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**MODALITIES AND POSSIBLE WORLDS (LOGIC,
EPISTEMOLOGY, ONTOLOGY)**

-SUMMARY-

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Modal logic, necessity, possibility, the theory of reference, meaning, proper names, definite descriptions, modal metaphysics, modal epistemology, possible worlds semantics, essentialism, two-dimensional semantics.

SUMMARY:

This dissertation is first and foremost a detailed critical evaluation of the actual stage of inquiry in modal metaphysics and epistemology, and on a more general note, of the philosophical controversies that were engendered by the elaboration and development of possible worlds semantics for modal systems. The aim of this assessment is to provide justification and motivation for the development of non- or quasi-realist approaches to real necessity, which can be then articulated in different ways, such as empiricist doctrines or transcendental philosophy. One important thesis of this work is that Kripke's modal distinctions have contributed to the configuration of a theoretical framework which assumes robust principles concerning real necessity (a perspective that until then had been in minority and weak inside the analytical tradition), but Kripke's ideas are not to be regarded as full-fledged arguments against well grounded non-realist or internalist accounts of modality. The metaphysical and epistemological contribution of Kripke is rather to have specified the general coordinates of an ensemble perspective on modal concepts which states the existence of real necessity that is an actual part of the world and the way the world is. Kripke's major contribution in the philosophy of language is, as we know, the rejection or at least the serious casting of doubt over descriptivist theories of proper names and maybe natural kind terms. Although descriptivist theories, of meaning or/and reference, have been articulated and defended after the publication of *Naming and Necessity*, they had to account for Kripke's very strong arguments, his clarifications and distinctions. In what concerns the articulation of a metaphysical and epistemological point of view contrary to the one that emerges from *Naming and Necessity*, this will surely have to take into account the Kripkean perspective, but it is not whereby restricted in the same manner. This means that one can correspondingly give other answers to Dummett's two fundamental questions: what is the source of necessity and how do we recognise it? The aim of this dissertation is to investigate the merits and difficulties of the multiple answers that can be given to these questions.

The Introduction sets the general framework of the thesis, insisting on the important role played by the ideas expressed by Kripke in *Naming and Necessity* on the recent metaphysical turn of analytic philosophy. Any metaphysical doctrine that claims a direct descent from Kripke's metaphysical theses has to be essentialist, so it has to maintain that there are necessary non-trivial properties of things, else it would not be loyal to its source. Scientific essentialism or Fine's conception that the grounding of necessity must be in the nature of the things considered are the offspring of Kripke's metaphysical theses. The extreme view is probably Shalkowski's proposal (which may be seen as a radicalization of a Kripkean intuition) that all types of necessity are engendered by reality, including logical necessity, that is just truth with the highest degree of generality, in virtue of the nature of all objects and processes in the world. Such a point of view allowed us to grasp from the beginning the importance of the choice of landmarks in accounting for modalities. A robust concept of real necessity seems almost inevitably to lead to similar conclusions to the ones of Shalkowski, while if we start our inquiry from the vantage point of the knowing subject, we encounter a correspondingly difficult to avoid tendency, illustrated by this dissertation, to consider that our cognitive faculties or structures are entirely responsible for the existence of necessity.

Chapter one contains a summarization and explanation of the most important notions of modern modal logic. I chose a historical perspective, believing that it is more important and more interesting from a philosophical point of view to show the way that some ideas and approaches were developed. The most important contributions before the classical era of modal logic are that of C. I. Lewis, Carnap – both of whom believe that necessity is only logical and linguistic –, Jónsson and Tarski, who anticipated Kripke's model-theoretic semantic approach, and Prior, who was the first to use a binary (accessibility) relation in a modal context. Modal logic reached maturity through the publication of Kripke's model-theoretic semantics, which allowed the elaboration of completeness proofs for modal systems, and of similar contributions by Hintikka at the end of the 1950s and the beginning of the 1960s. I have insisted on the most important contributions of Kripke, emphasizing and analyzing their possible philosophical articulations. The first chapter is finalized with an account of the developments in modal logic succeeding the classical era and with a characterization of the current state of research in the field, where I mention the important fact that the formal-metaphysical investigation has not kept up with other branches of philosophical logic that use Kripke semantics, that is to say that alethic modal logic in traditional form, as well as the application of modal logic to metaphysical problems, are

nowadays in a significant regress. I also mention some important contributions of Romanian researchers in the study of modalities.

