

The Nature of Necessity in Necessary *a posteriori* Truths

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Modal *Modus Ponens*

(1) If P, then nec. P

(2) P

(3) Nec. P

Kripke alleges that this is a valid argument and that the two premises (1) and (2) are true. The first is a true proposition known *a priori* whereas the second one is a true proposition known *a posteriori*, resultant from a scientific discovery like any other, which should follow the truth of the conclusion (3), which is a necessary proposition known *a posteriori* that results from *Modus Ponens* of preceding ones.

FIRST PART

Discussion of the nature of the
necessity of identities

The modal *Modus Ponens* for identities

For the case of identities I shall use as an example the proposition that alleges that water is necessarily H₂O. Through the presentation of the modal *Modus Ponens* (MMP) we have:

If water=H₂O, then Nec. water=H₂O

Water=H₂O

Nec. water=H₂O

Evaluation of this MMP

- The first premise – the conditional ‘If water=H₂O, then Nec. water=H₂O’, is unarguably true and known *a priori*. With effect, from a logical point of view, if a=b, then necessarily a=b, or, by applying the idiom of the *possible worlds* (Pww), if a=b in the *actual world* (Aw), then a=b in all of the Pww. So, this conditional is a *conceptual truth* based on the logical truth that identities are necessary.
- It isn’t also the case that I address my criticism to the second premise. I accept, for the current purpose, that the truth-value of ‘Water= H₂O’ is knowable *a posteriori*. At last, the argument is unarguably valid and, in virtue of premises’ truth, it’s also a solid argument. For these reasons, the conclusion (the proposition ‘Nec. Water=H₂O’) will result unavoidably truth.

My criticism

My criticism is not directed at the MMP but at the meaning usually attributed to its conclusion. In fact, according to me, it isn't the case that MMP's conclusion could be understood as meaning *that water is H₂O in all of the P_{ww}*.

Instead, under the following condition

– (**Restrictive condition**) The terms 'water' and 'H₂O' designate in all of the P_{ww} what they designate, respectively, in the A_w –,

the exact conclusion of the MMP is *that the designated by 'water' is, in all of P_{ww}, the designated by 'H₂O'*. Or rather, the *designata* of both terms are the same substance in all of the P_{ww}.

Two notes

- [1] This restrictive condition intends to inhibit the possibility of varying meaning of words, namely the meaning of the terms 'water' and 'H₂O', from the Aw to any Pw. Accepting this restrictive condition does not inhibit or compromise anything in reality. It will simply inhibit our own freedom to change linguistic conventions, i.e., the words we choose to express this or that meaning.
- [2] One must notice that I'm not just saying that the terms designate the same in all of the Pww (as if it could vary what both designate from a Pw to another Pw). I'm also saying that the substance designated is really the same in all of the Pww.

Metaphysical implication and presumption

Here emerges the problem we have to face. In fact, and against Kripke's suggestion, from the truth of the *designata* of both terms, 'water' and 'H₂O', being the same in all of the Pww does not follow the truth of water being H₂O in all of the Pww. This implication – that I shall call *metaphysical implication* – only would be acceptable under the presumption – that I shall call *metaphysical presumption* – of a metaphysical impossibility of the very same substance designated by 'water'/'H₂O' possesses different chemical compositions.

My Thesis

In order to evidence that the metaphysical implication is not a valid one, I will support, as my thesis, *the negation of the metaphysical presumption*. In other words, I'll expose, and argue for, the following idea:

It's *physically impossible* that other chemical composition, other than H₂O, could supervene the substance designated by 'water'/'H₂O'; but such difference isn't a metaphysical impossibility.

From the truth of this thesis it follows, obviously, the falsity of the metaphysical implication, namely, the falsity of its consequent. With effect, if the thesis is truth, then the substance designated by both terms can be other than H₂O in Pww which physical laws are different from those that regulate the Aw.

