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POSSIBILITY AND NECESSITY
IN THE PHILOSOPHY
OF PETER ABELARD

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Qualche lettore si chiederà a cosa servano queste ricerche: un animo religioso potrebbe rispondere che anche in una pulce si rispecchia l'armonia del creato; uno spirito laico preferisce osservare che la domanda non è pertinente, e che un mondo in cui si studiassero solo le cose che servono sarebbe più triste, più povero, e forse anche più violento del mondo che ci è toccato in sorte. In sostanza, la seconda risposta non è molto diversa dalla prima.

Some readers will ask what is the use of this research: a religious mind might reply that the harmony of creation is mirrored even in a flea; a secular mind prefers to state that the question is not relevant, and that a world where only useful things are studied would be sadder, poorer and possibly more violent than the world which fate has allotted us. Basically, the second reply is not all that different from the first.

(Primo Levi, *Il Salto della Pulce*)

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Introduction

A new interest in modal logic

Abelard shares with many other philosophers and logicians of the twelfth century a particular interest in investigating the notions of *possibility* and *necessity* and in providing them with a crucial role in philosophy, theology and logic. The development of such an interest in the twelfth century is motivated mainly by two reasons.[1] First, a logical consideration of modal terms was required for the commentary on some texts of the *logica vetus*, and particularly on Aristotle's *De Interpretatione*. Aristotle dedicates two chapters of his *Periermeneias* to the study of modal claims, the twelfth and thirteenth. There, he addresses several problems concerning the definitions and the meaning of modal terms and discusses the syntactical and grammatical structure of modal propositions. He is especially interested in how the negative particle should be applied in modal claims and in how propositions about possibility, contingency, impossibility and necessity are logically related to one another. The notions of possibility and necessity also play a crucial role in the Aristotelian discussion of future contingents, to which the ninth chapter of the *De Interpretatione* is dedicated. There, Aristotle addresses the problem of whether there are future events and propositions that are genuinely contingent, and whether indeterminism is compatible with some basic logical principles, such as the principle of bivalence and the law of excluded middle. The consideration of Aristotle's logic for modal propositions, to which early medieval authors were acquainted through Boethius' translations and commentaries, is then the first motivation that leads Abelard and his contemporaries to undertake a new study of modalities.

Moreover, the interest of twelfth-century philosophers in the logic of pos-

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[1] See (Martin, 2004a) on this point.

sibility and necessity is also motivated by their will to take a stance in the theological debates concerning the *omnipotence* and *omniscience* of God. In particular, these debates aimed to define the extension and limitations of God's powers, and to establish whether or not God also has the power of creating a different world and a different history than the one he actually created. Also, they tried to demonstrate that there is no incompatibility between God's complete and infallible knowledge of all events and the existence of contingent and indeterminate states of affairs. These debates – the roots of which are to be found in the Christian Patristic tradition as well as in some theological discussions from the eleventh century – raise new problems concerning the notion of potentiality and possibility, problems that are reflected in Abelard's discussions of the powers of God and creatures. This background encouraged twelfth-century logicians to address a number of new issues: what is the definition of modes and how should we account for their grammatical and semantical role in categorical predications? What is the relation between simple categorical claims and modal ones? Is it possible to organize possibility and necessity statements into a valid system of inferences; and could the same be done for propositions in which modal terms and temporal quantifications are combined? How can we expound the meanings of possibility and necessity, and how could we account for unrealized and for unrealizable possibilities? And finally, is it really the case that things might have been different than they actually are; and should contingency be referred only to future events or also to present and past states of affairs?

Texts

Abelard discusses his theory of necessity and possibility both in his logical and in his theological works. The present study is limited to the consideration of Abelard's use of modal terms in his two main logical works: the *Dialectica* and the *Logica Ingredientibus*. Within the *Dialectica*, modal propositions and their logical properties are discussed as a part of Abelard's theory of categorical propositions. This discussion is carried out in the treatise labelled by De Rijk «*De Modalibus*», which is part of the second book of the *Dialectica* (*Dial.* 191-210, in de Rijk's edition). In this part of the *Dialectica* Abelard sketches a logical system for modal claims. He first analyzes the notion of *mode* and distinguishes between different sorts of modal

terms and of modal propositions. He then considers some morphological and syntactical features of modal claims (insisting in particular on the correct attribution of negation and quantifiers in claims of this sort). Finally, he provides a scheme of the logical relationships that occur between propositions containing modes, defining in this way a sort of modal square of opposition and equipollence between modal claims. Furthermore, in this treatise on modalities Abelard devotes various passages to the investigation of the nature and the meaning of modes, and he tries to give a definition of the two primitive modal terms of his logical system: possibility and necessity. Abelard also considers some semantical ambiguities concerning the scope of the modal term when applied in nominal propositions, and he discusses the combination of modal "operators" with other sort of qualifications that might be added to categorical predications, such as the temporal qualifications "*dum*"; "*quamdiu*" and "*in omni tempore*".

Another part of the *Dialectica* that is dedicated to the investigation of modal notions is *Dial.* 210-221, where Abelard focuses on the connection between modalities and time, and in particular asks how necessity and possibility are referred to past and future claims. Here, Abelard defends the compatibility between indeterminism and unqualified bivalence, and also the compatibility between indeterminism and God's complete knowledge of all events that happen in time. There are also various other places in the *Dialectica* where Abelard's discussion involves the modal notions of possibility and necessity. For instance, he discusses the concept of "potency" at lenght within his treatise on qualities, in the third book of the first treatise (*Dial.* 93-99). The notion of necessity has instead a crucial role in Abelard's discussion of topical inferences in *Dial.* 253-413.

As for the *Logica Ingredientibus*, the investigation of modal terms and modal propositions is carried out in the glosses on Aristotle's *De Interpretatione*, in particular within the quite extensive introduction that Abelard places before the literal commentary on chapter twelve and thirteen of the Aristotelian work (LI *De Int.* 391-433). In this text, Abelard defines the notion of *mode* and investigates the syntax and semantics for modal propositions. We may find a detailed treatment of the notions of contingency and necessity also within the glosses on the ninth chapter of the *De Interpretatione*, where Abelard addresses the issue of future contingents and advances a defense of indeterminism (LI *De Int.* 243-268). It is interesting

to look at these two discussions together for in the latter Abelard applies many of the logical devices and inferential rules that he had established as valid for modal claims in the former. These two discussions from the glosses on *De Interpretatione* 9 and 12-13 have many teminological and conceptual similarities with the parallel investigations developed in *Dialectica* 191-210 and 210-221. Indeed, despite a few differences and disagreements between the *Dialectica* and the *Logica Ingredientibus*, the two works offer a quite consistent theory of modal propositions and of their logical properties. The main discrepancies between the two concern the following issues: the *de rebus-de sensu* distinction, which is presented in quite different terms in the two works, in particular with respect to the problem of how *de rebus* and *de sensu* propositions are logically related to one another;[2] the study of impersonal nominal predications, which is discussed at lenght in LI but not in the *Dialectica*, and the question about what is the lexical category to which modal terms belong, issue that again is raised in LI and not in the former logical work. The two works also diverge in how Abelard answers to the question whether modal propositions carry an implicit presupposition of the existence of their subject's referent(s); and in the way he accounts for the equipollence between possibillity predications and necessity predications. Nevertheless, with the exceptions of these discrepancies the two works are very similar, and they present a theory of modalities and a logic for modal claims that are the same in their fundamental traits. This similarity seems to confirm the idea that the two works were written a few years apart from one another, probably in the second decade of the twelfth century, although they could have been subject to revision or extension in the years from 1121 to 1127, when Abelard lived and gave lectures on logic in the "Paraclete" Oratorium.[3]

Apart from the glosses on *De Interpretatione*, other places of the LI that are concerned with modal notions are Abelard's glosses on Porphyry's *Isagoge*, where the investigation of the notion of possibility is particularly important for Abelard's discussion of substantial forms and *propria* (LI *Isag.*

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[2]For a detailed comparison between the two works with respect to this point see 1.3.3 below.

[3]The LI is usually considered as written, or at least revised, a few years later than the *Dialectica*. On the chronology of these two works see in particular (Mews, 1985, p. 73-134); (Marenbon, 1997, p. 36-53); (Brower and Guilfoy, 2004, p. 6-8); (Jacobi and Strub, 2010, p. 63-64).

88-92); as well as his glosses on Aristotle's *Categories*, where Abelard defines the notions of "*potentia*" and "*impotentia*" (LI *Cat.* 122-139; 223-251; 259-285; this discussion is at least in part parallel to the investigation carried out in *Dial.* 96-99).

Sources

The discussion of modalities that is put forward in Aristotle's *De interpretatione* is certainly a major source for Abelard's logical reflection on possibility and necessity. As pointed out in Jacobi and Strub's introduction to their edition of Abelard's glosses, Abelard certainly had two texts at hand when he wrote his commentary on the Aristotelian work: Boethius' Latin translation of Aristotle's *On Interpretation* (probably in the version reproduced by Thierry of Chartres in his *Heptateuchon*) and Boethius' second commentary on this text (Jacobi and Strub, 2010, p. 37-38). There are not many other Aristotelian sources available to him that might have contributed to shape his modal thinking. It is still uncertain to what extent Abelard knew the *Prior Analytics*, and where he got acquainted with it. If any, his knowledge of this work was very limited: Abelard must have seen it, but he cannot have had access to a copy himself, and did not know it in any detail (Lagerlund, 2016). In the glosses on *De Interpretatione*, he also makes reference to some passages of the *Sophistical Refutations*, that he cites as authority when he introduces his distinction between the compound and divided interpretations of modal propositions. However, he did not have access to the other Aristotelian works devoted to modalities, such as his modal syllogistic (subject of chapters 8-22 of the first book of the *Prior Analytics*) or the extensive definition of the notion of possibility proposed by Aristotle in *Prior Analytics* I.13. Nor did Abelard have to chance to consider Aristotle's definitions of modal terms in the *Metaphysics* (in particular, in *Met.* Δ 5 and Δ 12, and also Θ 3-4) or his modal discussions in the *De Caelo* and *De Generatione et Corruptione*, unavailable at the time.

Apart from Aristotle's *Categories* and *De Interpretatione*, the other sources on which Abelard relied for his logical thinking were Porphyry's *Isagoge*, Boethius' commentaries on Aristotle's works and Boethius' independent treatises *De topicis differentiis*, *De divisione*, *De syllogismis categoricis* and *De syllogismis hypotheticis*. Among these, particularly important for shaping Abelard's modal thought are the *Isagoge*, which con-

tributed to stimulate Abelard's thoughts on the nature of substances and on the modal relations between an individual substance and its properties, and Boethius' *De syllogismis hypotheticis*, where Boethius distinguishes between different kinds of possibility and necessity propositions. Similarly important for Abelard's discussion of modal propositions is Priscian's *Institutiones grammaticae*, a text that was the subject of several glosses and commentaries in the eleventh and twelfth century, commonly known as the *Glosulae* (Marenbon, 2004b). The relevance of this grammatical background is particularly evident in Abelard's texts on modalities, in which the author devotes a considerable amount of time to discuss modal terms and propositions from a grammatical and linguistical point of view, questioning for instance which is the lexical category to which modal terms belong and the relation between the grammatical form and the semantical form of modal propositions.[4] Indeed, the influence of Priscian and of the *grammatici* tradition is more evident in Abelard's glosses on *De Interpretatione* 12-13 than in the *Dialectica*, and this point constitutes one of the few dissimilarities between the two works. In the former text, for instance, Abelard includes both a long discussion of impersonal constructions and about their correspondent logical form (LI *De Int.* 404.326-408.437), and he advances the idea that alethic modal terms should be considered as belonging to the lexical category of *indefinites*, i.e., as words that do not have a signification *per se* but merely "consignify" (LI *De Int.* 407.412-408.425). Both discussions have no correspondent in the *Dialectica*.

Although our knowledge of eleventh and twelfth century logical sources is still far from complete, it is certain that a debate on modalities and on the logic of modal claims was already underway at the time in which Abelard wrote the *Dialectica* and the LI. As Martin has recently shown in (Martin, 2016), many of the issues addressed in Abelard's texts on modalities – such as the question about how the negative particle should be applied in modal claims, or about the combination of modal terms with temporal qualifications in categorical predications – are present in Garlandus Compotista's *Dialectica*, datable to the end of the eleventh century, and in two twelfth-century anonymous treatises, designated by Iwakuma as *M1* and *M3*,

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[4]For the grammatical background of Abelard's logic see in particular (Rosier-Catach, 1999); (Rosier-Catach, 2003). For the «infiltration» of grammatical issues and problems into the dialectic of the twelfth century see also (Pinzani, 2003).

preserved in manuscript Orléans 266 and in Paris BN Lat 13368,[5] which report the opinions of Masters W., Gos., and Gosl, presumably William of Champeaux and Goselin of Soissons (Martin, 2016, p. 117). Both Garlandus' *Dialectica* and the two Orléans treatises employ an understanding of possibility in terms of *compatibility with nature*, which is also at the base of Abelard's modal semantics.

An almost totally different group of sources seems to have stimulated Abelard's debate on the nature of contingency and his attack to logical and theological determinism. The issue of future contingents and the puzzle of logical determinism is addressed by Abelard on the basis of the Aristotelian discussion of the topic in *De interpretatione* 9 and on Boethius' commentaries on it. From Boethius, Abelard takes the analysis of the different kinds of contingency and the distinction between *determinate* and *indeterminate* truth values (that Boethius had in turn inherited from some Hellenistic source, now lost). By means of this distinction, both Boethius and Abelard try to reconcile an indeterminist theory of reality with the validity of the principle of bivalence for all propositions, including future contingent ones. For what concerns his discussion of theological determinism, Abelard's main sources are Boethius' commentaries of the Aristotelian texts and Boethius' *Consolation of Philosophy*, together with some Augustinian works, in particular his *De civitate Dei*, *De dono perseverantiae* and *De praedestinatione*. Following Augustine and Boethius, Abelard attempts to reconcile the idea that some events that happen in time are the outcome of human beings' free will and deliberation with the Christian dogma stating that God has a complete and invariable knowledge of all events that happen in time. Apart from these ancient sources, Abelard probably based his discussion of future contingents also on some eleventh and twelfth century debates. An extensive discussion of the topic is testified by many texts of the eleventh century, such as Peter Damian's *De divina omnipotentia* or Anselm's *Cur Deus homo* and *De concordia*. Another author writing in the late eleventh and early twelfth century who is interested in the question of theological determinism and whose work probably constituted a source for Abelard's discussion of the topic is William of Champeaux (ca. 1070-1122). Exactly as Abelard will do in the *Dialectica*, in his *Sententiae* William considers the following puz-

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[5]M1 = Orléans, Bibl. Municipale, 266: 166a-169a; Paris, Bibl. Nationale, lat. 13368, 175va-177ra. M3 = Orléans, Bibl. Municipale, 266: 252b-257b.

zling inferences: (i) if God's foreknowledge is infallible, then future events – including the actions of human beings – all happen of necessity; on the other hand, (ii) if future events, including the actions of human beings, could occur otherwise, then God's foreknowledge is fallible. As Guilfoy notes in (Guilfoy, 2012) the proposition which says that "if future events could occur otherwise, then God's foreknowledge is fallible" was interpreted in several ways by William's contemporaries. In order to save the infallibility of God's knowledge, some rejected that things can in fact be otherwise than they are. Others held that because the events might occur otherwise than they actually do, God has no complete knowledge of everything that happen in time, and thus they dismissed God's infallibility arguing that rather he is just very lucky epistemically (Guilfoy, 2012). William rejects both views, by claiming that the inferences stated in (i) and (ii) are not valid (*Sententiae* §237.68). However, he does not make exlicit in what exactly their invalidity lies. Abelard considers inferences (i) and (ii) both in the *Dialectica* and in the *Logica Ingredientibus*, and he justifies their invalidity by saying that they are based on a confusion between the *de rebus* and *de sensu* interpretation of modal claims.

Content and structure of the work

In what follows, I give a systematic account of Abelard's modal logic and theory of modalities in the *Dialectica* and in the *Logica Ingredientibus*. The first two chapters are especially concerned with the syntactical and logical aspects of this theory. In the first, I consider Abelard's definition of *mode* and his distinction between proper and improper modal terms. I then present the definitions of the six modal terms on which Abelard bases his logical system – i.e., the terms "*necesse*", "*possibile*", "*contingens*", "*impossibile*", "*verum*" and "*falsum*" – which according to Abelard belong to the linguistic category of *indefinites* and, as all other modes, might have either an *adverbial* or a *nominal* form (section 1.1). In the same chapter, I also focus on Abelard's investigation of the morphology and syntax of modal propositions, and on his discussion about which are the *terms* of modal propositions and how the *negative particle* and the *signs of quantity* must be applied in them (section 1.2). Finally, in the last section of chapter one, I discuss Abelard's famous distinction between the *de rebus* and *de sensu* interpretation of modal proposition, and I compare the way in which this

distinction is expounded in the *Dialectica* and in LI (section 1.3).

In the second chapter I take into consideration the core of Abelard's modal logic, i.e., the system of relations of opposition and equipollence that he establishes as holding among possibility, impossibility and necessity propositions (see 2.2). Abelard considers both the logical properties of propositions having the same mode, and the mutual relations holding for propositions with different modes. These rules of inference are represented by means of different *squares of opposition*, that are proposed first for singular propositions and then for quantified ones. Before considering Abelard's modal squares, I discuss Abelard's position on the *existential presupposition* and the presence of *non-referring terms* in his non-modal and modal logic (section 2.1). In particular, I argue that Abelard interprets all *de rebus* affirmative modal propositions as having an implicit existential import, the satisfaction of which is a necessary condition for their truth. I then address a number of difficulties that are related to existential import and empty terms, and I suggest that Abelard was aware of these complications and because of them decided to restrict the validity of his modal system only to those propositions whose subjects actually refer. According to Abelard, the standard laws of equipollences, as well as many logical relations between modal propositions, only hold under the condition that the terms included in these propositions are not empty. Finally, in section 2.3 I consider Abelard's discussion of the logic of modal claims that contain *temporal qualifications*. Abelard refers to these claims as "determinate" or "composite" modal propositions, as opposed to "simple" modal ones. Although Abelard's interest is mainly directed to temporal determinations, introduced by the adverbs "while" (*dum*, *cum*), "as long as" (*quando*, *quamdiu*, *quotiens*); "in every time" (*omni tempore*), "before" (*ante*) and "after" (*postea*), in the *Logica Ingredientibus* he also considers other sorts of qualifications, such as the spatial qualification "where" (*ubi*), or the exclusive determination "only" (*solum*, *tantum*). Abelard is particularly interested in those modal claims that contain a "*dum*" qualification, as for example "It is necessary for Socrates to read while he reads", or "It is possible for Socrates to sit while he stands". To them, he devotes a long and intricate discussion both in the *Dialectica* (206.7-210.180) and in the glosses on *De Interpretatione* (LI *De Int.* 422.778-432.1085).

The third chapter focuses on Abelard's understanding of possibility in

terms of *compatibility with nature*, and provides an analysis of the notions of *repugnancy*, *requirement* and *nature*, which ground Abelard's definitions of possibility and necessity (section 3.1). With this modal paradigm, that he did not invent but inherited from the eleventh– and twelfth-century debates on modalities, Abelard tries to account for the existence of *unrealized possibilities*, i.e., possibilities that are never actualized in time, such as Socrates' possibility of being a bishop (section 3.2). He even tries to account for the existence of *unrealizable possibilities*, such as human beings' possibility of being unable to laugh, that cannot be actualized in any realizable situation (section 3.3), or the possibility that a blind man has to see, or an amputee to walk, that cannot be realized given the actual circumstances of the subjects under consideration (section 3.4).

The existence of contingent events – i.e., of events that are equally apt to happen or not to happen in time – is taken by Abelard as an evident and indubitable feature of the way things are. According to him, contingency characterizes both the natural world, inasmuch as some natural events are not the outcome of a chain of natural causes but happen by chance, and the human world, in the sense that some events that take place are the result of human free will and unconstrained deliberation. Generally speaking, Abelard holds that it is possible for things to be otherwise than they actually are, and that there are many alternative ways in which things might be. As every indeterminist, however, Abelard has to deal with several fatalist arguments, that aim to prove either that the existence of contingent events is *per se* untenable or that it is incompatible with some fundamental and irrevocable principles of logic or theology. In the fourth chapter, I examine the arguments that Abelard considers for logical determinism (4.1) and for theological determinism (4.2), and the various ways in which he attempts to answer them. In the last section of the chapter, I compare the theory of contingency that Abelard maintains in the *Dialectica* and in the *Logica Ingredientibus* with the one he embraces in his theological works, in order to specify more clearly in what sense and to what extent Abelard's indeterminism should be interpreted.

Chapter 1

Modes and Modal Propositions

Abelard's modal logic is an investigation of the logical properties of propositions that contain the modal terms "possibly", "necessarily", "impossibly", "contingently", "truly" and "falsely",[1] as well as the correspondent nominal modes ("possible", "necessary", "impossible", *etc.*). These six modes – that we may label as "alethic modalities" - are not the only modal terms that Abelard acknowledges. However, he explicitly restricts his logical treatment of modes to these six modalities, excluding all the others, for he claims that they are the only modal terms that can be put in a system of logical relations of opposition and equipollence. The investigation of modes and of modal claims is carried out as a part of Abelard's analysis of categorical propositions, in the second book of the *Dialectica* (*Dial.* 190-210). A par-

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[1]These last two modes, that are not usually counted among modal operators in contemporary logic, are nevertheless considered as *modes* by Abelard, both in the *Dialectica* and in a few passages of the *Logica Ingredientibus*. Abelard follows on this point Aristotle who, in *De Interpretatione* 12, lists among modal expressions also the terms "true" (ἀληθές) and its negation "not true" (οὐκ ἀληθές). Given that for Abelard a mode is what modifies a simple categorical sentence, it makes sense that he would include also "truly" and "falsely" among the other modal terms. Abelard's consideration of these two modes' logical behavior is rather limited, for he only states a few inferences that relate these modes to the other alethic modalities: for example, he says that the modal proposition (a) "Socrates is *truly* a bishop" entails (b) "Socrates is *possibly* a bishop" (stating in this way a form of the *ab esse ad posse* principle) and that the same proposition (a) logically follows from (c) "Socrates is *necessarily* a bishop" (*ab necesse ad esse*). He also says that proposition (d) "Socrates is *impossibly* a bishop" entails (e) "Socrates is *falsely* a bishop". Apart from stating these logical inferences, Abelard dedicates some passages of the *Dialectica* to the examination of the meaning of this two modes (*Dial.* 204.18-206.6). This discussion has no counterpart in the *glossae*.

allel discussion of modal propositions is to be found in Abelard's *glossae* to chapters 12 and 13 of Aristotle's *De Interpretatione* (LI *De Int.* 391-433), that are included in the *Logica Ingredientibus.* In these two texts – the *Dialectica* and the *glossae* – the discussion of the syntactical structure and the logical behavior of modal propositions is intertwined with a philosophical investigation of the nature of modalities, that is an inquiry about the *meaning* of the modal terms "necessity" and "possibility" and about their role in metaphysics and epistemology.

In section 1.1 of this chapter, I first try to provide a characterization of what counts as a *mode* and as a *modal proposition* according to Abelard. I then present two distinctions that are drawn by Abelard in his discussion of modal terms:

(i) the grammatical distinction between *adverbial* and *nominal* modes; and

(ii) the semantical distinction between terms that are modes according to their meaning (*in sensu*) and terms that are modes only according to their grammatical position (*secundum positionem constructionis*). We may also characterize this distinction as dividing *proper modes* from *improper ones*).

The second distinction reflects a strategy often employed by Abelard in his logical works, that consists in differentiating the grammatical structure (*constructio*) of a linguistic item from its "real", semantical structure, that is, what we would call its "logical form", and what Abelard calls its meaning, or *sensus.* The identification of these two levels of language is a crucial feature of Abelard's logic, that enables him to distinguish two different kinds of well-formedness (*congruitas*) – i.e., grammatical and sematical – and that is responsible for some of the more interesting novelties of his modal system, such as the distinction between the *de rebus* and *de sensu* interpretation of modal claims. In section 1.1 I also dedicate some space to discuss Abelard's definitions of modal terms and particularly his understanding of the concepts of "possibility" and "necessity", although a more complete analysis of this topic will be carried out in chapter 3 below. Finally, in the end of the section I provide a justification for Abelard's choosing to restrict his investigation of modal terms only to alethic modalities and to use the two modal terms "possibly" and "necessarily" as the basic, primitive terms of his modal logic.

In section 1.2, I focus on Abelard's investigation of the morphology and syntax of modal propositions. I consider three issues that Abelard faces in his treatment of modal propositions:

(i) which are the *terms* (i.e., the subject and the predicate) of modal propositions;

(ii) how do we determine the *quality* (affirmative or negative) of modal propositions; and

(iii) how do we determine their *quantity* (whether they are singular, particular or universal).

The first question is related to the problem of determining how modal propositions relate to simple, non-modal ones. Abelard tries to characterise the relationship between simple and modal caims in terms of the modals 'descending' from the simple propositions, where descent is the operation of modification, and the question to be answered is what gets modified and how. Abelard claims that modal propositions and the corresponding simple ones (for example, "Socrates runs" and "Socrates *possibly* runs") have *the same terms*, and therefore they do not differ with respect to their subject or predicate, but only with respect to the way in which the two terms are related: unqualifiedly in the case of simple predications and *cum modo* in the case of modal ones. The second question, that concerns the *quality* of modal propositions, is stimulated by what Aristotle says in the twelfth chapter of *De Interpretatione*, where he considers the many possible ways in which a negative particle may be placed in a modal proposition and inquires which is the proper way to place negation in order to obtain, from a certain modal proposition, its proper contradictory. The question of negation is decisive in medieval debates on modal logic in Abelard's times and already before him (Martin, 2016, p. 115-125). Also the question concerning the inter-relations between quantifiers and modal terms was already present in the logical debates of Abelard's predecessors. In this respect, eleventh and twelfth century discussions on modalities go far beyond Aristotle's and Boethius' modal logic, that only considered modal systems with non quantified modal propositions. Abelard's analysis of the various ways in which modes, negation and quantifiers may be combined and how the resulting propositions are logically related to one another is a sign of the level of sophistication he was able to reach in his modal logic.

Section 1.3 addresses the problem of interpreting Abelard's distinction between a *de rebus* or a *de sensu* interpretation of modal propositions. Abelard is usually credited with the identification, or at least with the first explicit exposition, of such a distinction, the ancestor of the well known *de re-de dicto* distinction.[2] The distinction points out an ambiguity in the interpretation of modal propositions, that may have a different truth value depending on the *scope* that is attributed to the modal term. A modal term can be interpreted either as being applied to an entire proposition and to the meaning (*sensus*) of such proposition, or it can be interpreted as being applied to the relationship between the proposition's subject and predicate, and consequently between the things (*res*) that are signified by these terms. In the first case, the modal proposition is interpreted *de sensu* (or *de dicto*), in the second it is interpreted *de rebus* (or *de re*). According to Abelard, modality is a *mode of being*, and as such it is primarily applied to things and their properties. He thinks then that modalities are fundamentally *de re*, and only indirectly they apply to propositions and to their *sensus*. Both the *Dialectica* and the *glossae* on *De Interpretatione* offer an account of the *de rebus-de sensu* distinction, although on this issue the two logical works seem to differ significantly. I first provide an account of the *de rebus-de sensu* distinction as Abelard presents it in the *Dialectica* and then an account of the same distinction as it is presented in the *Logica Ingredientibus* (sections 1.3.1 and 1.3.2). Only then, will I offer a comparison between the accounts given in the two works, highlighting the differences and the similarities between the two treatments (section 1.3.3).

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[2]See for example (Kneale, 1962), (Knuuttila, 1993), (Dutilh Novaes, 2004) for the attribution of the distinction to Abelard. Before Abelard's logical texts started to be systematically studied, other medieval authors were thought to be the "inventors" of the *de rebus-de dicto* distinction. Von Wright, for example, attributes this invention to Aquinas. See (von Wright, 1951, p. 1), and (Uckelman, 2008, p. 392, n. 10) on this.

1.1 Modes and Alethic Modalities

1.1.1 Proper and improper modes

The general characterization of modes, advanced by Abelard both in the *Dialectica* and in the *Logica Ingredientibus*, is the following: all those words are said to be *modes* that qualify (*determinant*) a simple predication, i.e., that qualify the way in which what is signified by the predicate term is conjoined to (or separated from) what is signified by the subject term (*Dial.* 191.5-9; LI *De Int.* 392.22-27). If, for example, by means of the categorical proposition "Socrates reads" someone affirms that the property of reading is unqualifiedly (*simpliciter*) conjoined to Socrates, in stating the modal propositions "Socrates reads *well*" or "Socrates reads *rapidly*" he does not only affirm that the predicate is conjoined to the subject, but he also specifies *in which way* it is the case that the two things are conjoined. The adverbs "well' and "rapidly" are modes. Such words, Abelard says, are the ones that could be proper answers to a "*quomodo*?" question, a question by means of which we ask *how* or *in what way* the conjunction or separation between subject and predicated holds:

> Modi autem, unde "modales" dicuntur propositiones, proprie aduerbia sunt quaecumque in "quomodo?" responderi possunt. Ut, si quaeratur: "Quomodo legit?" licet responderi, quantum ad uim interrogationis pertinet: "Bene", "Male", "Celeriter"; haec itaque aduerbia quae uerbi inhaerentiam modificando determinant, proprie modi sunt. (LI *De Int.* 392.22-27)

Every mode is therefore a qualification (*determinatio*) of a certain predication[3] and modal assertions are contrasted with simple predications, that are usually said by Abelard to be *de puro inesse*.[4] This definition of modes is presented by Abelard as a traditional characterization (*Dial.* 194.9-11).

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[3]The converse is not the case, that is not every qualification is also a mode. There are many sorts of qualifications (e.g. temporal *determinationes*) the role of which is not to qualify the way in which the predicate is said of the subject, and therefore are not modes: «Non autem, sicut omnes modi determinationes sunt, ita e conuerso quaelibet determinationes sunt modi; cum enim dico: "Legi heri" (uel: "Lucanum") (uel: "homo albus") suppositae uoces determinationes sunt praecedentium sed non sunt modi, cum in: "Quomodo?" non possint reddi, quae uidelicet interrogatio generalis est ad omnes dictiones quae proprie modi sunt, sicut bene, male, celeriter, necessario» (LI *De Int.* 392.27-33).

[4]On the relation between simple and modal propositions see section 1.2.1 below.

However, the author acknowledges that this definition is satisfied only by some of the terms that are traditionally regarded as "modes". In particular, it is only satisfied by those modes that Abelard calls *proper modes*, or modes *in sensu*. Proper modes may have an adverbial form (such as "necessarily", "rapidly", "well"), or they can have a nominal form ("necessary", "good"). I consider this distinction between adverbial and nominal modes in section 1.1.2 below.

Not all the terms that Abelard considers as modal terms satisfy this definition. Of the six alethic modalities that have been listed above ("necessarily", "possibly", "impossibly", "contingently", "truly", "falsely") only the first one – the mode "necessarily" – is said by Abelard to conform to this characterization. All the other alethic modal terms (such as "possibly", "impossibly", *etc.*) are said to be modes only *improperly*. They are called modes because, when they are included in a categorical proposition, they have the *same grammatical position* that proper modes usually have, that is they are attached to a verb, if they have an adverbial form (as in "*Socrates est episcopus possibiliter*") or they introduce an accusative infinitive clause, if they have a nominal form (as in "*Possibile est Socratem esse episcopum*"). Although from a grammatical point of view improper modes do not differ from proper ones, from the semantical point of view the two sorts of modes do not have the same role, for improper modes are not qualifiers of a predications, and they do not specify in which way the predicate term is conjoined to the subject term. Abelard says therefore that these terms are modes only *quantum ad enuntiationem*, or *secundum positionem constructionis* (or also modes *in voce*, as opposed to modes *in sensu*):

> Cum autem nec "uere" nec "possibiliter" quantum ad sensum modi sint, secundum tamen positionem constructionis Aristoteles modos ea appellat quia eundem locum in constructione possident, uerbo adiecta, quem obtinent proprii modi. Quia, sicut dicimus: "Currit celeriter" (uel: "necessario") ita etiam dicimus: "Currit possibiliter" (uel: "uere") nil tamen in sensu modificantes, ut ostendimus. (LI *De Int.* 394.74-79)

Another way to distinguish proper modes from improper ones is the following: proper modes are the ones that, once they are attached to a certain verb, constitute a qualified predicate whose meaning is a *part* of the same predicate taken unqualifiedly. This is the case for instance for the proper

mode "rapidly": when it is attached to a verb like "run" it constitutes a qualified verb "to run rapidly" the meaning of which is included in the meaning of "run". By saying that the qualified verb "is a part" of the unqualified one, Abelard intends that the addition of a proper mode *restricts the extension* of the predicate to which it is applied (Martin, 2016, p. 118). Since the predicate with a *proper mode* applied signifies a "part" of the corresponding predicate taken unqualifiedly, in virtue of the *locus* from a part, from the fact that a certain inherence holds in a qualified way, it follows that the same inherence also holds unqualifiedly, i.e., from the fact that "S is P *cum modo*" it follows that "S is P". Abelard maintains the validity of this rule of inference both in the *Dialectica* (*Dial.* 194.15-20)[5] and in the *Logica Ingredientibus* (LI *De Int.* 392.39-46),[6] citing Boethius as an authority for the use of the rule.