The second chapter contains a concise characterization of the main philosophical notions and of the most important controversies generated by or reappraised through the logical and philosophical investigation of modal notions. Among these, we emphasize the difficulties concerning the analysis of essential properties, which led to the proposal that essence be considered the fundamental notion, and necessity be analyzed starting from the nature of things, and the actualism-possibilism controversy over what ontological status should be assigned to merely possible objects. In what concerns the latter, I conclude that this question is not imperative if we do not take seriously the idea that the framework of possible worlds provides a real analysis of modal notions.

This last thesis (no real analysis of modality through possible worlds) is argued for in Chapter 3, where it is shown that the analysis of modalities using possible worlds is inevitably circular, as it must be grounded on a previous explanation of the separation between possible and impossible worlds. This argument doesn't affect all possible worlds theories, David Lewis' modal realism (or extreme possibilism) being immune to it due to the fact that for Lewis possible worlds are concrete, existing in the same way our world does. But Lewis's approach encounters other difficulties, the most important being the disappearance of the modal force of assertions in his possible worlds model that is inspired by a Humean perspective on reality and its relation to knowledge. If the analysis of modal notions in terms of possible worlds is largely compromised (Kripke insists that he has never endorsed such an idea), it remains to be seen if such a framework doesn't at least provide an illumination of modal truth and the way modal arguments work. Even such a modest proposal has to be interrogated. For this purpose we used a Russellian paradox that was identified by Jubien in any analysis of the notion of proposition through sets of possible worlds (Stalnaker and Jackson propose such a treatment). The conclusion towards which Jubien leans is that even the innocuous idea of illuminating modal thought with the help of possible worlds – that would allow the preservation of possible worlds semantics with the condition of maintaining a non-realist conception about it – should be rejected. This conclusion is however too strong. Jubien's argument is built upon the extensional analysis of propositions through sets of worlds that would presumably lead to a paradoxical set of all propositions, but in one sense this argument says too much and in another it says too little. In the first respect, as Russell points out, the paradox of the set of all propositions is fundamental as it affects the entire logical scaffolding. Every element of the set of all propositions can generate a new

proposition of the type *X believes that...*, so this problem is not specific to possible worlds semantics. Then, it can be shown that both at a formal and a philosophical level, possible worlds theories (or rather philosophical theories that make use of possible worlds) – such as Adams’ theory, analyzed by Jubien – possess the means to sidestep the difficulty of the paradoxical set of all propositions, be it the power set of the set of all possible worlds, or the set of all propositions that are true in our world and their negations. Therefore, one can still use possible worlds, but with some reserve. An actualist seems compelled to be suspicious towards such an approach and also seems constrained to assume a more robust conception on the nature of propositions. The extensionalist is confronted with the lack of plausibility of the possibilist principles that he seems led to. Many philosophers have renounced the idea of an analysis of modal notions using possible worlds, but maintained the idea that the model-theoretical notions that compose Kripke semantics provide other means of achieving an adequate interpretation. Model-theoretic actualists hold that it doesn’t matter what the content of intended models is – all that is important for an explanation of modal notions is the form of Kripke models. One has to presuppose that this form somehow reproduces an authentic modal form. I have shown that this approach also looks more like an illumination than a real analysis of modal notions. The form of modal truth is reduplicated in model-theoretic structures, but grasping this correspondence presupposes again a previous familiarization with the nature of modal thought. The tendency to purify model-theoretic entities of content compromises the idea of an adequate interpretation, one that allows the grasping of a deep explicative content and seems to indicate the idea that modal notions are primitive or in any case closer to the bases of thought than possible worlds, and thus they don’t lend themselves to a possible worlds interpretation. The utility of the conceptual apparatus provided by possible worlds semantics and possible worlds theories is then that it shows modal thought at work, that it reveals very accurately its particularities, even if it doesn’t explain them. But in this case, many of the philosophical controversies which animated the field of modal logic, such as the actualism-possibilism dispute, can be deemed insubstantial.

