

Is Conceptual Analysis Still Sustainable?*

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I . Introduction

Can conceptual analysis contribute to a physicalistic account of consciousness? Over time, there have been many objections to conceptual analysis, many of which might be due to the Quinean intuition against a priori analysis, and above all because conceptual analysis neglects the consideration of Kripkean possible worlds.

David Chalmers(1996) and Frank Jackson(1994, 1998) proposed a new version of conceptual analysis providing reductive explanation, one that allowed conceptual analysis to be evaluated by Kripkean possible worlds. Their intention is that if a priori analysis includes the consideration of possible worlds, then it functions like a rigid designator. If a conceptual analysis of consciousness is a kind of rigid designator, consciousness is reduced to the conceptual analysis of it, since the necessary reductive explanation of consciousness by conceptual analysis is gained. Physicalists, for example, must explain consciousness in this way. The goal of this paper is to

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evaluate whether or not the new version of conceptual analysis which Chalmers and Jackson(C&J) proposed is tenable by examining the objections of Ned Block and Robert Stalnaker (B&S) to their views.

II. The Battle: C&J vs. B&S

1. Conceptual Analysis and Two-Dimensional Framework of Intension(TDFI)

C&J hold that if physicalists want to admit the existence of consciousness and give complete explanations, they need logical supervenience.¹⁾ Logical supervenience is the thesis that if there are logically possible worlds that contain physical duplicates indiscernible from us, then these duplicates in those worlds necessarily have the same consciousness that we have. Although some have asked them why we must hold logical supervenience which seems too strict for physicalism, they answer that weaker superveniences than the logical one, for instance natural or contingent supervenience, leave the over and above (Chalmers 1996) and that some of them are compatible even with Cartesian dualism(Jackson 1998. 11-12).

C&J believe that logical supervenience needs conceptual

1) Jackson mentioned only global supervenience(F. Jackson 1994, 1998). But his assertion is that physicalism needs the *a priori* necessity that includes the Kripkean necessity and global supervenience with Kripkean necessity is indeed not different from logical necessity that Chalmers supports. Chalmers thinks that Jackson's global supervenience with the requirement of minimal physical duplicate is the same as his(global) logical supervenience(Chalmers, D. 1996, 42). In this paper, I ignore the difference between global supervenience and local one.

analysis evaluated through possible worlds; furthermore, they also contend that this new version of conceptual analysis escapes the critique from Kripkean intuition. They tried to show their claim with two-dimensional framework of intension (TDFI), a system that uses two features of intension. In the Fregean theory of reference, intension denotes its referent by meaning, and the relation between intension and its referent is regarded as a kind of function. For example, the intension of the morning star, brightly shining in the east sky before the dawn, denotes Venus, and this denotation is regarded as a functional one. C&J noticed that if we combine Kripkean possible worlds with the Fregean theory of reference, intension can be specified as a function from possible worlds to the referent. Importantly, two facts in the Kripkean theory of rigid designator can make two different intensions possible: the fact that the referential relation is determined in the actual world and that once the relation is determined in this world, it is preserved through counterfactual worlds.

Therefore, we have two divided dimensions: primary intension having the referent determined *a priori* in this world and secondary intension having its referent determined counterfactually. Primary intension corresponds to the intension from the descriptive theory of reference. For example, primary intension of water is the watery (or waterish) stuff, which refers to a material that fills rivers, lakes, and the ocean; it has no color, no taste, and no scent; and it quenches thirst. In a word, such material performs the water role and the macroscopic properties of water are entailed *a priori* by the concept of water. On the other hand, secondary intension stems from the causal theory in which secondary intension of water is H₂O. Once the microscopic properties of water are

certified causally by science, the identity between water and H₂O becomes metaphysically necessary.

TDFI is the system with those two dimensions of intension and also two parameters. One parameter is determined in this world by meaning while the other is determined counterfactually by the context of evaluation. With combining two parameters, TDFI enables two dimensions of intension to become integrated. For this, the fact that in this world, the referent of primary intension of water is the same as that of secondary intension is critical. Once this fact is certified empirically in the central world,²⁾ the world that is chosen among possible worlds, primary intension is determined just like secondary intension, and it plays the role of rigid designator.