Note that, if the qualified verb entails the verb taken *simpliciter* in virtue of being a part of it, the converse inference (from the whole to the part) cannot generally hold, because any part is for Abelard (and Boethius) a *proper* part, which means it can not coincide with the whole. Therefore, I should be able to infer the unqualified verb from the verb *cum modo*, but I should not be able to infer the qualified verb from its unqualified form. The idea that the relationship between a modalized predicate and the corresponding unqualified predicate is a sort of *part-whole* relation was already present in some eleventh and twelfth century debates on modal propositions antedeting to Abelard's *Dialectica*. We may find the same idea, for example, both in Garlandus's *Dialectica* and in other twelfth century debates on modalities, in which Boethius is again credited with being the source of the principle (Martin, 2016, p. 117). I refer below to this rule of inference as the "Boethius's Rule". Only proper modes satisfy this rule, while improper ones do not. Let us consider for example the mode "possibly", that, according to Abelard, is improper. Abelard says that from the fact

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[5] «Ait in Topicis Boethius quod aliquid cum modo propositum pars accipiatur, et simpliciter acceptum totum intelligatur, ut: "cito currere" et "currere": "currere" enim totum est, "cito currere", autem pars; unde et dicitur quod "si cito currit, currit" sed non conuertitur».

[6] «Unde etiam Boethius in Topicis, cum est modus in sensu, uult ex aliquo modificato ipsum simpliciter inferri, ut, si anima mouetur irascibiliter uel aliquo alio modo, utique et simpliciter mouetur, quippe modus appositus – qui uerbum determinat – quasi partem in modo facit, ut sit irascibiliter moueri quasi pars moueri, quae uidelicet ipsum ponat sed ab ipso non ponatur».

that Socrates is *possibly* a bishop it does not follow that Socrates is a bishop *unqualifiedly*. Also the two modes "falsely" and "impossibly" clearly do not conform to Boethius' rule, for from the fact that Socrates *falsely* runs or that Socrates *impossibly* runs I am never allowed to infer that Socrates runs (see *Dial.* 194.37-195.3 and LI *De Int.* 392.33-37). These three terms must be considered modes only improperly, *in voce* or *secundum positionem costructionis*.

This is also the case for the term "truly", which is not considered by Abelard to be a proper mode. For even if it is true that from the fact that Socrates truly runs it correctly follows that Socrates runs *simpliciter*, nevertheless, this is not enough to be considered a proper mode, because proper modes must also satisfy the condition that the converse inference, from the unqualified verb to the verb taken as qualified by the mode, must not generally hold. But Abelard shows that from any verb that is qualified by the mode "truly" we can infer the corresponding unqualified verb. For this reason, the verb taken with the adverb "truly" is not a part of the verb taken unqualifiedly, and it does not conform to Boethius' rule (see *Dial.* 194.34-37; LI *De Int.* 393.63-394.73)

> Nec fortasse "uere" aduerbium proprie modus est in sensu, licet in Primo Hypotheticorum Boethius dicat in hac propositione: Socrates uere philosophus est "uere" modum esse propositionis; non enim "uere" inhaerentiam philosophi uel alicuius determinare uel modificare uidetur, cum quicquid inhaeret uere inhaereat et e conuerso. Nisi forte "uere" per quandam expressionem et excellentiam accipiatur, ac si dicatur: Philosophus est uere id est: Indubitanter uel multum in philosophia habundans; si autem apponatur "uere" simpliciter pro rei ueritate, nulla est in sensu modificatio uel determinatio, quia idem est esse philosophum quod est in ueritate esse philosophum.

The adverbial mode "necessarily", on the contrary, does qualify the simple inherence to which it applies, and it is by all means a mode according to meaning, not only according to its grammatical position. For from the verb qualified by "necessarily", I can always infer the corresponding unqualified verb, while the converse inference is not generally valid:

> "Necessario" autem proprie modus uideri potest, cum partem in natura faciat, ut scilicet "necessario esse hominem" pars sit in natura "esse hominem". Unde si necessario est homo, consequitur ut sit homo;

sed non conuertitur. In natura autem partem diximus, eoquod, si actum rei consideremus, nihil esse hominem necessario inueniemus. Est itaque "necessario" quantum ad sensus proprietatem recte modus, cum uidelicet esse necessario sit esse aliquo modo. (*Dial.* 195.4-10)

I have spoken so far only of proper and improper *adverbial* modes, but Abelard makes clear that this distinction between proper and improper modes applies to *nominal* modes as well:

Et ita habemus quosdam modos aduerbiales, quosdam casuales; et de utrisque quosdam proprie modos secundum sensum, quosdam quantum ad constructionem solam; nam "necesse" uel "necessario" proprie modi sunt, "possibile" uel "uerum"' siue eorum aduerbia non ita. (LI *De Int.* 394.86-90)

In the following section, I present Abelard's distinction between *adverbial* and *nominal* modes.

1.1.2 Adverbial and nominal modes

As I said above, all adverbs that qualify the way in which a predicate is conjoined to (or separated from) a subject are proper modes. Adverbs of this sort are for example "well" (*bene*) or "necessarily" (*necessario*). Also other sorts of adverbs can be called modes, if they have the same grammatical position that proper modes have, like "possibly" (*possibiliter*), "impossibly" (*impossibiliter*), "truly" (*vere*). Many of these adverbs also have a corresponding nominal form, in our example respectively the names "good" (*bonus*), "necessary" (*necesse*), "possible" (*possibile*), "impossible" (*impossibile*), "true" (*verus*). Although adverbs and names have a different function grammatically, according to Abelard they both count as modes, insofar as they perform the same semantic role of qualifying a predication, either properly or improperly (*Dial.* 191.1-5; 9-11). From a semantic point of view, then, different grammatical expressions like "It is possible for Socrates to be a bishop" and "Socrates is possibly a bishop" are the same (*Dial.* 191.15-16), and are both considered by Abelard to be *modal propositions*.

Just as modes can be of two kinds, adverbial and nominal, so modal propositions might have an adverbial grammatical construction or a nominal one. Note that the distinction between adverbial and nominal modes – and adverbial and nominal modal propositions – is again a distinction operating

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at the level of grammar, and not at the semantical level. It is important to separate the grammatical, "superficial" structure of a sentence, that may be adverbial or nominal, from its semantical structure, that can be *de rebus* or *de sensu*, depending on the scope the modal term is given (this semantical distinction will be analyzed in section 1.3 on page 48 below). Abelard thinks that (almost) every modal proposition – independently of the adverbial or nominal grammatical form in which it is expressed – could be understood in a *de rebus* interpretation or in a *de sensu* interpretation. The semantical form, however, is not totally unrelated to the linguistic form, because Abelard seems to think that an adverbial structure somehow "mirrors" a *de rebus* semantical structure, while a nominal and impersonal form suggests that the modal claim should be read *de sensu*. However, in this work he also thinks that we can unproblematically translate every adverbial form into a nominal one and *viceversa*. In the *Logica Ingredientibus*, Abelard advances instead the idea that there are exceptions to this, for he says that there are nominal propositions which cannot be translated into a corresponding adverbial form, and that they are only interpretable as being *de sensu*, not *de rebus*. One such a proposition is for example "*Id quod non est possibile est esse*" (LI *De Int.* 408.415). These nominal constructions are the ones that, according to Abelard, are *impersonal both with respect to their grammatical form and with respect to their meaning* (see section 1.3.2 on page 67). The majority of nominal modal propositions, on the contrary, are impersonal in grammar but personal in meaning. With the exclusion of few exceptions, Abelard thinks that every modal proposition can be understood as being *de rebus* or *de sensu* with respect to its meaning, and can be expressed unproblematically by means of an adverbial and a nominal grammatical form.

Consistently with the fact that he takes the *de rebus* interpretation as being more fundamental than the *de sensu* one, at least in the *Dialectica*, Abelard explicitly gives to adverbial forms a sort of priority among modes and among modal propositions, while he suggests that nominal constructions are said modal only derivatively:

> Resoluuntur enim huiusmodi nomina in aduerbia, quae uidelicet aduerbia proprie modos dicimus et inde aduerbia uocamus quia uerbis adposita eorum determinant significationem, sicut adiectiua nomina substantiuis adiuncta, ut cum dicitur: "homo albus". (*Dial.* 191.11-15)

Abelard is not alone in assigning a sort of priority to adverbial modes and adverbial modal propositions. Also Garlandus, in his *Dialectica*, distinguishes between adverbial and nominal modal claims and assigns to the first ones a sort of priority among modal propositions, saying that all nominal modal propositions can be rephrased, or reduced, to the corresponding adverbial ones (Martin, 2016, p. 116 ff.). Other sources of the time testify that a debate about the priority of the adverbial construction over the nominal one was quite widespread at the end of the eleventh and beginning of the twelfth century. It seems that William of Champeaux, for instance, maintained that all nominal modal claims could and should be reduced to their corresponding adverbial forms, while Goselin of Soissons rejected this opinion and did not think that adverbial modes were more fundamental than nominal ones (Martin, 2016, p. 118 ff.). Despite the quite widespread preference for the adverbial form, logical sources of the time are usually based on the study of modal propositions that have a nominal form, because the logical structure of such sentences is more problematic. The standard structure of Abelard's modal sentences, for instance, is one in which the mode is a noun and it is followed by an infinitive clause in the accusative, in this way:

(i) "*Possibile est Socratem esse episcopum*".

Even more often, Abelard places the subject, in the accusative case, as preceding both the mode and the infinitive clause, as in this proposition:

(ii)"*Socratem possibile est esse episcopum*".

More rarely we find modal propositions that have an adverbial structure, such as:

(iii) "*Socrates possibiliter est episcopus*".

While the translation of latin adverbial modal proposition is quite unproblematic, for proposition (iii) is easily translated in "Socrates is possibly a bishop", the question of how we should render into English the first two nominal Latin expressions is not uncontroversial. A natural translation would be to render them with the mode in a nominal form followed by a *that* clause, in this way: "It is possible *that* Socrates is a bishop". This translation, however, suggests that the modal proposition must be interpreted with a *de sensu* reading of the modal term, so that the mode is applied to

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the whole meaning of the proposition that is introduced by the conjunction "*that*". Such a translation would be misleading, because Abelard uses nominal forms like the ones listed above without committing himself to a *de rebus* or a *de sensu* interpretation of the modal term. Our English translation should then attempt to maintain this neutrality with respect to the semantic form of the proposition. The translation I propose of such latin forms is the following:

(i) "It is possible for Socrates to be a bishop"; and

(ii) "For Socrates it is possible to be a bishop".

This English translation of Abelard's nominal propositions is introduced by Martin in (Martin, 2016).[7] I think that this translation has the merit of being almost as flexible as Abelard's latin expression, for it allows to change the order of the words, placing, for example, the subject or the mode at the beginning, in the middle or at the end of the sentence. Moreover, this translation avoids the use of the conjunction "that", which is naturally associated with a *de dicto* interpretation of modes and to which nothing corresponds in the latin structure.[8] Perhaps, the same objection might be directed to preposition "for" used in this translation, since one could claim that the use of particle "for", followed by the subject term, naturally suggests that the mode is interpreted *de rebus*. Furthermore, a translation that uses a "for" form would be unsuitable to render those propositions that are, according to Abelard, impersonal not only with respect to grammar but also with respect to their meaning, and that cannot be interpreted in a personal way, such as "*Id quod non est possibile est esse*" (LI *De Int.* 408.415). Unfortunately, neither alternative is perfectly suitable to render the latin, and if we want to translate Abelard's propositions in English we must keep

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[7]Martin also chooses to place the preposition "for" in parenthesis, with the result of having a more literal translation of the latin, and maybe also of weakening the natural tendency to interpret these English propositions in a *de rebus* way.

[8]Another reason to avoid using "that" in the English traslation is that in later times some medieval logicians make a distinction between the meaning of modal propositions formulated with an accusative infinitive construction and the meaning of the corresponding claims containing a "*quod*" clause, e.g. "*Possibile est Socratem sedere*" and "*Possibile est quod Socrates sedeat*". This idea is advanced for instance in the logic of the Meludinenses. Because latin claims containing a "*quod*" construction would be naturally translated in English with a "that"-clause, it is important to use a different transation for latin claims containing an accusative infinitive structure. I thank Christopher Martin for bringing the example of Meludinenses' logic to my attention.

in mind that the grammatical structure is generally neutral with respect to the semantic level, and that the nominal form of propositions does not necessarily imply a *de rebus* interpretation, nor a *de sensu* one. In the next section I investigate Abelard's reasons for limiting his treatment of modal terms to alethic modalities, and I suggest that the two terms "necessarily" and "possibly" are the only primitive modal terms of his system, inasmuch as all the other alethic modes are reduced by Abelard to them. I shall also consider briefly Abelard's theory on the nature of possibility and necessity, since it will be useful to understand this when we come to some parts of his modal logic. I will however return to this topic in more detail in chapter 3 below.

1.1.3   Alethic modalities

Many sorts of adverbs and names satisfy the characterizations Abelard gives of modes, either in virtue of being qualifiers of an inherence, or in virtue of occuring in a certain grammatical position in categorical propositions. Terms like "rapidly", "well", "it is useful", "it is right" are modes and, when added to simple predications, transform them into modal predications. However, in the logical discussion of modal propositions, Abelard limits himself to considering only a few modal terms: "possibly" "contingently", "impossibly", "necessarily", "truly" and "falsely", together with the corresponding nominal forms. In this choice, the author follows Aristotle, who restricts his treatment of modalities in the *De Interpretatione* 12-13 to the modal terms "δυνατόν" (*possibile*), "ἐνδεχόμενον" (*contingens*), "ἀναγκαῖον" (*necesse*) and "αδύνατον" (*impossibile*). Aristotle also includes "ἀληθές" (*verus*) and its negation as modal terms in some passages of his *De Interpretatione*. Abelard follows Aristotle also in justifying this restriction: the reason is that these modes, differently from the other modal terms, maintain a relation of equipollence, and therefore their logical behavior can be put down in a logical system.[9]   Abelard holds this view both in the *Dialectica* and in the *Logica Ingredientibus*:

> Cum autem plures sint modi qui modales faciant propositiones, horum
> naturam tractare sufficiat quorum propositiones ad se aequipollentiam

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[9]Abelard seems to assume, albeit not explicitly, that there cannot be modal logical systems whose operators are different than alethic modalities, inasmuch all other modal terms cannot be put in a system of reciprocal inferences.

habent, ut sunt: "possibile", "contingens", "impossibile", "necesse", quorum propositiones Aristoteles inde ad tractandum elegit quod ad se habeant aequipollentiam. (*Dial.* 191.37-192.3)

Cum autem multi sint modi tam aduerbiales quam casuales, hic tantum Aristoteles quatuor modorum propositiones diligenter exsequitur, contingentis scilicet, possibilis, impossibilis, necessarii, quae ad inuicem maxime sunt affines et per omnes modos aequipollentes, siue de sensu siue de rebus expositae. (LI *De Int.* 408.438-442)

On closer inspection, we may also say that, excluding the two modes "truly" and "falsely", Abelard's modal system relies only on two primitive modal terms: "possibly" and "necessarily". For the other two modal terms – "contingently" and "impossibly" – are both defined by Abelard in terms of possibility: the first is said to have entirely the same meaning as "possibly" (*Dial.* 193.31), the second is said to be the negative term (*abnegativum*) of possibility, and to mean nothing else than "not possibly" (see *Dial.* 194.5-6; LI *De Int.* 395.97-99). This interdefinability between "possible", "impossible" and "contingent" is explicitly acknowledged by Abelard, who says, at least once, that Aristotelian modal logic consisted of only two modalities (*necessity* and *possibility*) because his other two modal expressions could be defined in terms of possibility:

Hic Aristoteles circa duos tantum, "possibile" scilicet et "necesse" qui ad se aequipollentiam habent, maxime uersatur. Cum enim "contingens" et "impossibile" ponat, utrique modi ad sensum "possibilis" reducuntur, quippe "contingens" idem est quod "possibile". (LI *De Int.* 394.92-395.95)

There are therefore only two primitive modes in Abelard's system. But it would be wrong to go further and suggest that also these two modes may be interdefined, so to have a single primitive modal term, to which the meaning of all the others are reduced. For the two modal terms "possible" and "necessary" are not *interdefinable*, according to Abelard. Although these two modes can be put in a mutual relation of equipollence, saying for example that "necessarily φ" is equipollent to "not possibly not-φ", or conversely that "possibly φ" is equipollent to "not necessarily not-φ",[10] the relation

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[10] Abelard himself traces this relation of equipollence among necessity and possibility (see section 2.2 below).

occurring between these two modalities is not conceived by Abelard as a sort of *interdefinability*, as the relation between possibility and contingency, or possibility and impossibility, is. While in fact the expression "possibly φ" has for Abelard *the same meaning* as "contingently φ", and the expression "impossibly φ" has *the same meaning* as "not possibly φ",[11] the relation of equipollence between possibility and necessity is not a relation of *having the same meaning*. Furthermore, the equipollence between possibility and necessity is not taken by Abelard as generally valid, but it is maintained only under certain conditions, in particular, under the condition that all terms making up modal propositions are not empty (I advance this interpretation in section 2.1 below). It would be wrong, then, to interpret Abelard's system as having one single primitive mode and to define all other modalities in terms of it. To represent his modal system, we need at least two primitive modal terms, possibility and necessity. Let us now briefly consider what is the meaning that Abelard assigns to these two modal terms. This will be of help to understand some parts of Abelard's modal logic. A more extensive treatment of the nature and meaning of Abelard's concepts of possibility and necessity, and of their role in Abelard's philosophy, will be object of chapter 3 of this work.

Both in the *Dialectica* and the *Logica Ingredientibus*, Abelard interprets possibility in terms of *compatibility with nature*. He says for example that what is possible for a certain individual is what is compatible with (i.e., not repugnant to) the nature of that individual. Another formulation he uses is that possible is what is "allowed" or "permitted" by the nature of something. Abelard is always careful in distinguishing what is possible from what is actual at some moment of time, and says that "possible" or "contingent" must not be taken to mean what *actually is the case* but what *might be the case*. Indeed, there are many possible things (that is, many things that are compatible with nature) which were never actualized in time and will never be. In a well-known passage of the *Dialectica*, Abelard refers to the possibility that Socrates has of being a bishop, which he takes as a real possibility for Socrates, even if it is never realized in time, in so far that it is not repugnant to the nature of Socrates (nor to the nature of any other human being) to be a bishop (See *Dial.* 193.31-194.5). This understanding of possibility as "compatibility with nature", as well as the example affirm-

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[11] I defend this idea in section 2.1.3 below.

ing the possibility for the layman Socrates to be a bishop, is not invented by Abelard, but can be found in other logical works of the eleventh and twelfth century, for example in Garlandus Compotista's *Dialectica* and in the two anonymous Orléans treatises, designated by Iwakuma as *M1* and *M3*, preserved in manuscript Orléans 266 and in Paris BN Lat 13368[12] (Martin, 2016, p. 117). Martin suggested that such an exposition of possibility was indeed a standard characterization in twelfth century modal logic.

Abelard's definition of possibility rests then on the two basic concepts of *repugnancy* and *nature*. In section 3.1 below I try to provide an extensive characterization of these two concepts, on which a great part of Abelard's theory of modalities is based. I give here only a short account of how we should understand these two concepts, for they will come into view already in some parts of this chapter, and a basic understanding of them will be important for understanding Abelard's semantics for *de rebus* possibility propositions. The relation of *repugnancy*, which may hold between two predicates, between two propositions or between a predicate and an individual's nature, is defined as a relation of opposition (i.e., contrariness or contradictoriness) between two items: two terms are repugnant if they cannot be simultaneously predicated of the same subject, two propositions are repugnant if they cannot be simultaneously true. The two predicates "rational" and "irrational", for example, are repugnant to one another, since there is no possible situation in which they both simultaneously inhere in the same thing. A certain predicate is repugnant to the nature of a thing if it is in opposition with at least one of the essential feaures (i.e., the substantial forms) of that thing.

Every existing substance has, according to Abelard, a nature (see 3.1.1 below). It is exactly in virtue of having a nature that things can be sorted out into natural kinds or categories. Abelard says in some passages of the *Dialectica* that distinct individuals belonging to the same natural kind, say Socrates and Plato, have the *same* nature. This claim could sound problematic when considered together with Abelard's nominalism, for *natures* would turn out to be something that distinct individuals actually *share* or have in common. However, we could still interpret Abelard's idea that many individuals have a same nature consistently with his nominalism if we con-

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[12]M1 = Orléans, Bibl. Municipale, 266: 166a-169a; Paris, Bibl. Nationale, lat. 13368, 175va-177ra. M3 = Orléans, Bibl. Municipale, 266: 252b-257b.

sider the nature of each individual as being *numerically different* from the natures of all other individual substances of the same kind (insofar as it is constituted by individual properties that belong exclusively to one substance) while being simultaneously *the same* nature (in the sense that these individual natures are all instances of the same set or bundle of substantial tropes).[13] The nature of Socrates will be then represented as the set:

$Nat_{Socrates}$: {Socrates' animality, Socrates' rationality, Socrates' mortality, Socrates' bipedality...},

and it would be numerically different from, say, the nature of Plato:

Nat_{Plato}: { Plato's animality, Plato's rationality, Plato's mortality, Plato's bipedality...},

even if they are both instances of the "same" nature

Nat_{homo}: {animality, rationality, mortality, bipedality...}.

In order to properly represent Abelard's natures, these "sets" must be considered as having a definite structure, i.e., as being hierarchically ordered so to contain the generic form of the individual sustance and then all its *differentiae.* The exemplifications of natures given here are only indicative, and do not fully represent what the nature of Socrates, Plato, or human beings actually consists in. To give a full characterization of these natures would be much more complicated and, Abelard thinks, mostly inaccessible to our epistemic capacities. Indeed, Abelard insists that we are largely ignorant about what does constitute the nature of human beings, and of all other substances, and so these natures contain many substantial forms that we are unaware of.

The concept of possibility is conceived by Abelard in terms of what is not repugnant to the nature of something: it is possible to predicate of a certain individual everything that is not opposite to the predicates constituting its nature. So, for example, it is true to say that Socrates is possibly a bishop, for there is nothing in the nature of Socrates that is opposite to that predicate. On the contrary, it is not possible for Socrates to be irrational, for the predicate "irrational" is contrary to the predicate

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[13]For the interpretation of Abelard's ontology in terms of trope antirealism see in particular (Martin, 1992). I will return in more detail on this interpretation in section 3.1.1 below.

"rational", that constitutes Socrates' nature (being irrational is *repugnant to* the nature of Socrates). Several interesting consequences follow from this definition of possibility. First, the possibilities of an individual are always the same and they are not varying through time: since the nature of a thing does not vary during this individual's lifetime, also its possibilities (that are only dependent on such a nature) do not vary. An individual then has the same set of possibilities and necessities in any moment of its life, and the possibilities he had in the past are just the same as the possibilities he will have in the future. Second, the external circumstances have no role in determining the possibilities of a certain individual. What is possible for a thing is not influenced by anything that is external to its own nature. Third, given that all individuals belonging to the same natural kind have the same nature, they all have the same possibilities. Furthermore, Abelard's possibilities have nothing to do with what is *potential* – that is, what is *actualizable* or *realizable* – for an individual. There are many things that are possible, according to Abelard, without being realized or actualized in any possible situation. It is possible, for example, that a man is unable to laugh, although in no possible situation is there something which is a man but not able to laugh. It is also possible that a blind man sees, or that an amputee walks, for the predicates "to see" and "to walk" are not incompatible with any of the predicates constituting the nature of human beings. The possibilities captured by Abelard's definition are not then the *potentialities* or the *powers* of individual, for they do not represent what an individual *is able to do*, or *to be*, but only what its nature allows that is predicated of it.

Nevertheless, Abelard also provides other characterizations of possibility, with which he aims to capture a stricter – and perhaps more philosophically relevant – sense of the word: for example, he talks at times of an individual's possibilities as what is actually *realizable* for that individual, or he distinguishes what is possible for something in the *actual situation* from what might be possible for the same thing in *different counterfactual situations*. Some of the various senses that Abelard attributes to possibility are explored in (Martin, 2004a): Martin distinguishes for example a sense of "possible" pointing out at the set of possibilities that are open to an individual in the future, given its history up to a certain moment of time; another sense of "possible" indicating what was compatible with the nature of a certain indi-

vidual in its past, but it is not anymore realizable for him; again, a sense of "possible" attributed to what is not realizable by the individual in itself but which the individual may come to have thanks to some extrinsic (probably divine) intervention. I list here some of the senses of Abelard's "possibility" that will be explored at lenght in sections 3.1-3.5 below.

(i) that which is possible is everything that is compatible (not repugnant) with the nature of an individual (e.g. *it is possible for Socrates to be unable to laugh*);[14]

(ii) the possible is what is actually realizable for an individual, given its physical constitution or the external circumstances (e.g. *it is possible for Socrates to fight well, it is possible for Milo to run easily*);[15]

(iii) the possible is what is true in some counterfactual possible situation, even if it is not true in any time of the actual history (e.g. *it is possible for Socrates to be a bishop*);[16]

(iv) the possible is what is actually realizable for an individual in the future, as opposed to what was actually realizable for it in the past and it is not anymore (*it is possible for a blind man to see, it is possible for a crippled man to fight*);[17]

(v) the possible is what may be brought to effect by God, although it is not compatible with the actual and future circumstances (e.g. *it is possible for an amputee to walk in the future*, thank to some miraculous act that gives him his feet back);[18]

(vi) the possible is what is compatible with the body or the corporeal *substantia* of a certain individual (e.g., *it is possible for Socrates – qua body – to be dead*, or *it is possible for the substance of this man to be irrational*).[19]

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[14]Abelard considers this example in his glosses on Porphyry's definition of *propria.* See sections 3.2 and 3.3 below.

[15]This is what Abelard calls possibilities *cum determinationes*, see sections 3.4.

[16]See section 3.2 below.

[17]These examples of Abelardian possibilities were considered by (Knuuttila, 1993, p. 90-1) and (Martin, 2004a, p. 226-235).

[18]This sense of possibility is examined in (Martin, 2004a, p. 233).

[19]See 3.5 on page 188.

All the various senses of possible listed here are reducible according to Abelard to the first broad sense of possibility as compatibility with nature, which is consistently held by Abelard to be the proper interpretation of possibility. The sets of possibilities defined by senses (ii)-(vi) are all proper subsets of the set of possibilities defined by (i).[20]

While Abelard is quite consistent in conceiving possibility as *compatibility with nature*, the concept of "necessity" does not have such univocal definition in Abelard's logical works. I think we could come up with (at least) three different characterizations of the concept of necessity given by Abelard in the *Dialectica* and in the *Logica Ingredientibus*. These are the three characterizations:

(i) necessary is what is required by the nature of a thing;

(ii) necessary is what is always true, or what the contradictory of which is always false;

(iii) necessary is what is in a certain way and cannot be otherwise.

Let us examine the three definitions one by one.

(i) At times, "necessary" is said to refer to what is *required* (*exigitur*) by the nature of something. This definition corresponds to the definition of possibility given so far, which is in terms of the *nature* of a thing.[21]

> Sed, ut superius dictum est, per "possibile" id demonstratur quod natura patiatur, per "necesse" quod [dicit] exigat et constringat".

Along the characterization I proposed of nature above, what is *required* by the nature of a thing are the predicates that refer to this thing's substantial properties. If the nature of Socrates is representable by the set

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[20]Let us note that the sense of possibility expressed in (v) – the possible is what could be brought about by God in the future – is also included in the first sense of possibility, as what is generally compatible with the nature of things: even if the cause of these possible events would be supernatural, in fact, what is said to be possible (e.g., that feet are restored by God in the body of the amputee) is still something that is *allowed by the nature* of the amputee. Although Abelard does not say this explicitly, all things that God can bring about miraculously in the world might be against the usual natural and physical laws but not against the natures of things, i.e., against their essential features. Indeed, since God cannot cause contraries to exist in the same thing, the only way He could have of acting against the nature of something – i.e., of causing an individual to have different substantial features than the ones it actually has – would be by replacing these features with different ones. But the result of this act would not be a same individual with a different nature, but rather a different individual, belonging to a different species specialissima and perhaps a different species and genus.

[21]Sometime Abelard does not speak of the nature of a thing but of nature in general.

Nat$_{Socrates}$: {Socrates' animality, Socrates' rationality, Socrates' mortality, Socrates' bipedality...}, as was suggested, we have that what is required by the nature of Socrates is that he is animal, rational, mortal, and that he has many other properties that we are unaware of. Because each individual has, according to Abelard, a certain nature, for any individual substance there is a determined (though usually unknown by us) set of forms that constitute its nature. Therefore, according to this definition of necessity we would have that every substance, whether it be a contingent or a sempiternal subtance, has at least some properties of necessity.[22]

(ii) In other passages of the *Dialectica*, "being necessarily φ" is defined as what is true *in all times*: an individual S is necessarily φ if the proposition "S is φ" is always the case, or if its contradictory proposition "It is not the case that S is φ" is always false. The connection between necessity and time is often used by Abelard in the *Dialectica*, both in the treatise on modalities and in the treatise on topics, where he explicitly says that being necessarily means to be sempiternally, or to be sempiternally true.[23] This connection between modality and time is, on the other hand, much less frequent in the glosses on *De Interpretatione*. There are however a few passages in LI where Abelard uses this idea. For instance, he refers to it once within his literal commentary to the Aristotelian text, where he says that those things of which necessary propositions are true are prior both in nature and status to other things, for certainly things which are necessary are sempiternal and they are the principles of other things:

> Disposuit superius ita ordines modalium quod propositiones de "necessario" ultimas collocauit. Nunc autem ostendit eas naturaliter de-

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[22]Abelard insists however in many places, especially in the *Dialectica*, that necessary properties can only be properly predicated of sempiternal beings. On this point, see in particular *Dial.* 193.26-29; *Dial.* 195.7-8; *Dial.* 201.2-9.

[23]See in particular *Dial.* 272.10 -15: «Necesse autem hic quod inevitabile dicitur accipimus, cuius quidem sempiternus est actus, sive circa esse sive circa non esse, id est cum sit, non potest non esse, vel cum non sit, non potest esse, nec in esse vel in non esse principium habuit, sed semper vel est ita vel non est», 278.20-22: «Necessitas autem determinata et incommutabilis veritas eius consistit»; 279.10-13: «Cum ita per "est" verbum "animal" "homini" copulatur, actus tantum inhaerentiae demonstratur; cum vero per "si" conditionem idem eidem coniungitur, incommutabilis consecutionis necessitas ostenditur. Quod autem necessarium est, sempiternum est nec principium novit», 282.25-33: «Patet itaque ex suprapositis omnes consequentias veras ab aeterno veras esse [...] Unde et earum necessitas est manifesta, quae nulla rerum praesentia vel absentia potest immutari [...] illa [consequentia] necessitatem consecutionis ostendere quae quidem, ut diximus, ipsis quoque rebus destructis incommutabilis consistit».

> bere praeponi caeteris propositionibus, quia scilicet res de quibus uerae
> sunt propositiones necessarii, priores sunt tam natura quam dignitate
> caeteris rebus; quippe res, quae necessariae sunt, sempiterne sunt et
> principia aliarum rerum, ut Deus et mens ex ipso nata, quae eterna
> sunt (LI *De Int.* 472.620-30).[24]

He also makes use of the same idea in LI *De Int.* 428.962-963, where he says
that if something is necessary, then it is immutable («si enim necesse est,
incommutabiliter verum est»).

(iii) In some passages of Abelard's work, the term "necessary" is said to
refer to what is "inevitable", i.e., to what "is actually in a certain way and
cannot be otherwise". This sense is said in the *Dialectica* to be the *proper
meaning* of necessity:

> "Necessarium" autem id dicit quod ita sit et aliter esse non possit. Hoc
> loco "necessarium" idem accipiatur quod "ineuitabile"; quae quidem
> consueta et propria significatio est "necessarii". (*Dial.* 194.7-9)

According to this definition, we have it that a subject S is necessarily φ iff S
is actually φ and S cannot be otherwise, that is, it is not possible for S not
to be φ.