The only viable philosophical model that can provide us with a robust form of metaphysical necessity is essentialism. The fourth chapter of the dissertation contains a discussion of essentialism. Any doctrine that maintains that things have non-trivial necessary properties and these properties are independent of our knowledge is a form of essentialism. Kripke and others think that a non-trivial necessary property is one that engenders a necessary a posteriori truth. I take issue with such views about the existence of the necessary a posteriori by looking at them from a primarily epistemological perspective that privileges the position of

the knowing subject. I believe however that this new (or, in fact old) setting of the main landmark is not the sole perspective that helps us see that we have a problem whenever we try to explain the way we recognise real necessity, but only the most appropriate way to see this. Soames believes we can delineate two routes to a posteriori necessities in Kripke's work and only the essentialist route is sound. Soames defends a referentialist point of view according to which the object referred to by a name represents its sole semantic content. Thus, he rejects the idea that a necessary identity statement is a posteriori, as the two terms involved have the same semantic content. Any simple identity between rigid expressions may be known a priori, so according to any traditional theory of apriority, it is a priori. The only route that Soames accepts in order to reach a posteriori necessity is the essentialist route. I show that this demarche also has serious problems at least if, as Soames wants it, we will think of metaphysical possibility as contained in or a form of epistemic possibility. Soames gives the following explanation for the way one reaches necessary a posteriori truths: one is at some moment in a state of ignorance concerning the possession of some properties by an object. We have then several epistemic possibilities, some incompatible, about that object, each determining a system of real necessity and possibility. We discover that the object has a certain property or stands in a certain relation and through a priori philosophical reflection we reach the conclusion that that property or relation is essential to that object, that means the considered object cannot lack it if the object exists. We thus choose one of the systems of real possibility that was epistemically possible before and eliminate the others. So the proposition that states the attribution of that property to the considered object is a case of a necessary a posteriori truth. I shall put forth here only the main coordinates of my counterargument. The idea is that through the discovery of the supposedly essential property we never eliminate the other epistemic possibilities, although we change their weighing. We can never seem to get metaphysical necessity out of the system epistemic possibility, because strong epistemic necessity seems not to exist. Humean counterexamples can be proposed for natural law statements that contain terms for natural kinds, and correspondingly one can imagine counterexamples for supposedly intuitive properties of the kind proposed by Kripke. Kripke's answer is that we do not really imagine the same things or natural kinds when we imagine the proposed counterexamples to necessary truths. But the question is then: who decides that? Who determines what we (can) conceive and what not? An answer that is grounded on the idea of some philosophical analysis or of restrictive intuitions is unsatisfying, as there are philosophical analyses that lead to different, opposed conclusions, and our intuitions differ or can be rejected, in any case, they are not an entirely trustworthy guide. If there isn't any

difference of nature between metaphysical and epistemic necessity (and one can argue that this is the case, as we don't have a special faculty that allows us to grasp metaphysical necessity), then the two will go together. Either what were conceptually possible remain metaphysically possible, or recognising metaphysical necessity means the immediate acceptance of a restriction over our modes of representation, but such a constraint must be a priori.

The rejection of Soames's perspective on Kripke's route needs only the modest idea that we don't have a definitive verdict concerning the apriority or aposteriority of a given piece of knowledge. Even if a necessary truth has been discovered empirically, it can be known a priori by some users of the language, moreover, some of Kripke's arguments seem to point in the direction of an actual a priori restriction. In the same chapter, I explored the possibility of building a quasi-essentialist philosophical paradigm that integrates this fundamental epistemological precaution. The discovery of necessary truths should impose an a priori restriction over our representations (whatever they may be), but it seems that such a restriction is unrealistic, more so as it seems to extend over both senses of the temporal axis, in retrospect and in projection. Also, a quasi-essentialist model of the type proposed is unacceptable both for the Millian, because it presupposes some association of a descriptive content with the supposedly direct referential terms of language (an association that is cautioned in different forms by Føllesdal, Hintikka and Sandu, Chalmers, and Jackson, of the authors discussed in this dissertation), and presumably for one who wants to uphold a strong notion of metaphysical necessity, as this is transformed into some kind of *post factum* a priori necessity.