C&J's main argument is that if the empirical facts that H₂O fills 70% of a person, and the watery stuff fills 70% of a person are combined with a priori fact that water is the watery stuff, the inference to the conclusion that water fills 70% of a person becomes correct. Thus, the a priori analysis that water is the occupant of the water role is rigidified and entailed by microscopic physical facts(Jackson 1994). At first, Kripke discerned sharply metaphysical a posteriori necessity from conceptual a priori necessity. However, C&J took only the context and semantics to evaluate counterfactually from the Kripkean rigid designator and applied them to a priori analysis.

Once primary intension is given and its identity with secondary intension is certified in this world, TDFI enables us

2) For us, the central world is our world, while the Mars for Martian.

to infer macroscopic properties of water from microphysical facts. This theory about primary intension is a new version of conceptual analysis. In C&J's physicalism, logical necessity of primary intension gained from TDFI plays a crucial role; if primary intension is compatible with Kripkean possible worlds, there is little reason to deny the new version of conceptual analysis for physicalism. This new version will lead physicalists to reductive explanation by means of logical supervenience. For example, if there is any conceptual analysis of consciousness, consciousness will be reduced to it with the help of TDFI.

	Kind of Reference	Projection to Possible Worlds	Kind of Intension
Primary intension	<i>A Priori, Conceptual</i>		The Necessary Primary Intension, Two-Dimensional Intension . (Conceptual Analysis is rigidified counterfactually, if it is identified with secondary intension in the <i>actual</i> world.)
Secondary intension	<i>A Posteriori, Causal</i>	→	The Necessary Secondary Intension

Figure 1. Two-Dimensional Framework of Intension

2. B&S's Objection

In C&J's theory, we need two facts in order to rigidify the referent of primary intension and, thus, in order to deduce safely from H_2O to macroscopic properties of water. One thing is a priori conceptual analysis such that which indicates that water is waterish stuff. Another fact is that in this world H_2O

plays the role of waterish stuff. I.e., H₂O is the occupant of the water role. Thus, we can a priori deduce from H₂O to various macroscopic properties of water. Then, there might be two ways to stand against C&J's framework: to deny the necessity of conceptual analysis; to reject the necessary relation between the water role and its occupant.

B&S(1999) raised an objection to C&J's physicalism. They want to show both that "water = the watery stuff" is not an a priori fact and that TDFI is unhelpful to conceptual analysis. Conceptual analyticity comes from the unique relationship between the stuff playing the water role and water. Of course, the water role is not exposed to us unless we meet water directly or are heard of that fact by causal chains. But once that fact is uniquely determined, it is regarded as an a priori one. Their main strategy is to take the first way mentioned above. So, they make up some counter-examples to tackle in the first necessity.

Suppose Putnam's twin Earth, where XYZ-water seems to boil when heated. Assume that people in the twin Earth believe that their water boils. But, then, H₂O cannot boil, because boiling is a natural-kind term; for people on twin Earth, the behavior of H₂O -water on Earth is just pseudo-boiling. This example is also expected to reveal that deduction from H₂O to boiling is neither necessary nor a priori. Nothing prevents us from enjoying the conceivability of XYZ-water and twin Earth's physics, so our water could not boil at all. Thus, whether H₂O boils or not depends on purely conceptual facts, but rather the world relative to empirical facts, such as environment and science in each world, determine it. This intuition plays a chief role in their critique.

