1. INTRODUCTION

Hume’s arguments on causality raise suspicions among many philosophers about any kind of necessity related to *matters of fact*: necessity, if any exists, will be necessity concerning *relations of ideas*. Even though Hume’s arguments focus on the supposedly necessary link between cause and effect in causal relationships, his ideas are widely known today and have been used to support many proposals “against” any kind of necessity. For instance, laws, in an ontological or metaphysical sense, are just regularities. In other words, regularity theories about laws are Humean theories. Of course, any Humean should explain next why we sometimes think or believe that there is something necessary in nature. According to Humean theories, discourse on necessity could be phrased in psychological terms (maybe this is Hume’s solution), or epistemologically or pragmatically, but never in terms of something in nature. There are many Humeans in the philosophical arena, in empiricism as well as in other philosophical traditions. Wittgenstein, for instance, defends (in *Tractatus*, 6.37) that the only necessity is logical necessity (in Humean terms the necessity of relations of ideas). No doubt, Wittgenstein agrees with Hume with respect to causality: he states explicitly (in 5.1361) that believing in causal links is just superstition.

It is well known that the concept of necessity in nature has been recovered in contemporary philosophical discussions. This concept has received new identifying and distinguishing features, especially thanks to Kripke’s work. Philosophers, nowadays, speak about nomological, physical, causal and metaphysical necessity, in spite of the fact that these kinds of necessity are different from logical, analytical or conceptual necessity.

My goal in this paper is to present the direction in which I would interpret Kripke’s contribution, and, at the same time, to try to approach the grounds of the concept of necessity. Even though the concept of necessity is often used, surprisingly few studies have sought to analyze it. This is the main goal of the present paper. I will try to carry out an analysis or “explication” of the conceptual relation between the concept of necessity and two other important philosophical concepts, namely, the concepts of meaning and identity. In this sense, I should clarify that the kind of analysis that will be proposed is Strawsonian, not reductionistic.\(^1\)

The concept of necessity has received many qualifications: logical necessity, analytical necessity, conceptual necessity, metaphysical necessity, causal necessity, natural necessity, nomological necessity and physical necessity. I believe that, in all these cases, there is only one intuitive concept of necessity, and that each qualification bounds a subset of necessary statements. My goal is to give some explanation for these different qualifications, and to study the relationships among them.

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\(^1\) Strawson (1992), chapter 2.
2. BASIC ASPECTS

When we say that the statement p is necessarily true, we aim to grasp a very intuitive feature of p, namely, that p would hold true even if the facts constituting the world were different, or, in other words, that p holds true in every possible world. I say ‘intuitive feature’ taking into account that the concept of possibility, included in the concept of possible world, is no clearer than the concept of necessity. In fact, possibility and necessity are the two sides of the same coin - in this case, of the same concept-. We make no progress at all by going from necessity to possibility, unless we are able to explain the difference between possible and non-possible worlds. My hypothesis is that only in the light of a philosophical theory that includes, at least, a basic account of meaning and identity will we be able to account for the difference between them. More precisely, only from a philosophical theory about the meaning of different categories of expressions, and about criteria of identity and/or individuation for particulars as well as for properties will we grasp the distinction between possible and non-possible worlds. This paper will demonstrate, albeit schematically, the kind of philosophical theory (or theories) I have in mind.