It is important to note that both the second and third characterizations
of necessity makes it impossible to formulate *true necessary statements about
contingent beings.* Any proposition of the form "S is φ" where "S" refers
to a contingent, non sempiternal being (i.e., any created individual, who
came into existence at some moment of time and will cease to exist at
some time) will turn out to be false in those situations in which the subject
does not exists, and therefore it would not be *sempiternally true.* Also,
any proposition of the form "It is not the case that S is φ", where "S"
is a contingent being, would be true in some possible situations, i.e., those
situations in which the thing signified by "S" does not exist. On the contrary,
the first characterization of necessity allows us to formulate true necessity
propositions about non sempiternal beings, for along that definition it would
be true to say, for instance, that it is necessary for Socrates to be rational,
for being rational is required by his nature. The three characterizations of
necessity are then inconsistent in this respect.[25] It seems that Abelard was

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[24]I thank Martin for pointing this passage to my attention.
[25]This problem does not arise if we take only omnitemporal beings into consideration.

aware of the inconsistency among characterizations (i)-(iii) above, and tried to provide a solution to it by saying that propositions about necessity could only be true if their subject is a sempiternal being, and that since the proper meaning of necessity is the one spelled out in definitions (ii) and (iii) it is either improper or false to state that also contingent beings have some of their properties *necessarily*. This idea is rehearsed in several passages of the *Dialectica*:

> Aut qualiter "necessario" inhaerentiam hominis determinat, cum nullam habeat ad aliud ex necessitate inhaerentiam [...]? Nulla enim res homo est ex necessitate.(*Dial.* 193.26-29)

> Si actum rei consideremus, nihil esse hominem necessario inueniemus. (*Dial.* 195.7-8)

> In his enim quae sempiterna sunt, solis necessitas ista contingit. [...] Videtur itaque mihi sic exponendum "necessarium" quod illud ex necessitate est <illud> quod ita est illud quod non potest aliter esse, id est non potest non esse, ut Deus necessario immortalis est; sic enim est immortalis quod non potest aliter esse, id est non potest contingere ut non sit immortalis. (*Dial.* 201.2-9)

If we speak properly, then, we must limit ourselves to predicate necessary properties only of those things that eternally exist, or, as Abelard says, the existence of which is not preceded by potency:

> In his itaque solis necessitas contingit quorum existentiam uel actum potestas non praecessit, ut in Deo [...] Quaecumque igitur uel aliquando non fuerunt aliquod uel aliquando non erunt, non sunt ex necessitate illud. Si enim umquam fuerunt uel erunt sine eo, non exigit illud ex necessitate natura. (*Dial.* 201.12-17)

In the LI, Abelard attempts to provide another solution to the problem of characterizing necessity and to account for its equipollence with possibility.

Let us in fact consider a sempiternal being, as God, and one of his necessary properties, for example the property of being immortal. According to the second and third definition of necessity, God necessarily has this property if the proposition "God is immortal" is always true and if it there is no possible situation in which the proposition "It is not the case that God is immortal" is true. Because these two conditions are satisfied, both because whenever God exists the property of immortality belongs to him and because there is no possible situation in which God does not exist, the proposition "It is necessary for God to be immortal" is true.

There, he maintains that a proposition of the form (a) "It is necessary for S to be φ" is equipollent to the proposition (b) "It is not possible for S not to be φ". However, he explicitly chooses to restrict this equipollence between possibility propositions and necessity propositions to only those situations in which the subject term refers to something that exists (see section 2.1.3 below). In those situations in which Socrates does not exist, then, the two propositions (a) and (b) are not equipollent, according to the position endorsed in the *Logica Ingredientibus* (LI *De Int.* 420.733-421.751).[26] In order to solve the inconsistency raised by definitions (i)-(iii) of necessity Abelard attempts then two ways out: the first, which I think prevails in the *Dialectica*, consists in saying that only sempiternal substances are the proper subjects of true necessity propositions; the second, which I think is the one to which Abelard propends in the LI, consists in maintaining that contingent beings could also be the subjects of true necessity propositions and in establishing that there could be an equipollence between possibility and necessity propositions only under the condition that all terms included in these propositions actually refer, i.e., that there are no empty terms. This last point will be argued in detail in section 2.1 below.

1.1.4 Modal terms as "indefinite" terms

Before turning to the investigation of Abelard's modal propositions, I shall here address another problem concerning alethic modal terms: to which *category of words* do these modes belong? As it is known, Abelard distinguishes three different categories to which all words belong: the category of *names* (see *Dial.* 121-129), the category of *verbs* (*Dial.* 129-142) and the category

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[26] «Sed uidentur nobis huiusmodi aequipollentiae modalium propositionum tantum aequipollentiam custodire re subiecti termini permanente, uelut tantum dum Socrates permanet, sicut et illae quarum aequipollentiam superius ascripsit praedicato per finitum et infinitum uariato. Quamdiu itaque Socrate permanente uera est: "Non possibile est Socratem esse albedinem" (uel: "Impossibile est") uera est etiam quae ait: "Necesse est Socratem non esse albedinem" et e conuerso. Cum enim uelimus in ui affirmatiuae categoricae accipere: "Necesse est Socratem non esse albedinem" oportet ad hoc ut uerum sit rem manere sub subiecto uocabulo, ut supra meminimus. Si uero in sensu aliarum accipiamus, ut quidam uolunt, erit negatiua in sensu: "Necesse est Socratem non esse albedinem" sicut illae et ita semper uera est cum illis. Sunt enim quidam qui omnes propositiones eiusdem ordinis in eodem sensu accipi uolunt ut mutuas ad inuicem consequentias habeant, alioquin ex negatiua in sensu sequeretur saepe affirmatiua, quippe in eodem ordine negatiuae affirmatiuis adiunguntur. Nos uero in diuerso sensu eas quoque concedimus aequipollere ita ut rebus permanentibus nulla possit esse uera uel falsa sine aliis».

of *indefinites* (*Dial.* 118-120). This last category includes terms that do not have a meaning on their own, but that signify only when taken in a context (they merely "consignify").[27] The category of indefinites includes conjuctions (such as "*si*" or "*et*") and prepositions ("*de*", "*ad*")[28] Other notable words that are included in this category are the copula "*est*" (at least in some of its uses) and the negative particle "*non*". Adjectives are included in the category of names, and so are pronouns, adverbs and interjections.[29]

As we have seen above, modal terms like "necessarily", "usefully" or "rapidly" are primarily adverbs (even though they could be also formulated in a nominal form), and therefore they should belong to the category of *names*. The fact that Abelard also establishes a similarity between adverbial modes and adjectives (modes are applied to verbs just as adjectives are to names, Abelard says in *Dial.* 191.11-15) strengthens this interpretation, for

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[27]In the *Dialectica*, Abelard attributes this terminology to other people: «*quas indefinitas dicunt*» (*Dial.* 118.11).

[28]In *Dial.* 118-120, Abelard takes first into consideration three positions on the signification of indefinite words, discarding the first two positions and eventually suggesting his positions for which these words do not have any signification when taken *per se*. The first hypothesis, suggested by some people, claims that conjunctions and prepositions also have a certain signification even when uttered *per se*, that is, out of a context. Otherwise, these people argue, they would not be words, but they would instead be syllables or letters. The *per se* signification of these indefinite words would still be different from the *per se* significations of names and verbs, insofar as it is a confused and uncertain signification. The signification is uncertain in the sense that a person who hears an indefinite word (such as "and" or "about" ("*de*"), would not be satisfied by hearing it separated and he would crave to hear more: «At vero (cum) per se etiam significativae sint huiusmodi dictiones, confusa per se et incerta earum significatio videtur. Nam 'et' vel 'de' (per) se prolata ad omnia aeque se habent ac suspensum tenent animum auditoris, ut aliud exspectet cui illa coniungantur; quae non tam pro sua demonstratione inventae sunt quam pro appositione vel coniunctione ad alia». (*Dial.* 118.12-17). The addition of other definite words, or of a context (as when I say "man *and* stone", or "*about* man"), transforms the signification of indefinite words from being confused and uncertain to being determinate and similar to those of names and verbs. The second position on the meaning of indefinite words suggests that these words have a meaning in so far that they generate an understanding, but they lack a meaning in the sense of denotation, for they lack the ability to refer to things (just as propositions do). Against those views, Abelard maintains that indefinite words, contrary to names and verbs, do not have *any* signification when taken in isolation from a context. They only consignify, when they are adjoined to other words. See (Wilks, 1998b, p. 94 ff.) for a discussion of Abelard's categories of words. On the distinction between significative and consignificative words see also (Jacobi, 1986, p. 146 ff.).

[29]«In "nomine" autem (tam) nomina quam pronomina cum adverbiis et quibusdam interiectionibus incluserunt, his videlicet quas non natura docuit, sed inventio nostra composuit. Sunt enim quaedam interiectionum naturales ut: "vah", "ah", "heu", quae nec dictiones nec proprie partes orationis dicuntur, quippe impositae non sunt; quaedam vero compositae et ad placitum designativae, ut: "papae", "attat", "proh", quae et nomini, sicut adverbia supponuntur». (*Dial.* 121.8-14).

all adjectives belong to the category of names, and if adverbs are interpreted adjectivally they also should belong to the same category. However, at least in the *Logica Ingredientibus* (but a similar position is held also in the *Dialectica*, though less explicitly), Abelard treats some modal adverbs – in particular, the alethic modes "necessarily", "possibly", "impossibly" – as belonging not to the category of names but to the category of indefinites, just as the conjunction "*si*" and other non *per se* significant terms. He says that these adverbial modes (and their corresponding nominal forms) do not have a meaning on their own, as isolated from a context, in so far as they do not *per se* signify either things or accidents (that is, they do not have a signification *in essentia* nor *in adiacentia*)[30] but that they merely *consignify*:

> At uero cum "possibile" uel "necessarium" sumpta[31] non sint nec res aliquas nominando contineant nec formas determinent, quid significent quaerendum est; non enim, cum dicitur: Id quod non est possibile est esse uel: Deum necesse est esse uel: Chimaeram necesse est non esse quasi formas aliquas in rebus accipimus. Dicimus itaque necessarium siue possibile in huiusmodi enuntiationibus magis consignificare quam per se significationem habere; nil quippe in eis est intelligendum nisi subiectae orationi applicentur, et tunc modum concipiendi faciunt circa res subiectae orationis sicut facit uerbum interpositum uel coniunctio si, quae ad necessitatem copulat; ac, sicut in istis nulla imagine nititur intellectus sed quendam concipiendi modum anima capit per uerbum uel per coniunctionem circa res earum uocum quibus adiunguntur, ita per possibile et necessarium. (LI *De Int.* 407.412-408.425)

In the passage quoted from the *Logica Ingredientibus*, the characterisation of the meaning of modalities is explicitly juxtaposed with the meaning of conjunction "if", which we know was considered by Abelard an indefinite word. Also, Abelard explicitly uses the term "*consignificare*" to account for modal terms' semantic role. In the *Dialectica*, Abelard never clearly says that modal terms are indefinite words, nor are there any references to their con-signicative role. However, in a few passages Abelard argues, against the

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[30]Names that signify *in essentia* are those words that signify something as subsisting (for example "Socrates" or "whiteness"), whereas names that signify *in adiacentia* are those that signify something as existing in a subsisting thing (for example, "white"). On this distinction between signification *in essentia* and *in adiacentia* see (Jacobi, 2004, p. 139 ff.).

[31]Abelard's *nomina sumpta* are those concrete names that are taken or derivate from the abstract corresponding name, as "white" from "whiteness". On Abelard's treatment of *sumpta* names and on the translation of this technical term see (Jolivet, 2000, p. 107-8); (Marenbon, 1997, p. 140-1); (Kang, 1999, p. 234).

opinion of "some people", that terms like "possibly" and "necessarily" do not signify qualities or forms, and there is no attribution of any sort when I say that something is necessarily or possibly the case:

> Nunc autem utrum aliqua proprietas per modalia nomina, ut quidam uolunt, praedic[ar]etur, persequamur. Aiunt enim per <possibile> possibilitatem praedicari, per 'necesse' necessitatem, ut, cum dicimus: "possibile est Socratem esse uel necesse", possibilitatem aut necessitatem ei attribuimus. Sed falso est. Multae uerae sunt affirmationes huiusmodi etiam de non-existentibus rebus, quae, cum non sint, nullorum accidentium proprietates recipiunt. Quod enim non est, id quod est sustentare non potest. Sunt itaque huiusmodi uerae: "filium futurum possibile est esse", "chimaeram possibile est non esse", uel "necesse est non esse hominem"; nihil tamen attribui per ista his quae non sunt, intelligitur, sed, ut superius dictum est, per "possibile" id demonstratur quod natura patiatur, per "necesse" quod [dicit] exigat et constringat. (*Dial.* 204.1-12)

Given, presumably, that terms as "possibly" and "necessarily" do not signify things, the affirmation that they do not signify forms or properties either seems to convey the idea that they have no *per se* signification whatsoever, but they instead have the semantic role of expressing *a way in which things are* (though the terminology of *modus concipiendi* is not present in the *Dialectica*).

This passage from the *Dialectica* should be compared to the passage from the *Logica Ingredientibus* (LI 407.412-408.425) as evidence that Abelard took the semantic role of modal terms (at least of alethic modalities) to be similar to that of conjunctions and prepositions, and modal terms should be classifiable then as indefinite words.

1.2 Modal Propositions

Those propositions that contain modes (that may be modes either *in sensu* or *in voce*) are modal propositions. They are classified by Abelard among categorical propositions, and differ from non-modal categorical ones – that Abelard also calls *simple* propositions or propositions *de puro inesse* – in so far as they state a predication *cum modo*, whereas simple proposition state unqualifiedly (*simpliciter*). Modal propositions deserve a careful examination because they present more difficulties than simple propositions do: given that they are categorical propositions it is difficult to locate their subject and predicate terms, to state how they may vary in quality and quantity, and finally to establish the rules of equipollence and of other logical inferences they maintain reciprocally and with simple propositions. As seen in section 1.1 above, modal propositions may have an adverbial or a nominal form, depending on the adverbial or nominal form of the mode they contain. An adverbial modal proposition has the following structure:

(a) "S is possibly – necessarily – impossibly P"

while a nominal modal proposition has the structure:

(b) "It is possible – necessary – impossible for S to be P".

The adverbial form (a) is the translation of a latin proposition like "*Socrates est episcopus possibiliter-necessario-impossibiliter*". The nominal form (b) has two possible latin constructions: either we say (i) "*Possibile est Socratem esse episcopum*", using the nominal mode followed by the copula and an infinite-accusative clause, or we say (ii) "*Socratem possibile est esse episcopum*", where again we have the mode in a nominal form plus an infinite clause, but the subject of the infinitive clause (in accusative) is placed before the mode. This last latin structure is the one that more frequently occurs in Abelard's texts. Let us keep in mind that the grammatical structure of a modal proposition is not generally indicative of its semantic structure, so that both grammatical structures (a) and (b) could be read as being *de rebus* or as being *de sensu*.

Abelard's focus will be mainly on nominal modal propositions, for, as he says both in the *Dialectica* and in the *Logica Ingredientibus*, they raise more perplexities and uncertainties with respect to their syntactical form, with respect to their mutual logical relationships, and, generally speaking,

their nature is more obscure than the nature of simple and adverbial modal predications. However, Abelard considers the adverbial structure as more appropriate and more basic than the nominal one, because he thinks, at least in the *Dialectica*, that the adverbial form more closely mirrors the real, logical form of modal claims, which is fundamentally *de rebus*, not *de sensu*. Just as he said that only adverbial modes are, properly speaking, modes, and all nominal modes can be reduced to an adverbial form, so he wishes to say that also nominal modal propositions are always reducible to the corresponding adverbial proposition. However, whether it is in fact possible that *all* nominal propositions are translatable into an adverbial form must be object of further enquiry, which I will carry on in section 1.3. First, I address the question of how the relation between simple and modal propositions is accounted for by Abelard, and how modal propositions are derived from simple ones. This problem will be the object of section 1.2.1, where I will also consider the problem of identifying the terms (that is, the subject and the predicate) in adverbial and nominal modal propositions. Section 1.2.2 concerns the *quality* of modal predications, and asks what is the proper way of negating a modal proposition, in order to obtain its corresponding negative and contradictory proposition. Section 1.2.3 addresses the problem of establishing the *quantity* of modal propositions that have a nominal form. Both problems of assigning the quality and quantity to modal propositions are of great relevance for Abelard's determination of the rules of inferences and equipollences among them.

1.2.1 The relation between modal and simple propositions

There are two points that Abelard insistently states in the *Dialectica* concerning the relation between simple and modal propositions: first, modal propositions derive from simple ones, and second, they differ from simple propositions only with respect to the way in which the inherence is asserted: while simple propositions state an inherence unqualifiedly (*simpliciter*), modal propositions state an inherence *cum modo*. This means that modal propositions *do not* differ from simple ones with respect to *the things they deal with*, for simple and modal propositions are used to refer to the *same* things. Concerning the first point, Abelard says that propositions *de*

puro inesse are prior and more basic than modal ones,[32] and that modal claims are derived from them:

> Unde simplices ipsis modalibus, quasi compositis, priores sunt: ex ipsis modales descendunt et ipsarum modificant enuntiationem; in qua quidem modificatione tantum ab ipsis abundant et discrepant. (*Dial.* 191.23-26)

Another passage in which Abelard refers to this priority of simple propositions over modal ones is *Dial.* 200.20-22, where he says:

> Et sunt quidem simplices natura priores quasi simplicia compositis; oportet enim prius inhaerentiam considerare quam modificare.

The other point Abelard insists on at length in the *Dialectica* is that simple and modal propositions *deal with the same things*, and involve the same subject and the same predicate. The relation between simple and modal statements is located in the *Dialectica* exactly in this sharing of the same terms. This position is clear from the very beginning of Abelard's *De Modalibus*:

> Idem enim de eodem modales debent enuntiare modaliter, id est cum determinatione, quod illae de puro inesse simpliciter, et de his oportet fieri determinationem de quibus simplicem facimus enuntiationem. (*Dial.* 191.20-23)

This idea is presented as an alternative to another position one may maintain about the relation between simple and modal propositions. According to this alternative position, modal propositions are related to simple ones because they *deal with their meaning*, or *content* (*sensus*). This is a position that Abelard attributes to his Master,[33] and it is discarded by Abelard as

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[32] The priority of simple claims with respect to modal ones must be interpreted both as a syntactical priority (i.e., the grammatical structure of modal claims is "composed out" of a simple predication to which a certain modal term is adjoined) and as a semantical priority (i.e., simple predication is semantically the most primitive form of predication, and modal predication is derivated from it).

[33] The "magister noster" Abelard is referring to in the *Dialectica* as the main proponent of this position is commonly taken to be William of Champeaux. Martin challenges however this attribution in (Martin, 2016), showing that in the Orléans treatises *M1* and *M3* the position on the relation between simple and modal claims attributed to "Master W." is very similar to the one held by Abelard in the *Dialectica*, while the position affirming that modal claims deal with the *sensus* of simple propositions is attributed in treatise M1 to Goselin of Soissons. See (Martin, 2016, p. 126).

being problematic, for reasons that we will see in section 1.3.1 below. The two alternative solutions one may have on the relationship between simple and modal propositions are then so described: either one says that (i) modal propositions *deal with the same things* simple propositions do, and they differ from simple ones only inasmuch as the inherence they express is qualified by a mode and not stated unqualifiedly; or one says that (ii) modal propositions *deal with the content* (*sensus*) of simple propositions, and predicate something about such a content.

In the *Dialectica* Abelard is quite consistent in his commitment to the first option, arguing against his Master's opinion in favor of the second (with arguments which one may object are not entirely conclusive, see section 1.3.1 below). Modal propositions, whatever grammatical form they have, are then said to always share their terms with simple ones. This position also implies that, for any nominal modal proposition, we are able to translate it into an adverbial proposition which has the same terms: given any proposition of the form "It is possible for S to be P", it is the case that the relation between the three propositions:

(a) "S is P",

(b) "S is possibly P", and

(c) "it is possible for S to be P"

is such that proposition (c) is reducible to proposition (b) and that both (b) and (c) involve *the same subject* and *the same predicate* as proposition (a). Propositions (b) and (c) modify the predication of (a) in qualifying (properly or improperly) the inherence between the two terms "S" and "P". This is what Abelard endorses in *Dial.* 193.11-17. Also in the LI Abelard affirms at times that nominal modal propositions have *the same subject* and *the same predicate* as adverbial ones, and also as propositions *de puro inesse* from which they are derived (LI *De Int.*396.127-130). However, in the *glosses* on *De Interpretatione*, we do not find the same confidence in the fact that *all* nominal modal propositions could be reduced to adverbial ones (that is, that propositions of form (c) are always reducible to propositions of form (b)). There seem in fact to be exceptions to this rule, for we may find nominal propositions that cannot be reformulated in an adverbial form. If this reducibility is not generally possible, one has to give up the idea

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that *all* modal propositions share their subject and predicate with simple propositions, and that the relation between simple and modal is governed by the fact that they talk about the same things.

A problem that is related to this is the one of determining which term is the subject and which term is the predicate in modal predications, especially in those that have a nominal grammatical structure. In order to answer this question, Abelard draws a distinction between two levels: the level the grammatical structure of a proposition, and the level of its logical structure. Such a distinction is needed because the terms that are subject and predicate according to grammar are often different from the ones that are subject and predicate according to the semantical form (in Abelard's terminology, the "meaning") of a proposition. Abelard proposes then a distinction between terms according to meaning (*in sensu*) and terms according to the grammatical structure (*quantum ad constructionis materiam*). At the level of the grammatical structure, these two propositions (a) "Socrates is possibly a bishop" (*Socrates est episcopus possibiliter*) and (b) "It is possible for Socrates to be a bishop" (*Possibile est Socratem esse episcopum*) do not have the *same subject and predicate terms*. For in proposition (a) the terms according to the grammatical structure are "Socrates", which is the subject, and "bishop", which is the predicate. In proposition (b), on the contrary, Abelard follows Aristotle in considering the mode "possible" (*possibile*) as the predicate (*Dial.* 191.34-36), the verb "to be" (*esse*) of the infinitive clause as the subject, and finally the subject in accusative of the infinitive form ("*Socratem*") as a qualification (*determinatio*) of the subject. Abelard also argues that '*Socratem*" cannot be the subject with respect to grammar, inasmuch as it has an oblique case (*Dial.* 191.31-32). Nevertheless, Abelard says that if we consider not the grammar but the meaning of propositions (a) and (b), the terms will result to be the same, because in both "Socrates" is the subject and "bishop" is the predicate with respect to the meaning:

> Cum autem in sensu modales cum simplicibus eosdem retineant terminos, in his tamen modalibus quae casuales habent modos, quantum ad constructionis materiam alii considerantur termini, ut cum dicimus: "possibile est Socratem episcopum esse", "esse" quidem subicitur, et modus ipse, id est "possibile", praedicatur. (*Dial.* 191.26-30).

The same position is endorsed by Abelard in the *Logica Ingredientibus*, where again he outlines a distinction between terms according to meaning and

terms according to grammar (here the distinction is stated in latin as being between *termini secundum sensum* and *termini secundum constructionem*), and he says that nominal modal propositions have two subjects and two predicates: some are the terms with respect to the proposition's meaning (which are the same as the terms in the corresponding adverbial modal proposition, and consequently the same as the terms in the corresponding simple proposition), and some with respect to their grammatical form. The example Abelard takes here is "It is necessary for Socrates to run" (*Necesse est Socratem currere*). With respect to grammar, the mode "*necesse*" is again considered to be the predicate, the verb of the infinitive clause "*currere*" is the subject, while the subject of the infinitive clause "*Socratem*" is said to be a sort of determination of the subject. According to meaning, on the contrary, "*currit*" is the predicate, "*Socrates*" is the subject, and the mode "*necesse*" is said to be a qualification (*determinatio*) of the predicate (LI *De Int.* 396.124-142).[34]

1.2.2   On determining the quality of modal propositions

After having determined which terms are the subject and the predicate in modal propositions, we need to consider the problem of how modal propositions should be properly negated, that is how the negative particle should be applied in order to obtain, from an affirmative modal proposition, the corresponding negative (and contradictory) modal proposition. The problem of assigning negation to modal propositions is taken by Abelard from Aristotle's *De interpretatione* (12.21a39-22a3), and indeed Abelard's solution to this particular problem follows quite closely the Aristotelian proposal, that was also adopted by Boethius in his commentaries of the same work.

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[34] «Necnon etiam ideo bene casuales elegit, non aduerbiales, quia maxime dubitabatur de negationibus casualium modorum et eorum constructionibus, in quibus alii sunt termini secundum constructionem, alii secundum sensum. Quippe, cum dicitur: Necesse est Socratem currere haec, quae proprie modalis est in sensu, idem in sensu praedicatum habet et subiectum quae habet illa de puro inesse a qua descendit: Socrates currit quia "Socrates" subicitur et "currit" praedicatur et "necesse" in sensu determinatio est praedicati, sicut in eius aequipollente de aduerbiali modo quae ait: Socrates currit necessario aliud uero praedicatum et subiectum secundum constructionem habet quia infinitiuus modus, currere scilicet, subicitur et Socrates quasi determinatio subiecti ponitur, modus uero ipse, id est necesse, praedicatur. Est enim uerbum Socratem qui obliquus est regere non potest, ideoque currere secundum constructionem subiectum loco nominatiui ponitur cui est uerbum societur, ut sit in talibus, quae casuales habent modos, duplex praedicatum et duplex subiectum, unum quidem secundum constructionem, aliud secundum sensum; ex quo magis differunt a propositionibus de puro inesse» (LI *De Int.* 396.124-142).

Aristotle argues in the *De Interpretatione* that the usual way of assigning negation in a proposition consists in applying the negative particle to the term that is the *predicate*. If modal propositions have an adverbial form – like in "Socrates is possibly white" or "necessarily white", the issue of negation is easily solved by saying that the negative particle must be applied to the copula that connects subject and predicate, in this way: "Socrates is not possibly (necessarily) white". This is also Abelard's position, as claimed in the following quote from LI:

> Cum aduerbialem modum ponimus dicentes: "Socrates currit neces-
> sario" una tantum fit affirmatio et negatio sicut in simplicibus; sicut
> enim dicimus: "Socrates currit" (uel: "non currit") ita: "<Socrates>
> currit necessario" (uel: "non currit necessario"). (LI *De Int.* 395.106-
> 109)

If we consider instead modal propositions that have a nominal form, Aristotle and Abelard say, some difficulties arise. Because in nominal modal propositions like "It is possible for Socrates to be white" or "It is necessary for Socrates to be white" there are two different predicates, there are two different ways of assigning negation in them. Either we apply negation to the term of the infinitive clause, that is for Abelard the predicate *with respect to the meaning*, in this way: "It is possible for Socrates *not* to be white" or "It is necessary for Socrates *not* to be white"; or we apply negation to the modal term, i.e., to what Abelard calls the predicate *with respect to the grammar*, in this way: "It is *not* possible for Socrates to be white" or "It is *not* necessary for Socrates to be white". Aristotle argues that if we apply negation in the first way, the proposition that we obtain is not the contradictory of the corresponding affirmative proposition, for indeed it is possible for the two propositions "It is possible for Socrates to be white" and "It is possible for Socrates *not* to be white" to be simultaneously true; and it is possible for the two propositions "It is necessary for Socrates to be white" and "It is necessary for Socrates *not* to be white" to be simultaneously false (*Dial.* 192.11-16). The proper way of assigning negation cannot be applying the negative particle to the predicate of the infinitive clause, because whenever we negate a proposition we expect to obtain the corresponding *contradictory* proposition. Therefore, we are left with the second option, i.e., with the idea that the proper way to assign negation in nominal modal propositions is applying the negative particle to the mode itself, that is the predicate

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according to the grammatical structure. From the affirmative proposition
"It is possible for Socrates to be white" I obtain then "It is *not* possible for
Socrates to be white"; similarly, from the proposition "It is necessary for
Socrates to be white" I obtain "It is *not* necessary for Socrates to be white"
(*Dial.* 192.16-28). This is exactly what Aristotle has already said in *De Int.*
12.21a38-22a13. The nominal modal propositions where negation is applied
to the predicate *in sensu*, e.g. "It is possible (necessary) for Socrates not to
run", are considered by Abelard affirmative claims *de non esse*, and we may
obtain their proper corresponding negative claims by applying the negation
to the predicate *secundum constructionem*, in this way: "It is *not* possible
(necessary) for Socrates not to run". For each mode and any couple of terms
we have then four modal nominal propositions (not considering, for now,
a possible variation in quantity): two affirmative propositions (one *de esse*
and one *de non esse*), and two negative propositions (one *de esse* and one
de non esse).

	Affirmative modal propositions	Negative modal propositions
de esse	It is possible for Socrates to be white *Possibile est Socratem esse album*	It is not possible for Socrates to be white *Non possibile est Socratem esse album*
de non esse	It is possible for Socrates not to be white *Possibile est Socratem non esse album*	It is not possible for Socrates not to be white *Non possibile est Socratem non esse album*

Although Abelard's answer is not *per se* original, it is still interesting to
compare his approach to the problem of negating modal proposition with
his general theory of negation, which he deals with in *Dial.* 173-184.[35] What
Abelard says about negation in modal claims seems in fact to contrast with
the main idea he advances in his theory of negation, i.e., the idea that in or-
der to properly negate any sort of proposition so to obtain its corresponding

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[35]For a general interpretation of Abelard's theory of negation and a comparison with
Boethius' theory see (Martin, 2004b, p.158-192).

contradictory proposition one must apply the negative particle not to the predicate or to the copula, but to *the whole content* of the affirmative claim. In what follows I try to recall the main points of the theory of negation Abelard advances in *Dial.* 173-184 and I then consider whether is there any inconsistency with what he says about negating modal claims.

Abelard's theory of negation

The place where Abelard discusses the question of negation in more detail is within his treatise on categorical propositions, contained in the *Dialectica*. Following the Aristotelian tradition, Abelard defines affirmation as «*enuntiatio alicuius de aliquo*», i.e., as the sort of proposition in which two terms – subject and predicate – are conjoined by means of the copula *est*, so that what is signified by the predicate is said to inhere in (or to be identical to) what is signified by the subject. The two claims "Every man is an animal" or "Socrates is Plato" express propositions of this sort. A negation is instead defined as «*enuntiatio alicuius ab aliquo*», i.e., as an expression in which what is signified by the predicate is separated or removed from what is signified by the subject. Starting from an affirmative proposition of any kind – be it simple or modal, categorical or hypothetical – it is possible to obtain its corresponding negative proposition by including in it the negative particle "*non*".[36] From a grammatical point of view, the term "*non*" is considered by Abelard as an adverb, and it can be applied either to verbs or to other components of a sentence.[37] In particular, Abelard thinks that there are three different syntactical positions that the adverb "*non*" might assume within a categorical proposition. First, it can be applied to a term, as in the case for instance of the expression "non-white". Following the tra-

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[36]And in the case of quantified propositions by modifying the signs of quantity.

[37]According to Abelard, it is not the case that the particle "*non*", being an adverb, must necessarily precede verbs, because he thinks that there are many adverbs – such as the adverb "*magis*" – which are applied not only to verbs but also to nouns or other linguistic items. See on this *Dial.* 478.3-23: «Quae quidem quibusdam nimium grammaticae adhaerentibus negationes categoricae, non hypotheticae, videntur. Aiunt namque adverbium aliter non posse construi, nisi verbo adiungatur; inde enim adverbium dicitur, quod verbo adiungitur. Unde negativum adverbium in negatione facienda verbo semper oportet apponi [...] Sed haec quidem mihi firma ratio videtur. Quamvis enim ex hoc quod adverbium est verbo habeat adiungi, non semper id necesse est fieri, quod ex aliis clarum est adverbiis. Nam "magis" adverbium cum sit, modo verbo adiungitur, modo vero nomini, cum dicitur "magis album", id est "albior" [...] Sicut autem "magis", cum adverbium sit, modo verbo construitur, modo non, sic etiam negatio».

dition, Abelard classifies expressions of this sort as *infinite* terms. Second, the negative particle can be applied to the copula (or to the predicate) of an affirmative claim, as in the propositions "Socrates does not run" (*Socrates non currit*) or "Every man is not white" (*Omnis homo albus non est*) . Abelard refers to this second type of negation as "*negatio separativa*" or "*remotiva*", and says that it has the semantic role of "separating" the subject from the predicate, and therefore of affirming that what is signified by the predicate does not inhere in what is signified by the subject. Finally, Abelard distinguishes a third way in which the negative particle can be applied in propositions, which consists in placing negation before an entire affirmative claim, as for instance in these cases: "Not every man is an animal" (*Non omnis homo est animal*), or "It is not the case that Socrates runs" (*Non Socrates currit*). Abelard refers to this last sort of negation as "*negatio exstinctiva*" or "*destructiva*", because it has the semantic role of "destroying" or "extinguishing" the entire meaning of the proposition to which it is applied.