They also devised some counter-examples about the primary

intension to break out uniqueness. Firstly, is it possible that the world where H_2O and the watery stuff fills 70% of a person exists, but the word “liquid” refers to the solid stuff in our world?³⁾ That is, is the liquid-solid inversion⁴⁾ possible? In such a world, the conceptually analyzed proposition, “water is a liquid,” is false. This tells us that there is no unique relation between water and the description of the cluster of macroscopic properties of water. Hence, the watery stuff is not a priori. If the liquid-solid inversion is possible, it entails the possibility that primary intension of liquid or solid is relative to the conceptual scheme of each world. For instance, we have the liquid watery stuff while our counterparts have the solid watery stuff, and the stuff in both worlds is H_2O . So the point becomes that, regardless of using the terms “liquid” or “solid,” the watery stuff picks up the referent which is related to each term. This example notifies us that the different conceptual scheme of each world depends on the science and the culture of each world. Then, the necessity of primary intension rigidified with TDFI appears unreliable. Because there are the elements of the natural kind even in words of folk physics such as liquid and solid, we should regard primary intension, a term of folk semantics, as not a purely a priori intension, but rather a causal one.

However, B&S retracted the first counter-example, since the liquid-solid inversion case was applied only to the definitions. Intension is not confined to the definition of the term such as liquid, solid, odorless, tasteless, etc. There is another similar

3) Block and Stalnaker 1999, 31.

4) Strictly speaking, this case is not an exact liquid-solid inversion, since there is no information about the term liquid in twin earth. But I'll call it the inversion for convenience' sake.

counter-example about the intension: is it possible that the counterfactual twin Earth is indiscernible micro-physically, but has another primary intension that denotes H₂O or has another stuff that primary intension of water refers to?⁵⁾ The teaching of this example is the same as that of the liquid-solid inversion case. Although, in twin Earth, H₂O fills 70% of a person just like in our world, the fact that primary intension of water is H₂O is false. So we can get two kinds of TDFI in each case: primary intension of our world and of twin Earth. That is, two kinds of TDFI depend on each central world: Earth and twin Earth. This counter-example also shows that the uniqueness of primary intension fails and that primary intension is relative to each world's science and culture, and, consequently, is not a priori.

3. C&J's Reply: "That's All" and "Nothing But"

C&J don't find B&S's attack damaging. They answered them, firstly, that a priori entailment is not confined at definitional analysis, and secondly, that their counter-examples were about negative facts which do not concern our world. The first reply applies to the examples of primary intension, and the other is about all cases raised by B&S.

Chalmers(1998) and C&J(2001) claimed that B&S's attack is applicable only to complaining about the impossibility of the unique definition of liquid or solid. Surely, many primary intensions have clear definitions, but as we see in the Gettier case, there may be no explicit definition of knowledge; nevertheless, we can get entailment of facts about it. Hence,

5) This example is in Block and Stalnaker 1999, 37. Maybe, the inversion of primary intensions is possible, too.

we do not have to presuppose any definition for a priori entailments, and, in the end, TDFI is not flawed. Instead of the definition, Chalmers(1998) only needs intension and function from intension to the referent for conceptual analysis.

Their next reply is more decisive. They assert that B&S's examples are never real counter-examples. They claim that supervenience falls only under the facts about our world, and that there is a restriction that the duplicate of our world (twin Earth) must be the minimal duplicate. Chalmers(1996, 1998, 2000) call this condition "That's all fact," and Jackson(2000) name it the "Nothing but" condition. So we only have to consider the facts of our world, and we need not consider the negative possibilities of worlds with facts other than ours. If the fact that liquid is solid and that H₂O is not primary intension of water and that water is XYZ according to TDFI of twin Earth comes under negative possibility, B&S's counter-examples seem only *prima facie*. In fact, we need just our TDFI.

III. Who Are Likely to Win the Battle?

A result of the battle is that C&J's reply is partly right but that B&S win overall. Rightly, C&J's answer can exclude some counter-examples: some B&S's examples are excluded by "That's all fact." Or, intension may not need exact definition. Nonetheless, a priori analysis by concept seems still vulnerable.

Primary intension has two stages: stage one is to be defined analytically by concept or meaning; stage two is to be

evaluated through possible worlds. After passing the test of two stages, TDFI fully utilizes a priori inference from H_2O to various properties of water. Each stage will be examined carefully and it will be argued that we are not entitled to have unique conceptual analysis.