We already find interesting reflections on the concept of necessity in Aristotle. As Kneale & Kneale show, Aristotle distinguishes between formal and material necessity. What they mean can be understood as follows: formal necessity is proposed in the context of the analysis of what a syllogism is, or, in other words, in the context of the study of the conditions that an argument has to comply with to be valid. An argument is valid (in Aristotle’s words ‘an argument is a syllogism’) if and only if the link between the premises and the conclusion is of necessity, that is, if it is not possible for the premises to be true, but the conclusion false. This modal link between premises and conclusion is precisely what distinguishes between syllogisms and other kind of arguments that can be qualified as sound without being syllogisms. Take, for instance, inductive arguments. If we think of arguments with a finite number of premises, this discourse about validity of arguments can be applied to statements. For instance, one can say that the statement ‘if Socrates is coming, then somebody is coming’ is valid, or, in other terms, is a logical truth. Kneale & Kneale would talk of formal necessity in this context. The analysis, however, is different when it comes to analyzing statements like ‘every man is an animal’. These statements are necessary as well, but the necessity is material since it is founded on essential connections between properties. It is not my goal in this paper to interpret Aristotle’s work on modalities, but, it seems to me, the distinction proposed by Kneale & Kneale between formal and material necessity can be understood as involving two (or maybe more) independent kinds of necessity, namely, logical and metaphysical necessity. Under this interpretation ‘necessity’ is just an ambiguous word: sometimes it means ‘logical truth’, and other times it means ‘essential truth’. As I said above, I would prefer, for reasons that will be explained later, to speak only of one primitive and intuitive concept of necessary truth, and then to try to isolate different qualifications of this concept depending on the way we grasp it. ‘If Socrates is coming, then somebody is coming’ and ‘every man is an animal’ are both necessary truths, but the way we grasp these truths is different in each case. In the first case we know that it is true for formal reasons, whereas in the second one we can speak of metaphysical reasons. This is not the same as to say, for the first example, that this statement is necessarily true in virtue of its logical form. I would roughly say that it is true in virtue of some fact or some state of the world, even though we can establish that it is true by
means of formal analysis. For, borrowing an argument given by Boghossian, what is responsible for generating the truth of the statement ‘if Socrates is coming, then somebody is coming’ is not its logical form, but that if Socrates is coming, then somebody is coming. That is, the statement we are speaking about is true because of its disquoted truth conditions. The same idea works whether the statement is just true or is necessarily true. What is the difference, then, between truth and necessary truth, and, on the other hand, between formal necessity and metaphysical necessity, for instance? We should read ‘truth in virtue of its logical form’ as ‘provided that grasp of its logical form alone suffices for justified belief in its truth’. This is the case for our logical truth, but what about the statement ‘every man is an animal’? It seems (or, at least, let us suppose so for the sake of the argument) that this statement, if true, is necessarily true. Why do we add this qualification to its truth? This is the main problem I want to deal with in this paper. For the reasons we have shown above, we cannot say that there is something special in its disquoted truth conditions that makes us jump from truth alone to necessary truth: ‘every man is an animal’ is true because every man is an animal. Moreover, this jump cannot be justified by interpreting ‘necessary truth’ either as ‘truth in virtue of its logical form’ or, in a more general way, as ‘truth in virtue of its meaning’. In this case, then, we have other kinds of reasons, let us say, metaphysical reasons. And what does ‘metaphysical reasons’ mean?

A reference about the relationship between my paper and modal logic is probably in order before closing this section. It is possible to think that our understanding of the concept of necessity can be accounted for in the same way as the concept of, for instance, conjunction. From a semantic point of view the meaning of conjunction can be accounted for in terms of the well known truth function. Or, alternatively, if we prefer a systematic way, we can grasp the meaning of the conjunction by means of introduction/elimination rules in a system of the logic of connectives. In a parallel way it is possible to think that we could grasp the meaning of necessity in terms of properties of the accessibility relation in a semantic framework of modal logic (logic of necessity) or, alternatively, in terms of rules or axioms of a system of modal logic. Conjunction and necessity would be logical operators. The problem is that we can say nothing relevant about the necessity of the statement ‘every man is an animal’, or about “controversial” statements such as those of the necessity of the origin and the necessity of constitution using only this kind of rule. Leaving aside the problem of choosing between a plurality of logics, what could modal logic say with respect to, for example, the concepts of man and animal? This problem is not a logical or formal (or semantic) problem, but a metaphysical (and, say, biological) issue. Modal logic can tell us, for instance, that from L(p) and L(p --> q), L(q) follows. However, we are interested in the necessity of p, rather than in formal aspects of necessity.

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2 Boghossian (1997), 144.
3. LOGICAL AND ANALYTICAL NECESSITY

The lines quoted below illustrate we can see what I consider to be the most typical conception about the relationships between different kinds of necessity, and, in particular, about the relationship between logical and analytical necessity:

“These and other modalities all seem to be related, however, to a more basic type of modality: logical modality in the narrow sense… And a statement is analytically necessary if it is logically entailed by meaning postulates, or by relations of synonymy.”

If we take the statement

(3) if John is Mike’s father, then Mike is John’s son

we will agree, pace Quine, in qualifying it as analytically necessary. Given Tooley’s definition, this means that this statement is logically entailed by meaning postulates, and, in this way, we clearly see how analytical necessity is related to a more basic modality, namely, to logical necessity. We can think that, in our example, the meaning postulate would be something like this:

(4) (x) (y) (x is y’s father --\(\rightarrow\) y is x’s son) (we have to add that y is male)

The problem is that not every sentence logically implied by another one is analytically necessary. Moreover, every sentence is implied by itself. We have to take a second fact into account: the premise has to be a meaning postulate. In our example, statement (4) is the meaning postulate we need to find. Nevertheless, the account proposed by Tooley is in need of improvement since the problem can be reproduced if we take as the goal-statement not the statement concerning John and Mike, but statement (4). It is obvious that we qualify this statement as analytically necessary. By applying Tooley’s definition, we will say that (4) is analytically necessary since it is logically entailed by a meaning postulate. It is easy to see which postulate would be needed here: the postulate is statement (4) itself. In this connection, Hale makes a proposal that is structurally similar to Tooley’s. He distinguishes between absolute and relative necessity. On physical necessity (which is a kind of relative necessity) he says: ‘but unless the laws of physics are themselves held to be absolutely necessary, what is physically necessary will nor normally be necessary true in any absolute sense’. From my point of view what is important is what is expressed in the unless-clause. Because if it is arguable, in some sense, that laws are necessary without mentioning logical necessity, then the difference between absolute and relative necessity vanishes. Logical implication would no longer be the source of (in Tooley’s quote *analytical* or in Hale’s one *physical*) necessity. It is only its transmitter. The problem is not why statements logically derived from meaning postulates or laws are qualified as necessary, but why meaning postulates and, maybe, laws are qualified as necessary.