MMP irrelevance

With this, one must notice a first result:

Recognize that there is no real contribution of MMP to the discussion on water being, or not being, H₂O in all of the Pww. In fact, MMP's conclusion is consistent with any of the alternatives in discussion. Rather, the debate converge at knowing if it is, or not, metaphysically possible a substance possess different chemical compositions in virtue of different physical laws. More abstractly, but also more impressively, the question is – *do physical laws matter for supervenience?*

How would it be the world if physical laws change?

It's physically conceivable a Pw in which matter would be quite different from the way matter is organized in the Aw – suppose a Pw in which matter isn't even organized in atoms and molecules. In such a Pw, it results that the designated by the terms 'water' and 'H₂O', being the same, do not possess the chemical composition H₂O. For conceiving such a Pw, It would be enough increase a lot (let say: superior to a 10⁻²⁰ order) the numerical value of Planck's constant. Curiously, in graduate courses of Physics is frequently questioned how it would be the world if Planck's constant increases so much. Atoms would be comparable, in dimension, to galaxies; and they would disaggregate immediately in virtue of a quite low energy for ionisation.

Two ways for vary chemical composition

We want to preserve a reasonable chemical composition. And we need to have the same substance in the basis of the designation; for instance, the substance we have inside the very same glass of water, substance that I'm able to point out. The only “extravagance” I need to attest is that this substance, which possesses the composition H_2O in the Aw, could possess, changing physical laws, another chemical structure. Two ways:

- **One way:** changing slightly physical laws of the Aw. For instance, increasing a little bit Planck's constant, just the sufficient for change the atomic structure of the substance. Possibly, it would be needed a change in the *spin* of electrons, in Pauli's Principle of Exclusion, etc. But, with more or less conceptual work, any competent scholar is able to determine a set of modifications in physical laws of the Aw in order to get a different chemical composition – say, for instance, H_3O^+ – for the substance that, in the Aw, it's H_2O .
- **Another way:** formulating a brand new set of physical laws. For instance, conceiving a certain set of laws L_1-L_n , for a Pw, from which it follows that what supervenes a certain set of sub-particles isn't, as in the Aw, H_2O , but, say, He_4H_2 .

How could water be superficially different?

Identically, it is conceivable a Pw in which the same chemical substance obtains supervenient properties quite distinct from those it obtains in the Aw. For instance, it is conceivable a Pw in which what is H₂O at the chemical scale doesn't possess any of the properties we assign, in the Aw, to water as it is at our everyday scale. In effect, if physical laws relevant to ice crystallization and to hydrogen-bridges were different, and if these differences were quite well identified, it would be possible to determine that to the chemical composition H₂O would supervene, at our everyday scale, a substance that:

- i) becoming solid, would occupy less space than the same substance in the liquid state;
- ii) being submitted to white light, would reflect only one certain wavelength; etc.

This is, actually, a good example of how physical laws do really matter to supervenience.

Avoiding possible confusions, one must notice that these properties of water-as-it-is-at-our-everyday-scale, even being superficial or aspectual, are not *phenomenological*. A phenomenological property is a relational property, which is dependent of the agent of knowledge, namely, his perceptual abilities. The aspectual properties I referred are, evidently, independent of any sort of relation with an agent of knowledge.

An important result

This means that it's conceivable a Pw in which the terms 'water' and 'H₂O' do not designate water, as it is at our everyday scale, neither designate the H₂O, as it is at the chemical scale. However, the same terms will designate in that Pw the same substance *simpliciter*.

Main objection to my thesis

One could replicate that *being the same substance* in all of the Pww necessitates *possessing the same structure* in all of the Pww. But, once neither of the cases I exposed really has the same structure, then it isn't truth that I was talking about the same substance, but only about different substances.