1. Descriptive Ascent

C&J denied that primary intensions were definitions in nature and argued that B&S's critique of undefinability was misleading. They asserted that the relevant meaning was intension — a kind of function from meaning to reference, and that meaning can be specified in order for it to be considered true or false even if it is not definable; the examples of knowledge supported his assertions.

Of course, it is challenging to find exact definitions for them. But even if we cannot capture the exact definition, to evaluate that function we must have at least a specified condition when the value of a function is true. For instance, primary intension of water is specified by such a sentence: x is primary intension of water if and only if x denotes water by its meaning.

The truth condition of the sentence is preserved analytically by meaning (Even though this sentence uses “meaning” to specify meaning, if we want to discern primary intension from secondary intension, this circulation of the term is unavoidable. The latter “meaning” means conceptual semantics, and the former “meaning” is a truth condition set forth by conceptual semantics). In this way, I want to give a general form that satisfies this condition and fits functionalism, the thesis used to explain something with the role between input and output.

If we modify the previous sentence a little, we can get the more general form: x is primary intension of y if and only if x has a role of y by its meaning.

Regardless of the existence of a definition of x, this form enables the concept x to be a function determined by its meaning. What is important here is that the value of function determined analytically is relative to the conceptual schemes underlying meaning. I will adopt the critique of semantic ascent from Stephen Stich to show this and claim that even if conceptual analysis is not wrong, there are other, better choices for physicalism than conceptual analysis.

In "Deconstructing the Mind"(1996), Stich refers to the strategy of semantic ascent: "This strategy of trading substantive scientific or metaphysical questions concerning the nature or the existence of entities for apparently equivalent semantic questions concerning the terms we use in talking about those entities."(S. Stich 1996, 55) Certainly, this strategy is owing to Quine's proposal of semantic ascent: "a shift from talk of objects to talk of words"(W.V.O. Quine 1960, sec. 56). Stich attacks semantic ascent by saying that reference is not determined only by reference theory or semantics. I will apply the critique of semantic ascent to the matter of conceptual analysis.

Stich offers the general form of the strategy of semantic ascent:

- (a) $(x) [Px \text{ if and only if } "P___" \text{ refers to (or is satisfied by) } x]$ (Stich 1996, 55).

This form reveals the relation between the predication P and the referent x. P refers to x successfully if and only if P is

satisfied by the referent x . If there is no x satisfying the predicate P , Px is wrong.

The general form (a) can be applied to the descriptive theory of reference. The descriptive theory of reference is a theory where the predicate determines its referent descriptively by a priori concept. Since C&J reject the descriptive definition, let us instead take primary intension. According to primary intension, we can constitute pain conceptually by folk semantics, because folk psychology may be the only possible way to specify pain conceptually. If pain is applied to the general form (a) to which folk semantics is added, pain is something if and only if something in folk semantics satisfies pain. But Stich indicates that some kinds of conceptual intensions are circular, since there can be no answer in folk semantics to such a question as "Is pain the C-fiber firing state(CFS)?" This is because functional analysis of folk semantics does not contain a term such as CFS from neuro-physiology and conceptual intension cannot answer this question. A possible answer may be obtained by introducing a new definition or specification in a circular way, such that pain is CFS if and only if CFS is pain.

C&J first conceded apriorism of primary intension and then asserted that an a priori analysis could determine the referent with metaphysical necessity. If Stich succeeds in the criticism of semantic ascent of the descriptive theory, it implies that conceptual analysis can leave out important options of functionalism for CFS and that the first stage of conceptual analysis doesn't cover all options. Block dissected the metaphysical functionalism, a theory on the understanding of the nature of the mind, into two terms, Commonsense Functionalism (Functionalism) and Psycho-Functionalism(Block,

1980). Although each functionalism uses intension, the terms of Psycho-Functionalism are not grasped in the conceptual analysis that C&J prefer, as the terms of Functionalism depend on our common conceptual analysis. Psycho-Functionalism has empirical and scientific semantics in its background and identifies pain with the role in the level of CFS.