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4 Tooley (1999), vii.
5 Hale (1997).
6 Hale (1997), 488.
I will call the point of view on necessity I have described ‘the Tooley-Hale paradigm’: there are many kinds of necessity, but we can classify them in two groups: relative necessities and absolute necessities. Relative necessities, of course, are relative to absolute necessities. In fact, there is only one absolute necessity: (in a broad sense) logical necessity. Relative necessities are obtained by logical implication from “distinguished” statements like laws or meaning postulates.

If we only focus on the analytical and logical necessities, the Tooley-Hale paradigm is wrong. The problem with it is that it forces us to conclude that logical necessity is absolute and analytical necessity is relative to logical necessity. My reason to believe that it cannot be right is the following: this paradigm cannot account for the necessity of, for instance, statement (4). In other words, I think that the necessity of (4) is as absolute as it can be. I would prefer to approach this matter from a different perspective, namely ‘Bolzano’s paradigm’. Under this paradigm, the primitive and absolute concept is that of analytical truth, and logical truth is just a limit-case of it. This point of view seems to fit well with most of our intuitions about analytical and logical necessity. (4) is necessarily true in an absolute sense. We do not need a more basic concept of necessity at all. We say that a statement is analytically true because we grasp its truth by means of our understanding of it. This fact does not mean that (4) is true because of our grasping of the meaning of certain words, but that the criterion by means of which we see that (4) is true is related to our understanding of the statement. (4) is true since for every x and y, if x is y’s father, then y is x’s son. In Bolzano’s seminal work this issue is presented in another way. In order to show this I will leave statement (4) aside, since we don not have time here to address Bolzano’s concept of quantification. Therefore, let us take statement (3). Bolzano says that it is analytically true since any statement built up from (3) by substitution of ‘John’ and ‘Mike’ is true. The predicate ‘analytically true’ is linked to a statement if all statements belonging to a family of statements are true. If we take into account the considerations just introduced, Bolzano’s point can be reformulated as follows:

- (3) is true because if John is Mike’s father, Mike is John’s son.
- When we go from the truth of (3) to its analytical truth, we have to go from (3) to other statements. (3) is analytically true because statements with the same form as (3) are true. Each statement has its own truth conditions, but there is one way for us to know that all these statements are true, namely our knowledge of the meaning of certain words. It is in this sense that we say that all of them are analytically true. It should be taken into account that, with Bolzano, the reason that makes (3) analytically true is the same as the one that makes ‘if Ronald is Benjamin’s father, Benjamin is Ronald’s son’ analytically true. It is this that we want to stress when we say, roughly speaking, that (3) is analytically true because of the meaning of ‘if-then’, ‘is y’s father’ and ‘is y’s son’.
- If a statement has the feature I have described just above, we say that it is necessarily true. It is necessarily true because it is analytically true. If we grasp the truth conditions and the truth of every statement with the same form as (3) through knowledge of the meaning of some words, then we know that (3) is also true even if the facts of the world are different. This means that (3) will continue to be true even if the facts of the world are different, i.e., that (3) is necessarily true.

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7 There is an important difference between Hale and Tooley. When Hale says ‘logical’ he means logical and analytical in Tooley’s sense.
8 For the reasons stated in the footnote above, we should say ‘Tooley’s paradigm’.
Bolzano proposes to define logical truth as a particular case of analytical truth. In order to go from analytical to logical truth we need only fix the meaning of the logical terms. Given that we grasp the truth conditions of (3) by means of the meanings of ‘is (')s father’ and ‘is (')s son’, which are not logical expressions, we conclude that it is not a logical truth. In a similar way, we can define a parallel concept of logical consequence as well. We have analytical truth and consequence, and, as a limit-case, logical truth and consequence.

So we can conclude that logical truths are necessarily true since all logical truths are analytical.

I have said that from a disquotational point of view, there is no difference between the truth of an analytical statement and the truth of a statement related to a matter of fact. So what is the difference between them? The core idea is that the truth, for instance, of (4) can be known by our knowledge of the sense of ‘is (')s father’, ‘is (')s son’ and ‘if-then’. This knowledge is what is implicitly needed to use these expressions correctly. When the true of a statement can be established in this way, we speak of analyticity. From the sense of these expressions we cannot determine whether ‘John is Mike’s father’ is a true statement, but, thanks to our grasp of the sense, we know that this combination, for instance, is not possible:

<John,Mike> belongs to EXTENSION-of-(‘is (’)s father’) and <Mike,John> does not belong to EXTENSION-of-(‘is (’)s son’)

The relational nature of ‘is (’)s father’ also belongs to the realm of sense. These aspects of the realm of sense would not change even though the facts in the world were different. This is why there is an implication from analyticity to necessity.