According to Abelard, to properly negate a proposition means to obtain its corresponding contradictory proposition, i.e., to obtain another proposition that is never simulateously true or false together with the former one. Contradictory propositions are also said "*dividentes*", inasmuch as they "divide" the two truth values true and false between them. He also thinks that for any proposition there is always one and only one proposition that is its proper *dividens*.[38] His aim in the *Dialectica* is then to establish in which way the negative particle must be applied so to obtain, starting from an affirmative claim, its corresponding contradictory claim. The logical tradition that Abelard draws upon – constituted mainly by Aristotle's and Boethius' logical works – maintained that in order to obtain a pair of contradictory claims the negative particle should be applied *to the copula* or *to the predicate* of the affirmative proposition. The contradictory proposition of "Socrates is a man" would then be "Socrates is *not* a man" (*Socrates homo non est*). This position, held by Boethius in his commentary of Aristotle's *De Interpretatione* (Boethius, 1880, p. 151), was probably the usual position on negation during the eleventh century and early twelfth century, as witnessed for instance in Garlandus' *Dialectica*, where the author often repeats that a

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[38]See *Dial.* 173.23-25: «Habet autem omnis affirmatio unam tantum propriam negationem secundum contradictionis oppositionem».

negative claim is obtained by negating the verb, or the copula, of the corresponding affirmation.[39] In opposition with this tradition, Abelard claims in the *Dialectica* that the only correct way to obtain a pair of contradictory statements is by means of *extinctive* negation, and that only this one, not *negatio separativa*, must be considered as negation in the proper sense. Extinctive negation has as its scope the whole content of the proposition to which it is applied, and it negates this content *simpliciter*, so that this whole content is said not to be the case (*non esse in re*):«[negatio] praeposita totam eius sententiam perimit» (*Dial.* 178.30); «ea sola propria est negatio quae simpliciter id aufert quod illa dicebat» (*Dial.* 180.2-3). The proper way to negate a proposition like "Socrates is a man" is then by saying: "It is not the case that Socrates is a man" (*Non Socrates est homo*), as Abelard states in *Dial.* 178.28-32:

> Manifestum est autem ex suprapositis omni affirmationi eam in contradictionem recte opponi negationem tamquam propriam dividentem quae negatione praeposita totam eius sententiam perimit, ut ei quae est: "Socrates est homo" ea quae est: "non Socrates est homo", non ea quae dicit "Socrates non est homo"

and the same is the case for quantified propositions like "*Omnis homo est albus*", the proper contradictory of which is "*Non omnis homo est albus*":

> Propriae ergo illae sunt negationes quae affirmationis sententiam simpliciter auferunt, ut scilicet non plus aut minus in eis denegetur quam affirmatio proponebat. Cum enim de eodem subiecto universali diversis modis enuntiatio multae fiant affirmationes et negationes hoc modo: 'omnis homo est albus', 'nullus est albus', 'quidam est albus', 'quidam non est albus' vel 'non omnis homo est albus', eius quae est:

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[39]See in particular 50.19-30: «Rursus videndum est quod omnis cathegorica propositio aut constat ex finito subiecto et finito predicato, ut 'homo iustus est'; aut ex infinito subiecto et infinito predicato, ut 'non-homo non-iustus est'; aut ex finito subiecto et infinito predicato, ut 'homo non-iustus est'; aut ex infinito subiecto et finito predicato, ut 'non-homo iustus est'. Que omnes affirmative esse considerande sunt. Semper enim negativa particula ponenda est ad verbum, quando volumus facere negativa propositionem [. . .] Illa namque que ex finito subiecto et finito predicato constat, ut 'homo iustus est', hanc habet negationem: 'homo iustus non est'; illa vero que ex infinito subiecto et infinito predicato constat ut: 'non-homo non-iustus est', hanc habet negativam: 'non-homo noniustus non est'». That a debate on negation was underway in between the eleventh and twelfth century is testified by many sources of the time. Martin has showed in (Martin, 2016) that the treatises on modal claims included in manuscripts *M1* and *M3* debate at lengh the question of how to negate propositions containing modes.

'omnis homo est albus', ea sola propria est et recta negatio <quae> simpliciter id aufert quod illa dicebat, hoc modo: 'non omnis homo est albus' [...] Unde ea sola est: 'non omnis homo est albus' proprie dividens et recta negatio eius quae dicebat: 'omnis homo est albus' (*Dial.* 179.34-180.13).

The theory of negation developed by Abelard in the *Dialectica* has the aim of providing a system of logical relationships between categorical non-modal propositions that maintains its validity also when empty terms are taken into consideration. The pairs of propositions "*Omnis homo est albus*" and "*Non omnis homo est albus*" are in fact taken by Abelard to be proper *dividentes* both in those situations in which men exist, and in those situations in which the term "man" is empty, i.e., when it fails to refer.[40] This is not the case for the pair of propositions "*Omnis homo est albus*" and "*Quidam homo non est albus*", that for Abelard turn out to be both false when men do not exist, and cannot therefore be considered in a relation of contradiction to one another.

How to interpret negation in modal claims?

According to Abelard, the extinctive use of the negative particle is not to be applied only to simple categorical claims, but to all claims of any sort, and therefore, we would suppose, also to modal ones. However, Abelard is not always consistent in applying this theory, and in particular he seems not to apply it within his discussion about how to negate modal claims. Within this discussion he never mentions the distinction between separative and extinctive negation, and indeed he says that in order to obtain the contradictory proposition of claims like "*Possibile est Socratem esse album*" or "*Necesse est Socratem esse album*", one should apply the negative particle to the mode itself, i.e., to the predicate *in voce* of the proposition. This may lead us to think that when we consider propositions like "*Non possibile est Socratem esse album*" the negative particle must be conceived as a separative negation, not as an extinctive one. Evidence for this interpretation is provided by passage *Dial.* 192.26-28 of the *Dialectica*, where Abelard says that in propositions of this sort the particle "*non*" separates the predicate, i.e., the mode, from the subject, i.e., the verb of the infinitive clause:

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[40]This positions will be explained in more detail in section 2.1 below.

> Oportet enim ut in istis negatio praedicatum removeat, modum scilicet,
> ab eodem subiecto, sive scilicet 'esse' sive 'non esse'

Another passage which leads us to think that Abelard conceived negation in modal claims as separative and not as extinctive is *Dial.* 199.13-14, where Abelard claims that «*Si enim non est possibile Socratem non esse album, possibile est esse album, sed non conuertitur*». The validity of the inference given here is easily explained if we take negation as being separative, while the same inference should turn out to be invalid if we take negation as being extinctive, because if Socrates does not exist the antecedent would be true and the consequent false.[41]

Nevertheless, the interpretation of Abelard's use of negation in modal claims is complicated by the fact that there is some evidence that Abelard developed his theory of extinctive negation before writing his treatises on modalities. In both the *Dialectica* and the glosses he makes at times use of the terminology connected to separative and extinctive negation. Especially when he considers modal claims that contain temporal qualifications, Abelard says that when the negative particle is placed before an affirmative proposition in this way "*Non possibile est Socratem esse lapidem dum est lapis*", the negation could (and should, if we want the modal square of opposition to be valid) be applied to the whole sense of the proposition that it precedes, so to "extinguish" it:[42]

> Sed contra dico quia, si aequipollentias servare volumus, oportet in
> negativis non modum, sed <praedicatum> cum determinatione ipsa
> removeri. Cum ergo dicimus: 'si falsa est Socratem esse lapidem dum
> est lapis, tunc vera est non possibile est Socratem esse lapidem dum
> est lapis', *per negativam particulam totum propositionis sensum exstin-*
> *guimus, idest ipsum praedicatum cum determinatione ipsa removemus.*
> (*Dial.* 208.30-209.11, my emphasis)

A similar position is taken by Abelard in LI 432 1073-1083, where again he says that in determinate modal claims the preposed negation could be taken so to remove the entire proposition to which it is applied (*totum auferat*):

> Si vero sit negatio modalis determinatae, poterit etiam cum determi-
> natione aequipollentia custodiri: Et cum dicitur "Non est possibile esse

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[41]I thank Christopher Martin for having brought these passages to my attention.

[42]For the interpretation of Abelard's negation as extinctive negation in Abelard's determinate modal claims see (Martin, 2016).

lapidem dum est lapis", id est "Non potest contingere id totum 'dum est lapis, est lapis"', similiter hoc totum impossibile dicamus, ut scilicet negatio quae intelligitur in "impossibili" totum similiter auferat; et cum dicitur "Necesse est non esse lapidem dum est lapis", illud "non" praepositum ad "esse" simul determinationem excludit, ac si diceretur id totum "Necesse est ut non sit lapis dum est lapis". Atque ideo quoniam determinationem quoque negatio intercipit non potest per se inferri propositio posita in determinatione.[43]

It seems then likely that Abelard had already developed his theory of extinctive negation before writing both his treatises on modalities. If it is so, why does he not consistently make use of this idea in his logic for modal claims?

The fact that Abelard says that in modal claims negation must be applied to the predicate, so to separate it from the subject, might depend on the fact that he wants to remain faithful to the Aristotelian position in *De Int.* 12, where Aristotle says that the negative particle must always be attached to the predicate of the proposition. Another possible answer could be that, while presenting his logical system for modal claims, Abelard was not interested in distinguishing between separative and extinctive negation because at least at first he did not take into consideration cases in which non-referring terms are included into modal propositions. It was indeed the problem of empty terms, and of providing a system of logical relationships between propositions that include empty terms, that led him to develop his theory of extinctive negation in the first place (see section 2.1 below.) One might suppose that since Abelard is not interested in empty terms and existential import here, he also does not feel the need to distinguish between separative and extinctive negation.

However, as we will see in section 2.1.2 below, at least in the *Logica Ingredientibus* Abelard does take into consideration modal claims including non referring terms, and he seems to think that also affirmative modal propositions, just as non-modal ones, contain an implicit existential import, so that it is a necessary condition for the truth of a proposition like (*)

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[43]Note that however the terminology used by Abelard here is confusing, for on the one hand he says that the negative particle should be interpreted as "extinguishing the whole sense of the proposition", and this leads us to think that it is extinctive; on the other hand he says that negation is applied "to the predicate and to the temporal determination" so that by using it we *remove both predicate and determination.* But "removing the predicate" is for Abelard the task of separative (or remotive) negation, not of the extinctive one.

"It is possible for my son to be alive" (*Possibile est filium meum vivere*) that the subject term's referent exists. If Abelard does ideed think so, as seems to be the case given what he says in LI 417.639-652, then in order to obtain the contradictory of proposition (*) one must apply a negative particle extinctively, so that this negation extinguishes the whole content of (*), in this way: "It is not the case that: it is possible for my future son to be alive" (*Non: possibile est filium meum vivere*). Only if we apply negation in this way we obtain a negative proposition that is never simultaneously true or false with (*). Given Abelard's interest for empty terms and his position about the existential import in affirmative modal claims in the *Logica Ingredientibus*, the logical relationships of contradiction that he establishes as valid between modal claims could only be valid if negation is interpreted extinctively. A further sign that Abelard interprets negation in modal claims as being extinctive and that he relates the question of negation to the question of empty terms in the LI may be found in passage 420.733-421.751. There, Abelard says if we want to establish equipollence relationships between modal propositions of different quality, e.g. between the pair of propositions "*Non possibile est Socratem esse album*" and "*Necesse est Socratem non esse album*", some problems may arise, and these problems are connected to the fact that whereas affirmative propositions require the existence of the subject term's referent in order to be true, negative propositions do not (I defend this interpretation in section 2.1.3 below). This is why Abelard concludes there that such pairs of propositions are only equipollent if the thing to which the subject term refers exist, i.e., if no empty terms are included in them.

In conclusion, although Abelard never explicitly says whether the negative particle that is applied to modal claims is separative or extinctive, and although evidence from the texts is controversial on this point, if we want to interpret Abelard charitably, so to make his discussion about negation of modal claims consistent with his general theory of negation and if we want his logical relationships between modal propositions to be valid, we should interpret propositions like "*Non possibile est Socratem esse album*" and "*Non necesse est Socratem esse album*" as if negation were applied extinctively.[44] The proposition "It is not possible for Socrates to run" must

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[44]A different issue is the one concerning whether the negation in modal propositions *de non esse* like "*Possibile* (*Necesse*) *est Socratem non esse album*" is separative or extinctive.

then be read as saying: "It is not the case that: it is possible for Socrates to run". Similarly, the proposition "it is not possible for Socrates not to run" means "It is not the case that: it is possible for Socrates not to run", and the same happens for all other negative modal propositions. We will see in the next section how quantified modal propositions should be negated.

1.2.3 On determining the quantity of modal propositions

Just as nominal modal propositions present more difficulties than adverbial ones for the individuation of their terms, so it is the case for the determination of their quantity. According to Abelard, the quantity of a categorical proposition always depends on its subject term, and so, in order to assign the quantity to a modal proposition such as "It is possible for some (every) man to be an animal" (*Possibile est quendam* (*omnem*) *hominem esse animal*) we need to look at its subject. However, as we said above, any nominal modal claim has two subjects, one with respect to its grammatical structure and one with respect to its meaning (see 1.2.1 on page 32). If we look at the term that is the subject with respect to the grammatical structure (that was said above is the verb "*esse*" of the infinitive clause), we would conclude that a nominal modal proposition has no quantity whatsoever, for the term "*esse*" is not quantified:

> Si quis autem ad subiectum constructionis respiciat, secundum ipsum nec uniuersales nec particulares nec indefinitas nec singulares huiusmodi enuntiationes iudicabit, quippe subiectum constructionis nec uniuersaliter nec particulariter enuntiatur. Sed nec indefinitam facit propositionem quae particularem non habet aequipollentem, nec singularem facit cum ipsum subiectum uox singularis non sit.(LI *De Int.* 397.168-398.174)

It follows then that we have to assign the quantity of a modal proposition looking to the term which is the subject with respect to meaning (see LI *De Int.* 398.174-188, *Dial.* 193.6-13). With respect to the subject *secundum sensum* modal nominal claims vary in quantity being either universal (e.g. "It is possible for every man to run"), particular ("It is possible for some

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Again, Abelard never makes his opinion clear about this point in the *Dialectica* or in LI. Wciòrka argues in (Wciòrka, 2012, p. 70-89) that also in this case negation should be interpreted extinctively.

man to run"), indefinite ("It is possible for man to run')'[45] and singular ("It is possible for Socrates to run").[46] The variation of modal propositions according to their quantity and their quality provides us for each mode with a list of four singular modal propositions and of eight quantified modal propositions. The table representing the list of singular affirmative and negative propositions about possibility has been shown above (see 1.2.2 on page 35). The following table shows instead the list of quantified possibility propositions, varied by quantity and quality:[47]

	Affirmative propositions	Negative modal propositions
Universal *de esse*	(1) For every man it is possible to be white	(2) Not for every man it is possible to be white (or: for some man it is not possible to be white)
	Omnem hominem possibile est esse album	*Quendam hominem non possibile est esse album*
Particular *de esse*	(3) For some man it is possible to be white	(4) For no man it is possible to be white
	Quendam hominem possibile est esse album	*Nullum hominem possibile est esse album*
Universal *de non esse*	(5) For every man it is possible not to be white	(6) Not for every man it is possible not to be white (or: for some man it is not possible to be white)
	Omnem hominem possibile est non esse album	*Quendam hominem non possibile est non esse album*
Particular *de non esse*	(7) For some man it is possible not to be white	(8) For no man it is possible not to be white
	Quendam hominem possibile est non esse album	*Nullum hominem possibile est non esse album*

Propositions (1) and (5) are affirmative universal propositions, *de esse* and *de non esse* respectively; propositions (2) and (6) are negative particular

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[45] Abelard will later say that all indefinite propositions are equivalent to particular ones, so that we can ignore them when dealing with quantified modal logic.

[46] See *Dial.* 192.31-33; LI *De Int.* 398.174-177. In the latin texts, Abelard uses here the nominal structure of modal propositions which has the subject in the accusative case as preposed to the mode and the infinitive clause, in this way: "*Omnem hominem – Quendam hominem – Hominem – Socratem possibile est currere*".

[47] For the lists of singular and quantified modal propositions see *Dial.* 198.18-25; LI *De Int.* 412.518-413.538.

propositions; (3) and (7) are affirmative particulars; (4) and (8) are negative universal propositions *de esse* and *de non esse*.

Abelard gives a semantics for these quantified modal propositions, in which again what is possible is defined in terms of what is *compatible* with the nature of the subject, and what is necessary is defined as what is *required* by the nature of the subject. The universal proposition "It is possible for every man to be white" (*Omnem hominem possibile est esse album*) is interpreted as: "Every man has a nature such that being white is compatible with this nature"; the particular proposition "It is possible for some man to be white" means: "Some men have a nature such that being white is compatible with this nature". Again, the universal proposition *de non esse* "It is possible for every man not to be white"(*Omnem hominem possibile est non esse album*) is interpreted as: "Every man has a nature such that not being white is compatible with this nature"; the particular proposition "It is possible for some man not to be white" means: "Some man have a nature such that not being white is compatible with this nature". If we understand the propositions in the lists above as being *de rebus*, the propositions on each line are contradictories to one another.

Abelard devotes a particular attention to the exposition of the negative particular claim "For some man it is not possible to be white" (*Quendam hominem non possibile est esse album*). Abelard argues both in the *Dialectica* and in the LI that, in order to negate a universal modal proposition such as (i) "It is possible for every man to be white" (*Omnem hominem possibile est esse album*), we have two choices: either we prepose the negative particle to the sign of universal quantification saying (ii) "Not for every man is it possible to be white" (*Non omnem hominem possibile est esse album*), or we use the sign of particularity combined with negation, saying that (iii) "For some man it is not possible to be white" (*Quendam hominem non possibile est esse album*). Both readings are taken by Abelard to be proper negations of the corresponding universal affirmative proposition. Abelard argues for this position against the opinion of his "magister" who claimed instead that since modal propositions must be read *de sensu* the only possible way to negate proposition (i) was by means of (ii):

> Nostra tamen sententia, memini, prohibere solet non ita in modalibus sicut in simplicibus particulares fieri negativas dupliciter, idest vel (si) signum particularitatis apponatur vel signum universalitatis

exstinguatur. Non enim sicut has simplices: "non omnis homo est albus" et "quidam homo non est albus" particulares utrasque concedunt, sic etiam istas modales: "non omnem hominem possibile est esse album" et "quemdam hominem non est possibile esse album". Haec enim: "quemdam hominem non est possibile esse album" secundum Magistri praedictam expositionem; quae de sensu simplicis agit, sic: "non est possibile quod dicit haec propositio: quidam homo est albus" in universalem redigitur sensum. Qui enim particularem destruit, universalem ponit, et qui universalem tollit, particularem relinquit. At qui dicit: "non omnis homo est albus" vel "quidam homo non est albus", in illa quidem particulariter, in ista removet universaliter. Sed, ut quidem praediximus, non placet nobis ita modales ex simplicibus descendere propositionibus, quod de sensu ipsarum agant, sed de rebus ipsis de quibus illae simplices, sicut et illae faciunt modales quae adverbiales habent modos, in quas istae quae casuales habent, resolvuntur. (*Dial.* 199.35-200.16)

Abelard endorses a similar view also in LI *De Int.* 414.558-415.571, but on both occasions he underlines that the two forms are equivalent only when we consider modal propositions as being *de rebus.* Proposition (ii), taken *de rebus* says that *not every man has a nature that is compatible with being white*; proposition (iii) says that *some man has a nature that is incompatible with being white.* If the same propositions were taken *de sensu* they would instead not be equivalent, but rather proposition (ii) "*Non omnem hominem possibile est esse album*" would be equipollent to (iv) "*omnem rem esse hominem non est possible*", and both would have a different truth value than (iii). Abelard's choice of taking here the two ways of negating – the one that uses "some not" and the one that uses "not every" – as being equivalent may sound strange to someone familiar with Abelard's theory of negation. For as was said above, when Abelard deals with simple categorical propositions and their square of oppositions, he repeatedly says that the two propositions"Not every man is white" and "Some man is not white" are *not* equivalent, and that only the first is the proper negation of "Every man is white" 1.2.2 on page 36. However, in virtue of his modal semantics, he thinks that the two claims (ii) and (iii) do turn out to be equipollent, and are both properly said to be negative particulars. Rather than being a point concerning the quality and quantity of modal propositions, or the semantics of negation, what Abelard insists on in these passages is the distinction

between the *de rebus* and *de sensu* interpretation of modal propositions. This distinction is the object of the following section.

1.3 *De Sensu* and *De Rebus* Modal Propositions

An account of Abelard's achievements in the field of modal logic must include some discussion of his distinction between the *de rebus* and *de sensu* interpretation of modal propositions. Just as the later *de re-de dicto* distinction, Abelard's distinction points out an ambiguity concerning all modal sentences and aims to clarify which *scope* is assigned to the modal term within a proposition. One of the main features of Abelard's approach to logic is precisely this sensitivity to the ambiguity of some linguistic constructions, and particularly to the ambiguities concerning the *scope* of linguistic expressions and of logical connectives. Abelard's texts on modalities are rich in discussions concerning the scope of different logical elements, such as the negative particle, the temporal determination "*dum*", the quantifiers, and modes themselves. The identification of the *de rebus-de sensu* distinction is certainly one of Abelard's major logical results, and probably the one that had the greatest impact in history of logic. As far as we know, Abelard is the first to explicitly draw this distinction. However, the fact that he introduces his discussion in the first place to argue against a position held by "his master" about the proper understanding of the role of modes[48] is a sign that a debate about the correct scope of modal terms was underway already before Abelard. As it was said in many occasions in the previous sections (see for example 1.1.2 on page 9), the *de rebus-de sensu* distinction is a *semantic* distinction. The same modal proposition is taken to have a *different meaning* (and consequently a *different truth value*) depending on which one of the two interpretations is chosen to understand it. The identification of this semantic ambiguity is brought up by Abelard in both the *Dialectica* and the *glosses* on *De Interpretatione*. With respect to this topic, though, the two logical works differ in some relevant aspects. For example, there is no trace in the *Dialectica* of the parallel Abelard draws in the LI between the *de rebus-de sensu* distinction and the *per divisionem-per compositionem* distinction. Also, although in both works Abelard has an inclination to consider the *de rebus* interpretation as the correct and basic understanding of modal propositions, in the *Dialectica* the *de sensu* reading is entirely rejected and said to be an incorrect interpretation of modalities, whereas in

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[48]Abelard's master is usually identified as William of Champeaux, although there are some doubts on this identification. See on this section 1.2.1 on page 30 on this point.

the *glosses* the *de sensu* interpretation is not cast aside but only presented as a different interpretation of modal propositions. For this reason, it may be better to first consider Abelard's presentation of the semantic distinction in the two works separately, and then to compare the two in order to underline their similarities and discrepancies. I first begin with the discussion of the *de rebus-de sensu* distinction as it is presented in the *Dialectica*.

Before going into the details of the two discussions, it may be worth saying something on how in general Abelard conceived the *de rebus-de sensu* distinction and on how this is related to another semantic distinction Abelard locates concerning the scope of modal operators, that is the *per divisionem-per compositionem* distinction. Let us say something briefly on the first distinction. Abelard characterizes the *de rebus-de sensu* interpretations in the following way. A proposition like "It is possible for every man to be white" (*Omnem hominem possibile est esse album*) is interpreted *de rebus* if the possibility to be white is referred to the things themselves (*de rebus ipsis*) that are signified by the subject term, in this case, every individual man. If it is possible to predicate whiteness of each one of these things (and this is the case if being white is not repugnant to the nature of each of them) the proposition is true *de rebus*. The same proposition is on the other hand true *de sensu* if the possibility is attributed to the whole content (*sensus*) of the simple proposition "Every man is white", i.e, if the *sensus* or *dictum* expressed by this simple proposition is possible. In the first case, the modal term has a narrow scope, in the second case it has a wide scope and it is applied to the whole content of a sentence. Another characterization Abelard uses, particularly in the *Dialectica*, to define this semantic distinction refers to the way modal propositions are related to the corresponding simple ones. *De rebus* modal propositions are related to the corresponding simple propositions in virtue of sharing the same terms with them, so that the two propositions "Every man is white" and "It is possible for every man to be white" have the same subject and the same predicate. On the contrary, *de sensu* propositions are related to the corresponding simple ones in virtue of saying something about their content, so that the *de sensu* proposition "It is possible for every man to be white" says something about the content of the simple claim "every man is white".

At times, Abelard associates the *de rebus* and the *de sensu* interpretations with the distinction between a divided (*per divisionem*) and a com-

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pound (*per compositionem*) interpretation of modal propositions. This second distinction is not explicitly used by Abelard in the *Dialectica*, although there is some evidence that already there Abelard conceived the *de sensu* interpretation as a sort of compound interpretation of modal propositions. An explicit use of the *per divisionem-per compositionem* terminology is to be found only in the LI,[49] where Abelard attributes the distinction to Aristotle. In the *Sophistical Refutations*, Abelard says, Aristotle considered a proposition like "It is possible for he who stands to sit" (*Possibile est stantem sedere*) and distinguished between a divided and a compound reading of such a proposition. In the compound reading, the proposition would turn out to be true if the two predicates "to sit" and "to stand" were so that they could be simultaneously predicated of the same subject, so that it were possible to say "He who stands sits". Since this is not the case, the proposition is false in the compound reading. In the divided interpretation, on the contrary, the proposition is true when the predicate "to sit" is possibly predicated of *the thing* that is actually standing, independently from which are the actual (non substantial) predications of this thing. Let us assume that the thing Abelard is referring to with "*stantem*" is a man. Because there is no predicate in the nature of man that is repugnant to the predicate "sit", even if the man to which the subject refers is now standing (and even if he will be standing for his whole life) it is true to say that this thing that is a man possibly sits.

Characterized in this way, the two distinctions *de rebus-de sensu* and *per divisionem-per compositionem* seem to overlap, and indeed they are at times treated by Abelard as if they were pointing out to the same semantic ambiguity in modal propositions. However, this identification is problematic: as Paul Thom noted, the two distinctions seem to have a different *fundamentum divisionis*, and indeed seem not to entirely coincide one with the other (Thom, 2003b, p. 45-7). Martin as well argues for the fact that the *de sensu* is not exactly coincident with the *per compositionem* reading (Martin, 2016, p. 130 ff.). Even if he introduces the *per coniunctionem* reading in LI identifying it as "*secundum sensum*" interpretation, Abelard himself is pretty clear in the following discussion that there is a difference between the "*secundum sensum*" reading in terms of the possible and the

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[49]In particular, the divided-compound distinction is introduced by Abelard in LI *De Int.* 401.250-264. For an analysis of this passage see 1.3.2 on page 65.

"*per coniunctionem*" reading in terms of the possibility of a conjoined predicate applying to the subject. We might then distinguish two different senses of the "compound" or *per compositionem* interpretation. The first sense – which is called here "simple *de sensu*" or "*secundum sensum*" interpretation – requires, for a proposition being true, that there is a relation of compatibility between the two terms of the modal proposition, i.e., it requires that the predicate and the subject of the proposition are not repugnant to one another, and can therefore be simultaneously predicated of something. According to this criterion, a proposition like "It is possible for he who stands to sit" (*Possibile est stantem sedere*) will turn out to be false, because "being standing" and "being sitting" are incompatibles. A proposition like "it is possible for every substance to be a spirit" (*Possibile est omnem substantiam esse spiritum*) will instead turn out to be true, for there seem to be no incompatibility between the nature of substances and the predicate "spirit".

The second sense – which is called the "*de sensu per coniunctionem*" interpretation – requires something more, i.e., not only that the predicate term is compatible with the subject term, but also that it is compatible with the nature of the things that are "S" in the *actual situation.* According to this second sense of the compound reading, the proposition "it is possible for every substance to be a spirit" turns out to be false, because although there is in principle no incompatibility between the predicates "substance" and "spirit", there is indeed an incompatibility between the predicate "being a spirit" and the nature of (at least) some of the things that are substances in the actual situation.[50] The proposition "it is possible for every substance to be a spirit" is then true in a "simple *secundum sensum*" reading but false in a "*de sensu per coniunctionem*" reading.[51] We then have it that the simple *de sensu* interpretation only requires, for a possibility proposition's truth, a pure compatibility between the predicate and the subject of the proposition, independently of the nature of the things to which the subject term refers in the actual situation; while the "*per coniunctionem*" reading also takes into account the nature of the things that are actually signified by the terms.

If we take *per compositionem* in the second sense, as "*de sensu per coniunctionem*", the compound interpretation is subsumed under the *de rebus*

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[50]This is what Abelard claims in LI *De Int.* 417.634-652.

[51]For the distinction between these two senses of Abelard' *de sensu* reading see also (Wciòrka, 2012, p. 49-64 and p. 245-267) and (Martin, 2016, p. 130 ff.).

or divided interpretation, for it requires the same criterion that the *de rebus* interpretation requires (the compatibility between the predicate and the nature of the subject) plus some further condition (the compatibility between the predicate and a certain feature that the subject is described as actually having). All *per coniunctionem possibilities* are therefore a subset of the *de rebus* possibilities. In the *Dialectica* Abelard tends to use the compound reading in the first sense, as simple *de sensu*. In the LI, on the other hand, Abelard uses the compound reading mainly in the second sense. There, he still uses sometimes "*per compositionem*" and "*de sensu*" as if they were synonymous, but actually this sense of the *per compositionem* reading requires something more than the simple *de sensu* one. Understanding *per compositionem* in this second way allows Abelard to establish in the LI a logical inference between compound and divided modal propositions, and to claim that any *per coniunctionem* proposition about possibility entails the corresponding *per divisionem* proposition, while the contrary is not given (see 3.4.2 on page 184 on this). This can not the case if the *per compositionem* is understood in the first sense.

To sum up this general account of the *de rebus-de sensu* and *per divisionem-per compositionem* distinctions, I consider that for any proposition such as "It is possible for an S to be P" there are three ways in which the proposition might be interpreted, listed in the following scheme. Under each interpretation, I try to specify which are the conditions Abelard requires for the proposition being true in such an interpretation (see also 1.1 on the facing page).

"It is possible for an S to be P"

1. DE REBUS:

    (i) DE REBUS or PER DIVISIONEM: the nature of the thing that is actually S is compatible with being P;

2. DE SENSU:

    (ii.a) SIMPLE DE SENSU: what this proposition says is possible: "S is P", i.e., being S is compatible with being P.

    (ii.b) DE SENSU PER CONIUNCTIONEM:: S is possibly P while-being-S, i.e., being S is compatible with being P *and* the nature of the thing that is actually S is compatible with being P.

The three interpretations are illustrated as follows:

de rebus interpretation

It is possible for Socrates to be P

Nat $_{Socrates}$: {X, Y, Z}

de sensu per coniunctionem interpretation

It is possible for Socrates, that is Q to be P

Nat $_{Socrates}$: {X, Y, Z}

simple de sensu interpretation

It is possible for Socrates, that is Q to be P

Nat $_{Socrates}$: {X, Y, Z}
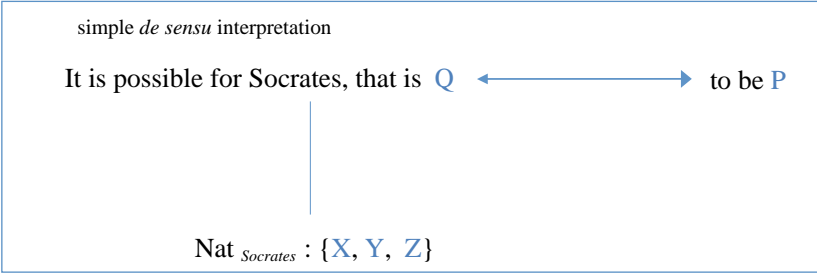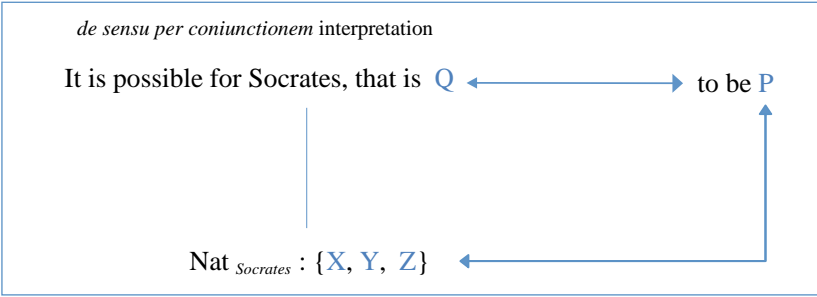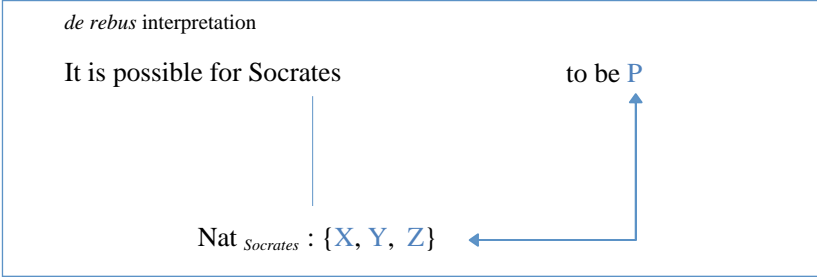
Figure 1.1: The three interpretations of modal claims.