My defense:

- Surely, the affirmation of transworld identity requires the distinction between structural and accidental properties. With effect, I can only admit that some of the substance's properties in a Pw are not properties of that substance in the Aw if such properties are not structural properties. Otherwise, one could not affirm a transmundial identity, but only a different substance.
- Nevertheless, one can only distinguish between what it is structural and what it is not (or, in a more classical fashion, between essential and accidental properties) through providing a regularity with explanatory value, that is, through a physical law. Now, if the idea is to determine what is structural in a substance *independently of physical laws*, then I sustain that such idea is pointless. For instance, I know how to point out the substance I designate with the term 'water' – It will be enough pointing to the water that I drink from a bottle. But I'm not able to say which properties of that substance are metaphysically structural. I just can say which are physically or chemically structural, no more. Of course, these have to be the case, because they are necessitated by the set of physical laws that regulate natural events in the Aw.

A sort of metaphysical essentialism

My response, like the objection formulated, presumes that being the same substance necessitates possessing the same structure. If the objection is avoided, it is not because the substance has no metaphysically structural properties, rather is because I know *a priori* that it's impossible to determine whatever is metaphysically structural in the substance. So, if this that I drink off the bottle is H₂O in a metaphysically contingent way, that doesn't mean that there aren't good reasons for I allege metaphysical essentialism. In fact, without the presumption that the substance has metaphysically structural properties, I couldn't satisfy the minimal conditions to talk about transworld identity. So, my point is that there are metaphysically structural properties, in spite of the epistemic fact that those properties are beyond the limits of our possible knowledge of nature.

The nature of the necessity concluded

Take notice that the necessity expressed in the MMP is a necessity with a logical nature – if the designated by both terms, ‘water’ and ‘H₂O’, is the same in the Aw, then, it follows, obviously, that it is the same for all of the Pww (of course, with the stipulation of not changing the meaning of words). Questioning that would be equivalent to questioning a thing being identical to itself which is logically absurd. And if this is a logical necessity, then it is, evidently, a physical necessity, and also a metaphysical necessity if we consider that all logical necessities are metaphysical necessities. But, it will be, clearly, a *trivial* metaphysical necessity, because its nature is only logical.

Conclusions I

- **I** - The necessity of identities has no more than a logical nature.
- **II** - The necessity concluded by the MMP must be interpreted, applying the idiom of the Pww, as asserting that the designated by 'water' and the designated by 'H₂O' are both the same substance *simpliciter* in all of the Pww.
- **III** - This necessity doesn't imply anything to respect to water being H₂O in all of the Pww and to respect to H₂O being water. So, it is not the case that the MMP could be relevant to the problem in discussion.
- **IV** - In Pww with physical laws different from those we verify in the Aw, can supervene to a certain substance chemical compositions different from the one that we verify in the Aw. So, water being H₂O in all of the Pww and H₂O being water in all of the Pww are falsities. In fact, water being H₂O in the Aw and H₂O being water in the Aw are metaphysical contingences.
- **V** - More abstractly, I conclude also that the designation, being a rigid designation, only compromises reality through its space-time position – an *hic et nunc* -, not by what reality really is or it not is. With other words: the rigid designation can point out a substance as its referent, but says nothing about what it is the ultimate nature of the substance designated.

The irrelevance of Twin Earth Argument (Putnam)

The famous argument of Twin Earth, of H. Putnam, is also irrelevant in respect to water being, or not, H₂O in all of the Pww.

Synthetically, the argument follows this way: Oscar₁, a person on Earth, and Oscar₂, a replica of Oscar₁ on Twin Earth, are exactly identical; the mental state of both persons when they pronounce 'water' is also the same; but, in virtue of the fact that the word 'water' refers different chemical substances on Earth and on Twin Earth, respectively H₂O and XYZ, Putnam concludes that mental states (and intensions) are not enough to determine the reference – «meanings ain't just in the head».

And this is a known reason, and an apparently good one, to prefer semantic externalism to semantic internalism.

I will discuss later if this is really a good argument in order to prove semantic externalism. But the present point is not semantic but metaphysical – According to me, there is nothing in the assumption of semantic externalism necessitating the “metaphysical presumption” that would be metaphysically impossible water not being H₂O.