Even though the issue is shrouded in controversy, I believe that every necessary statement “founded” on the realm of sense (necessity founded on analyticity) is accepted as an a priori known statement.9 One of Kripke’s main contributions is precisely his argument in favor of the compatibility of necessity and a posteriori knowledge. This is our next step, the step that goes away from analyticity.

I have given an argument in favor of the necessity of every analytical truth. However, Kaplan puts forward an example that could pose a serious problem to an approach of this kind.

(5) I am here now.

Kaplan says that “(5) is deeply, universally, true. One need only understand the meaning of (5) to know that it cannot be uttered falsely.” It seems, then, that (5) is, in the sense established in this paper, an analytical truth. Later, Kaplan says that it is certainly not necessary that I be here now.10 Does this mean that there is a statement that is simultaneously analytically and contingently true? Kaplan gives more problematic examples. Consider the following quote: “One

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9 Kripke, of course, gives examples of statements contingent and known a priori: one meter is the length of S at t. But as Kripke says a priori is applied to a statement if its truth follows from a reference-fixing “definition”. Hence, his use of ‘a priori’ is different from ours, since we use ‘a priori’ related to (or derived from) a meaning-giving definition. Kripke (1980), 55.

10 Kaplan (1989a), 508.
other notorious example of a logical truth which is not necessary, I exist.”11 If Kaplan is right we must go back over our main thesis. Nevertheless, I think that Kaplan himself offers a solution to this problem, or at least a suggestion of how to solve it. Let us quote his words again. I believe that they have often been ignored, although they are crucial.12

“I find it useful to think of validity and necessity as never applying to the same entity...13 The former states a property of sentences (or perhaps characters): validity; the latter states a property of the content of a sentence (a proposition): necessity”.14

If we apply the predicates ‘necessarily true’, ‘analytically true’ and ‘true’ not to sentences but to Kaplan’s propositions, we have a way out. If we do so, (5) by itself is neither analytically nor necessarily true, because the question of which proposition it expresses is open: it depends on the context. If we fix the context, then (5) expresses the proposition that A. Arrieta is in San Sebastian on March 26th. This proposition, of course, is contingently true, but it is not analytically true. Whether we are dealing with propositions or statements (or sentences), the problem vanishes if we accept only a single entity to which the true predicate can be applied.

4. FROM ANALYTICAL NECESSITY TO METAPHYSICAL NECESSITY

Before going into what is called ‘metaphysical necessity’ I would like to make some general observations on this transition.

Hale, following an argument given by Ian McFetridge,15 argues that there is no notion of necessity stronger than analytical necessity (he actually says ‘logical’ rather than ‘analytical’). This means that if a statement p is analytically necessary (Lap), it is necessary (Lp) in any other sense. We can represent this thesis as follows: La implies L (for all L, for all kind of necessity). However, when metaphysical necessity (Lm) is introduced problems arise. What is the relationship between analytical and metaphysical necessity? According to McFetridge’s argument the following consequence obtains: Lap implies Lmp. But, does Lmp imply Lap? Hale maintains that the “metaphysician” has a dilemma. If the answer is ‘yes’, then the two necessities are equivalent. This is astonishing, to say the least. On the other hand, if the answer is ‘no’, the supporter of metaphysical necessity is in trouble since, as Kripke stresses in talking about metaphysical necessity: “... necessary in the highest degree -whatever that means.”16 This is the dilemma. Hence, assuming McFetridge’s thesis is right, I think that the solution is, as suggested above, to look at things the other way around. Hale is aware that there is a way out: “what, in

11 Ibid. 540.
12 Boghossian and Peacocke say, for instance, that “Kripke and Kaplan supplied conclusive examples,...” They have in mind statement (5) and are referring to the relation between the categories of a priori and necessity: there are statements simultaneously a priori and contingent. I think Kaplan is actually speaking about analyticity and necessity. See Boghossian-Peacocke (2000), 3. In any event, later, they say: “Further discussion of the issue would have to address the question of whether in the indexical case a priori status is predicated of something linguistic”. Maybe, then, Kaplan’s example is not so conclusive.
13 Kaplan himself writes ‘never’ in italics.
14 Kaplan (1989b), 59
16 Hale ((1996), note 6) makes us remember Kripke’s words. Kripke (1980), 99.
general terms, is needed is an overall conception which allows us to see some general pattern or structure exemplified in different specific ways by necessities deriving from diverse sources. This is, for instance, Fine’s solution. And this is the perspective that I would support. Nevertheless, Hale himself does not (I think that Hale’s ultimate goal is to convince us that there is something compelling in McFetridge’s thesis, and, at the same time, that logical-analytical necessity is in some sense the source of every necessity.). Even though I will not analyze his new arguments, I think that he neglects the difference between (necessary) truth and criterion for truth, or the difference, in Tarski’s words, between truth (or necessary truth) and proof. Let us go back to our main topic, namely, the \( a \text{ posteriori} \) necessity.