After this scrutiny of metaphysical necessity, we could not avoid the question if this notion is reflected in Kripke's formal work, if his semantics for modal logic is not flawed by an inappropriate interpretation of modalities, as Cocchiarella, Hintikka and Sandu and Lindström hold. This point of view has been convincingly rejected in the fifth chapter, with the help of Ballarín and Burgess. Kripke's model-theoretic semantics provide not a theory of meaning for modal words, but an algebraic characterisation of considered systems by giving truth conditions for modal sentences that allow the proposal of definitions for corresponding notions of validity and the obtaining of relevant metalogical results. The modifications brought by Kripke in the studies published in 1963 are the result of technical imperatives, for instance, the introduction of the binary relation provides the generality that was needed in order to give truth conditions for modal systems in the different modal systems that were studied and not a supposedly undesirable metaphysical content, as Cocchiarella argues.

Ballarin also showed that there are two models of interpreting modalities in *Naming and Necessity*, one being the already mentioned essentialist model, and the other a model-theoretic paradigm, that is a combinatorial view of possibility according to which all that is formally consistent is possible (this view can be identified in Kripke's dice example). I show that there are significant reasons for bringing nuances to Ballarin's analysis, as this supposedly second perspective on modalities is not so easily detachable from Kripke's considerations; moreover, the differences between the two perspectives are not so clear. But if one comes to see this, one has to also concede that there is an evident facility or lack of theoretical rigor in the philosophical explanation of necessity that Kripke configures. I believe however that the dice example is given rather for backing a minimalist approach to possible worlds than to advance a maximally permissive analysis of possibility.

The connection between formal developments and philosophy can be made in both ways, from philosophy to formal systems, as illustrated above, but also from formal solutions to philosophical solutions, as is the case with the analysed paper of Hintikka and Sandu. The fifth chapter also contains a detailed assessment of the collective contribution of the two authors to some of the problems we discuss in the thesis. While I agree with some of their ideas, I had important objections to some other, especially to a fundamental contention of Hintikka and Sandu, that a large part of Kripke's innovative solutions in the philosophy of language are the direct result of formal difficulties that Kripke had to face. As there are alternative solutions to these difficulties, many of the original ideas of Kripke, among them the rigidity of proper names, are groundless, argue Hintikka and Sandu. We cannot deny that the formal work brought Kripke to the realization of some problems and the investigation of possible ways to solve them. Kripke admits as much. What is highly controversial is that these solutions are arbitrary or artificial, as I believe they are engendered by a penetrating (even if not completely adequate) reflection on the nature of language and the way some expressions are used. The Kripkean has enough philosophical means to respond to some of Hintikka and Sandu's criticisms, notably the one about the necessity of identity, but of course, he must use some particular philosophical perspective.

As said above, one can argue that an epistemic restriction of the type proposed in the quasi-essentialist model of the fourth chapter is unrealistic. A minimal amount of reflection on this issue reactivates the fundamental epistemological problems that are not solved in a realist approach of modality. The sixth chapter is a cumulative and critical exploration of some internalist (or sensitive to internalism) attempts to solve the issue of how we are able to recognise necessity. I don't support simple answers according to which we just consult our

intuitions or philosophical analysis as there are antirealist intuitions and analyses concerning necessity. A generalized Humean framework still is, in my opinion, the most viable paradigm of real necessity. The epistemological research of the sixth chapter was tied to main issues in the philosophy of language in an attempt to reconsider from a maximally tolerant position the nature and role of so-called referential expressions. I concluded that a contextualization and compartmenting of the philosophical inquiry of modality in the manner proposed by Lewis is coherent and useful, but it doesn't solve the fundamental epistemological problems, it just shows us how come we can/may usually ignore them. Two-dimensionalism, even in its most ambitious and interesting versions, does nothing more than illustrate or express in semi-formalized philosophical models the coexistence of two perspectives on modality and the role of some expressions in language, without actually unifying them.