This means that rejecting such presumption (rejection achieved independently of considerations on semantic externalism) it is possible having H₂O and XYZ on Earth and Twin Earth, respectively, and, nevertheless, those two chemical substances being supervenient to the same substance.

So, Twin Earth argument cannot be relevant for the point in discussion.

Objections against the irrelevance of MMP

First Objection – If ‘water’ designates water, and if water is H_2O , then ‘water’ designates H_2O . Now, if in a Pw what I drink from a bottle of water is, at the chemical scale, suppose H_3O^+ , then it is not really of water we are talking about, because what ‘water’ designates is H_2O . So, if what I drink is H_3O^+ , then it is not true that I have refuted the necessity of water being H_2O , because I never had been drinking water.

Second Objection – If in a Pw this that I recognize, in our everyday scale, as what I drink from a bottle of water is, in the chemical scale, H_3O^+ , then it is not really of water we are talking about. That we are talking about just *seems* water, just possesses the same *superficial* properties.

Replica to first objection

The answer to the first objection consists in pointing out that the objection is based on a confusion quite simple: it isn't the case that in the MMP the word 'water' designates H_2O . Otherwise, the premise that asserts that water is H_2O would be a premise knowable *a priori*. And, of course, the conclusion would be also knowable *a priori*, expressing no more than an analytical truth. Moreover, in supposing that 'water' is designating H_2O , we wouldn't be asserting anything about water as it is in our everyday scale. We would assert nothing but a simple fact of the chemical scale – that $H_2O = H_2O$, which is obviously trivial.

Replica to the second objection

Surely, water in our everyday scale is just a supervenient aspect of the substance designated by ‘water’. However, it is also true that H₂O isn’t the substance *simpliciter*, but a supervenient aspect of the same substance. With effect, in a certain scale of observation, even the chemical composition is superficial. According to my point of view, this “aspectual condition” of chemical compositions shows quite well that the most subtle metaphysical ambition – to determine what things are in its ultimate nature – is based on a confusion between, on the one hand, the designation of the terms, which, in effect, points to the substance in its ultimate nature, but without any epistemic apprehension, and, on the other hand, a compromise with a certain epistemic aspect, but always superficial.

Epistemic designation

I think there are rigid designations that are epistemically compromised in the sense that they designate not a substance *simpliciter* but a substance under a certain epistemic aspect. For instance, when we try to give an answer to the question «What is water?», the designation appears compromised with a certain set of properties we do not renounce in any Pw. With effect, it isn't the substance *simpliciter* but exactly water just as it is at our everyday scale – drinkable, without colour and smell, flowing in rivers, etc. – the matter of our questioning. Identically, the same term 'water' may designate rigidly but epistemically H₂O. In both cases, the term 'water' isn't referring the substance *simpliciter*, but its aspect under this or that scale of observation.

One must notice that I'm not just telling that 'water' *can* designate epistemically water as it is at our everyday scale or H₂O at the chemical scale. I'm also telling that 'water' *only can* designate those *designata* epistemically.

Problems with Twin Earth Argument

These results bring immediate consequences in respect to the goodness of the Twin Earth argument, even being in discussion just the thesis of the semantic externalism. In truth, if one admits the Putnam presupposition that ‘water’ designates H_2O , then, in virtue of that designation being an epistemic designation, it would be necessary to presuppose that Oscar1 *knew* which was the chemical composition of water. Now, this last presupposition is not one that Putnam could accept. In fact, accepting such presupposition would imply, on the one hand, that there would not be any reason for Oscar2 call “water” to XYZ if it were the case that his mental state is identical to Oscar1 mental state. And, on the other hand, if we assume that Oscar2 didn’t knew which was the chemical composition of water, then there would not be any reason for sustain that the two Oscars were in the same mental state.

Alternatively, we could suppose that ‘water’ was designating water-as-it-is-at-our-everyday-scale or, simply, the substance *simpliciter*, instead of designating H_2O . But, if this were the case, then Oscar1 and Oscar2 would be designating just the same thing (no matter if water-as-it-is-at-our-everyday-scale or, simply, the substance *simpliciter*). This means that the extension of ‘water’ would be the same, and, in consequence, that it is not true that Putnam’s though experiment had exemplified a situation in which the same intensions correspond to different extensions.