Although Kripke’s examples are well known, I think a rough classification of some of them is in order:

(k1) Necessity of identity (Carroll is Dodgson).
(k2) Necessity of constitution of natural kinds, necessity of material and original constitution of a (artificial) particular, necessity of origin of a (natural) particular. Very well known examples are: water is H2O, gold has the atomic number 79, this table is made of wood, and the Queen is the daughter of her parents.
(k3) Necessity of belonging to a kind: this particular is a cat, this particular is a table).
(k4) Necessity of the relation of subsuming a species under another: cats are animals.

The list is open, and in some cases it can be discussed whether a statement should be included in one group or another. In any case, my main goal at this point is to look for the reasons why Kripke says that these kinds of truths are necessary.

One aspect is very clear: we cannot grasp the truth of any of these statements by means of our knowledge of the sense of the expressions that compose them. For this reason their truth can only be established \( a \text{ posteriori} \). But, why does Kripke say that they are necessary? Kripke’s different arguments have in common a general form: we conclude that \( P \) is necessary \( a \text{ posteriori} \) from an argument which includes a premise known \( a \text{ posteriori} \) and another premise from which \( P \) inherits its necessary character. We can take two different examples, one example from (k1) and another from (k4):

(i) I discover \( a \text{ posteriori} \) that Charles Dodgson is Lewis Carroll. Moreover, there is a general principle which says: if \( a=b \), then necessarily \((a=b)\). So, by modus ponens, necessarily \((a=b)\).

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17 Hale (1996), 102.
18 Fine (1994).
19 Peacocke (2000) is on the same road.
20 See Russell (1908), and Tarski (1969)
21 Johnston (1997). Even though, sometimes, ‘water is H2O’ is taken as a case of identity, there are good reasons to take it as a case of constitution rather than of identity.
22 I have argued in Arrieta (1998) that the necessity of statements of type (k1) is deduced from its truth and from semantic facts such as ‘proper names are Millian’. The same procedure cannot be applied, prima facie, to cases such as the H2O example. In this last case we do not have a Millian designator, but rather a complex description. In other words, in general, to justify the truth of the second premise metaphysical contents should be added. If the argument pointed out here holds, then a distinction should be made between the cases ‘Dodgson is Carroll’ and ‘water is H2O’.
(ii) I discover *a posteriori* that cats are animals. Moreover, if cats are animals, then necessarily (cats are animals). So, necessarily (cats are animals).

With respect to this issue and, in particular, concerning the second premises of these arguments, Kripke says:

“Indeed of many such statements, specially those subsuming one species under another, we know *a priori* that, if they are true at all, they are necessarily true.”23 Something similar tells us about the second premise of (i): “One does know a priori, by philosophical analysis, that if such an identity statement is true it is necessarily true.”24

It is clear, then, that in order to shed light on the source of Kripkean necessity (also called ‘metaphysical necessity’) we have to analyze the ground of “these second premises”. All these second premises have a conditional form: if P, then L(P). And Kripke says that we know their truth *a priori* or by philosophical analysis. What does this mean? My hypothesis is that this just means that from an ontological or metaphysical point of view we can justify that P, if true, will continue to be true even though the facts are different. Kripkean ontology involves, among others, particulars being essentially of a kind, particulars with an essential constitution or origin, necessary connections between kinds and kinds analyzed in terms of essential constitution. I think that this type of ontology is Aristotelian. This rough approach to an ontology provided by Kripke bounds the limits of Kripkean necessity. This is, broadly speaking, Kripke’s message. The problem with Kripkean necessity is not the sense of certain words, but the general features of the world, and these general features are related to *identity-conditions and criteria* for particulars and kinds. Moreover, in an Aristotelian ontology to speak of the identity of a particular x presupposes speaking of what kind of particular x is.25

One could maintain that Kripkean necessities are relative necessities, since they are logically deduced -by Modus Ponens- from several premises. But the problem is that the necessity of the conclusion is inherited from the necessity in one of the premises. The other premise, the first one, explains why the necessity is *a posteriori*. Therefore, the problem is to justify the necessity included in the second premise. In this sense, we cannot speak about relative necessity, unless we can deduce the necessity of that premise from non-necessary premises. But this does not make sense. For this reason Hale states us that Kripkean necessity is absolute necessity, and I must agree with him.

