkean idea that “Water is H₂O” is *a posteriori* true. However, recall the argument Kripke provides for his thesis. In the end, Kripke thinks that “Water is H₂O” states an *a posteriori* truth because we had to do empirical research to establish it. Kripke thus thinks that “Water is H₂O” is *a posteriori* because understanding this sentence does not by itself suffice to know its truth. That is, Kripke invokes *epistemic* considerations in order to demonstrate his thesis. That is perfectly fine. But it implies that Kripke’s line of thought *cannot* show that “Water is H₂O” is *a posteriori* if ‘*a posteriori*’ is taken in a non-epistemic manner. Hence, if two-dimensionalist wants to hold that “Water is H₂O” is *a posteriori* and that ‘*a posteriori*’ is to be taken in a non-epistemic sense, they cannot rely on Kripkean arguments. They have to devise novel reasons. But as far as we can see, there are no such reasons to be found in the writings of any two-dimensionalist. They all evidently take it for granted that Kripke has established that “Water is H₂O” is *a posteriori*. Yet given a non-epistemic understanding of this notion, he has not. Hence, we once again have to conclude that the celebrated predicament does not arise. For *if* one assumes a non-epistemic understanding of ‘*a priori*’, the reasons one has to hold that “Water is H₂O” is *a posteriori* true simply evaporate.

6. Let us take stock. Two-dimensionalists invoke the idea that ‘water’ is an indexical in order to come to grips with an alleged predicament. The predicament is this: We have very good reasons to accept the Kripkean ideas that “Water is H₂O” is necessarily true and that it is *a posteriori*. Yet unless one allows some utterances of “Water is H₂O” to be false, these claims are inconsistent. Hence, we have to model the semantics of the English term ‘water’ on the semantics of expressions such as ‘I’, since this appears to be the only systematic way to allow for some utterances of “Water is H₂O” to be false. We have argued that this predicament is but apparent and that the proposed solution is to be rejected. As for the latter, a scrutiny of its role within our language makes it plausible that our expression ‘water’ certainly is not an indexical. As for the former, we have pointed out that the sketched predicament pivots on the employed understanding of the *a priori*. If the advocates of two-dimensionalism intend their definition of the *a priori* to be taken epistemically, that is, if they endorse (AP_{NB}) rather than (AP_{TD}), we can consistently hold on to both ideas. In this case, the evident inconsistency of (1*) and (2*)

does not demonstrate the inconsistency of the original claims, since (2*) turns out to be a plain mistranslation of the idea that “Water is H₂O₂” is *a posteriori*; and if the correct translation is substituted, the two propositions turn out to be consistent. On the other hand, if the proponents of two-dimensionalism want their definition of ‘*a priori*’ to be taken at face value, i.e. in a non-epistemic sense, the reasons we had to hold that “Water is H₂O₂” is *a posteriori* true in the first place evaporate. Again we are not confronted with a predicament at all. Since we happen to believe that (AP_{NB}) is probably the correct rendering of ‘*a priori*’ and since we admittedly cannot make sense of a non-epistemic concept of the *a priori*, we think that two-dimensionalists should take the first option. We do not have to press this point here, though. For we believe to have conclusively shown that the predicament that started it all does not arise in either case. Consequently, there is no pressure to accept the idea that ‘water’ is an indexical in order to dissolve it. Hence, one need not and one should not maintain that the English expression ‘water’ is an indexical.

Notes

¹ Of course, controversy is still going on. Cf. Chomsky 1995 and Abbott 1997.

² We will concentrate on indexicality rather than on other brands of context-dependence. Even though there is some controversy as to how indexicals work, we feel that philosophers are by and large in agreement about the basic facts concerning indexicality. This, we believe, does not hold for the thorny topic of context-dependence in general. — Haas-Spohn 1997: 334 expresses the view that Putnam himself considers natural kind terms to *be* indexical expressions. We consider this to be a misreading. The passages in Putnam that suggest this idea — cf. Putnam 1975: 233f; Putnam 1974: 451f — are to be understood either to point to the assumed rigidity of natural kind terms or to the way these terms are introduced, as Burge 1982: 105f has urged.

³ We borrow the name ‘two dimensionalism’ from Lewis 1994: 415. For the development and defence of this stance cf. Lewis 1981; Lewis 1994: 415; Jackson 1994: 169-173; Jackson 1994b: 486-491; Jackson 1998: ch. 2, esp. 46ff; Chalmers 1995; Chalmers 1996: 56-65 and esp. Haas-Spohn 1995 and Haas-Spohn 1997. Main ideas already appear in Stalnaker 1978, Tichy 1983, Davies/Humberstone 1980 and Evans 1979. Much of what two-dimensionalists believe has already been advanced by proponents of narrow contents, cf. Fodor 1987: ch. 2, esp. 48ff, and *ibid.*: 159, fn. 12.