For these reasons, I conclude that the Twin Earth argument is not a good argument for supporting semantic externalism. The Twin Earth argument only would achieve an externalist consequence admitting the truth of the metaphysical presumption, whereas Kripke’s modal argument is not on the dependence of that presumption. That’s the reason why the later is a good argument for semantic externalism, but the latter an irrelevant one.

Restricted/No restricted epistemic designation

The way 'water' designates epistemically water-as-it-is-at-our-everyday-scale is different from the way it designates water-as-it-is-at-the-chemical-scale (*i.e.* H₂O). There is an *asymmetry* in these two epistemic designations. When one interrogates «What is water?» and obtains the answer «It is H₂O», the word 'water' is designating epistemically water-as-it-is-at-our-everyday-scale in all of the Pww. But the same word will designate epistemically H₂O (the water-as-it-is-at-the-chemical-scale) only in those Pww whose water is H₂O. To grasp this asymmetry I propose a subclass of epistemic designations, namely, *restricted epistemic designations*.

Definitions suggested

I suggest the following definition for **epistemic designation**:

A term designates epistemically its referent iff:

- i) That term is a rigid designator and
- ii) it designates *a certain epistemic aspect* of its referent.

I suggest the following definition for **restrictive designation**:

A term designates restrictively Y in a Pw iff

- i) That term designates epistemically X and
- ii) $X=Y$ in that Pw.

Conclusions II

I - When one interrogates «What is water?» the term ‘water’ is designating epistemically the water-as-it-is-at-the-everyday-scale – that is, in fact, the object of the question. And, at the same time, ‘water’ is designating a certain substance *simpliciter*.

II - Achieving the knowledge that water is H₂O, expressed through the second premise of the MMP, the same term ‘water’ commences designating restrictively H₂O, *i.e.*, water-as-it-is-at-the-chemical-scale.

III - In spite of the fact of these three *designata* are in accordance in the Aw, it isn’t the case that such accordance exists in all of the Pww. With effect, it’s relatively easy to conceive a Pw, distinct enough from the Aw, in which the substance designated by ‘water’ do not correspond to the chemical composition H₂O, neither to the water-as-it-is-at-the-everyday-scale.

IV - This means that the necessity concluded in the MMP, being related just to the substance *simpliciter*, cannot guarantee anything not only in respect to water being H₂O in all of the Pww, but also in respect to the simple fact of being related in all of the Pww with what is questioned in the question «What is water?»

SECOND PART

That Identities in the Actual World
are just stipulated

Introduction

So far, I have discussed the conditions in which one can expect, or not, that an identity is true in all of the Pww. I will now try – and concentrating just on the Aw – and call your attention to the fact that *I can only guarantee that water= h_2O , i.e., that they are both one and the same thing if, precisely, I stipulate it.*

Superficial essences

In order to exemplify it one must take notice that, firstly, if the chemical scale is not the last scale of observation of the real, and if we understand the chemical composition of water as essential to water, then it will be of a superficial essence. With effect, minor scalable levels, atomic, sub-atomic, quantic and whatever comes after it, if anything, can indefinitely regress the idea of a primordial reality, concerning to which the chemical composition will only be superficial aspect.

Identity in the Aw implies a conventional essentialization

If this is so, then there is nothing to stop me of conceiving the possibility of very different substances, observable to an equally conceivable sub-quantic scale, presenting, at the chemical scale, the same chemical composition H_2O . In other words: H_2O can really be not a substance but a very different class of substances altogether; it can happen that the common possession of the chemical composition H_2O is an accidental property from the point of view of a more structural physical theory. In these circumstances one must ask if water is identical to H_2O , or if it simply has the property of ‘being H_2O ’? Well, one cannot answer this question unless one essentializes the chemical composition – in that case, we effectively can guarantee that we are dealing with an identity but only because we have decided to do so. By not deciding so we will not be able to know how to exclude the possibility of it being a predication, even a predication that – besides being superficial – is accidental; in the end this will give us little information about what really water is.