In a Kripkean ontology there are necessary statements which are intrinsically linked to its foundations. By ‘foundations’ I mean what kind of ontological categories they are, and what their identity-conditions are. Things may be different in another kind of ontology. For example, from Armstrong’s point of view most Kripkean necessities are not necessary. He defends the idea of *a posteriori* necessities, but not necessities founded on essentialism:

“Perhaps Russell could not have been a poached egg if he has certain essential properties, properties which he has in all those possible worlds in which he exists. But it is notoriously difficult to give any principal reason for picking out a subset of his properties as essential. His

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23 See Kripke (1980), 138.
24 Ibid. 109.
25 This is one of the main messages in Wiggins (2001).
humanity is the orthodox candidate. But once such a candidate is proposed doubts can be raised."

Nevertheless, Armstrong accepts statements that describe the structure of a universal as a posteriori necessary statements:

“the structure, or make up, of a universal cannot change from one possible world to another”.27

Armstrong also accepts as necessary the denial of alien universals (universals that do not exist in the actual world).28

These theses seem to be crucial for a combinatorial ontology.

It is not my goal to argue in favor of a particular kind of ontology, even though I sympathize with the Kripkean one. Nevertheless, I believe that any ontology must include “truths” which will not change their truth-value from world to world. These truths shape the ontology, first the ontology of the actual world, and, then, of any other world. Actually, one possible world is just what is compatible with these necessary truths. Some of them are “structural” necessities such as, for example, those related with the most general features of the ontological frame: is the ontology monocategorical or bicategorical?29 If, for instance, it is monocategorical, then there are no bicategorical possible worlds. That means that, if true, monocategoricity is necessary. Other necessary truths, of course, are more specific, and we already have shown some of them. As far as I can see, a Kripkean world is organized around natural and artificial kinds. This is the reason why the constitution of natural kinds as well as the functional definition of artificial kinds cannot change from world to world.30 Identity-conditions for particulars have to be understood within this frame. For instance, the path (from the origin or birth to the end or death) of a particular in the actual world is defined by taking the particular to fall under a kind. This relation cannot change in other worlds. This does not work in an Armstrongian world where:

“all the kinds of thing that there are, supervene. And if they supervene, they are not an ontological addition to their base”.31

Armstrong seems to remove all the kinds from ontology. However, I do not see clearly how this is done. An Armstrongian ontological base is constituted by electron-like particulars. The problem is that ‘electron’ is also a natural kind term. If this is so, we are forced to admit that there are no tigers, but there are electrons (electron-like particulars).32 Therefore, not all kinds supervene. In an Armstrongian ontology the actual particulars also fall under kinds. I suspect that many (although not all) of the Kripkean necessities can be applied to an Armstrongian ontology “at a micro level”.

27 Ibid., 68.
28 Armstrong (1986).
30 By ‘constitution’ I mean different things. Tiger, water and electron (the last forgotten by Kripke) are very different with respect to their constitution. For instance, with reference to electrons, by ‘constitution’ I mean two properties, namely, their mass and charge.
31 Armstrong (1997), 68.
32 This does not mean that I agree with Armstrongian supervenience, which is a concept that solves big problems in an excessively easy way.
I do not know how the actual world is, but it is sure that it is in some way. Many necessary truths will shape it. Truths which will be related to identity-conditions of the particulars and kinds within the world. For this reason these truths not only shape the actual world, but also other possible worlds. In this sense necessity (like possibility) is a primitive. We arrive at certain necessary truths by our understanding of the meaning of certain expressions, whereas in other cases necessary truths depend on how the world is. There is a jump from sense to reference within necessity.33

5. FROM METAPHYSICAL NECESSITY TO PHYSICAL NECESSITY

Under the Tooley-Hale paradigm, no doubt, physical necessity is also a kind of relative necessity: a statement is physically necessary if it is a logical consequence of law statements. We must suppose that physical necessity goes from law statements to other statements by means of the relation of logical consequence. To affirm that law statements are physically necessary is to say something analytically true, since p is physically necessary if it is true in every physically possible world; and a physically possible world is a world where the laws of nature of the actual world hold. Then, by definition, a law statement is true in every physically possible world.

Hence, the inquiry about the physically necessary nature of law statements is not of much interest (of course, it would be interesting if we were Humean. However I cannot go into this discussion here). What is interesting is that many philosophers vindicate law statements as physically necessary but not necessary tout court. In other words, there are possible worlds in which “our” laws of nature do not hold.

Before evaluating this point of view, it is worth to explore what Kripke has written on this topic:

“Physical necessity might turn out to be necessity in the highest degree. But that’s a question which I don’t wish to prejudge.”34

33 I will compare two examples to close this section:

(6) Cats are animals.
(7) Bows are weapons.