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1.3.1 The *de sensu-de rebus* distinction in the *Dialectica*

In the *Dialectica*, the distinction between the *de re* and *de sensu* reading of
modal propositions is already developed and discussed, even if in a less ex-
plicit way than it is in the *Logica Ingredientibus*. The distinction arises from
Abelard's reflection on the problem of how propositions with nominal modes
are derived from simple ones, and which sort of relation there is between a
proposition *cum modo* and the corresponding unqualified proposition. Let
us consider the modal proposition (a) "It is possible for Socrates to be a
bishop" and its corresponding simple proposition (b) "Socrates is a bishop".
Abelard individuates two possible answers to the question of how the two
are related, and of how proposition (a) is derived from (b): either the modal
proposition *deals with the same things* that proposition (b) deals with, for
both (a) and (b) affirm something about the same subject and the same
predicate; or the modal proposition (a) *deals with the content* of (b), i.e., it
affirms something concerning proposition (b) itself and its *sensus*, and not
something about Socrates or being a bishop. In the first case, propositions
(a) and (b) are related inasmuch as they share the same terms and they
are about the same things; in the second case (a) is related to (b) because
it affirms something about the content of (b): it affirms that its content is
"possible". The two alternatives Abelard identifies to address the problem of
how (a) and (b) relate are nothing other than the two interpretations modal
proposition (a) can be given: an interpretation *de rebus* and an interpreta-
tion *de sensu*. The first alternative corresponds to interpretation *de rebus* for
in that case the modal term "possible" is a qualification of the conjunction
of the predicate "bishop" with the subject "Socrates". The second alterna-
tive corresponds instead to the *de sensu* reading of modal propositions, and
in this case the modal term "possible" has a *wide scope* and is applied to
the whole proposition "Socrates is a bishop". In this second interpretation,
proposition (a) is read as if it said: "It is possible what is signified by this
proposition 'Socrates is a bishop' ". Abelard is consistent in the *Dialectica*
in saying that only the first interpretation – the interpretation *de rebus* –
is a correct reading of modal propositions, and that a proposition like (a)
is related to its simple corresponding proposition (b) insofar as they have
the *same terms* in meaning, and they then deal about the same things. The
alternative *de sensu* reading of modal propositions is presented as an opin-
ion which was maintained by Abelard's *Magister*, but that Abelard aims to

discard as incorrect:

> Restat autem nunc qualiter modales propositiones ex simplicibus descendant confiteri. Est autem Magistri nostri sententia eas ita ex simplicibus descendere, quod de sensu earum agant, ut cum dicimus: "possibile est Socratem currere uel necesse", id dicimus quod possibile est uel necesse quod dicit ista propositio: "Socrates currit". (*Dial.* 195.11-15)

In the discussion that follows, Abelard does not present the *de sensu* interpretation held by his Master as a different, but sound, alternative to the first interpretation *de rebus*. On the contrary, he tries to prove that his Master's opinion on modal propositions is problematic, and that the *de sensu* interpretation has to be discarded in favor of a *de re* one. Whether Abelard does in fact succeed in proving the inconsistency of the *de sensu* interpretation is questionable, and I will return to this issue below. Before, I would like to go through the different arguments Abelard raises against his Master's opinion. There are five objections against the *de sensu* interpretation, that are at first listed altogether in *Dial.* 195.15-26 and then more extensively explained one by one in *Dial.* 195.26-198.11. All of the arguments especially concern modal propositions with nominal modes (adverbial modal propositions have been already set aside at this point of the *Dialectica*). These are the objections in brief:

(1) If modal propositions are interpreted as being *de sensu*, then all the rules of conversion – both simple and by contraposition – must be valid for modal propositions. However, it is opinion of Abelard's Master that conversions are not to be maintained in modal propositions as they are in simple ones. But the two opinions – that modal propositions are to be read *de sensu* and that conversions are invalid – are incompatible. The Master's position is then inconsistent.

(2) If modal propositions are taken to be *de sensu*, some propositions that must be true turn out to be false. For example this proposition: "For every man it is possible to be a non-man" (*possibile est omnem hominem esse non hominem*) should be considered true, according to Abelard, but it turns out to be false when it is read *de sensu*. Another example Abelard gives is the proposition "For every man it is possible to be dead" (*omnen hominem possibile est mortuum*

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esse), which is again a true proposition, but it turns out to be false if we interpret it *de sensu*.[52] There are therefore some propositions which Abelard maintains to be true but turn out to be false in the *de sensu* interpretation. Such interpretation leads then to an incorrect attribution of the truth values in modal propositions.

(3) On the other hand, if modal propositions are taken to be *de sensu*, some propositions that should, according to Abelard, be false turn out to be true. Abelard seems to think here that there are some propositions which are false when taken *de rebus* and true when taken *de sensu*.[53] The example Abelard gives for this objection is the following: the modal proposition "*Nullum hominem possibile est esse album*" turns out to be false when interpreted *de rebus*, as saying that *the nature of no man is compatible with being white*, whereas it is true when interpreted *de sensu*, as saying that what is said by this proposition "No man is white" is possible, for there is a possible situation in which the proposition "No man is white" is true.

(4) If modal propositions are read *de sensu*, some propositions that are negative result to be affirmative. The example is again this proposition: "For no man it is possible to be white", which is a negative universal proposition *de rebus* and an affirmative proposition *de non esse* if we consider it *de sensu*.

(5) If a modal proposition such as "For Socrates it is possible to be a bishop" is read *de sensu*, as saying that "it is possible what this proposition says: 'Socrate is a bishop'", then it is not anymore a *modal* proposition, but it becomes a simple *de puro inesse* proposition, for it affirms that a certain predicate ("possible") attaches unqualifiedly to a certain subject (the content of this proposition: "Socrates is a bishop").

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[52]We should however note that the proposition "For every man it is possible to be dead" is true, according to Abelard, only if by means of the subject "every man" we refer not to invidual men *qua* men, but we take them *qua* individual bodies. Abelard does indeed specify that the proper subject of the sentence is not "man" but "the thing that is a man" (*id quod est homo*), and he points out that although there is an incompatibility between being dead and being a man, there is no incompatibility between being dead and being a body («*Aliud est enim corporis simplicem attendere in eo naturam, aliud hominis proprietatem in eodem considerare*»). See 3.5 on page 188 on this point.

[53]It is interesting to note this because it is contrary to what Abelard states in the *Logica Ingredientibus*, where he affirms that if a proposition about possibility is true when stated *de sensu*, its corresponding *de rebus* must be true as well. See 1.3.2 on page 70.

Let us go through these objections one by one. The first objection concerns the validity of conversions. Abelard argues that if someone wants to read modal propositions *de sensu*, he also must consent to the validity of simple conversion and conversion *per contrapositionem* in modal logic. But since Abelard's Master does not want to admit that these conversions are valid in modal propositions, his position is inconsistent. Note that Abelard's first objection is not against the *de sensu* interpretation in itself, but only against the incompatibility between such *de sensu* interpretation and the denial of the validity of conversions. Abelard has an argument to show that all modal propositions are convertible, if they are read *de sensu*. More precisely, the argument shows that conversions are valid for modal propositions *anytime they are also valid for their corresponding simple propositions*. This is the argument: let us suppose that there is a pair of propositions "p" and "q", where "q" is obtained by conversion from "p" (the fact that "p" and "q" are equivalent by means of simple conversion or conversion by contraposition is not relevant). Propositions "p" and "q" are then equipollent. Abelard states then a principle in virtue of which anytime it is possible what is said by one of two equipollent propositions, it is also possible what is said by the other one, and the same works for impossibility and necessity: «Cum enim possibile sit esse quod dicit una aequipollentium, possibile est esse et quod alia proponit; et de impossibili similiter, et necessario» (*Dial.* 195.35-37).[54] The principle may be represented as saying:

$p \Leftrightarrow q \Rightarrow \Diamond\, p \Leftrightarrow \Diamond\, q$

$p \Leftrightarrow q \Rightarrow \Box\, p \Leftrightarrow \Box\, q$

$p \Leftrightarrow q \Rightarrow \neg\Diamond\, p \Leftrightarrow \neg\Diamond\, q$

It seems then that, whenever we have a pair of simple propositions which are equipollent, and Abelard's premise is that they are equipollent in virtue of conversion, also their corresponding modal propositions are equipollent. So, for example, the following are valid:

(i) Every man is an animal $\Leftrightarrow$ Every non-animal is a non-man $\Rightarrow$
   $\Diamond$ (Every man is an animal) $\Leftrightarrow$ $\Diamond$ (Every non-animal is a non-man)

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[54]This principle is used by Abelard also in his discussion of future contingents and of theological determinism, see below 4.2 and 4.2.3.

(ii) No man is a stone ⇔ No stone is a man ⇒

   ◇ (No man is a stone) ⇔ ◇ (No stone is a man)

Abelard takes this as a proof that conversions are valid also for modal propositions, when interpreted *de sensu*, for whenever their corresponding simple propositions are equivalent in virtue of conversions, also the modal propositions *de sensu* are equipollent.[55] Abelard says that therefore his Master is wrong in rejecting the validity of conversions for *de sensu* propositions:

> Miror, inquam, cum modales de sensu simplicium agere faciat, non de rebus ipsis de quibus simplex agit, cur non in istis, sicut in simplicibus, conuersiones omnes recipiant. Neque enim secundum eorum expositionem conuersiones in istis magis deficiunt quam in illis nec, si sensum suae expositionis attendant, unam ueram in conuersionibus et aliam falsam, sicut aestimant, inuenient; quod tam in conuersione simplici quam in conuersione per contrapositionem licet inspicere. (*Dial.* 195.28-196.1)

Abelard goes on to examine some counterexamples to the validity of conversion in *de sensu* modal claims. Presumably, these were the counterexamples his Master brought to argue against such validity. In all examples we have a pair of (supposedly) converse propositions in which, according to Abelard's Master, one side is true and the other is false. If this is the case, they are not equivalent.[56] The first example (*Dial.* 196.1-15) considers the following pair of propositions (Martin, 2016, p. 127 ff.):

(a) "For every man it is possible to be a stone"

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[55]Let us note however that even if the two propositions (p) "Every man is a animal" and (q)"Every non-animal is a non-man" are equipollent in virtue of conversion, this does not entail that the corresponding *de sensu* claims (p*) "It is possible for every man to be an animal" and (q*) "It is possible for every non-animal to be a non-man" are in a relation of conversion to one another. Given Abelard's idea that alethic modalities construed *de sensu* allow substitution of equipollent *salva veritate*, (p*) and (q*) are indeed equipollent, but not in virtue of conversion. Therefore, when Abelard in the *Dialectica* speaks of the rules of conversions for modal *de sensu* propositions, he is actually referring to the principles according to which *de sensu* claims allow substitution of equipollent *salva veritate*. In the LI, Abelard will indeed notice this ambiguity and he will say that, even if two propositions like (p*) and (q*) are equipollent, they are not in a relation of conversion to one another.

[56]We are not able to establish which was in fact the position held by Abelard's master on the validity of conversions and on the scope of the modal term. Abelard's objections against him suggest that he used to make some logical mistakes in treating modal claims, and that his *de sensu* interpretation was inconsistent with other parts of his modal logic. Indeed, it might also be the case that Abelard's master, although proposing in general a *de sensu* interpretation of modal claims, used at other times a *de rebus* interpretation, which would explain why he considered some of the propositions in question here as true.

(b) "For every non-stone it is possible to be a non-man".

Propositions (a) and (b) should be equivalent in virtue of contraposition (in virtue of the implicit premise stated before), but Abelard's Master thinks that (a) is false and that (b) is true. Abelard says that those who propose this counterexample do not doubt that proposition (a) is false, for it is not possible what this proposition says: "every man is a stone". However, they think that proposition (b) is true, and they justify such truth with an argument *a partibus*:

> Quia omnem hominem et omnem non-hominem possibile est esse non-hominem. De non-homine autem patet, cum scilicet iam sit non-homo; de homine etiam patet quia non-homo erit. Quod enim futurum est, possibile est; aliter enim futurum non esset, nisi scilicet possibile esset; neque enim futurum est quod natura non patitur. (*Dial.* 196.5-9)

Abelard replies this counterexample simply saying that, if we understand modal propositions *de sensu*, also proposition (b) must be false, for it is not possible that it happens what this proposition says: "Every non-stone is a non-man". He also maintains that the only case in which the two propositions are not equipollent is when one or more of the terms included in (a) or (b) are empty terms, i.e., when they fail to refer, or "universal" terms, i.e., when they refer to everything that exists. However, the same failure of conversion is to be detected also for propositions *de puro inesse*, and it is not specific to modal propositions. For example, also in the case of the two simple propositions "Every man is a stone" and "Every non-stone is a non-man", conversion fails in a situation in which there are no men, and in which the subject term of the first proposition is empty. As a consequence, Abelard claims that when we consider the validity of conversions, both in simple and modal propositions, we have to posit the condition that *all the terms present in converted propositions are neither empty terms not "universal terms"*. If this condition is granted, the two propositions (a) and (b) are equivalent and both false, and so they do not constitute a counterexample to the validity of conversions (see on this LI *De Int.* 400.240-401.249).[57]

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[57] «Sed profecto non recte convertitur, immo ita dicendum fuit "Omne quod non possibile est esse non-hominem est lapis" quam et si quis dicat falsam esse, verum dicit; sed haec fallacia conversionis eadem de causa contingit in propositionibus simplicibus qua contingit in istis modalibus, quia scilicet termini admiscentur qui omnia continent. Ut si dicam destructa rosa "Omnis non-homo est non-rosa", "non rosa" omnia continet nec potest

Abelard also considers other counterexamples, which are proposed to undermine the validity of *simple conversion* in modal propositions. In the following four pairs of propositions, it is the opinion of Abelard's Master that one side is true and the other false (*Dial.* 196.22-24). Abelard answers that, if we read modal propositions *de sensu*, in all pairs the two propositions have the same truth value, and are then equipollent to one another:

(1.a) "For no blind man it is possible to see"

(1.b) "For no one who sees it is possible to be blind"

(2.a) "For no dead [thing] it is possible to be a man"

(2.b) "For no man it is possible to be dead"

(3.a) "For every men it is possible to be dead"

(3.b) "For some dead [thing] it is possible to be a man"

(4.a) "For no body it is necessary to be a man"

(4.b) "For no man it is necessary to be a body"

Having responded to all counterexamples Abelard thinks he has shown that conversions are no less valid in modal propositions than they are in simple ones, if modal propositions are taken to be *de sensu*. Therefore, he can accuse his Master of being wrong – or at least inconsistent – in endorsing a *de sensu* interpretation of modalities together with the thesis that modal propositions do not universally admit conversions. Let us note again that this objection is not effective in refuting the *de sensu* reading *per se*, but only the incompatibility between endorsing the *de sensu* interpretation as the all-encompassing way of construing modal propositions with nominal modes and the refusal of their convertibility.

I turn now to the consideration of Abelard's second objection against those who, like his Master, take the *de sensu* interpretation as the correct and proper understanding of modal propositions. The second objection says

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ideo servari conversio; similiter, cum dicitur "Omnem non-lapidem possibile est esse non-hominem" ac si diceretur "Omnis non-lapis potest esse non-homo", "posse esse non-homo", quod in sensu predicatur, omnes singulas res continet, ideoque perit conversio. Ex quo apparet conversionem in modalibus non minus teneri quam in simplicibus, si quis diligenter sensus earum diiudicet».

that, if modal propositions are taken to be *de sensu*, some propositions that according to Abelard should be considered true turn out to be false. Abelard gives as an example the proposition (*) "It is possible for a man to be dead". This proposition, Abelard says, is true when taken *de rebus*, but false when taken *de sensu*:[58]

> Restat autem nunc post conuersiones ut ostendamus secundum eorum expositionem eas falsas quas ueras aestimant, ut istam: "possibile est hominem mortuum esse", sic scilicet expositam: "possibile est quod haec propositio dicit: homo est mortuus". (*Dial.* 196.29-32)

The falsity of proposition (*) taken *de sensu* is easily proved by Abelard: if one interprets (*) *de sensu*, he is saying that the content (*sensus*) of this proposition "A man is dead" is one among all the things or events that are possible, or, in other words, that the two predicates "man" and "dead" may simultaneously attach to the same subject, so that the same thing possibly is a man and dead at the same time. This is certainly false, for being a man requires being alive, and it is therefore impossible for someone who is a man to be also dead at the same time. The predicates "man" and "dead" are opposite terms, and are never predicable simultaneously of the same subject.

> Si enim possibile est quod illa dicit propositio, possibile simul mortuum et hominem cohaerere, quod quidem falsum est, cum ex natura oppositionis alterum non possit pati alterum. Neque enim homine[m] uiuente in eodem existere possunt, quippe cum "mortuum" "uitam" non perferat, nec homine[m] mortuo, quippe cum "hominem" "mors" non patiatur. Quia ergo nec homine uiuente nec mortuo nec etiam antequam homo crearetur, natura hominem et mortuum patiatur, numquam simul ea patitur. Nullo itaque modo uidetur uera haec propositio: "possibile hominem mortuum esse", ut scilicet de sensu simplicis exponatur. (*Dial.* 196.32-197.2)

Abelard's objection here consists in saying that proposition (*), which is supposed to be false in the *de sensu* reading, is instead a true proposition if we consider it according to the proper *de rebus* intepretation. Abelard has

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[58]One may wonder how Abelard justifies the truth of (*) when understood *de rebus*, for it seems that also when taken *de rebus* this proposition turns out to be false. It is indeed repugnant to the nature of man to be dead, for the nature of man requires being an animal, and therefore being alive. There is however, according to Abelard, a sense in which (*) is true *de rebus*, i.e., a sense for which it is true that a man (or better, that the thing which is a man) is possibly not alive. See 3.5 on page 188 on this.

some difficulties in trying to justify the truth of proposition (*) "For a man it is possible to be dead" when taken *de rebus*. It seems in fact that "being dead" is repugnant to the nature of any individual who is actually a man. In the final analysis, however, Abelard holds that there is a sense in which proposition (*) is true *de rebus*. Abelard's argumentation rests on the idea that, although it is true that a subject, say Socrates, cannot be dead while he is a man, we can also consider the thing that Socrates is (*id quod est Socrates*) not as being a man but only as being a body. If we consider this substance (Socrates) merely as a body, there is no incompatibility between its being a body and its being dead, for being dead is not repugnant to the nature of the corporeal substance that is actually Socrates (*Dial.* 196.29-197.31, see 3.5 on page 188).

The third objection against the *de sensu* interpretation says that if modal propositions are taken *de sensu* some propositions that, according to Abelard, should be considered false turn out to be true. This objection is proposed in pair with the fourth objection, that says that, along with the *de sensu* interpretation, some propositions that should be negative turns out to be affirmative. The two objections are considered in *Dial.* 197.32 and in the discussion that follows. Abaleard takes as example the modal proposition (**) "For no man it is possible to be white" (*Nullum hominem possibile est esse album*). Proposition (**), interpreted *de rebus*, says that no man is possibly white, meaning that the nature of no man is compatible with being white. When read in this way, proposition (**) is a *negative* and *false* proposition. If (**) is instead interpreted *de sensu* it is an affirmative proposition *de non esse*, which states the possibility of what is said by this proposition "No man is white". Also, when interpreted in this way proposition, (**) is a *true* proposition, for the property of being white belongs to human beings only contingently, and not necessarily, and there is therefore a possible situation in which "No man is white" is true:

> Nunc autem monstremus eas quae falsae sunt, ueras esse, uel quae negatiuae sunt, affirmatiuas esse secundum supradictam expositionem, ut istam: "nullum hominem possibile est esse album". Haec enim secundum eos ex ista descendit: "nullus homo est albus", et de sensu illius agit, ita scilicet quod dicit: "possibile est esse illud quod ipsa dicit". Sed iam uera est, si i[s]ta exponatur, et affirmatiua de non esse. Posset enim omni homini contingere albedo, sicut et omni animali sanitas. (*Dial.* 197.32-38)

Not only do we have it that some propositions that are true *de rebus* turn out to be false when taken *de sensu*, but we also have that some propositions that are false *de rebus* become true on a *de sensu* interpretation.[59] The last objection Abelard poses to his Master's opinion on the interpretation of modal propositions consists in saying that, if modal propositions are taken *de sensu*, they are not anymore modal propositions, but they turn out to be simple propositions. In order for a proposition to be considered modal, it must not only express the inherence of a predicate to a subject, but it has to state *in which way* the predicate term is conjoined to the subject term. In other words, a modal claim must assert a qualified predication, and not a predication *de puro inesse*. But if we intend the proposition (**) "For no man it is possible to be white" to mean that "What is said by this proposition is possible: 'no man is white' ", what we do is to assert the simple conjunction of the predicate "possible" to a subject, which is the *sensus* of this proposition "no man is white".

> Nec iam etiam modalis appellari potest, sed simplex, quia simpliciter possibile attribuit subiectae propositionis essentiae. Unde nec ulla est ibi modificatio rerum inhaerentiae, quippe nec de rebus agitur, sed de sensu propositionis. Quare, quoniam in ui modi non est 'possibile', modalem non facit propositionem. (*Dial.* 198.3-8)

From the analysis of these five objections, we may try to draw some conclusions about Abelard's investigation of the *de rebus-de sensu* distinction in the *Dialectica*. The distinction is introduced to account for the problem of how a modal proposition like "Socrates is possibly white" relates to its corresponding simple proposition "Socrates is white". Two alternative opin-

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[59]This is a discrepancy with what Abelard endorses in the *Logica Ingredientibus*. In the LI, where Abelard understands the *de sensu* reading as a *per coniunctionem* reading – requiring not only a compatibility between subject and predicate but also a compatibility between the predicate and the nature of the thing that is the subject in the actual situation – he claims that if a proposition about possibility is true *de sensu* it is also always true *de rebus*, while the converse inference is not given. In LI Abelard claims then that *de sensu* possibilities are a proper subset of *de rebus* possibilities, while in the *Dialectica* he assumes that there are some possibility propositions that are true *de sensu* but not *de rebus*. He provides at least two examples of that in the *Dialectica*: the first is the proposition just examined, "For no man it is possible to be white", the second is the proposition "For a future son it is possible to be alive". In LI, Abelard takes into consideration this last proposition, arguing that it is false not only *de rebus* but also *de sensu*, and that there is no proposition that is true *de sensu* unless it is also true *de rebus*. These discrepancies reveal that Abelard's idea of what it means for a proposition to be *de sensu* changes over time.

ions are contrasted by Abelard as possible answers to this problem: either the modal proposition relates to the simple one in so far as it deals with the same terms and it concerns the same things, or the modal proposition relates to the corresponding simple proposition in so far as it concerns its content (*sensus*). The first option is associated with a *de rebus* understanding of modal propositions, the second with a *de sensu* one. It is pretty clear in the *Dialectica* that Abelard gives priority to the *de rebus* understanding of modalities, which he takes to be the more fundamental understanding of modal claims. Modal propositions relate to their corresponding simple propositions in virtue of having *the same terms* (i.e., the same subject and the same predicate), and not in virtue of dealing with the content of simple propositions. Although Abelard does not use the same terminology as he uses in the *Logica Ingredientibus*, also in the *Dialectica* he conceives the *de sensu* reading of proposition (*) as a compound reading, that says: it is possible that the subject is P while being S, or that it is possible for a subject to be both S and P simultaneously. Abelard argues that the *de rebus* interpretation is not only preferable, but is the only proper understanding of modalities. This argumentation is supposed to go against the opinion of Abelard's *Magister*, who defended instead a *de sensu* interpretation of modal propositions. Abelard sets out several objections against his Master. First, the *de sensu* interpretation is incompatible with Abelard's Master's refusal to admit the validity of conversions in modal propositions. This means that if we want to read modal propositions *de sensu* we must also admit their convertibility according to the same rules that are valid for simple propositions. Second, the *de sensu* reading makes some true modal propositions false which should instead taken as true, as in the case of proposition "For a man it is possible to be dead". Third, the *de sensu* reading makes some false modal propositions true, as in the case of proposition "For no man it is possible to be white". Fourth, the *de sensu* reading makes some negative modal propositions affirmative. The example provided is again the proposition "For no man it is possible to be white", which is affirmative *de rebus* and negative *de sensu*. Fifth, if modal propositions are read *de sensu* they are not modal propositions anymore, but they are simple propositions, for they unqualifiedly state the inherence of a simple predicate to a subject, without adding any mode to qualify such inherence. Of those objections, only the last one is repeated by Abelard in the *Logica Ingredientibus*. This fifth ob-

jection seems to be indeed the strongest objection Abelard has against the *de sensu* interpretation, because it questions their very status of "modal" claims. However, Abelard's argument is hardly compelling, since it is only effective if one assumes that Abelard's account of modality is correct, i.e., if one accepts that modalities are modifications of simple predications.

1.3.2 The *de sensu-de rebus* distinction in the *Logica Ingredientibus*

The passage with which Abelard introduces the *de rebus-de sensu* distinction in his *glosses* on *De Interpretatione* is one of the most famous and quoted passages of all Abelard's logical works. There, Abelard explicitly presents this distinction as a semantic distinction between two different possible interpretations modal propositions can be given. Furthermore, he establishes the conditions for the truth of a same proposition – "It is possible for he who stands to sit" (*Possibile est stantem sedere*) – when evaluated as being *de rebus* and when evaluated as being *de sensu*. As far as we know, Abelard is the first logician to locate this scope ambiguity in the use of modal terms. Nevertheless, he does not present the distinction as his own, but he refers it back to Aristotle's *Sophistical Refutations*, where the Philosopher talked about a *compound* and a *divided* reading of modal propositions:

> Videntur autem duobus modis exponi posse, ueluti si dicam: Possibile est stantem sedere. Ut enim docet Aristoteles in Sophisticis Elenchis, alius est sensus per diuisionem alius per compositionem: per compositionem uero est si stare et sedere simul in eodem subiecto coniungat, ac si dicamus: "Possibile est stantem sedere manentem stantem" id est: sedere simul et stare, ac si dicamus: "Possibile est ita contingere ut haec propositio dicit 'Stans sedet' " quod est omnino falsum quia iam duo opposita simul inesse eidem possent; et tunc quidem possibile quasi ad integrum sensum propositionis applicatur, ac si dicatur: "Possibile est euenire ut haec propositio dicit 'Stans sedet' ". Si uero ita accipiatur quod is qui stat possit sedere quandoque, non coniungimus tunc opposita, et ad rem ipsam, non ad propositionem, possibile referimus dicentes rem quae stat posse quandoque sedere, non posse contingere ut dicit propositio Stans sedet. (LI *De Int.* 401.250-264)

From what Abelard says in this passage, it seems that the two distinctions *de rebus – de sensu* and *per divisionem – per compositionem* are only two

different terminologies that point out at the same ambiguity.[60] The reading *per compositionem* as used in this passage seems to require that for a proposition to be true there must be a relation of compatibility between the subject and the predicate, and perhaps, although Abelard is not explicit here on this point, also a relation of compatibility between the predicate and the nature of the thing to which the subject term refers in the actual situation. Differently from what he does in the *Dialectica*, in the *Logica Ingredientibus* Abelard does not argue against the validity of the *de sensu* interpretation *per se*, nor to prove that it is an incorrect understanding of modalities, but he only wants to underline the difference of the two alternative evaluations of modal propositions, so that the reader can carefully avoid those *sophismata* which are due to the ambiguous scope of the modal term. Although the *de sensu* reading is not rejected as incorrect, Abelard still points out that the *de rebus* reading is the proper and fundamental understanding of modal propositions. There are three arguments for the priority of the *de rebus* reading over the *de sensu* one:

(i) first, propositions understood *de sensu* are not strictly speaking modal propositions, but they are predications *de puro inesse*. This is the same claim Abelard makes in the *Dialectica* and that we listed above as the fifth objection against Abelard's Master (see 1.3.1 on page 63);

(ii) second, *de sensu* modal propositions do not have any quantity, i.e., they are not universal nor particular nor singular nor indefinite;

(iii) third, *de sensu* modal propositions are impersonal constructions, and therefore they lack the possibility to convert. This third point may sound odd as in the *Dialectica* Abelard argues exacltly for the opposite claim, saying that *de sensu* modal propositions allow for the same conversion rules which are allowed among simple propositions (see 1.3.1 on page 57).

All three objections are briefly sketched in the following passage:

> At uero, cum de sensu propositionis exponuntur, proprie modales non
> sunt, nec uniuersales uel particulares uel indefinitae uel singulares, nec

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[60]The issue of the alleged coincidence between the two distinctions has been already discussed in 1.3 on page 49.

ideo simplicium conuersiones retinent; tunc enim quasi totius proposi-
tionis sensus subiectum est et modus simpliciter praedicatur; nec est
personalis enuntiatio ullo modo sed impersonalis, ideoque conuersione
caret proprietas constructionis. (LI *De Int.* 402.273-278)

The first objection is the same that Abelard proposes against his Master
in the *Dialectica*, and I already considered it in 1.3.1 on page 63. The
second and third objections are worth being analysed to some extent, for
they point out a difference (and maybe a development) in Abelard's thought
about modal propositions. Both the second and third objections rest on the
fact that these sorts of propositions are considered in the *Logica Ingredien-
tibus* as being *impersonal constructions*. It may be convenient to consider
some elements of Abelard's theory of personal and impersonal linguistic con-
structions, for it is related in many respects to his theory of *de sensu* modal
propositions. A quite extensive part of the commentary on *De interpreta-
tione* 12 is dedicated to this theory (LI *De Int.* 404.326-408.437), while there
is no trace of it in the *Dialectica*'s discussion of modalities.

For a sentence, to have a personal construction, or a personal intent,
means that the sentence's terms have a personal signification, i.e., they are
suitable to refer to something that exists.[61] Not all propositions seem to
be personal in this sense. There are some propositions, as "*Euenit currere
Socratem*" or "*Ventum est ecclesiam*",[62] the terms of which seem not to
have a personal signification. They are therefore considered as *impersonal
constructions*. Of this sort are also modal proposition which are grammati-
cally expressed by nominal modes and an infinitive clause, like "It is oblig-
atory for Socrates to read" (*Oportet Socratem legere*) or "It is necessary for
Socrates to read" (*Necesse est Socratem legere*). As he often does, Abelard
distinguishes two ways in which propositions are said to be impersonal: a
proposition may be impersonal only *according to its grammatical structure*
or it may be impersonal both in grammar and *in meaning*. There are in-
deed some propositions which have an impersonal construction according to
their linguistic form, but that are still *personal in meaning* (see LI *De Int.*

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[61]For this characterization see (Wilks, 2008, p. 107); for a presentation of Abelard's
theory of personal and impersonal construction and its background see also (Tweedale,
1976) and (Mews, 1992, p. 14-6).

[62]If we were to translate these sentences into English we should say something like: "It
happens that Socrates runs" and "There was an arrival at church". However, especially
for what concerns the second proposition, there is no proper equivalent English sentence,
for the impersonal construction is not used in English in this way.

402.273-286). Their impersonality is merely a matter of their syntactical construction, which does not reflect the real intent of the sentence, that is personal. We can recognize these propositions from the fact that they can be reduced or rephrased in a grammatically personal form. The grammatically impersonal proposition "It is obligatory that Socrates reads" (*Oportet Socratem legere*), for example, could be reformulated in the personal proposition: "Socrates must read" (*Socrates est opportunus ad legendum*).[63] Again, the grammatically impersonal proposition "There was an arrival at church" (*Ventum est ad ecclesiam*), may be taken as having an implicit subject that can be explicitated ("There was an arrival to the church *by some people*") and consequently reduced to the personal construction "Some people arrived to the church" (Wilks, 2008, p. 107). Also many modal nominal propositions, like "For Socrates it is possible to read" (*Socratem possibile est legere*), have an impersonal grammatical form but are personal in meaning, for they can be reduced to a personal construction, like "Socrates possibly reads" (*Socrates legit possibiliter*), or "Socrates can read" (*Socrates potest legere*), where the subject terms of the proposition maintains a personal signification and is suited to referring to something. Once the grammatically impersonal propositions have been rephrased, we can consider them as having a certain quantity and also they become suitable for being converted.

In the *Dialectica*, Abelard claims that *all* modal propositions with a nominal structure are reducible to a corresponding adverbial proposition, and therefore they are personal in meaning, even if impersonal grammatically. In the *glosses* on the *De Interpretatione* 12, however, Abelard suggests that there are exceptions to this general rule, for not every nominal modal proposition is personal in meaning and suited to being reformulated with a personal construction. There are propositions that are "entirely impersonal", i.e., that are impersonal both with respect to grammar and with respect to meaning. These propositions, among which there are also some nominal modal claims, differ from personal propositions in so far as they have no quantity and in that they completely lack conversions. Abelard's examples in the *Logica Ingredientibus* are the following:

(a) It is necessary for a chimera not to be a quality (*Necesse est chimaeram non esse qualitatem*);

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[63]See on this LI *De Int.* 403.301-304.