2. Causal Ascent

At stage one, I do not deny the possibility of conceptual analysis without definition. Rather, I propose that it is not everything for functionalism. However, it is insufficient only to say that there are other choices; therefore, I should go further to disconfirm that conceptual analysis is a good choice, present other choices as better, or at least to show that choice is indeterminable only by an a priori consideration.

For this, let us move on to the critique of semantic ascent with the causal theory of reference. The causal theory connects predicates and referents by causal-historical relations (C-H-link-R). The causal theory modifies the general form (a):

- (x) Px if and only if C-H-link-R ("P_____," x) (Stich 1996, 57).

Stich thinks that this is not the only relation that links the predicate and its referent. Other relations, such as C-H-link-R* or C-H-link-R** are also possible, as many as one wants (*ibid.*) Your name given by your parents is known to some through the speech of your relatives, while others know your name from official documents. Additionally, the name "Jade" can have the causal-historical relation with both jadeite and

nephrite. But it is reasonably possible that not all of the relations are right, or that some relations exclude others. Even if all relations can coexist, we at least need the criteria to choose what is proper. The matter at hand is that we cannot choose the proper relation only by semantics; we need other criteria, such as convention, or science, which are empirical, in order to select the correct one.

Let us find out another example to show such a problem a kind of choice problem. In the case of water, first, water can be identified with the watery stuff by folk physics and we can specify water causally as the occupant of a role with macroscopic properties, such as transparency, odorlessness, tastelessness, drinkability, etc. Secondly, water is identified, by scientific semantics, with the causal role that comes from a combination of two molecules of hydrogen and one molecule of oxygen. Thirdly, in this way, water can be equal to the causal role at the atomic level. What, then, should we choose as a relation? Can we decide upon one relation only by semantics?

This problem corresponds to the spread problem inherent in the causal theory of reference — a kind of choice problem of causal chains. In the case of gold, which one is right among: a bright yellow mineral, a kind of luxurious metal, or the material with the atomic number 79? All of them are the causal meaning of gold, although some of them look conceptual, since the concept of gold — yellow bright metal — could not be uniquely set up unless people encounter such metals causally. But once the macroscopic properties of gold are uniquely determined by folk physics, the cluster of the description of those properties becomes the concept of gold. What is important in the spread problem is that there are conceptual elements even in the causal reference. Sometimes,

we confront the choice problem of the background semantics, even when we take the causal theory of reference. The problem of semantic ascent of the causal theory stems from the fact that there are our conceptual elements in the causal reference, and that entities cannot be determined only by the causal theory.

To be sure, someone might well ask why we should choose just one. If we are reductionists, we can say that each relation is reduced to another. Then, the choice problem is actually a pseudo-problem, since all choices are reduced to one. But the matter of choice is not so trivial in consciousness, to say nothing of mental states or mental representations. Eliminativists may take the matter of choice between folk semantics and scientific semantics seriously.

The teaching that I extract from the critique of semantic ascent is the relativity of analyticity, for which I will call up Psycho-Functionalism once more. Functionalism and Psycho-Functionalism can be divided in their applications to Ramsey sentences. Ramsey sentences depend on the theory T about inputs, mental states, and outputs. Once T is determined, Ramsey functional correlates are fixed. For example,

X is in pain if and only if there are states which are caused by cell damage and which cause shrinking responses.

X is in pain if and only if there are states which are caused by CFS and which cause CFS responses.

If T is a folk theory, we have the folk specification of pain and Functionalism, while if T is a scientific theory, we have the scientific specification of pain and Psycho-Functionalism.

Do these Ramsey sentences not remind the general form of semantic ascent? Since functional analyses need functional intensions, the specifications of pain will look like following:

x is pain if and only if x has the roles of pain assigned by the semantic theory.

If we have folk semantics, pain is the pain role, while if we have scientific semantics, pain is identical with the CFS role, having information of CFS: receiving input information from other neural states and sending output information to other neural states.