Let us suppose that both statements are necessarily true. The difference between them seems to be that the true of (6) is known a posteriori, whereas the truth of (7) is known a priori. I would like to put forward the hypothesis that if the difference between artificial kinds and natural kinds is strong enough to be supported, then the difference between analytical necessity and metaphysical necessity can be well founded. The reason is that the nominal essence of an artifact tells us what the artifact is. In the case of natural kinds there is a jump from the nominal essence to the real one. The real essence tells us what the natural kind is, but this real essence can only be grasped by empirical research.

It is beyond the scope of this work to define what an ‘artificial kind’ is, but I take ‘bachelor’, ‘married’, ‘father’, ‘philosopher’, ‘table’, and ‘chair’ as artificial kind terms. Of course, bachelor is an artificial kind but rooted in a natural kind (man). This fact is crucial concerning the identity of bachelors.

We should add that the problem of analyticity, of course, is beyond of the issue associated with artificial kinds. The transitivity and irreflexivity of bigger than are analytical truths. The statements belonging to the theory of partial orders (and bigger than is a partial order) are also analytical statements.

34 Kripke (1980), 99.
“The third lecture suggests that a good deal of what contemporary philosophy regards as mere physical necessity is actually necessary tout court. The question how far this can be pushed is one I leave for further work.”35

Kripke interprets his own work as incomplete. It seems that he took only the first steps to bind the concept of necessity tout court. Under what guidelines can this task be accomplished? Moreover, Kripke suggests that physical and metaphysical necessity may collapse. The next and last step in this paper is twofold: first to show a direction in which Kripke’s task can be completed, and, then, to suggest how the completion can bring out the collapse.

Most Kripkean necessary statements are associated with persistence-conditions and identity conditions of particulars and kinds. However, these are not the only “objects” in the actual world. Besides kinds, there are other properties too. If we take as the key idea that necessity is associated with the nature of all objects, then we have some work to do, namely, we have to describe the nature of properties. Fine states this issue as follows:

“For each class of objects, be they concepts or individuals or entities of some other kind, will give rise to its own domain of necessary truths, the truths which flow from the nature of the objects in question. The metaphysically necessary truths can then be identified with the propositions which are true in virtue of the nature of all objects whatever.”36

Let us suppose that the world includes particulars, kinds and properties (which are not kinds). Therefore, we should also pay attention to properties. There are good reasons to divide predicative entities into kinds and properties. I’ll mention two of them.

On the one hand, kinds and properties behave ontologically differently with respect to instances:

‘I conceive of kinds as universals whose particular instances are objects, whereas I conceive of properties as universals whose particular instances are modes’37

Lowe’s words have an Aristotelian flavor. Aristotle also distinguishes different kinds of predicates among those that apply to particulars: substantial predicates, on the one hand, and the rest of predicates, on the other. A similar position is defended by Strawson when drawing a line between sortal and characterizing universals:

‘This is the distinction between sortal and characterizing universals, and hence also between the sortal, or instantial, tie and the characterizing tie.’38

To sum up, there are different ways to capture the relationship between kinds and properties, and their instances. This is to say the realm of universals is not homogeneous.

There is also another difference between kinds and (other) properties we should mention, this time coming from semantics. Putnam and Kripke’s contribution to this issue is crucial. Kind

35 Ibid. 164.
38 Strawson (1959), 168.
terms and property terms behave semantically in different ways, and this difference should probably be related to the distinction drawn above. Wiggins expresses this difference as follows:

‘... there are terms, such as ‘lemons’ or ‘tiger’, where to grasp what it would take for something to be a lemon or a tiger or whatever it is, you need exposure to the extension of the term’\textsuperscript{39}

It seems to me that both features, the semantic and the ontological, allow us to draw an interesting distinction within the set of predicative entities.

In order to complete our job, then, we should describe the nature of these properties which are not kinds: new necessary truths will rise. But, as Shoemaker proposed, the nature of properties is linked to laws.\textsuperscript{40} My position, in general terms, is that this point of view is on the right track.\textsuperscript{41}

Let us take Mellor’s presentation of a Shoemaker-type theory:

‘Properties are identified a posteriori by scientific theories, construed as Ramsey sentences: i.e., as saying for example that there are properties C, F, and G such that in C-circumstances all F-events have such-and-such a chance of being followed by G-events. If that statement is true, then there are such properties, and there is such a law of which those properties are constituents.’\textsuperscript{42}

Let us suppose, then, we grasp the nature of properties in this way. What does this imply? If the nature of properties is bounded by laws, then, are laws metaphysically necessary? This is the main issue we have to focus on. The intuitive answer is that they are so: if every world has properties as constituents, then, because of their nature, the same laws will hold in every world. Therefore, metaphysical and physical necessity will coincide.\textsuperscript{43} This is also Shoemaker’s point of

\textsuperscript{39} Wiggins (1993), 202.
\textsuperscript{40} Shoemaker (1980).
\textsuperscript{41} Armstrong challenged Shoemaker’s theory, which he termed Dispositionalist. For Armstrong, the theory compels us to see the world as an intentional entity, and this goes against Physicalism (everything there is is governed by the laws of physics):