These conclusions breathe some new life into the old issues raised by Quine. If there is a problem with modal logic, then this is a general one and it targets the general (traditional) philosophical interpretation. To what purpose do we use modal notions? One of the thoughts we insisted upon is that as a formal inquiry that is now independent of the problems for which it was developed, modal logic doesn't need any philosophical grounding. However, the fundamental problem reappears if we believe that modal discourse is philosophically adequate. The existence of formal instruments sufficiently powerful and versatile for treating modal notions could be a stimulus in this direction. What are then the options that remain for the philosopher with logical preoccupations or affinities who aims to study modalities further? The first one is to espouse wholeheartedly a form of essentialism, more or less robust. Necessity *simpliciter* or absolute necessity, the one that comes from the nature of things is the pivotal notion of a theoretical solution that we can call *the metaphysical interpretation of necessity*. This understanding of necessity may be used to ground a non- or even anti-empiricist explicative paradigm where even logical and verbal necessity are explained, as seen in Shalkowski's or Ballarin's approaches, as a special case of real necessity (or of the necessity that comes from reality). But many philosophers of the empiricist-naturalist tradition, that is one of the sources of analytic philosophy, could repudiate such a perspective (and some of them do, as, for instance, Sidelle). As shown, essentialism is not dependent on a robust concept of metaphysical necessity, but surely when this is lacking, it is a severely debilitated philosophical doctrine. The epistemological problems connected to the recognition of metaphysical necessity cannot be ignored.

Our option for a quasi-realist interpretation of necessity in the style of Blackburn can be related to transcendental philosophy, which also seems to pass through a phase of

rehabilitation in the analytic tradition. What does this mean? Apparently, a quasi-realist conception of modality seems to ground even more strongly the distinction between metaphysical possibility and epistemic possibility. Necessary truths are thus because we have difficulties in conceiving or understanding their negation, but this doesn't mean that there could not be counterexamples in reality, so metaphysical possibilities exceed in theory the epistemic possibilities. But what type of metaphysical modality is proposed in such an approach? A minimal reflection shows us that the metaphysical possibilities that exceed our cognitive capacities may and may not exist, *for all we know*. The only guide remaining concerning possibility is our ability to conceive or represent. That is why metaphysical possibility has a frail status when we assume that it exists outside our knowledge, similarly to the Kantian thing-in-itself. Necessity interpreted as our failure to entertain counterhypotheses can be related to a transcendental framework through the natural presupposition that our faculties or rather their input in the way we experiment and conceive the world determines what appears as necessary and what not. Also, a quasi-realist conception of real necessity can back a classic separation between strong necessary truths and weak necessary truths. In the first category we may include those necessary truths that are directly related to the nature and structure of our faculties, such as logical or mathematical truths, whose negation cannot be seriously entertained at all, while in the second category one may place the supposedly necessary empirical truths, that means truths with some empirical content that are grounded on a priori principles or general hypotheses about the nature of the world and of experience, such as (maybe) the necessities generated by Kripkean intuitions or natural laws. In the second case, the difficulty faced when we attempt to examine proposed counterexamples is not complete and although faced with utter perplexity, we seem to have some sort of understanding, be it minimal, of some cases when they might be true. Only that normally, such hypotheses are too far away or too revolutionary to be seriously taken into consideration. A strong notion of essential property is hard to uphold in an adequate manner, and a recent approach, such as Mackie's, proposed that at a fundamental level "the invidious distinction" be thought of in terms of the importance or of relevant similarity to actual cases. Concepts such as natural necessity, logical consequence or epistemic notions remain open for more robust modal treatments, albeit in a non-classical interpretation.