Conclusion

This means that the essentialization that *guarantees* the identity between water and H₂O does not *guarantee*, however, a good answer to the question ‘What is water?’. Or rather, saying that water is *essentially* H₂O *can be* saying very little about what water *really* is. It is a bit like accepting that Melville – on conceiving that the properties essential to the fish are so superficial that it even were satisfied by Moby Dick – knew, scientifically, what a fish is. Obviously, I am not saying it is so with water, I am just saying that this is an un-erasable possibility whilst we do not confront ourselves with a last scale of observation of reality, which I cannot see how it is possible. What is said about water can be generalized to all of the cases of trans-scalable identities – *e.g.*, that light is an electromagnetic radiation inside a certain interval of values of wavelengths, etc.

THIRD PART

Discussion of the nature of the
necessity of predications

The Modal *Modus Ponens* for predications

By applying the predicative form of the proposition ‘Water is H₂O’, *i.e.*, making it equivalent to the proposition ‘Water necessarily possesses the chemical composition H₂O’, one will have:

If water has the chemical composition of H₂O, then it has it necessarily
Water has the chemical composition H₂O

Water has necessarily the chemical composition H₂O

Faced with this argument this first point of notice is within the modal MP, in itself, that does not inform us about the nature of the necessity of the conclusion, because that depends on the nature of the necessity of the conditional premise, which, in turn, is undetermined. I shall consider three interpretations of the nature of the necessity: a *physical* one, an *analytical* one and supposedly *metaphysical* one.

The case of physical necessity

If we think about the necessity of the conditional premise as a *physical necessity* then we will have S of W as P in all of the *Pww with the same physical laws*.

On the other hand, the conditional – in necessity by a set of theoric enunciations of physical laws – will have a problematic truth value.

This occurs because the universal theoric enunciations – as they are dependant of empirical conditions – never have the conditions of truth fully guaranteed. That would depend on the resolution of the problem of induction which, from my point of view, is not given.

In this sense – and admitting a popperian argument – we are not in the condition to allege the truth of an enunciation of a scientific law but only that it is mildly corroborated which is more or less truthful than another law-like enunciation.

Thus, in rigueur, one cannot speak – in what concerns predications – of physically necessary *truths* even though there are – evidently – physically necessary predications that are scientifically relevant. The question lies in knowing if there are others, stronger and supposedly metaphysical.

The case of analytical necessity

If we are thinking of the necessity of the conditional premise as a valid necessity for all of the Pww, the problem of knowing if it only consists of an *analytical necessity* arises – For example, a red object is a coloured object in all of the Pww, a single man is not married in all of the Pww.

But these predications known *a priori*, whose value of truth is, in fact, easily determinable through conceptual analysis, *i.e.*, without using experimentation. Therefore they are analytical truths. So, even though they are valid for all of the Pww, even with different physical laws, they are not exactly about the world. Apparently they lack being known *a posteriori*.

Continuation

However, I defend that there are true predications in all of the Pww and known *a posteriori* that, albeit, are just analytically necessary.

For example, the proposition ‘Matter necessarily has mass’ is, in my point of view, true in all of the Pww, but just because its necessity, beginning to be physical, has become analytical.

The reason for this analyticism lies in the fact that the proposition becomes irrefutable – except in extreme cases.

With effect, if one verified in the matter an incompatible property with it having mass that would not lead – in principle – to a refutation of the proposition but only to a *re-definition of what one understands by the terms involved*.

This means that by applying the idiom of the Pww – even in a Pw with different physical laws of the Aw, matter would continue to have mass, even if matter and mass were to be very different of what they are in the Aw.