\textquote{But if irreducible dispositions and powers are admitted for physical things, the intentionality, irreducible intentionality, has turned up in everything there is.’ (Armstrong (1997), 79.)}

Though I cannot go into this criticism in detail, I would like to point out several possible problems. Firstly, it does not seem appropiate to take Shoemaker’s theory as dispositionalist. The dispositional/categorical dichotomy applies not to properties but to predicates. Hence, it is more a semantical or conceptual distinction than an ontological one. (Mellor (2000), 767; Humberstone (1996), 256-257.) Here, of course, we are interested in ontology, in the nature of properties. In any event, an Armstrongian could say that this is just a nominalistic issue which does not affect the main point. If he were right, we should analyze Armstrong’s proposal. However, this task would take us too far away from our goal. Let us not forget, in any case, that Armstrong’s metaphysics is built on controversial grounds: for instance, Physicalism, Naturalism and the doctrine of the ontological free lunch. (Armstrong (1997), 5-13.)

\textsuperscript{42} Mellor (1991), 260.
\textsuperscript{43} I leave aside problems concerning the existence or non existence de some properties in different worlds. We can deal with them as we deal with problems concerning the non-existence of some particular. What concerns us is the problem of identity, not the problem of existence.
Mellor, who defends a point of view about properties compatible with Shoemaker’s, has argued in favor of the contingency of laws. I would like to finish by focusing on his arguments. Mellor’s reasons, it seems to me, are twofold:

- On the one hand, he compares the criterion for properties with the criterion for events given by Davidson: it is possible for the same event to have different causes and effects, even though Davidson’s criterion says that e and e’ are identical if and only if they have all the same actual causes and effects.

  ‘Equally the thesis that properties F and F’ are identical if and only if they occur in the same way in all the same actual laws need not stop the very same property F, i.e. F’, occurring in somewhat different laws in other worlds.’

- On the other hand, Mellor proposes what could be thought to be another argument:

  ‘Similarly, a particular like Socrates can be distinguished from all others by facts about when, where and how he lived and died. But just as Socrates could still have lived and died in slightly, if not entirely, different ways, so mass could still figure in slightly, if not entirely, different laws.’

With respect to the first argument the example chosen by Mellor is not a good one, since Davidson’s criterion is circular. It is controversial what a criterion of identity is and what should be implied by it, but it does not make sense to define the identity of one and the same thing in different ways in different worlds. I agree with Mellor when, in the second quotation, he says that Socrates could still have lived and died in slightly different ways. How Socrates lives can certainly change from world to world, but this does not mean that “his” criterion of identity can change. His life can change, from world to world, but he will continue to be the same man. It is a difficult matter to decide what ‘same man’ means, but let us set aside the details of this problem, and accept, for the time being, a Kripkean frame: Socrates can change his life, but he cannot change his origin. I think that the same thing can be said about properties: a determinate mass can be instantiated by different particulars, but it cannot be involved in different laws. In the same way, Socrates can instantiate different properties, but cannot have a different origin: laws are with respect to properties what constitution is with respect to kinds, or what origin is with respect to particulars. Laws provide the nature of properties. Mellor takes the specification of when, where and how Socrates as his criterion of identity. But this is too weak to be a criterion of identity.

So we can conclude that there are not metaphysically possible worlds which are not physically possible worlds.

6. CONCLUSIONS

To conclude I will summarize the main theses that have been defended here.

(i) The concept of necessity (truth even though the facts of the world were different) is primitive and it appears in a natural way whenever we make a counterfactual supposition.

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46 Mellor-Oliver (1997), 30.
sort of supposition can be proposed in theoretical reasoning (the concept of causality) as well as in practical reasoning (the concept of deliberation).

(ii) Philosophers talk, at least, of logical necessity and metaphysical necessity. Hale puts forward some difficulties associated with this distinction, but I think they vanish if we look at this problem from another way:

(a) There are logical truths (logical in a broad sense): statements which are true in every structure. I have argued that every logical truth is necessary. In this sense the concept of logical necessity is a derived concept.

(b) There are truths related to the nature of “things”. I have argued that these truths are necessary. In this sense the concept of metaphysical necessity is also a derived concept.

(c) Therefore, it follows that p may be logically necessary and not metaphysically necessary or the way around -that is, p may be metaphysically necessary and not logically necessary-, but in both cases p will be necessary.

(iii) On the other hand, philosophers usually distinguish between physically necessary truths and necessary truths. The distinction is founded on the concept of law: physically possible worlds are worlds in which actual laws hold. If, as I have argued, the concept of property is also founded on the concept of law, then the distinction between physically possible worlds and possible worlds vanishes.

(iv) Finally I think that all other kinds of necessity are, in Hale’s sense, relative necessities.

REFERENCES