The descriptive theory of reference defines something by a cluster of its descriptions in terms of folk semantics. In the same way, the definition of pain as having CFS's role can be described by a cluster of roles that CFS takes charge of. For example, CFS may play several roles, such as connecting b-fiber with d-fiber, delivering such and such chemical stuff, or causing the neural state related to the shrinking response. Thus, it follows that Psycho-Functionalism also has analytical elements, a cluster of descriptions or roles. If a world is possible where folk physics is eliminated and ordinary people talk about everything commonly with microphysical terms, then that world will have conceptual analyses of scientific conceptual schemes. Analyticity comes from its structure to specify intensions with roles relative to its conceptual scheme.

This tells us that we can have many functional analyses by their conceptual schemes. The choice problem of schemes arises in functional analyses just like the spread problem indicating the choice problem of causal chains. Thus, each set of semantics can analytically determine pain as the occupant of

roles. However, folk semantics is an a priori theory, while scientific semantics is empirical; although scientific functional analyses have a priori elements in their structure, the scientific conceptual scheme is empirical in the end. Or, if you want to be faithful to Stich and to eliminate all conceptual elements in ontology, you can reject functional analyses. Which scheme do you prefer? What is the criterion for choosing semantics? Can the choice be determined a priori?

Finally, we reach the relativity of functional analyses and the indeterminacy of semantics without conceiving the negative worlds or facts, such as the liquid-solid inversion case. In the actual world, if we consider the scientific theory, we don't have to presuppose C&J's primary intension. Moreover, we can say that the empirical semantics are more reliable since they depend on science. In the next section, I will try to show that although conceptual analysis with TDFI is a possible option, it is unreliable.

3. Skepticism to Primary Intension

Until now, I have focused on the matter of conceptual analysis itself. If we want to maintain conceptual analysis, we need to presuppose particular semantics, but we need another criterion than only concept to determine a conceptual scheme. My approach was different from that of B&S, but the moral I pulled out is the same. From now on, I will directly highlight the problematic debate.

B&S claimed that C&J's use of TDFI for rigidifying primary intension was unsuccessful. But C&J's reply that B&S's counter-examples are of negative facts which do not apply in our world was successful, since, without the requirement

excluding the negative facts, we have so many unphysical things or bizarre facts which do not belong to our world. However, the rigidity of primary intension looks superficial as B&S showed, although it is true that, as Chalmers said, B&S's examples about primary intension are eliminated by the requirement of the minimal physical duplicate.

I think that it is enough to present B&S's boiling case in order to argue superficiality of primary intension, since counter-examples on primary intension, the liquid-solid inversion and having another primary intension of H_2O , are excluded as negative facts. B&S's boiling case is regarding as secondary intension, which isn't eliminated as a negative fact of primary intension. C&J claimed that the Kripkean intuition concerned semantics alone. Thus, they got the logical necessity of primary intension evaluated through possible worlds. However, I do not believe that this kind of necessity fully captures the Kripkean spirit.

Before moving on to secondary intension, let us remake a counter-example about primary intension. Suppose that, in ancient times, there were people who believed that the sky was a dome and that stars were lights discharged through tiny holes of the dome.⁶⁾ Their folk astronomy had a theory about stars, and they might have primary intension of stars. Now, primary intension of the ancient stars can be evaluated by scientific astronomy, so we understand that the ancient stars are actually immense bodies made of condensed hydrogen or helium gas. With TDFI, we can conclude that primary intension of stars of the ancient people is rigidified a priori by conceptual analysis, if it is the same as the scientific stars.

6) I modified Stich's example a little(Stich 1996, 57-58).

But can the ancient stars really be rigidified? Of course, Chalmers might deny this example because it is negative.

This type of denial is not an incorrect answer, however, it is not an enough solution. The folk-conceptual schemes may be relative to their users or conceptual schemes, and one can conceive of as many schemes as one wants. Even in this world, there may be some tribes using the same folk astronomy as the ancient people. Moreover, our conceptual schemes are changing continuously and sometimes are found out to be wrong. A good reason to reject this example is to be faithful to the Kripkean intuition about the metaphysical necessity. Kripke's teaching is that direct, causal, and scientific reference is more reliable than conceptual analysis. Even though C&J made conceptual analysis rigidified through possible worlds, conceptual analysis by folk science is not so reliable. Thus, not because it is a negative theory but because it is wrong and unreliable, we can reject the ancient astronomy.