⁴ Two-dimensionalists provide some ideas as to how the roles that contexts and indices play are to be fathomed, but these details won’t concern us. Cf. Chalmers 1995: 5ff; Chalmers 1996: 57; Jackson 1998: 48ff.

⁵ This terminology is Chalmers’. Jackson 1998: 48f calls the primary intension an ‘A-intension’ and the secondary intension a ‘C-intension’. Stalnaker 1978: 318f distinguishes diagonal propositions from horizontal propositions; Lewis 1981: 94 distinguishes diagonal propositional contents from horizontal propositional contents, and Haas-Spohn 1997: 335 talks of subjective and objective meanings.

⁶ A word of caution: It has become common to talk as if model-theoretic constructs do not merely *represent* or *model* meanings but actually *are* meanings. We will take up that talk, but we would like to stress that we think it to be nothing but a *façon de parler*. Model-theoretic constructs *of course* are not meanings. Whatever someone grasps when she understand, say, ‘grandmother’ is certainly not a set-theoretic entity, even though it might be modelled as a function from indices to sets of persons having in common that they are female as well as a parent of a parent.

⁷ Anyone who is prone to complain the we’ve used an indexical in ‘*our* world’ might substitute this expression throughout by ‘Terranostra’. ‘Terranostra’, of course, just is a proper name for *our* world.

⁸ This consensus is implicit rather than explicit. Yet any two-dimensionalist we have come across of course wants ‘water’ to designate something that can intuitively be called thus.

⁹ Haas-Spohn construes use as isolated from at least some aspects of the environment, *viz.* those that are epistemically inaccessible to the community in question. Cf. Haas-Spohn 1997: 339f. Haas-Spohn does not use the term ‘use’ but rather talks of ‘the English ‘water’ discourse’(ibid.).

¹⁰ Burge 1982: 102-107 also urges that ‘water’ is not an indexical. However, he does not argue for this claim but rather thinks it to be obvious.

¹¹ Some two-dimensionalists vehemently disagree, cf. for instance Haas-Spohn 1995: ch. 4. However, please not that we have chosen the term ‘George Bush’ just to keep the example simple. One can of course rehearse precisely the same point with the term ‘four’ or the predicate ‘grandmother’.

¹² Please keep in mind that we are concerned with ordinary language expressions such as ‘water’ and ‘tiger’. Explicitly defined technical terms such as ‘actually’ (as introduced by modal logicians) are not subject to this constraint.

¹³ Although we think it that he probably holds this view, we do not have to assume that Kripke thinks that *a priori* knowledge arises *exclusively* from linguistic knowledge. We can leave it open whether he would acknowledge other sources of *a priori* knowledge.

¹⁴ The reverse is true as well. Cf. Lycan 1987.

¹⁵ Yablo seems to share this view. Cf. Yablo 2000, 106ff, 113ff.

¹⁶ As far as we can tell, Chalmers never explicitly argues for the claim that anyone who understands a sentence whose diagonal contains all contexts must know this. Yet he evidently endorses this idea, and he takes some pains to reject claims that suggest otherwise — cf. e.g. Chalmers 1999b: 477-483, esp. 482f — which is why we would like to attribute the following arguments to him. We will use our terminology in unfolding Chalmers' ideas.

¹⁷ And vice versa. However, since the same two assumptions allow Chalmers to argue that (ii) entails that (i) is false allow him to argue that (i) entails that (ii) is false, we will concentrate on just one of these chains of thought.

¹⁸ Chalmers has quite a lot to say about conceivability. Cf. Chalmers 1996: 66ff, 96ff; Chalmers 1999b: 477, and esp. Chalmers 1999c. — For a view on conceivability that is not bound to the two-dimensionalist framework cf. Yablo 1993.

¹⁹ In Chalmers 1999c, Chalmers draws numerous distinctions concerning conceiving that *p*. Since they do not affect the points we are going to make, we will make do without them.

²⁰ This assumption is contentious. But we simply cannot see how 'Cary Grant' — or for that matter, 'Alexander Archibald Leach' — could have a descriptive content.

²¹ This line of thought is inspired by Yablo, cf. Yablo 1999 and Yablo 2000. It might, for all we know, be even incompatible with our first argument.

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