(b) It is necessary for a chimera to be/not to be (*Necesse est chimaeram esse/non esse*);

(c) It is possible for that which is not to be (*Id quod non est possibile est esse*).

Examples (a) and (b) may be found in LI *De Int.* 403.299-302 and 403.312-313; example (c) is mentioned by Abelard in LI *De Int.* 405.361.[64] All those propositions that are impersonal according to meaning fail to convert, and both the rules of simple conversion and the rules of conversion by contraposition are not valid for them. Also, they have no quantity at all, since their subject is neither universal nor singular. Also, modal propositions that are essentially impersonal are suitable to be interpreted only as being *de sensu* and not in the divided sense or in the *de rebus* sense.[65]

It is interesting to note that whereas Abelard in the *Dialectica* suggested that *de sensu* propositions admitted all kinds of conversions that were admitted in simple propositions, in the *Logica Ingredientibus* he denies that *de sensu* propositions are convertible at all, unless they are reduced to a personal grammatical form. As we said in the previous section, in the *Dialectica* Abelard argues that if modal claims are taken *de sensu*, conversions must hold for them, and he suggested that, for any pair of equipollent propositions "p" and "q" where "q" is obtained from "p" by conversion, also their *de sensu* modal counterparts "It is possible that p" and "It is possible that q" are equipollent (see 1.3.1 on page 57). If for example (p) is proposition "Every man is a stone" and (q) is "Every non-stone is a non-man", Abelard claims in the *Dialectica* that the two *de sensu* propositions (p*) "For every man it is possible to be a stone" and (q*) "For every non-stone it is possible to be a non-man" are equipollent, given his idea that alethic modalities construed *de sensu* allow substitution of equipollent *salva veritate*. In the *Logica Ingredientibus*, however, he states the same principle for which (p*) and (q*) are equipollent, but he argues against the idea that (q*) is the converse of (p*). Even if they are equipollent, they are not such in virtue of conversion. In conversions, in fact, there need to be a change in the predicate, while

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[64]Abelard explicitly says there that propositions of this sort cannot be rephrased as being personal ("*nullam personalem resolutionem habent*") because their terms do not have a personal intent and they do not name any thing personally (LI *De Int.* 403.313-318).

[65]See 1.3 on page 52 for a definition of these interpretations.

(p*) and (q*) have both the same predicate, i.e., "possible":

> Notandum tamen quod si huiusmodi impersonales enuntiationes de
> sensu, non de rebus, ut dictum est, accipiuntur, secundum aequipollen-
> tiam conuersionis simplicium propositionum quae tamquam subiectae
> sunt potest aequipollentia quoque earum custodiri, ut uidelicet idem
> modus ad praedicationem utriusque propositionis applicetur. Quippe
> sicut possibile est omnem hominem esse album, id est euenire ut haec
> propositio dicit "Omnis homo est albus", ita possibile est omnem non
> album esse non hominem. Cum enim aequipollentes esse concedantur
> propositiones aliquae, quotiens possibile est esse uel necesse uel impos-
> sibile ut una dicit, ita etiam [non] dicit alia. Sed haec aequipollentia
> ad conuersionem non fit totius modalis propositionis sed secundum ter-
> minos subiectae orationis; idem enim praedicatum ad diuersa subiecta
> ponitur, modus scilicet qui ad pares per conuersionem enuntiationes
> applicatur. (LI *De Int.* 404.326-339)

The *Logica Ingredientibus* disagrees then with the *Dialectica* both in thinking
that there are some *de sensu* modal propositions which are entirely imper-
sonal and cannot be reduced to a personal, adverbial structure (the whole
discussion of impersonality is missing in the *Dialectica*) and in defending the
idea that conversions are invalid for *de sensu* modal propositions, unless for
those that are reformulated in a personal construction.

Another element which distinguishes the *Logica Ingredientibus* from the
Dialectica is Abelard's attempt in the first work to establish a logical relation
of inference between *de sensu* propositions and their *de rebus* counterparts.
This topic is developed in LI *De Int.* 416.618-421.751. The main thesis
Abelard defends there is that if an affirmative modal proposition about pos-
sibility is true when interpreted *de sensu* or *per compositionem*, then it is
also true when interpreted *per divisionem* or *de rebus*, while the opposite
inference is not always valid. Although Abelard uses the *de sensu* and the
compound (here, *per coniunctionem*) interpretations as being synonymous,
here he is evidently applying the sense that we called *de sensu per coni-
unctionem* (see 1.1 on page 53 above). According to this interpretation, a
proposition like "It is possible for an S to be P" is true *per compositionem*
if two criteria are satisfied: that being S is compatible with being P, and
if being P is compatible with the nature of the thing that is the subject in
the actual situation. If we take the compound interpretation in this sense,

Abelard says, anytime we have it that a *de sensu* proposition like "It is possible for an S to be P" is true *per compositionem*, its corresponding *de rebus* proposition "An S can be P" must also be true. On the contrary, if such a proposition is true *de rebus*, we cannot infer that it is also true *de sensu*. *Per compositionem* possibilities are therefore a sort of proper subset of *de rebus* possibilities. Conversely, all affirmative proposition about impossibility (which are nothing else than negative propositions about possibility) are such that their truth *de rebus* implies their truth *de sensu*, while the reverse inference is not given.

After having stated this general thesis, Abelard proceeds to consider some possible counterexamples one may advance against it, that is examples of propositions which are true when taken *de sensu* but false when taken *de rebus*.

> Sed opponitur quod, si possibile est omnem substantiam esse spiritum, id est possibile est ita evenire ut haec propositio dicit "Omnis substantia est spiritus", quippe posset contingere ut soli spiritus essent et tunc vera esset haec propositio "Omnis substantia est spiritus", nec tamen ideo verum est de rebus quod unaquaeque substantia possit esse spiritus. Sed et, cum nullum filium habeam, propositio vera videtur de sensu quae ait "Possibile est filium meum vivere", id est "Possibile est ita evenire ut haec propositio dicit 'Filius meus vivit'", quia adhuc fortasse ita continget; nec tamen vera est de rebus quae ait "Filius meus potest vivere", quippe per subiectum quod est "filius meus" positionem existentiae filii mei facio et quasi ipsi exsistenti "posse vivere" copulo. [...] Ideoque nec affirmationes "possibilis" de sensu videntur inferre affirmationes de rebus, sicut nec e converso. Ac fortasse nil obest si nulla sit inferentia. (LI *De Int.* 417.634-418.653)

The examples he considers are the following:

(a) It is possible for every substance to be a spirit;

(b) It is possible for my son to be alive (in a situation in which I have no sons);

Abelard discards both counterexamples, suggesting that propositions (a) and (b) are false both if they are considered *de rebus* and if they are taken *de sensu* (where *de sensu* is intended in the new sense of *de sensu per coniunctionem*). Proposition (a) is false not because the two predicates

"being a substance" and "being a spirit" are opposite predicates but because the predicate "being a spirit" is incompatible with the nature of (at least) some of the things that are actually substances; proposition (b) is false because it fails to satisfy the presupposition of existence that is implicitly carried by the subject term "my son", that is an empty term.[66]

> Si bene tamen attendamus qualiter de sensu eas esse dicamus, viden-tur semper illae de sensu inferre illas de rebus. Quod enim diximus, eas modo accipi de sensu modo de rebus, idem est quod Aristoteles per coniunctionem et divisionem accipit; ut cum dicimus "Possibile est stantem sedere" vel "non sedere", si de sensu accipimus, tale est ut dicamus "stans potest sedere manens stans" vel "potest non sedere manens stans"; ex quibus, si concedantur, potest inferre simpliciter quod et potest sedere et potest non sedere. Quare, si quis de sensu ita accipiat "Possibile est omenm substantiam esse spiritum" vel "filium meum vivere", falsae sunt, et ex eis necessario illae de rebus sequun-tur quae etiam falsae sunt. Cum enim de sensu per coniunctionem accipiuntur, talis est: "Omnis substantia potest esse spiritus manens substantia" et "Filius meus potest vivere manens filius meus" unde pos-sibile simpliciter sequitur. [...] Quotiens vera est affirmatio de possibili de sensu accepta, ut expositum est, hoc est per coniunctionem sumpta, vera est de rebus, simpliciter scilicet intellecta; sed non convertitur, ut ostendimus. Si quis autem opponat quod "Diem crastinam possibile est esse" vel "filium meum, cum nondum si pater", hae propositiones, de sensu verae sunt sed non de rebus, fallitur; si enim de sensu ac-cipiatur "Dies crastina potest esse", tale est per coniunctionem quod possit esse manens dies crastina, quod falsum est; tamen verum est quod diem crastinam possibile est esse; nam, licet non sit dies cras-tina, sub hoc tamen nomine iam manet et si de ea non praedicetur. Ideoque nam vere dici potest et "Dies crastina erit" et "Possibile est ipsam esse". At vero non ita "Filius meus erit" vel "filium meum pos-sibile est esse" vera est, quippe nondum cadit sub oratione subiecta; ideoque neque de rebus haec modalis vera est neque de sensu. (LI *De Int.* 418.653-420.713)

Having discarded all counterexamples, Abelard confirms the rules of infer-ence he gave in LI *De Int.* 416.619-417.633, according to which whenever a proposition is true *de sensu* it is also true *de rebus*. Just as there is an inferential relation between possibilities *de rebus* and *de sensu*, Abelard also

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[66]For this existential requirement, see 2.1 below.

maintains in LI that we could assess a valid inference from impossibilities *de rebus* to impossibilities *de sensu*, i.e., anytime a proposition about impossibility is true *per divisionem* it is also true *per compositionem*, while the viceversa is not valid.

Abelard's discussion of the inferential relation between possibilities taken *per compositionem* and possibilities taken *per divisionem* might help us to understand better the difference between the "simple *de sensu*" interpretation and the "*de sensu per coniunctionem*" interpretation. Let us consider a proposition such as (*) "It is possible for every substance to be a spirit" (*Possibile est omnem substantiam esse spiritum*). The first understanding requires, for this proposition to be true, that there is a relation of compatibility between the nature of substances – independently of which are the things that are substances in the actual situation – and what is signified by the predicate "spirit". In other words, it requires that there is a compatibility between the two predicates "substance" and "spirit". This is the sense that Abelard usually intends when he says that a proposition like (*) is true *de sensu* if what is said by of the simple proposition "every substance is a spirit" is one among all the things that might happen («evenire potest quod haec propositio dicit»), i.e., if "every substance is a spirit" is the case in some possible situation. This is indeed true, because there is a possible situation in which every substance that exists is a spirit, as Abelard says in LI:

> Sed opponitur quod, si possibile est omnem substantiam esse spiritum, id est possibile est ita evenire ut haec propositio dicit "Omnis substantia est spiritus", quippe posset contingere ut soli spiritus essent et tunc vera esset haec propositio "Omnis substantia est spiritus", nec tamen ideo verum est de rebus quod unaquaeque substantia possit esse spiritus.

Within this interpretation, there is no requirement for the compatibility between the predicate "spirit" and the natures of the individuals things that are included in the actual extension of the subject "every substance". However, there is also a second understanding of the *per compositionem* interpretation – that Abelard mostly uses in the LI and that he calls *de sensu per coniunctionem* – which does not only require, for the proposition to be true, that there is a compatibility between *being a spirit* and the nature of *substance*, but also requires that there is a compatibility between what

is signified by the predicate and the nature of all the individuals that are contained in the actual meaning of the subject, i.e., the nature of everything that is a substance in the actual situation (LI *De Int.* 419.681-701). Because some substances now exist the nature of which is not compatible with being a spirit (because, for instance, their nature requires that they are corporeal things), proposition (*) is false in the *per coniunctionem* reading, although it is true in the simple *de sensu* one. It is not easy to always detect which one of the two senses Abelard employs, for he often refers to both simply as the *de sensu* or *per coniunctionem* reading. From what Abelard says in the passage from the LI just quoted, however, it is clear that in order to maintain a certain inferential relation between propositions *per divisionem* and compound propositions, he propends to interpret these latter according to a *per coniunctionem* understanding. This gives him the opportunity to establish that all *per compositionem* possibilities are a proper subset of *per divisionem* possibilities. In the *Dialectica*, the distinction between the *per compositionem* and the *de sensu* understandings is instead not clearly stated. Perhaps, Abelard had no need to develop it because in the *Dialectica* he never tries to assess an inferential relation between *de rebus* and *de sensu* claims.

Let us sum up Abelard's position on the distinction *de rebus-de sensu* as it is presented in the *glosses* on *De Interpretatione*. The distinction between the two interpretations is explicitly proposed in LI *De Int.* 401.250-264 as a distinction between two different meanings modal propositions can be given. Differently from the *Dialectica*, the topic is not presented as related to the problem of individuating which is the relation between simple and modal predications, nor Abelard refers polemically to the *de sensu* interpretation as being the position which was wrongly endorsed by his Master. The *de rebus-de sensu* distinction is referred back to Aristotle's *Sophistical Refutations*, where the Philosopher distinguished between a divided and a compound interpretation of propositions. A proposition "It is possible for S to be P" has different truth conditions in the two intepretations. To be true *de rebus*, the proposition has to satisfy the condition that being P is not repugnant to the nature of the thing that is an S. Abelard is not always consistent in his way of using the *de sensu* or *per compositionem* in the *glosses*. However, we may say that in this work he is inclined to interpret the compound reading as what we called *de sensu per coniunctionem*, and he also

sometimes uses the *de sensu* interpretation as having this meaning. In this new meaning of being *de sensu*, in order to be true *de sensu* the proposition has to satisfy two conditions: (i) that the two predicates "S" and "P" are not repugnant to one another, that is that they can be simultaneously predicated of the same subject; and (ii) that being P is not repugnant to the nature of the thing that is actually S. The two interpretations *de rebus* and *de sensu* are both presented as two alternative and consistent understandings of modal propositions. However, also in LI Abelard makes clear that he has a preference for the first interpretation, which he thinks to be more fundamental than the second, and he provides some arguments against those who choose to interpret modal propositions *de sensu*:

(i) first, if modal propositions are understood *de sensu*, they are not modal propositions anymore, but they become simple propositions;

(ii) second, *de sensu* modal propositions do not have quantity, i.e., they are not universal nor particular nor singular nor indefinite;

(iii) third, *de sensu* modal propositions are impersonal constructions, and therefore they lack the possibility to convert.[67]

All *de sensu* propositions are said by Abelard to have an impersonal construction. However, the majority of the *de sensu* propositions, though impersonal in grammar, are personal according to their meaning, that is they might be reformulated as having a personal (adverbial) construction. There are though some *de sensu* modal propositions that are impersonal both with

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[67]Objections (ii) and (iii) reveal a discrepancy between the position Abelard holds in the *Dialectica* and the one he holds in the *Logica Ingredientibus*. As we have seen in 1.3.1 on page 57 above, in the *Dialectica* Abelard holds that whenever we have a pair of simple propositions which are equipollent in virtue of conversion, also their corresponding modal propositions are equipollent. So, for example, the following is valid:

(*) every man is an animal ⇔ Every non-animal is a non-man ⇒ ◇ (Every man is an animal) ⇔ ◇ (Every non-animal is a non-man).

Given that possibility construed *de sensu* allow substitution of equipollent *salva veritate*, Abelard argues then that conversions are always valid for *de sensu*. However, when Abelard in the *Dialectica* speaks of the rules of conversions for modal *de sensu* propositions, he is actually referring to the principles according to which if two propositions like (p) and (q) are equipollent, the corresponding *de sensu* modal claims (p*) "It is possible that p" and (q*) "It is possible that q" are also equipollent. In the LI, he points out instead that even if (p*) and (q*) are equipollent, they are not so in virtue of conversion, and that in general *de sensu* propositions do not convert, insofar as they are impersonal constructions and lack quantity.

respect to their grammatical form and with respect to their meaning. Examples of such propositions are "It is necessary for a chimera not to be a quality", "It is necessary for chimera (not) to be", or "It is possible for what it is not to be". Those propositions that are entirely impersonal cannot be reformulated as having a *de sensu per coniunctionem* form, and they can be understood only in the "old" meaning of the *de sensu* interpretation. Also, these propositions that are entirely impersonal lack any possibility to convert and they lack quantity. In LI *De Int.* 416.619-421.751 Abelard tries to establish a system of logical relations holding between *de sensu* and *de rebus* modal propositions. His general thesis is that all affirmative propositions about possibility that are true *de sensu* (in the new meaning) are also true *de rebus*, while the reverse inference is not given. Conversely, all affirmative propositions about impossibility that are true *de rebus* are also true *de sensu*, while the vice versa does not hold. Abelard considers some counterexamples to this position (among which also the proposition "It is possible for my future son to be alive", which he considered in the *Dialectica* to be false *de rebus* and true *de sensu*),[68] but he claims against the validity of all counterexamples and concludes that the stated inferences between *de rebus* and *de sensu* propositions hold without exceptions. The discussion of the *de rebus-de sensu* distinction in LI is much longer and more detailed than the one proposed in the *Dialectica*. Also, from what was said above, it is evident that there are many discrepancies between the two logical works, which testify that Abelard modified in time his opinion about the semantic distinction. In the following section I try to sum up the major discrepancies between the two works on this matter.

1.3.3 A comparison between the two logical works on the *de sensu-de rebus* distinction

The first thing to note when comparing the two works is that they both deal with the semantic *de rebus-de sensu* distinction and they both address the problem of modal propositions being semantically ambiguous, but the discussion of this topic is carried out in a different way. In the *Dialectica*, the problem is addressed only indirectly, in relation to the question about how modal propositions relate to simple ones, and how the first are derived from

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[68]In the *Dialectica* the formulation of the example is slightly different: "It is possible for a future son to be alive".

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the second. There are two alternatives Abelard sets to answer such question: either modal propositions deal with the same terms and the same *things* simple propositions deal with, or modal propositions deal with the *meaning* of simple propositions. On closer inspection, we note that the two alternatives presented by Abelard are nothing other than two different interpretations one may apply when reading a modal proposition: a *de rebus* interpretation, coinciding with the first alternative, or a *de sensu* interpretation, coinciding with the second. In the *Logica Ingredientibus*, the question of the *de rebus-de sensu* distinction is not related to the problem of how modal propositions are derived from simple ones. Instead, the distinction is presented more explicitly – maybe thanks to the influence of Aristotle's *Sophistical Refutations* – as a contrast between two possible *scopes* the modal term may be given: a wide scope, so that the mode is applied to the whole meaning (*sensus*) of a simple proposition, or a narrow scope, so that the mode is a qualification of the way in which the predicate term attaches to the subject term.[69] In the *Dialectica*, the *de sensu* interpretation is presented as the position which was held by Abelard's master (which has been usually identified as William of Champeaux, although this identification could be unjustified, as Martin shows in (Martin, 2016)); there are instead no references to this master and to his position in LI. Also, while in the *Dialectica* the *de sensu* interpretation is presented as an erroneous and unsatisfactory interpretation of modalities, in LI both interpretations are presented as reasonable and consistent ways to read modal propositions, which diverge though insofar as they require different conditions to be satisfied in order for a proposition to be true. In the two works Abelard explicitly declares the priority of the *de rebus* interpretation over the *de sensu* one, and puts forward some objections against the plausibility of the *de sensu*. One of the objections that Abelard proposes against the *de sensu* reading is common to both works: he says that if someone interprets modal propositions *de sensu*, so that the modal term is applied to the whole content of a simple proposition as its predicate, then it is not correct to consider these propositions to be *modal*, but they are strictly speaking propositions *de puro inesse*. A proposition is modal only if

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[69]More precisely, we might say that in LI Abelard distinguishes between *three* possible scopes that modal terms might be given: the narrow *de rebus* scope; the wide *de sensu* scope (where "*de sensu*" is intended in the sense the expression has in the *Dialectica*; and an "intermediate" scope which Abelard calls "*de sensu per coniunctionem*", and which he takes to corresponds to Aristotle's compound reading in the *Sophistical Refutations*.

asserts an inherence *cum modo*, that is a qualified inherence. But if a modal proposition like "It is possible for Socrates to be a bishop" is understood *de sensu*, it asserts that a certain predicate ("possible") inheres *unqualifiedly* to a certain subject (the meaning of the simple proposition "Socrates is a bishop"). The inherence asserted is then simple, and not qualified, and so the proposition is a simple, non-modal proposition. In the *Logica Ingredientibus* Abelard refers to Aristotle's *Sophistical Refutations* and to the Aristotelian distinction between the *per divisionem* and *per compositionem* interpretation of modal propositions. These references are missing in the *Dialectica*. However, even if he does not use the same terminology, also in the *Dialectica* Abelard conceives the *de sensu* interpretation as a sort of compound interpretation. Abelard's understanding of the *de sensu* and of the *per compositionem* interpretation varies in the two works: in the *Dialectica*, a proposition like "It is possible for an S to be P" is true *de sensu* if the two terms "S" and "P" are not incompatible. In LI the author also requires, for the proposition to be true in the compound sense, that being P is compatible with the nature of the subject that is actually S. The first sense of the compound interpretation coincides with the usual interpretation *secundum sensum* of the modal term, that we also called "simple *de sensu*" interpretation. In LI Abelard almost exclusively uses the compound interpretation in the second sense, that we called above *de sensu per coniunctionem* (see figure 1.1 on page 53 above).

Differently from what he does in the *Dialectica*, where he thinks that all nominal propositions may be reduced to an adverbial form, Abelard claims in LI that there are some nominal *de sensu* propositions which are impersonal both according to their grammatical structure and according to their meaning, and that therefore cannot be reduced to a personal (adverbial) construction. The whole discussion about the personality and impersonality of *de sensu* modal propositions is missing in the *Dialectica*, while it covers an extensive part of the *glosses*. These propositions that are essentially impersonal and cannot be rephrased as having a personal form are not suitable of being interpreted *de rebus* or *de sensu per coniunctionem*, but can only be interpreted in the simple *de sensu* reading. Moreover, these propositions have no quantity, and therefore also completely lack the possibility to convert. This is another difference between the two works: while in the *Dialectica* Abelard claims that all conversions (both simple and by

contraposition) are valid for *de sensu* propositions, in LI he argues for the exact contrary position. This is not due to the fact that Abelard changes his mind about which valid equipollences are there between modal claims, but to the fact that whereas in the *Dialectica* Abelard thinks that whenever two non-modal claims (p) and (q) are related by conversion also the corresponding *de sensu* claims (p*) "it is possible that p" and (q*) "it is possible that q" are equipollent in virtue of conversion, in the LI he claims instead that although (p*) and (q*) are equipollent, they are not in a relation of conversion to one another. Interestingly, the terminological similarity between some passages of the two works on the topic suggests that in LI Abelard takes into consideration the thesis and the arguments he gave in the *Dialectica* and he argues with new arguments against his own position.

Another discrepancy between the two works is the fact that in LI Abelard advances the thesis that all propositions about possibility that are true *de sensu* (in the new meaning of *de sensu*, as *de sensu per coniunctionem*) are also true *de rebus*, while the inference is not convertible. In the *Dialectica* there is no attempt to set general rules of inference between propositions *de rebus* and propositions *de sensu*, but at least in two occasions Abelard suggests that there are some propositions about possibility that are true *de sensu* but false *de rebus*. Also on this point, then, the two works disagree. Such disagreement is well represented by the different treatment that is given in the two works of the modal proposition "It is possible for my future son (or, for a future son) to be alive". In the *Dialectica*, the proposition is said to be true *de sensu*, for there is a possible situation in which the simple sentence "My son is alive" is true. In LI, on the contrary, the proposition is said to be false both when interpreted *de rebus* and when interpreted *de sensu*. Again, there are many terminological similarities in the two passages, and it seems that in LI Abelard is arguing against the very same position and the same arguments that he himself held in the *Dialectica*. From the treatment of the *future son* example, it also seems that in LI Abelard understands both *de rebus* and *de sensu* affirmative modal propositions as carrying an implicit presupposition of the existence of their subjects. In the *Dialectica*, on the contrary, Abelard holds that there are some *de sensu* modal propositions which are true even if they are about non existent beings. The problem of the existential import of modal propositions will be investigated in the next chapter.

Chapter 2

Abelard's Modal Logic

After having investigated Abelard's definition of modes and his analysis of the syntactical and semantical structure of modal propositions, I consider in this chapter the core of Abelard's modal logic, i.e., the system of relations of opposition and equipollence that he establishes as holding among possibility, impossibility and necessity propositions (see 2.2 below). Abelard considers both the relations that propositions with the same mode have to one another, and the mutual relations holding for propositions with different modes. The rules of inference governing the logical relationships between possibility, impossibility and necessity are represented by means of different squares of opposition, first for singular propositions (section 2.2.1) and then for quantified ones (section 2.2.2). Among the others, Abelard establishes an equipollence between the modalities of possibility and necessity, saying that any proposition of the form "It is necessary for (every-some) S to be P" is equipollent to "It is not possible for (every-some) S not to be P", in the sense that the two propositions are "concomitant", i.e., they have the same truth value in all possible situations. However, this equipollence (or «natural concomitance», as Abelard calls it here) between the two modal terms turns out to be problematic, given Abelard's theory of the meaning of affirmative and negative categorical propositions and of their implicit existential import, and this threatens to invalidate the consistency of Abelard's entire system of modal logic.

In order to understand this problem it might be helpful to dedicate some time to discuss Abelard's position on existential presupposition and non referring terms in his non-modal and modal logic, which I do in section 2.1.

In particular, I argue that Abelard interprets all *de rebus* affirmative modal propositions as having an implicit import, the satisfaction of which is a necessary condition for their truth. I report several texts from Abelard's logical works to support this interpretation, in particular passages 201.1-17 from the *Dialectica* and LI *De Int.* 639-652 from the *glosses* on Aristotle's *De Interpretatione*, where the issue is explicitly addressed by the author. I also argue that Abelard is consistent in maintaining this opinion about *de rebus* propositions both in the *Dialectica* and in the *Logica Ingredientibus.* On the contrary, the two logical works differ quite significantly on the treatment of the existential import in *de sensu* modal propositions. Once we have granted that Abelard's modal propositions behave as simple ones with respect to their existential presupposition – that is, all affirmative modal propositions have import, and all negative propositions have not – we need to address a number of difficulties, and verify whether Abelard's rules of oppositions, conversions and equivalences among modal propositions is consistent with such interpretation. In particular, we need to explain how Abelard's position on the existential import can be consistently maintained together with his endorsement of some standard laws of modal equipollence, for which "*being possibly φ*" is equivalent to "*not being necessarily not-φ*" and "*being necessarily φ*" is equivalent to "*not being possibly not-φ*". In those standard equipollences, affirmative modal propositions are said to be equivalent to negative ones, and this is problematic if affirmations and negations behave differently with respect to their existential import. I argue that Abelard is conscious of the many complications that are due to the implicit import in modal propositions. It is because of these complications that he decides in the end to restrict the validity of his modal system only to those propositions whose subjects actually refer. According to Abelard, the standard laws of equipollences, as well as many logical relations between modal propositions, only hold under such condition. Empty terms, which Abelard struggled to take into account within his non-modal categorical logic, are then definitively expelled from his modal system.

Finally, in section 2.3 of this chapter I consider Abelard's discussion of the logic of modal claims that contain temporal qualifications. Abelard refers to these claims as "determinate" or "composite" modal propositions, as opposed to "simple" modal ones. Although Abelard's interest is mainly directed to temporal determinations, introduced by the adverbs "while"

(*dum*, *cum*), "as long as" (*quando*, *quamdiu*, *quotiens*); "in every time" (*omni tempore*), "before" (*ante*) and "after" (*postea*), in the *Logica Ingredientibus* he also considers other sorts of qualifications, such as the spatial qualification "where" (*ubi*), or the exclusive determination "only" (*solum*, *tantum*). Abelard is particularly interested in those modal claims that contain a "*dum*" qualification, as for example "It is necessary for Socrates to read while he reads", or "It is possible for Socrates to sit while he stands". To them, he devotes a long and intricate discussion both in the *Dialectica* (206.7-210.180) and in the glosses on *De Interpretatione* (LI *De Int.* 422.778-432.1085). Abelard's aim is first to investigate the syntactical structure of propositions of this sort and to list the various possible ways in which they can be interpreted, and then to establish a system of logical rules relating determinate modal propositions to simple modal ones and to propositions *de puro inesse*. As Martin has already shown in (Martin, 2016), in his discussion of determinate claims, Abelard reveals a rigorous and sophisticated care in distinguishing the different scopes and semantic roles that can be attributed to the linguistic items composing modal propositions, such as the temporal adverb, the modal term and the other logical connectives that might be included in them, in particular the negative operator "*non*". Abelard also takes into account some *sophismata* that are raised by propositions containing temporal qualifications. In particular, he considers some absurd consequences that might be derived from the apparently innocuous claim that it is possible for Socrates to sit in every time in which he lives (*Possibile est Socratem sedere omni tempore vitae suae*), which according to some people entails that Socrates is at the same time both sitting and not sitting.

2.1 The Existential Import of Modal Propositions

Before considering the rules of inference governing the logic of modal propositions, something must be said about whether modal propositions have or have not, in Abelard's logic, an implicit presupposition of the existence of their subjects. The question about the existential import of Abelard's modal propositions is a complex one, which, as far as I know, has not yet been properly answered, and that it is generally not often addressed.[1] It is however important to understand how Abelard deals with it in his modal logic and whether his modal system is consistent in this respect. In the following section 2.1.1 I investigate the way Abelard deals with existential import in non-modal propositions. As many other medieval logicians, Abelard thinks that all affirmative *non-modal* propositions carry an implicit existential import. He thinks the same about those propositions that include an internal negation, that is, those propositions in which the negative particle "*non*" is applied to the copula "*est*" and has the role of separating the subject term from the predicate term. The two propositions "My son is alive" and "My son is not alive", for instance, are considered by Abelard to be false when the subject term "my son" is an empty name, because in that case their implicit existential presupposition would not be satisfied. On the contrary, those propositions in which the negation is external and applied to an entire proposition (as for example the proposition: "It is not the case that my son is alive") are always true when their subject term fails to refer, for there the negative particle extinguishes the existential import of the proposition to which is applied.[2] Abelard's treatment of negation shows that he was aware of the problems connected to the existential import and to the presence of empty names in categorical propositions. His distinction between internal negation and external negation – and the consequent reformulation of the traditional square of oppositions – seems to be motivated exactly by Abelard's desire to provide a system of logical relationships that is valid

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[1]Paul Thom suggests in (Thom, 2003b) that all *de rebus* propositions have an import, according to Abelard. However, he does not go into the details of this assumption and does not explain how Abelard's system of equivalences and oppositions can be valid in spite of that. Other interpreters, as Michael Astroh and Roberto Pinzani recognize that there are problems connected to the existential presupposition in Abelard's modal propositions, and admit that the problem is in need of further discussion, which however they do not undertake. See (Astroh, 2001) and (Pinzani, 2003) on this.

[2]For a brief analysis of Abelard's theory of negation see 1.2.2 on page 36 above.

also for those propositions whose subjects fail to refer. With respect to this point, he largely goes beyond Boethius's logic. But what about modal propositions? Does Abelard consider the question of existential import also when he deals with modal affirmations? And again, if modal claims have such implicit import, is this consistent with the system of modal oppositions and equipollences Abelard provides? The interpretation I propose in 2.1.2 is that, just as simple propositions, all affirmative modal *de rebus* propositions have an implicit import, while negative propositions do not. As for *de sensu* modal propositions, I argue that all those propositions which are impersonal according to construction but personal according to meaning (and therefore all *de sensu* propositions that may be reformulated personally as being *de sensu per coniunctionem* propositions) also have an implicit import. Finally, in 2.1.3 I provide some evidence of the fact that Abelard envisages in the *Logica Ingredientibus* some problems raised by this implicit presence of an existential import, and that because of these problems he eventually decided to restrict the validity of his modal system of equivalences and inferences only to those propositions that do not contain empty names. Abelard's modal logic, then, only works for those propositions whose subjects fall into the domain of actually existing things.

2.1.1 The existential import of simple propositions

It may be useful to briefly consider first the way Abelard deals with existential presupposition in non-modal categorical predications. This may help to shed some light on how the problem must also be solved for modal propositions. There are two places where Abelard considers the question of existential presupposition of simple propositions: when discussing his theory of extinctive negation and when discussing the rule of conversion by contraposition. In the two places, Abelard opts for two different solutions to avoid the problems raised by the presence of empty names. I will try to trace these two alternatives and then consider whether one of the two is applicable also in the case of modal propositions.

For what concerns simple propositions, Abelard's idea – not unusual among medieval logicians – seems to be that all affirmative propositions have an implicit presupposition of existence of their subject, while their corresponding negative propositions do not. The affirmative propositions

(a) "Socrates is a man",

(b) "Every man is an animal",

(c) "Some man is an animal"

must be read as saying:

(a) "Socrates, who exists, is a man",

(b) "Men exist and every one of them is an animal",

(c) "Men exist and some of them are animals".