In my point of view, it would not be uninteresting to consider, under this perspective, the fact of the declarative phrase ‘Matter necessarily has mass’ being subscribed in newtonian physics as well as in einsteinian physics, despite that – according to Newton – mass is the, *constant*, quantity of matter of a body whereas according to Einstein the mass of a body is a measure that *varies* according to the variations of energy of the body.

This means that for the same declarative phrase correspond two distinct propositions, both physically necessary for the correspondent theory of physics, but, furthermore, there is also a third proposition whose necessity is analytized, in the sense that the mass attribute is explicated through mere conceptual analysis of what matter is.

The account of E. Nagel

Ernest Nagel gives us an accurate account of this phenomenon of analytization of physical necessities – «There was a time (...) when copper was identified on the basis of properties that included none of the electrical properties of the substance. After electricity was discovered, the sentence ‘Copper is a good electrical conductor’ was asserted on experimental grounds as a law of nature. Eventually, however, high conductivity was absorbed into the defining properties of copper, so that the sentence ‘Copper is a good electrical conductor’ acquire a new use and meaning. In its new use, the sentence no longer expressed merely a logically contingent truth, as it did before, but served to convey a logically necessary truth.»

And in way that looks quinean, E. Nagel says also – «There is undoubtedly no sharp line separating those contexts in which copper is identified without reference to properties of conductivity from those contexts in which high conductivity is taken to belong to the “nature” of copper. In consequence, the status of what is being asserted by the sentence ‘Copper is a good electrical conductor’ is not always clear, so that the logical character of the assertion it is used to make in one context can be easily confounded with the character of the assertion made by it in some other context. Such varying usage for the same sentence helps to explain why the view that laws of nature are logically necessary seems so plausible to many thinkers.» (NAGEL, E. 1979. *The Structure of Science*. Indianapolis: Hackett Publishers. Pp. 54-55)

Some reasons for analytization

Take notice that these predications are still know *a posteriori* because of its necessity being analytical. To say that matter necessarily has mass compromises the empirical content. It simply occurs that the physical necessities can analytize themselves according to such important reasons such as:

- i) Science can formulate true propositions and not merely corroborated or truthful;
- ii) Science can organize its contents of knowledge, discriminating the more easily revisable from those that will only be it in extreme conditions (which is in agreement, for example, with the epistemological thesis of Imre Lakatos in what concerns the distinction of a “firm nucleus” inside a scientific investigation program);
- iii) The establishment – even if presumptive – of a stronger necessity than the physical necessity.

Incomplete analytizations

One must notice that the analytization of a physically necessary predication tends to not being complete if it is still questioned having any scientific value. Under the conditions where already any theoretic reformulation is possible an analytized predication can still be refuted. The question is in being able to recognise that theory has strictly conceptual means to make rebutting of its more important enunciations difficult.

The case of metaphysical necessity

Now this does not mean – from a conceptual point of view – that the alternative to a strictly physical nature of necessity of a predication ‘S is necessarily P’ can only be an analytized necessity. So, what is the condition that is needed and missing in order for a predication, to be established *a posteriori* and true in all of the Pww in which it occurs and for it not just to be analytical? From a conceptual point of view the condition that is missing will be that there will not be a variation in the empirical content of S and P from Pw to Pw, or rather, that S and P really are the same in all of the Pww. Then we would really have a stronger necessity than the physical necessity.

Conclusion

Simply, if, from a conceptual point of view, it is possible to identify the conditions in order exist such necessities, the truth is that I cannot find a good reason to suppose that there is any proposition that totally satisfies them. After all, what would be the reason to suppose that something beyond the laws of physics that regulate the natural world could necessitate whatever needed regarding the nature of things?

On the other hand, even if we had the three conditions pointed out satisfied, I cannot see how we could verify the third one. With effect, in order to do so, we would need to know what the last reality of things is. For example, even if the matter had mass in all of the Pww we would not be able to verify that the matter really possesses the *same* mass in all of the Pww, and that the matter really is the *same* matter in all of the Pww.

In conclusion, even if there were metaphysical necessities, which I do not deem reasonable, we would not be able to verify them.