Now, let us turn to secondary intension.⁷⁾ Let's call up Putnam's twin Earth as B&S's boiling case. We can conceive of a twin Earth that has XYZ-water. If XYZ-water is possible, then the watery stuff in the twin Earth is no longer water according to secondary intension of our TDFI.

7) Both Chalmers(1998) and Jackson(2000) understand the counter-examples of Block and Stalnaker is the same as the Putnam's version on secondary intension(XYZ-water). But Block and Stalnaker mainly, at least some, used the examples on primary intension which I mentioned; I understand their 'coumarone' example, which I omitted due to the matter of definition, is also about primary intension too, even though their description of the example is vague. I think that, for Block and Stalnaker, counter-examples using primary intension might be more effective and direct to kick out primary intension, but I prefer examples of secondary intension.

Reversibly, as B&S described(see 1999 Figure 1), we can conceive a TDFI of the twin Earth where water in that world is XYZ-water. Thus, we can make two frameworks of intension by the science of each world. Here, an absurd consequence occurs soon: since primary intension cannot distinguish XYZ-water from water, both our counterparts and we may call something different water simultaneously. However, those waters are not the same materials from the point of view of natural-kind term as in the case of boiling.

This example has the same moral as B&S's boiling case. Both show us that primary intension is superficial, because XYZ-water is not excluded but allowed by primary intension of our world. The instruction of the Kripkean intuition is that XYZ-water is not water but just pseudo-water. And a better theory of semantics must be able to exclude such abnormal instances. C&J will simply eliminate XYZ-water, since it is not a positive fact of our world. Still I like to resist to C&J because of unreliability of primary intension, even after admitting that it is widely held by ordinary people in *our world* that water is waterish stuff. I think the examples I raised and boiling case are enough to show this unreliability: folk physics cannot be approved for free for the reason that it is commonsense. Those instances tell us that Kripkean intuition is incomplete when it is applied to primary intension and that the essence of the Kripkean necessity is not just a matter of semantics or context for evaluation but rather a matter of ontology.

4. Two-Dimensional Ascent

Chalmers(2000), Jackson(2000), and C&J(2001) might reply

that TDFI needs not mind whether primary intension is reliable or affected by empirical facts, because what is crucial is framework which works out only after primary intension and its referent are determined in this world. So, they emphasize the fact in this world. The counterfactual and subjunctive situations should be eliminated as negative facts by "That's all fact" or "Nothing But" condition. Once primary intension and its referent are identical in the actual world, TDFI makes us deduce a priori from H₂O to boiling. The main argument of C&J has two stages as we discussed: in this world H₂O is the chief ingredient of person, and waterish stuff is too. From these, they conclude that the fact that water is H₂O is a priori.

However, their answer does not seem persuasive. They must insist that water is conceptually H₂O, and that, therefore, we can deduce boiling from H₂O. However, our generally accepted theory of natural-kind terms does not permit this conclusion; it cannot be analytic as we have seen in the examples of XYZ-water and its boiling that were not excluded by "nothing but" condition about primary intension. I will call this point two-dimensional (TD) ascent. Since the natural-kind term is not identical with primary intension, we cannot pick out H₂O by primary intension. As Kripke taught, primary intension permits epistemological situations such as Putnam's twin Earth; therefore, H₂O, i.e. water, is only denoted directly without any mediating concept. According to this view, TDFI does not work out since there is no obvious consensus about fact that water is waterish stuff which is actually H₂O. As a matter of fact, it is metaphysical work to confirm the existence of H₂O. If we like to refer to water by primary intension, we commit a kind of semantic ascent to determine metaphysical fact by

semantics. C&J expected that TDFI enables us to decide metaphysical facts by conceptual analysis and to rigidify primary intension counterfactually, but they fell into TD ascent. Recently, Stalnaker(2001) proposed modified TDFI including secondary intension. In the end, the modified form about secondary intension is more reliable.

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