A necessary condition for the truth of propositions (a)-(b)-(c) is that their implicit existential import is satisfied, i.e., they are true only if Socrates, or men, exist. In a situation in which there are no men (for example, before creation, as Abelard often says), all three propositions turn out to be false. Their corresponding negative propositions, if the negation is placed properly so to extinguish *the whole meaning* of the affirmative proposition, do not only negate the inherence of the predicate term to the subject term, but also negate the presupposition of existence which is part of the meanings of (a)-(c).[3] These negative propositions are

(a*) "It is not the case that Socrates is a man",

(b*) "Not every man is an animal",

(c*) "No man is an animal",

and they must be read as saying:

(a*) "It is not the case that (Socrates, who exists, is a man)",

(b*) "It is not the case that (men exist and every one of them is an animal)",

(c*) "It is not the case that (men exist and some of them are animals)".

For the truth of an affirmative proposition such as (b) "Every man is an animal" the fulfillment of two separate conditions is required: first that men

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[3]For Abelard's theory of extinctive negation see (Martin, 1991) and (Martin, 2004b). This theory was also briefly considered in 1.2.2 on page 36 above.

exist,[4] and second that "being animal" is predicated of all of them. On the contrary, for the truth of negative propositions such as (b*) is sufficient that one of these two conditions is satisfied: either that men do not exist, or that there is some man who is not an animal. If negation is understood exstinctively, each affirmative proposition is contradictory (*dividens*) with the corresponding negative one, that is the two propositions are never simultaneously true or simultaneously false. Let us consider propositions (b) and (b*), for example: in all situations in which men exist, proposition (b) is true – since both the existential presupposition and the requirement of inherence between subject and predicate are satisfied – and (b*) is false; in all situations where men do not exist (b) is false and (b*) is true. There is no possible situation in which they are simultaneously true or simultaneously false. This picture of Abelard's interpretation of simple propositions is derivable from his discussion of negation in *Dialectica* 173-184, where he argues, against Boethius, that the proper negation of a proposition as (b) is the proposition (b*) "Not every man is animal" (*Non omnis homo est animal*), and not the one proposed by Boethius (b**) "Some man is not animal" (*Quidam homo non est animal*). This is because (b**) is an affirmative proposition that contains a separative, internal negation, and as such it implicitly presupposes the existence of men. The meaning of (b**), once explicitated, is in fact something like: "Men exist and some of them is not an animal". Both (b) and (b**) would then be simultaneously false in a situation in which men do not exist, and so they are not in a relation of contradictoriness, as Boethius wanted, but of contrariety.

Even if Abelard is very clear in saying that the affirmative universal proposition must be negated by applying an extinctive negation to its whole content, so to obtain the pair of *dividentes* "*Omnis homo est albus*"-"*Non omnis homo est albus*", we could be more confused about which is in his view the proper way of negating the particular affirmative "*Quidam homo est albus*", i.e., whether the negative universal proposition "*Nullus homo est albus*" is its correct contradictory and whether the "*nullus*" must be

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[4]To my knowledge, Abelard does not discuss the number of men whose existence is required for a universal assertion to be true. A common position assumed by later logicians is that the existence of *more than two men* is a necessary condition for the truth of the proposition "Every man is an animal", i.e., that the use of *omnis* requires at least three *appellata* (particular things). This rule is posited in the texts of some thirteenth century logicians, such as Lambert of Auxerre, William of Sherwood, Roger Bacon or Ricardus Sophista, while it is explicitly rejected by others, e.g. by Peter of Spain.

interpreted as including an extinctive or a separative negation. From what Abelard says in *Dial.* 174.18-23 it seems that the proposition should be taken as including a *separative* negation. He claims in fact that in the proposition "*Nullus homo est albus*" the predicate "white" is *removed* by every thing that is signified by the subject:

> Cum enim huic propositioni: "omnis homo iustus est" haec contrarie opponatur: "nullus homo iustus est", illa vero contradictorie: "non omnis homo iustus est", atque utraque ipsius sententiam perimat, haec quidem: "non omnis homo iustus est" simpliciter priori contradicit, illa vero: "nullus homo iustus est", plus facit, quae non tantum ostendit non omni homini iustum convenire, verum etiam *ab omni removeri.* (my emphasis)

This passage is taken by Martin as evidence that negation in a *nullus*-claim is interpreted separatively by Abelard, and that because of this we should represent his logic for non-modal propositions by means of a *rectangle* (not a square) of oppositions (Martin, 2004b, p. 168). It is true though that in another passage of the *Dialectica*, Abelard explicitly says that the two propositions "*Non quidam homo est albus*" and "*Nullus homo est albus*" have exactly the same meaning («*tantundem proponunt*»), and that both should be read as having a preposed negation which extinguishes the sense of the proposition to which is applied. Therefore, Abelard says, whenever the particular affirmative is false, the corresponding *nullus*-claim turn out to be true:

> Ea [. . .] quae ait simpliciter: 'quidam homo non est albus', albedinem a quodam removet. Qui vero proponit: 'non quidam homo est albus' sensumque particularis affirmativae tollit, in contradictionem eius incidit, universalem scilicet negativam, ac si diceret nullum esse album. Qui enim negatione praeposita sensum propositionis exstinguit, ipsam profecto falsam esse ostendit. Si autem falsa sit 'quidam homo est albus', vera ipsius contradictoria relinquitur 'nullus homo est albus'. Tantundem ergo proponit 'non quidam homo est albus', quantum 'nullus homo est albus'; et merito. Quod enim dicitur 'nullus homo' tale est quale etiam 'ullus homo' et qui negat quemdam hominem esse album, omnia quoque eius accidentia perimit, idest et Socratem esse album denegat et Platonem et quemcumque alium. (*Dial.* 177.24-36)

This passage points out - quite explicitly in my opinion - that a negative claim such as "*Nullus homo est albus*" is taken by Abelard to be the proper

contradictory of the corresponding *quidam*-claim, because, just as the proposition "*Non quidam homo est albus*", it contains a preposed negation which destroyes the sense of the affirmative particular («*sensum particularis affirmativae tollit*»). I take then the *nullus*-formulation as containing an extinctive negation, so that "*nullus homo*" must be taken as "*non quidam homo*". We must remember however that this is only a possible interpretation of Abelard's position, and that there are other passages which may lead us to propend for a different reading, e.g., to the interpretation of a rectangle of opposition proposed by Martin in (Martin, 2004b).

Figure 2.1 on the following page below shows the difference between Boethius' and Abelard's formulations of the Aristotelian square of oppostion (Boethius' square is represented above, Abelard's below). From Abelard's discussion of negation we infer that he was aware of the issues raised by the existential import, and he tried to give consistency to the logic of simple categorical propositions and to the Aristotelian square of opposition resorting to extinctive negation and to the attribution of existential presupposition only to affirmative propositions, and not to negative ones. This is the first strategy Abelard employs to deal with the issue of existential import in non-modal logic.

Another place where Abelard faces the problem of existential presupposition is when he deals with the Boethian rule of conversion by contraposition. According to such rule, a proposition like (c) "Every man is an animal" is convertible in the proposition (c*) "Every non-animal is a non-man". The two propositions are equipollent in virtue of conversion, and therefore they must have the same truth value in all possible situations. Let us consider though a situation in which there are no men, but there is at least another existing thing that is not an animal. In this situation, proposition (c), which is affirmative and has therefore an implicit import, is false. Proposition (c*), on the contrary, is true, for every thing that exists is a "non-man" in such a situation. The presence of empty names, then, seems to invalidate the rules of conversion by contraposition, for a proposition that contain an empty subject is not generally equipollent with its converse proposition. Abelard's solution here is to restrict the validity of conversion by contraposition, that is still maintained in his logic as a rule of inference, but only under certain conditions: these conversions hold only for propositions that do not contain empty terms (or "universal" terms, i.e., terms that are predicable of every

(A) *Omnis homo est albus*

Every man is white

contrariae

(E) *Nullus homo est albus*

No man is white

subalternae

contradictoriae

subalternae

(I) *Quidam homo est albus*

Some men are white

subcontrariae

(O) *Quidam homo non est albus*

Some men are not white

(A) *Omnis homo est albus*

Men exist and every one of them is white

contrariae

(E) *Nullus (= non quidam) homo est albus*

It is not the case that: men exist and some of them are white

subalternae

contradictoriae

subalternae

(I) *Quidam homo est albus*

Men exist and some of them are white

subcontrariae

(O) *Non omnis homo est albus*

It is not the case that: men exist and every one of them is white

Figure 2.1: Boethius's and Abelard's formulations of the traditional square of opposition.

existing thing, and that as such would convert into empty terms). Abelard is not the first to notice the problems that are raised by the admittance of Boethius' rules of conversion by contraposition once taken in pair with empty terms. We may find traces of this idea also in Garlandus Compotista's *Dialectica*.[5] There, Garland notices that it is problematic to admit conversions for those propositions containing terms that are predicable of everything that exists (such as "*substantia*"), and that therefore convert in propositions containing empty terms (as "*non substantia*"). The rules of conversion by contraposition seem in fact not to hold for propositions of this sort. It is not clear though whether Garland thinks that propositions containing empty names are *non significant* propositions, for they contain parts which fail to refer, or if they are significant but false propositions. For Abelard, propositions that contain empty terms are certainly significant (for terms have signification even if they do not have a referent), but they are false if their quality is affirmative.

To sum up, I proposed that there are two places where Abelard deals with existential presupposition in non-modal logic: in his discussion of negation and of the rules of conversions by contraposition. In these two places, Abelard advances two different strategies to deal with the problem of empty names. The first is to say that the satisfaction of an implicit existential presupposition is a necessary condition for the truth of affirmative propositions but not for the truth of negative ones (i.e., for those propositions where negation is applied extinctively). This move allows Abelard to maintain the system of inferences summarized by the traditional square of opposition and to extend the validity of such a system also to propositions that contain empty terms (which could not be done in Boethius' logic). The second strategy is to restrict the validity of certain logical rules (such as the Boethian rule of conversion by contraposition) only to those propositions that do not contain empty names. We will see in the following sections that Abelard tries to use both of these strategies when dealing with existential presupposition in modal logic. The idea I defend is that, just as non-modal propositions, also modal ones contain an implicit existential presupposition as part of their meaning, the satisfaction of which is necessary for the truthof affirmative modal propositions but not for the truth of negative ones. I also argue that Abelard's move of distinguishing the truth criteria of affirmative and

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[5]See (Garlandus Compotista, 1959) *De conversione cathegoricarum* 57.20-63.34.

negative propositions with respect to their existential import is not enough to preserve the validity of his modal system, and that in the end Abelard decides to restrict the validity of his modal logic only to those propositions that do not contain empty names.

2.1.2 Do *de rebus* propositions have an implicit existential presupposition?

Both in the *Dialectica* and in the *Logica Ingredientibus*, Abelard understands affirmative modal propositions as implicitly presupposing the existence of their subjects. Just as in the case of non-modal claims, an existential assumption is part of the meaning of propositions about possibility and necessity. The satisfaction of this existential presupposition is a necessary condition for the truth of affirmative modal propositions, whereas it is a sufficent condition for the truth of negative modal claims (where the negation is applied properly, that is, extinctively) that the existential import is not satisfied. This is the case at least for *de rebus* modal propositions, and for some *de sensu* modal ones. There are however other *de sensu* propositions that do not conform to this interpretation, as we will see in short. The main evidence for this interpretation of modal claims is to be found in a passage from the glosses on *De Interpretatione*, where Abelard considers the proposition "It is possible for my son to be alive" (*Possibile est filium meum vivere*), and asks whether this proposition is true in a situation in which the speaker has no sons. This is the passage in question:

> Sicut et, cum nullum filium habeam, propositio uera uidetur de sensu quae ait: "Possibile est filium meum uiuere" id est: "Possibile est ita euenire ut haec propositio dicit 'Filius meus uiuit' ", quia adhuc fortasse ita continget; nec tamen uera est de rebus quae ait: "Filius meus potest uiuere" quippe per subiectum quod est "filius meus" positionem existentiae filii mei facio et quasi ipsi existenti "posse uiuere" copulo. Unde nec, cum dico: "Filius meus non uiuit" faciens negationem separatiuam, pro uera eam recipimus quia in subiecta oratione, filii scilicet, positio facta est et ab eo quasi existente uiuere separo; ideoque, cum non existat, falsa etiam est negatio. Ex quo multo magis falsa uidetur affirmatio quae dicit filium meum posse uiuere, cum de re ipsa accipitur. (LI *De Int.* 417.639-652)

In this passage, Abelard says that if we consider the proposition (*) "It is

possible for my son to be alive" as being *de sensu*, then it might be true even if the subject fails to refer, while if the proposition is taken *de rebus* is certainly false, because – just as it is the case for the simple categorical proposition "My son is not alive", where the negative particle is a separative negation – by positing the subject term "My son", I am also implicitly positing its existence (*«positionem existentiae facio»*). The satisfaction of this existential presupposition is explicitly taken as a necessary condition for the truth of proposition in question, and for *de rebus* affirmative modal propositions in general.

What Abelard thinks about *de sensu* modal propositions is not completely clear. At times he says in fact that there are *de sensu* claims about possibility that remain true event if their subject is an empty term. In the passage just quoted, the author says that proposition (*) is true when understood *de sensu*, although I have no sons. A few lines later, however, Abelard says that even if the proposition is interpreted to be *de sensu* it would still result to be false, because also *de sensu* propositions must fulfill an existential assumption in order to be true (LI *De Int.* 419.702-420.714; on this passage see 1.3.2 on page 70 above). In the *Dialectica* (204.1-17), Abelard states that propositions like "It is possible that a chimaera is not a man" (*Chimaeram necesse est non esse hominem*), which is understood here as a *de sensu* proposition, are true even if its subject is empty. In the same passage, Abelard considers again the proposition "it is possible for my future son to be" (*Filium futurum possibile est esse*) and says that the proposition is true, although the subject does not refer:

> Multae uerae sunt affirmationes huiusmodi etiam de non-existentibus rebus, quae, cum non sint, nullorum accidentium proprietates recipiunt. Quod enim non est, id quod est sustentare non potest. Sunt itaque huiusmodi uerae: "filium futurum possibile est esse", "chimaeram possibile est non esse", uel "necesse est non esse hominem"; nihil tamen attribui per ista his quae non sunt, intelligitur, sed, ut superius dictum est, per "possibile" id demonstratur quod natura patiatur, per "necesse" quod [dicit] exigat et constringat. (*Dial.* 204.1-17)[6]

Abelard seems then not to be always consistent in his treatment of *de sensu*

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[6]In LI, Abelard gives a similar example of true modal propositions that concern non existing things: "*Necesse est chimera non esse qualitatem*" and "*Necesse est chimera esse vel non esse*" are in fact proposed here as being true (LI *De Int.* 403.299-302 and 403.312-313).

propositions with empty subjects, for at times he requires that also *de sensu* affirmative propositions must have an existent subject in order to be true, at other times he thinks that they can be true although their subject is empty. The explanation of this puzzle might lie in the fact that Abelard, at least in the *Logica Ingredientibus*, recognizes two different meanings in which we could say that a proposition is *de sensu* (see 1.1 on page 53 above). A *de sensu* proposition like "It is possible that 'S is P' " might be true in virtue of the fact that:

1. There is no incompatibility between the two predicates "S" and "P". This reading was labelled above as the "simple *de sensu*" interpretation;

2. The thing that is S can be P while-being-S, i.e., the predicate "S" is compatible both with the predicate "P" and also with the nature of the thing that is actually S. This reading is labelled by Abelard "*de sensu per coniunctionem*".

The second interpretation captures what Abelard intends in LI *De Int.* 417-421, where he claims that every possibility proposition taken *per compositionem* is validly inferred from the corresponding proposition taken *per divisionem* (see 1.3.2 on page 70). The first interpretation tries instead to account for Abelard's idea that a proposition is true *de sensu* if the *dictum* of the simple proposition from which it descends is true in some possible situation. I suggested above that, generally speaking, Abelard tends to interpret the *per compositionem* reading in the first sense in the *Dialectica*, while in the glosses on *De Interpretatione* he suggests that the proper reading is the second one, in order to maintain that there is a relation of inference from possibilities *per compositionem* to possibilities *per divisionem*. However, his use is not always consistent within the two works, for especially in the *Logica Ingredientibus* he makes use of both senses.

The question about what is the proper interpretation of the *de sensu* reading is related to the issue of existential import, because it seems that Abelard takes propositions that are *de sensu* in the first sense not to have an implicit import, while he considers those propositions that are *de sensu* in the second sense as having implicit import, just as their *de rebus* correspondents. What Abelard says in LI – that possibility propositions *per coniunctionem* – or *de sensu* in the second sense – imply the corresponding

de rebus propositions (LI *De Int.* 417.652-418.655) – seems to confirm this. It follows from this affirmation that, if *de rebus* affirmative propositions about possibility have an implicit existential import, then the *per compositionem* corresponding propositions must have an implicit existential import as well, otherwise the logical inference from *de sensu* to *de rebus* would fail. Given Abelard's support of this inference, we are able to conclude that those propositions that are *de sensu* in the second sense (*per compositionem*) must implicitly contain an existential assumption of their subject, just as *de rebus* propositions. If we interpret instead *de sensu* in the first sense, it is not necessary for the subject of a *de sensu* proposition to exist, in order for the proposition to be true, and this explains why Abelard says at times that there are some modal propositions that are true even if the things they talk about do not exist (e.g. "It is possibler for my future son to be", "it is necessary that a chimaera is not a man"). From this moment on I shall set aside the problem of *de sensu* propositions, because the question I am mainly interested in – that is whether Abelard's modal logic is valid also for those propositions that contain empty terms – only concerns *de rebus* modal propositions, and not *de sensu* ones. The system of equipollences and oppositions that Abelard proposes for modal claims is in fact only meant to describe the logical behaviour of *de rebus* propositions. In the following section I consider the rules of equipollence and opposition of Abelard's modal system. After having stated those logical rules, I consider whether they are also valid when empty terms are included as subjects of modal propositions. My conclusion will be that, even if the logical rules of contradiction and the rules of equipollence between possibility and impossibility would remain valid, this is not the case for the relations of equipollence between propositions about possibility and propositions about necessity. The logical relation that Abelard establishes between possibility and necessity only holds if all the terms in the system have an existing referent.

2.1.3 Existential presupposition and the modal square of oppositions

Abelard is consistent in presenting, both in the *Dialectica* and in the *Logica Ingredientibus*, the same schemes of logical rules for modal propositions. Abelard begins with listing all possible forms of singular and quantified propositions and establishing the orders of equipollences for both. After

that, Abelard arranges a scheme of logical relations of contradictoriness, contrariness and subalternation first for singular claims and then for quantified ones. For sake of simplicity, I will only consider here singular modal propositions, but the same conclusios may be drawn for particular and universal claims. There are four forms of modal porpositions with a same singular subject and a same mode:

(a) "It is possible for Socrates to be white" (*Possibile est Socratem esse album)*;

(b) "It is possible for Socrates not to be white" (*Possibile est Socratem non esse album*);

(c) "It is not possible for Socrates to be white" (*Possibile non est Socratem esse album*);

(d) "It is not possible for Socrates not to be white" (*Possibile non est Socratem non esse album*).

These four forms generate four orders of equipollence, representing the logical relation that different modes have to one another, as in figure 2.2 on page 98. All the propositions belonging to the same order are equipollent to one another. We have it that propositions of the first order are contradictories of propositions of the third order. In the same way, the propositions of the second order are contradictories of those of the fourth (see *Dial.* 199.4-5 and LI *De Int.* 491-494). Also, propositions of the third order may be considered as being contrary to propositions of the fourth, for they can be simultaneously false but cannot be simultaneously true with them. Propositions of the second order may instead be considered as if they were subcontraries with propositions of the first order, since they can never be simultaneously false but they can be simultaneously true (see LI *De Int.* 494-497). Finally, we are also able to set a further rule which works as a sort of subalternation: all propositions of the fourth order imply all propositions of the first, and all propositions of the third order imply all propositions of the second. In both cases, the inference is not convertible, so that we cannot infer propositions of the fourth from those of the first, nor can we infer propositions of the third from propositions of the second order (*Dial.* 199.22-24; LI *De Int.* 475-478). The system of inferences holding among these propositions may be represented by means of the square of oppositions in figure 2.2: As said

First Order

(1.a) It is possible for Socrates to be white

(1.b) It is not impossible for Socrates to be white

(1.c) It is not necessary for Socrates not to be white

Second order

(2.a) It is possible for Socrates not to be white

(2.b) It is not impossible for Socrates not to be white

(2.c) It is not necessary for Socrates to be white

Third order

(3.a) It is not possible for Socrates to be white

(3.b) It is impossible for Socrates to be white

(3.c) It is necessary for Socrates not to be white

Fourth Order

(4.a) It is not possible for Socrates not to be white

(4.b) It is impossible for Socrates not to be white

(4.c) It is necessary for Socrates to be white

(4.a) It is not possible for Socrates not to be white

(4.b) It is impossible for Socrates not to be white

(4.c) It is necessary for Socrates to be white

contrariae

(3.a) It is not possible for Socrates to be white

(3.b) It is impossible for Socrates to be white

(3.c) It is necessary for Socrates not to be white

subalternae   **contradictoriae**   **subalternae**

(1.a) It is possible for Socrates to be white

(1.b) It is not impossible for Socrates to be white

(1.c) It is not necessary for Socrates not to be white

subcontrariae

(2.a) It is possible for Socrates not to be white

(2.b) It is not impossible for Socrates not to be white

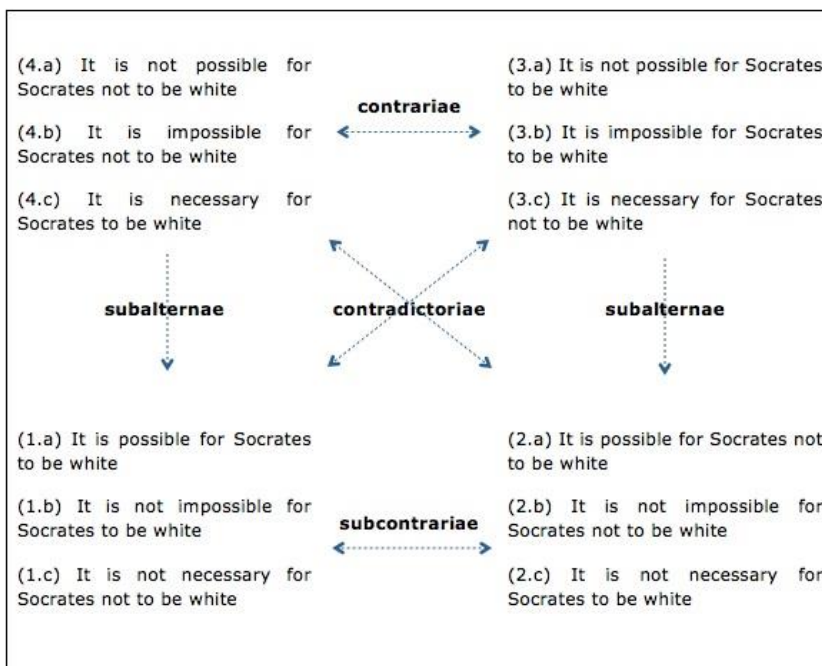(2.c) It is not necessary for Socrates to be white

Figure 2.2: The four orders of equipollence among singular modal propositions.

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above, the system of logical relations presented in the square is valid, or at least as long as the terms contained in the propositions are not empty. But let us now consider a situation in which Socrates does not exist, and let us evaluate the modal claims stated of the square in such a situation. If we do so, we will notice that some of the logical relations stated in the square would still be valid, while others would not.

First, let us take a pair of contradictory propositions, such as (1.a) "It is possible for Socrates to be white" and (3.a) "It is not possible for Socrates to be white". As we proposed in section 1.2.2 above, although Abelard is not explicit on this point, negation in (1.a) and (3.a) should be considered as extinctive negation, in order to preserve the validity of Abelard's orders of contradiction and opposition. If it is so, the existence of the subject is a necessary condition for the truth of affirmative propositions, whereas it is sufficient for the truth of extinctively negative propositions that the subject does not exist. In the imagined situation, where "Socrates" is empty, proposition (1.a) would be false, and proposition (3.a) would be true. The relation of contradictoriness between (1.a) and (3.a) is preserved even when the subject term is empty, and the same is the case for all contradictory pairs stated in the square, because in all pairs we will find that one proposition is affirmative (and as such will be false in the imagined situation) and the other one is negative (and it will consequently be true in the same situation). The relations of contradictoriness stated by Abelard among modal propositions are then maintained also for those propositions that contain empty terms, granted that we take negation extinctively.[7] Let us now consider the relations of equipollence. I shall limit for the moment to the consideration of the equipollence stated between the modality of possibility and the modality of impossibility, setting aside propositions about necessity, which

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[7]As said above in section 1.2.2, Abelard never explicitly says that negation should be interpreted in this way while giving his orders of opposition and equipollence for modal claims. Indeed, he does not mention the distinction between separative and extinctive negation at all in his treatises on modalities, and there are some passages from the *Dialectica* that lead us to think that he might have interpreted negation separatively, not extinctively. This might be due to the fact that Abelard initially does not take the issues of empty terms or existential import into account, when he establishes his modal squares of opposition. However, given the fact that, at least in the *Logica Ingredientibus*, he seems to understand all *de rebus* propositions as having implicit import, if we want his rules of contradiction and opposition to work, negation must be interpreted extinctively, not separatively. If negation in proposition (3.a) "It is *not* possible for Socrates to be white" was interpreted separatively, this proposition would not be the proper *dividens* of (1.a), for they would both be false in case "Socrates" was an empty term.

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will be considered later. The two propositions (3.a) "It is not possible for Socrates to be white" and (3.b) "It is impossible for Socrates to be white" are said by Abelard to be equivalent. As such, they should have the same truth value in all possible situations. A doubt is raised at this point: should we consider proposition (3.b) as an affirmative proposition, as its grammatical structure suggests, or is it instead a negative proposition, in which case its grammatical form would not correspond to its real logical structure? If (3.b) is affirmative, it would be a necessary condition for its truth that the subject term "Socrates" was not empty. On the contrary, the non-existence of Socrates is sufficient for the truth of proposition (3.a), that is certainly negative. As a consequence, if (3.b) was indeed an affirmative proposition, then it could not be equivalent with (3.a), for there would be possible situations – i.e., those in which Socrates does not exist – in which (3.a) and (3.b) have a different truth value. As a general rule, it follows from what we said above that propositions that have a different quality cannot be equipollent to one another, for their truth value would differ in the situations in which their subject term is empty. As a consequence, all the equipollences between possibility and impossibility stated in the modal square would fail, if we take propositions about impossibility to be affirmative propositions.

There is though a way to overcome this difficulty, and to preserve the equivalence between propositions about possibility and propositions about impossibility. The solution consists in saying that propositions about impossibility, such as (3.b), are really *negative* propositions. To say so, we must claim that the grammatical structure of propositions about impossibility does not correspond to their logical structure, and that, although they are affirmative according to grammar, they are nevertheless negative with respect to meaning.[8] I think that, given what Abelard often says about impossibility, we are allowed to consider propositions like (3.b) as negative in meaning. Indeed, Abelard often says that the term "impossible" means "not possible" and that to state that something is impossible amounts to nothing more than to state that it is not possible (see for instance *Dial.* 194.5-6; LI *De Int.* 395.97-99 and 417.632-633). If we take literally this idea that "impossible" and "not possible" are *the same in meaning*, the meaning

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[8]Abelard often refers, in his discussion of modal logic, to the distinction between grammatical form and "logical" form, which he spells out as a distinction between the consideration of a certain term or proposition with respect to its grammatical structure (*secundum constructionem*) or with respect to its meaning (*secundum sensum*).

of proposition (3.b) above would be the same as the meaning of proposition (3.a), and propositions that have the same meaning are, as a matter of fact, equipollent to one another. In particular, if we considered proposition (3.b) as being negative in meaning, in a situation in which "Socrates" is an empty term, it would result to be true, just as proposition (3.a). The same solution might be applied also to justify the equipollence between propositions (1.a) "It is possible for Socrates to be white" and (1.b) "It is not impossible for Socrates to be white". According to the interpretation I just proposed, proposition (1.b) should be considered as containing – with respect to meaning even if not with respect to grammar – a double negation, so that its real meaning would be: "It is not the case that: it is not possible for Socrates to be white". Abelard explicitly admits, at least in one passage, the equipollence between an affirmative proposition and the double negation of the same proposition,[9] and so again propositions (1.a) and (1.b) would result to be equipollent in all possible situations, even in those in which their subject term is empty.

Let us recapitulate for the moment what has been said so far: according to our interpreation, Abelard thinks that it is necessary for the truth of all affirmative modal propositions to have an existent subject, whereas the non-existence of the subject is a sufficient condition for the truth of negative propositions. The rules of *contradiction* that Abelard establishes between modal propositions seem to retain their validity also when propositions contain empty terms. In order to maintain also the stated rules of *equipollence* between propositions about possibility and propositions about impossibility, I proposed that we should consider propositions about impossibility as being negative with respect to their meaning. This interpretation allows us to confirm that also the rules of equipollences between the possibility and impossibility remain valid in presence of empty terms. In what follows, I shall consider the rules of equipollence that Abelard establishes between propositions about possibility (or, non impossibility) and propositions about necessity. I will try to show that here Abelard's modal system falters, be-

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[9]See on this *Dial.* 179.20-26; the passage is quoted and commented by Martin in (Martin, 2004b, p. 167). Note however that the equipollence in this case should be considered not as a reciprocal inference between two propositions, but as a mere equipollence (concomitance), for the two propositions have the same truth value in all possible situation but do not have the same meaning. The relation between propositions (3.a) and (3.b) would instead be a mutual inference, not just an equipollence.

cause there is no way to account for these equipollences when we admit that the terms contained in modal propositions might be empty.

Abelard says that proposition (1.a) "It is possible for Socrates to be white" is equipollent to proposition (1.c) "It is not necessary for Socrates not to be white". Similarly, he establishes that (4.a) "It is not possible for Socrates not to be white" is equipollent to (4.c) "It is necessary for Socrates to be white". The logical relations described by the pairs (1.a)-(1.c) and (4.a)-(4.c) are standard equivalences that usually describe the logical relation between possibility and necessity. However, it can be easily noticed that in all pairs of equipollent propositions about necessity and possibility stated in the square, one side of the pair is affirmative and the other side is negative. And, as the reader may have noticed already, this proves to be problematic when we take into account empty terms. Given the interpretation we have been using so far of Abelard's modal propositions, if we consider again a possible situation in which Socrates does not exist, we will have it that, for instance, proposition (1.a) is false in that situation, while proposition (1.c) is true. And in general, if the subject term has no referent, all pairs (1.a)-(1.c), (2.a)-(2.c), (3.a)-(3.c) and (4.a)-(4.c) would have one side that is true and the other side that is false. Those propositions cannot therefore be considered equipollent, for they do not retain the same truth value in all possible situations, but only in those situations in which Socrates exists.[10]

I believe that Abelard, at least in the *Logica Ingredientibus*, was aware of this problem, and he therefore decided to restrict the validity of his modal system to only those situations in which the things referred to by the propositions' terms exist. There is one passage from Abelard's glossae that supports this interpretation. In that passage, Abelard very clearly says that the equivalence between necessity and possibility (or impossibility) holds only in so far the non-existent objects are not taken into account:

> Sed uidentur nobis huiusmodi aequipollentiae modalium propositionum
> tantum aequipollentiam custodire re subiecti termini permanente, ue-
> lut tantum dum Socrates permanet, sicut et illae quarum aequipol-
> lentiam superius ascripsit praedicato per finitum et infinitum uari-

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[10]The same problem is observed in quantified modal propositions: the two propositions "It is necessary for every man to be an animal" and "It is not possible for every man not to be an animal", which are supposed to be equivalent according Abelard's rules of equipollence, do not have the same truth value in all possible situations, for when men do not exist the first proposition is false, while the second is true.

ato. Quamdiu itaque Socrate permanente uera est: "Non possibile est Socratem esse album" (uel: "Impossibile est") uera est etiam quae ait: "Necesse est Socratem non esse album" et e conuerso. Cum enim uelimus in ui affirmatiuae categoricae accipere: "Necesse est Socratem non esse albedinem" oportet ad hoc ut uerum sit rem manere sub subiecto uocabulo, ut supra meminimus. Si uero in sensu aliarum accipiamus, ut quidam uolunt, erit negatiua in sensu: "Necesse est Socratem non esse albedinem" sicut illae et ita semper uera est cum illis. Sunt enim quidam qui omnes propositiones eiusdem ordinis in eodem sensu accipi uolunt ut mutuas ad inuicem consequentias habeant, alioquin ex negatiua in sensu sequeretur saepe affirmatiua, quippe in eodem ordine negatiuae affirmatiuis adiunguntur. Nos uero in diuerso sensu eas quoque concedimus aequipollere ita ut rebus permanentibus nulla possit esse uera uel falsa sine aliis. (LI *De Int.* 420.733-421.751)

Abelard says here that two propositions like "It is necessary for Socrates not to be not white" and "It is not possible for Socrates to be white" (that is, propositions (3.a) and (3.c) in the square above) are equipollent *only under the condition that Socrates exists*, and this restriction is due to the fact that the two propositions have a different quality, and while affirmative modal propositions must satisfy an existential import in order to be true, negative propositions do not.[11]

These remarks about the equipollence between possibility and necessity highlight an important aspect of the way these two modes are related in Abelard's theory of modality, aspect that was suggested already in 1.1.3 above, but could be now understood more clearly. Abelard often suggests that the two modes of impossibility and contingency can both be defined in terms of possibility, because "contingent" has the same meaning as "possible" and "impossible" means nothing other than "not possible". The three terms are therefore treated as interdefinable notions, and indeed it seems that the mode "possible" might be taken as the primitive notion from which the other two are derived. When he speaks of the relation between possibil-

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[11]Abelard proposes such restriction to the validity of modal equipollence rules against the opinions of others, who want to say that the relations of equipollence that are set between modal claims are valid unqualifiedly, for they think that the pairs of propositions that are stated as equipollent always have the same meaning. Abelard says instead that these pairs of modal propositions do not have the same meaning, because they are of different quality, and that the equipollence established among them is valid only under the conditions that the things they talk about exist, and so that they do not contain empty names.

ity and necessity, on the contrary, Abelard never defines the two modes one in terms of the other, and he never uses the meaning of one to explain the meaning of the other. Although according to Abelard these two modal terms can be put in a logical system of equipollences, their relation can never be expressed as a kind of *interdefinability*. It would be wrong then to interpret Abelard's modal logic as containing one single primitive modal operator, and to derive the definitions of the other modal terms from it, because we need at least two primitive modalities to account for his modal system. The fact that the mutual equipollence between possibility and necessity is only maintained in determinate situations, and not without restriction, confirms the peculiar character of the relation between these two notions in Abelard's theory. I want to conclude this section only by suggesting that Abelard's awareness of the problems raised by the presence of empty names in logic is remarkable. In noticing these difficulties, and in trying to provide a logical system that could take into account empty terms, Abelard goes far beyond Boethius and also beyond the debate on modal logic of his time. Although is true that already in the works of Garlandus there is some acknowledgment of the puzzles raised by empty terms for the validity of some logical rules (such as the rules of conversions), and therefore it is likely that the question was already "in the air" in the period in which Abelard writes his logical works, Garland's offers but sketchy remarks on this, not comparable with the sophistication of Abelard's discussion. Nevertheless, even if Abelard was able, with his reformulation of Boethius' square of opposition, to provide a non-modal logic that would retain its validity also in presence of non referring names, he is unable to do the same in the logic of modal propositions. Empty terms, which Abelard struggled to take into account within his non-modal system, are in the end excluded from his modal logic.

Before looking in more details to the rules of equipollence and opposition that Abelard establishes between modal propositions, let us sum up in which ways the presence of the existential import affects those logical relations. First, I established that all affirmative modal propositions have an implicit existential presupposition, while their corresponding negative – in which the negation is applied extinctively as estinguishing the whole meaning of the proposition – do not have such presupposition as a condition for their truth. The propositions "It is possible for Socrates to be white" and "It is necessary for Socrates to be white" are affirmative propositions, while I

considered "It is impossible that Socrates is white" as a negative one. This premise established, I argued the following:

(i) the logical relations among singular and quantified modal propositions *about the same modality* are valid without further restrictions – and then also when propositions contain empty terms, granted that negation is applied extinctively and that the existential import is a necessary condition for the truth of affirmative propositions but not of negative ones;

(ii) the logical relations among propositions *about possibility* and propositions *about impossibility* are valid unrestrictedly – again, also when propositions contain empty terms – if we always reformulate "impossible" as "non possible", and conversely "non impossible" as "non (non(possible))". The equipollence between "impossible" and "not possible" is a proper inference (they have the same meaning), while the other equipollence between "possible" and "non impossible" is only a relation of natural concomitance;

(iii) the logical relations among propositions *about possibility* and propositions *about necessity*, as well as the logical relations between *impossibility* and *necessity*, are valid only under the condition that the subject terms of those propositions refers, and therefore that there are no empty terms.

These conditions taken in mind, we can proceed to consider the rules of equipollence and the other logical inferences Abelard establishes in his modal system.

2.2 The Modal Square of Oppositions

In the *Dialectica* and in the glosses, Abelard considers both the relations that propositions with the same mode have to one another, and the relations holding among propositions with different modes. The rules of inference governing the logical relationships between possibility, impossibility and contingency are first set out for singular propositions (section 2.2.1) and then for quantified propositions (section 2.2.2). In the following pages, modal propositions are formulated grammatically as having a nominal construction. The standard form Abelard uses is the one that places the subject (in the accusative case) before the nominal mode, that is in turn followed by an infinitive clause, such as "*Socratem possibile est esse album*", or "*Omnem hominem possibile est esse album*". I will translate these expressions as "For Socrates it is possible to be white" and "It is possible for every man to be white". As was said above (see 1.1.2), these constructions are ambiguous, for they could be interpreted as being *de rebus* or *de sensu*. For the following rules of inference, I will always consider modal propositions *de rebus*, since this is, according to Abelard, the proper interpretation of modal claims.

2.2.1 Orders of equipollences for singular modal propositions

Let us first consider all various sorts of modal propositions, varied in *mode* (possible, impossible, necessary), *subject* (*de esse*, *de non esse*), *quality* (affirmative and negative) and *quantity* (singular, particular, universal). As said above, there are, for each mode, four singular modal propositions and eight quantified modal propositions, listed in figure 2.3 on the next page (a similar table could be reformulated for each mode). After having listed all possible forms of modal claims, Abelard considers the orders of equipollence between modalities that Aristotle gave in his *De Interpretatione* 12 and 13:

> Si vero de rebus exponantur modales ut idem subiectum habeant in sensu cum simplicibus, quattuor sunt enuntiationes de singulis modis subiecto per signa non variato: duae scilicet de esse, affirmatio et negatio, et duae similiter de non esse, hoc modo: "Possibile est Socratem currere", "Non est possibile Socratem currere", "Possibile est Socratem non currere", "Non est possibile Socratem non currere". Et de singulis modis similiter quattuor secundum quod quattuor ordines modalium propositionum Aristoteles ponit hoc modo:

Singular	Affirmative	Negative
Singular *de esse*	(1) For Socrates it is possible to be white *Socratem possibile est esse album*	(2) For Socrates it is not possible to be white *Socratem non possibile est esse album*
Singular *de non esse*	(3) For Socrates it is possible not to be white *Socratem possibile est non esse album*	(4) For Socrates it is not possible not to be white *Socratem non possibile est non esse album*

Quantified	Affirmative	Negative
Universal *de esse*	(1) For every man it is possible to be white *Omnem hominem possibile est esse album*	(2) Not for every man it is possible to be white (For some men it is not possible to be white) *Quendam hominem non possibile est esse album*
Particular *de non esse*	(3) For some men it is possible to be white *Quendam hominem possibile est esse album*	(4) For no man it is possible to be white *Nullum hominem possibile est esse album*
Universal *de non esse*	(5) For every man it is possible not to be white *Omnem hominem possibile est non esse album*	(6) Not for every man it is possible not to be white (For some men it is not possible not to be white) *Quendam hominem non possibile est non esse album*
Particular *de non esse*	(7) For some men it is possible not to be white *Quendam hominem possibile est non esse album*	(8) For no man it is possible not to be white *Nullum hominem possibile est non esse album*

Figure 2.3: Table of singular and quantified modal propositions.

"Possibile est esse – Contingit esse – Non impossibile est esse – Non
   necesse est non esse";

"Possibile est non esse – Contingit non esse – Non impossibile est non
   esse – Non necesse est esse";

"Non possibile est esse – Non contingit esse – Impossibile est esse –
   Necesse est non esse";

"Non possibile est non esse – Non contingit non esse – Impossibile est
   non esse – Necesse est esse". (LI *De Int.* 409.459-410.471)

Differently from what Aristotle does in the *De interpretatione*, whose rules
of equipollence for modal claims are only schematic and did not consider
quantity, Abelard moves on to consider these four orders of equipollence in
combination with quality and quantity, varied first for singular subjects and
then for universal ad particular subjects. Beginning with singular modal
propositions, Abelard establishes the following four orders of equipollences
and a modal square of opposition, represented in figure 2.2 on page 98 (see
Dial. 198.35 ff.; LI *De Int.* 409.459-410.475) All the propositions belonging
to the same order are equipollent to one another. We have it that proposi-
tions of the first order are *contradictories* of propositions of the third order.
In the same way, the propositions of the second order are *contradictories* of
those of the fourth (see *Dial.* 199.4-5 and LI *De Int.* 411.491-494). Also,
propositions of the third order may be considered as being *contrary* with
propositions of the fourth, for they can be simultaneously false but cannot
be simultaneously true. Propositions of the second order may instead be
considered as if they were *subcontraries* with propositions of the first order,
since they can never be simultaneously false but they can be simultaneously
true (see LI *De Int.* 411.494-497). Finally, we are also able to set a further
rule which is a sort of *subalternation*: all propositions of the fourth order im-
ply the propositions of the first, and all propositions of the third order imply
propositions of the second. In both cases, the implication is not convertible,
so that we cannot infer propositions of the fourth from those of the first,
nor can we infer propositions of the third from propositions of the second
order. Abelard gives a justification for this last rule of subalternation (*Dial.*
199.5-21): his argument rests on the principle, repeated both in the *Dialec-
tica* and in the *Logica* that, if two propositions "p" and "q" are equipollent,
everything that is implied by "p" is also implied by "q", and anytime "p"
follows from another proposition, also "q" follows from that proposition:

> Sunt enim omnes cuiuslibet ordinis propositiones ad se aequipollentes; quicquid autem ad unam sequitur aequipollentium, et ad aliam; uel ad quodcumque una sequitur, et alia. (*Dial.* 199.22-24. A same principle in stated in LI *De Int.* 410.475-478)

Abelard is consistent in presenting, both in the *Dialectica* and in the *Logica Ingredientibus*, the same schemes of rules. However, while in LI Abelard mentions all these rules, in the *Dialectica* he does not consider the rules of contrariness and subcontrariness among modal propositions. Also, although he states also in the *Dialectica* that there propositions of the fourth and the third order imply, respectively, those of the first and second order, Abelard does not present this inference as a kind of subalternation, as he does in LI. From this disparity between the two works, we may advance the conjecture that only in LI Abelard explicitly sets the rules of modal propositions suggesting that they can be put in a *square of oppositions* that resembles entirely the square given for simple propositions.

2.2.2 Orders of equipollences for quantified modal propositions

Whereas there are four kinds of singular propositions, and consequently four orders of equipollence, quantified modal propositions (always taken as being *de rebus*) are doubled in number, and they are arranged in eight orders of equipollence (*Dial.* 199.25 ff.; LI *De Int.* 412.518-413.538). Abelard states the following rules of equipollence (*Dial.* 202.30-203.4; LI *De Int.* 411.478-491):

(1) possibility and impossibility propositions are equipollent when they have *same subject*, *same quantity* and *same quality*;

(2) possibility and necessity propositions are equipollent when they have *different subject*, *same quantity* and *same quality*;

(3) impossibility and necessity propositions are equipollent when they have *different subject*, *same quality* and *same quantity*.

The quality of a proposition is determined by its being affirmative or negative; the quantity by its being particular or universal (as we may note from the rules above, equipollent propositions always have the same quantity).

The subject is here to be taken as the term that is the subject *with respect to the grammatical construction*, i.e., as the infinitive of the nominal clause. Given these eight orders of equipollences, Abelard says in the *Logica Ingredientibus*, it is not difficult to determine the other rules of contradictoriness, contrariness, subcontrariness and subalternation, for the rules are the same that were stated for singular propositions (LI *De Int.* 413.540-414.544). He then leaves these rules implicit, but for clarity we can try to make them explicit:

(i) there is a relation of *contradictoriness* between the first and seventh order, and between the third and fifth order, as well as between the second and eight order, and between the fourth and sixth order;

(ii) there is a relation of *contrariness* between the first and third order, and between the second and fourth order;

(iii) there is a relation of *subcontrariness* between the fifth and seventh order, and between the sixth and eighth order;

(iv) there is a relation of *subalternation* between the first and fifth order, and between the third and seventh order; as well as between the second and sixth order and between the fourth and eighth order.

Figure 2.4 on the next page represents the two squares of oppositions containing quantified modal propositions *de esse* and *de non esse*.

Some scholars have claimed that, although Abelard must have been able to establish, for any two quantified modal propositions, which was the logical relation holding between them, still he was probably unable to establish some general rules of logical equipollence and opposition that would work for all quantified modal propositions considered together, and that in the end he was unable to construct a proper modal square of opposition. This interpretation is defended by Thom in (Thom, 2003b, p. 54-5), and also in (Knuuttila, 1993, p. 88). It is clear from both the *Dialectica* and the *Logica Ingredientibus*, however, that Abelard made an effort to organize *all* singular and quantified modal propositions into a general scheme of logical relations, and to consciously put all these relations into three different squares of opposition (one for singular claims, one for quantified *de esse* claims, and one for quantified *de non esse* claims). Although Abelard never represented these squares by means of a diagram – thing that became quite common only
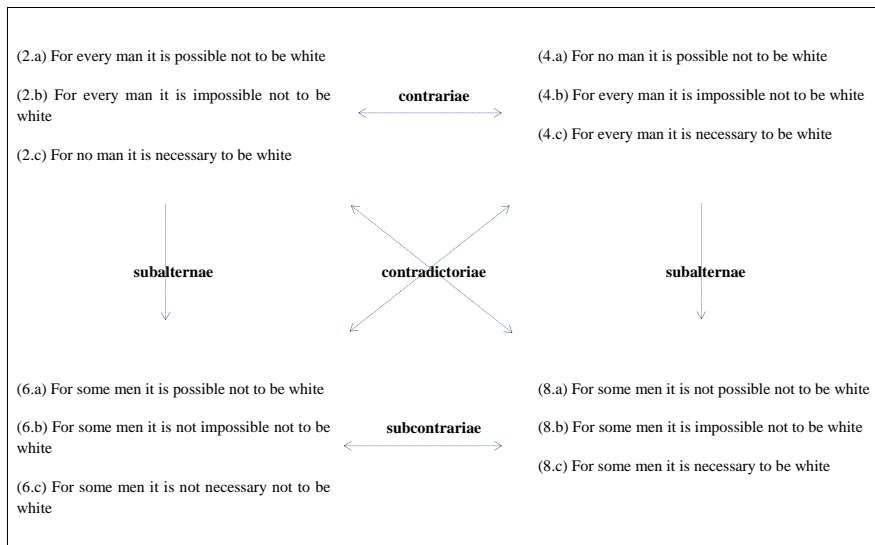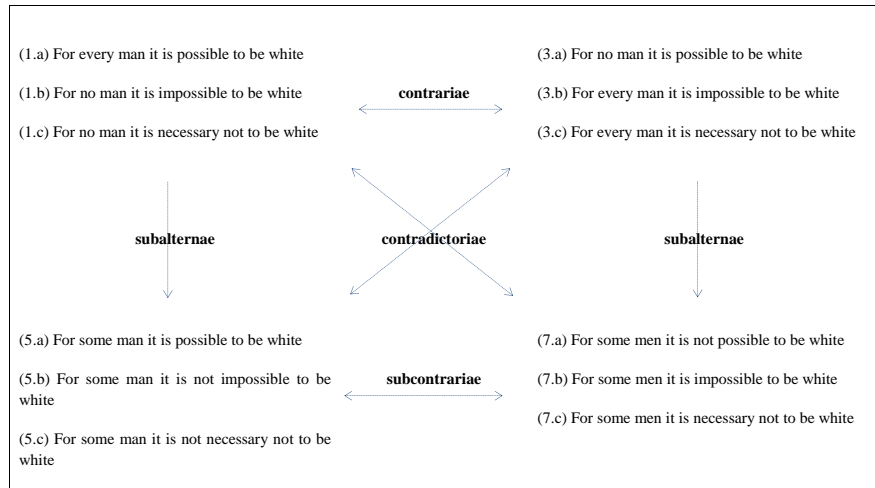
Figure 2.4: Modal squares of opposition for modal claims *de esse* and *de non esse*.

after him – his schemes of modal inferences were commonly used as a sketch for later discussion of the logical system of modal propositions (Lagerlund, 2000, p. 37). As Martin already claimed in (Martin, 2001), Abelard's inferential system for modal propositions is a valid system. It is important to point out however that its validity must be accepted only if two conditions are granted. First, that the equipollences between modal propositions are understood in the sense of mere *concomitance* (i.e., equipollent propositions are those which are true or false in the same possible situations) and not in the sense of *proper consequence*.[12] Abelard says this explicitly in LI *De Int.* 411.502-412.517:

> Inferentiam autem ubique accipimus in naturali comitatione, quia scilicet ita adiunctae sunt propositiones ut non possit euenire ita ut una dicit quin etiam contingat ita ut alia proponit. Si enim secundum consequentiam inferentias pensaremus, fortassis falleretur, cum uidelicet una propositio alterius in se sententiam non contineat, ut: "Necesse est esse" cum inferat: "Possibile est esse" sensum eius non uidetur continere. (LI *De Int.* 411.502-412.508)

The second condition that must be granted to validate the rules of inference stated above is that all terms included in modal propositions must refer to something that exist, i.e., that none of these terms is empty. If this is not granted, the equivalences between necessity and possibility are not valid, and generally all equivalences by means of which someone infers an affirmative proposition from a negative one would fail. This is because affirmative modal propositions *de rebus* are always taken by Abelard as having an implicit existential import, while negative propositions do not have to satisfy an existential presupposition in order to be true. In order to have valid equipollences among different modalities, we must posit the condition that all terms in modal propositions actually refer.[13] Abelard's modal logic only works in a domain of actually existent things.

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[12]For such interpretation of Abelard's conditionals, and for the distinction between proper consequence and concomitance in Abelard, see (Martin, 2004b).

[13]For these conditions and for a general discussion of the problems raised by empty terms in Abelard' logic see 2.1 above.

2.3   Simple and Determinate Modal Propositions

Abelard concludes his discussion of the logic of modalities by taking into account modal claims that contain temporal qualifications. Abelard refers to these claims as "determinate" or "composite" modal propositions, as opposed to "simple" modal ones. Although Abelard's interest is mainly directed to temporal determinations, introduced by the adverbs "while" (*dum*, *cum*), "as long as" (*quando*, *quamdiu*, *quotiens*); "in every time" (*omni tempore*), "before" (*ante*) and "after" (*postea*), in the *Logica Ingredientibus* he also considers other sorts of qualifications, such as the spatial qualification "where" (*ubi*), or the exclusive determination "only" (*solum*, *tantum*). Abelard is particularly interested in those modal claims that contain a "*dum*" qualification, as for example "It is necessary for Socrates to read while he reads", or "It is possible for Socrates to sit while he stands". To them, he devotes a long and intricate discussion both in the *Dialectica* (206.7-210.180) and in the glosses on *De Interpretatione* (LI *De Int.* 422.778-432.1085).

As shown in table 2.1 on the facing page, the standard grammatical structure of modal propositions containing a temporal determination includes: (i) a modal term, which usually has a nominal form (*possibile*, *necesse*) that may or may not be preceded by an extinctive negation;[14] (ii) an accusative infinitive clause, that can vary in quality and quantity, and whose predicate can be in present, future or past tense; (iii) a categorical proposition governed by a "*dum*" or a "*quamdiu*" or some other temporal adverb, which again may be affirmative or negative, and whose predicate can be in the present, past or future tense. Abelard's aim is first to investigate the syntactical structure of propositions of this sort and to list the various possible ways in which they can be interpreted, as we shall see in section 2.3.1 below. After having considered these possible interpretations, Abelard establishes a system of logical rules relating determinate modal propositions to simple modal ones and to propositions *de puro inesse* (section 2.3.2). In his discussion of determinate claims, Abelard reveals a rigorous care in distinguishing

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[14]Abelard does not count here the term "impossible" among other modal terms, for he explicitly treats propositions about impossibility, such as "It is impossible for Socrates to read while he sits", as having the same meaning of the corresponding propositions about possibility preceded by an extinctive negation: "It is not possible for Socrates to read while he sits". He explicitly says this in LI *De Int.* 432.1075-1081. I will return on this point in section 2.3.3.

Nominal Mode	Infinitive Accusative Clause	Temporal or Determining Clause
(Non) possibile est	Socratem (non) sedere	dum/cum (non) sedet/stat
(Non) necesse est	quendam hominem (non) sedisse	ante/postea (non) sedebit/stabit
(Non) impossibile est	omnem hominem (non) sessurum esse	quamdiu/quotiens (non) sedit/stetit

Table 2.1: The grammatical structure of determinate modal claims.

the different scopes and semantic roles that can be attributed to the linguistic items composing modal propositions, such as the temporal adverb, the modal term and the other logical connectives that might be included in them, in particular the negative operator "*non*". I consider this aspect in section 2.3.3.[15] Finally, Abelard takes into account some *sophismata* that are raised by propositions containing temporal qualifications. In particular, he considers some absurd consequences that might be derived from the apparently innocuous claim that it is possible for Socrates to sit in every time in which he lives (*Possibile est Socratem sedere omni tempore vitae suae*). I shall analyze this controversial claim and Abelard's solution to the puzzles related to it in section 2.3.4.

Abelard is not the first to consider the combination of modality and temporal operators. A brief analysis of modal propositions containing *dum*-clauses had been advanced already by Boethius, in his treatise on hypothetical syllogisms (*De Syll. Hyp.* I, vi, 60-62). There, the author distinguished between three sorts of modal propositions: (i) propositions in which the modal term is predicated unqualifiedly (*absolute*) and without any determination or condition, as in "It is necessary for God to be immortal" (*Necesse est Deum esse immortalis*) or "It is possible for a bird to fly" (*Possibile est avem volare*); (ii) temporally qualified propositions in which the *dum*-clause posits the *existence* or *persistence* of the modal clause's subject, such as in "It is necessary for Socrates to have a heart while he lives" or "It is possible for Socrates to read while he exists" (*Necesse est Socratem habere cor dum vivit*; *Possibile est Socratem legere quamdiu permanet*); and finally (iii) propositions in which a temporal clause is adjoined to the mode, the predicate of which is the same as the predicate in the infinitive clause, as in "It is necessary for Socrates to sit while he sits" (*Necesse est Socratem sedere*

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[15]Martin has provided a detailed analysis of Abelard's discussion about the scope of the negative particle and its interaction with temporal qualifications in (Martin, 2016, pp. 125-132).

dum sedet). According to Boethius, this last sort of claims are equipollent to the corresponding claims *de puro inesse*, so that "It is necessary for Socrates to sit while he sits" is equivalent to "Socrates sits". Thom notes in (Thom, 2003b, p. 38) that in his second commentary on Aristotle's *De interpretatione* Boethius presents a similar division of the different kinds of necessities, distinguishing between necessities that are "simple predications" (e.g., "It is necessary that the Sun moves"), which seem to correspond to what elsewhere he calls absolute necessities, and those that are "put forward with the necessity of some accidental characteristic" (e.g., "It is necessary that Socrates is seated when he is seated"), that correspond to conditioned necessities.
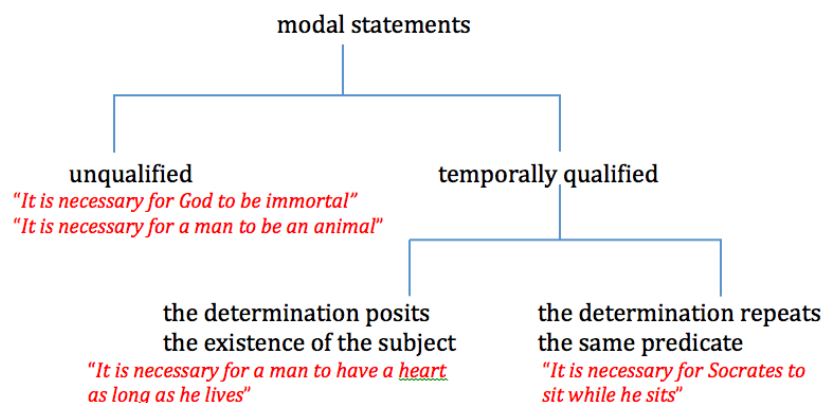
Figure 2.5: Boethius' distinction of different kinds of necessity and possibility.

Martin has recently shown that a debate on determinate of modal claims and on their logical behavior was underway also during the eleventh and the beginning of twelfth century, as witnessed by some treatises on modalities of the time, such as Garlandus Compotista's *Dialectica* and the two anonymous Orléans treatises, designated by Iwakuma as *M1* and *M3*, preserved in manuscript Orléans 266 and in Paris BN Lat 13368[16] (Martin, 2016, p. 115-125). Garlandus' analysis of determinate modal claims is very concise, and essentially retraces the distinction made by Boethius between

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[16]M1 = Orléans, Bibl. Municipale, 266: 166a-169a; Paris, Bibl. Nationale, lat. 13368, 175va-177ra. M3 = Orléans, Bibl. Municipale, 266: 252b-257b.

three different sorts of necessity and possibility-statements. As Boethius, Garlandus distinguishes two sorts of determinate claims, those in which the determining clause and the modal clause have the same predicate ("It is necessary for Socrates to sit while he sits"), which he takes to be equipollent to the corresponding non-modal claims, and those in which the determining clause posits the existence of the modal clause's subject ("It is necessary for Socrates to be a man while Socrates exists"). In the two treatises *M1* and *M3* the analysis of temporally qualified claims is developed in more detail, and concerns many of the questions that Abelard is also interested in, such as the different possible interpretations of determinate modal claims, the role of negation and the question about whether the usual rules of equipollence and opposition that hold between simple modal proposition also hold for determinate ones.[17]

As Thom notes in (Thom, 2003b, p. 38) the tripartite distinction of modal claims that Boethius advances in the *De Hypotheticis Syllogismis* essentially follows the one proposed by Theophrastus among three types of necessity propositions.[18] According to what Alexander of Aphrodiasias reports, Theophrastus divided necessity-statements in (i) unqualified or absolute necessity-statements; (ii) "limited" necessity-statements, which express a conditioned (μετὰ διορισμοῦ) sort of necessity; and (iii) necessity propositions that are equivalent to simple (i.e., non-modal) assertions.[19] Thom
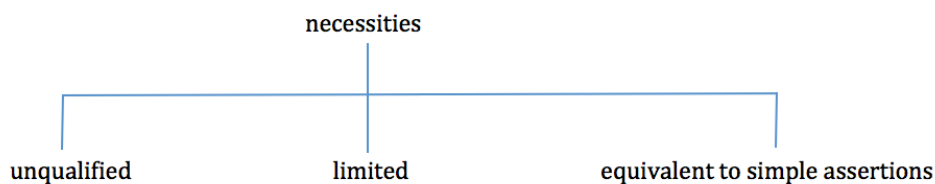
Figure 2.6: Theophrastus' distinction of different kinds of necessity.

points out that a similar distinction between different types of necessity was

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[17]For an analysis of the discussion of modal claims in these two treatises, and the comparison with Abelard's works, see (Martin, 2016, pp. 115-132).

[18]Unlike Theophrastus, Boethius proposes a threefold distinction not only for necessities but also for possibilities.

[19]This position held by Theophrastus is reported by Alexander of Aphrodisias in his commentary of Aristotle's *Prior Analytics*. See (Alexander of Aphrodisias 1991, 36, 25-29 *ad* A2, 25a9) and (Alexander of Aphrodisias 1999, 156, 29-157 *ad* A13, 32a18). See also (Thom, 2003b, p. 22).

frequently posited in Late Ancient logic, and particularly in Ammonius and Stephanus (Thom, 2003b, pp. 21-36), who also proposed a threefold division similar to the one used by Boethius.[20] Stephanus, for example, divided necessities in absolute necessities and hypothetical necessities. This last category includes those predications that are necessary only as long as the predicate belongs to the subject, such as "Socrates is sitting of necessity as long as he is sitting". The first category of absolute necessities is instead divided into two kinds: the necessary predications of sempiternal beings ("God is of necessity good") and the substantial predications of contingent beings, which are said to be necessary only under the condition that their subject exists.[21]
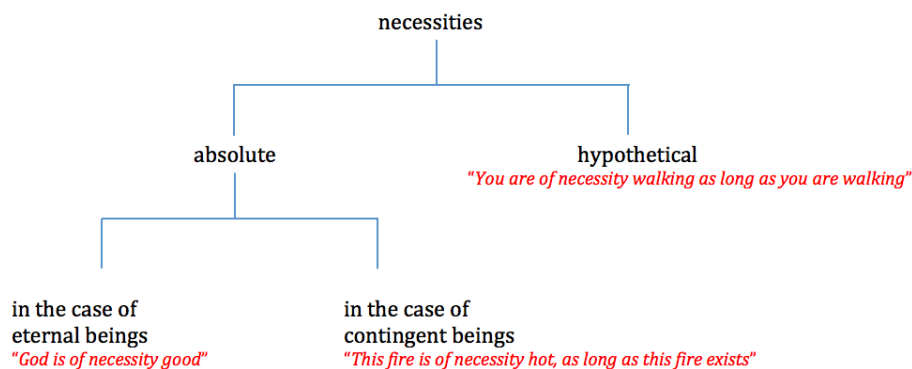
Figure 2.7: Ammonius' and Stephanus' distinction of different kinds of necessity.

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[20] For a discussion of the different sorts of necessity in the ancient commentators' tradition see also (Alexander of Aphrodisias, 1999, pp. 148-152).

[21] See for instance (Stephanus, 2000, p. 158 *ad* 19a23-24), quoted in (Thom, 2003b): "There is what is necessary absolutely and what is necessary hypothetically. We say that something is necessary hypothetically, so long as the predicate belongs to the subject. But the same things is capable also of not belonging, as that Socrates should be sitting or sleeping. so long as the sleeper sleeps, of necessity sleep belongs to him. The absolutely necessary is again twofold: it exists both in the case of eternal things and in the case of things that come to be and cease to be, when a substantial differentia of the thing that is subject is present. We say "substantial" because in the case of the hypothetically necessary when the thing, that is, the predicate, is separated, for instance walking or sleeping, the subject is not destroyed, but here, for instance in the case of fire if the heat is separated it destroys the subject, that is, the fire. What is the necessity that is to be seen in the case of eternal things? For example, when we say "The Sun is of necessity in motion", "God is of necessity good". But in he case of things that come to be and cease to be, it is like this fire. Like the particular, we mean, and not the universal, since this particular fire comes to be and cease to be, but the universal is always the same and does not cease to be".

Abelard follows Boethius' tradition in giving a threefold distinction for possibility and necessity claims, although the categories in which he divides these claims is slightly different. Apart from unqualified modal claims, Abelard distinguishes between two different ways in which a temporal determination can be added to a modal proposition: intrinsically or extrinsically. A qualification is intrinsic (*intrasumpta determinatio*) if the verb stated in the determining clause is the same as the one included in the infinitive clause, as in the modal proposition "It is possible for Socrates to read while he reads" (*Possibile est Socratem legere dum legit*). On the contrary, the qualification is extrinsic (*extrasumpta*) if the verb in the infinitive clause is different from the verb in the determining clause, as in "It is possible for Socrates to read while he sits" (*Possibile est Socratem legere dum sedet*), or if the same predicate is repeated but is varied in quality, as in "It is possible for Socrates to read while he does not read" (*Possibile est Socratem legere dum non legit*).

modal statements

unqualified
"It is necessary for God to be immortal"
"It is necessary for a man to be an animal"

temporally qualified

extrinsic
determination
"It is necessary for Socrates to sit while he lives"

intrinsic
determination
"It is necessary for Socrates to sit while he sits"
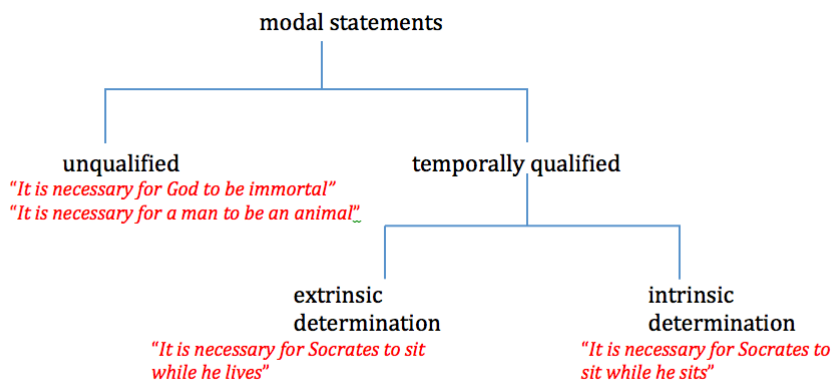
Figure 2.8: Abelard' distinction of different kinds of necessity and possibility.

In the glosses (LI *De Int.* 421.58-422.773) Abelard insists that, in the case of intrinsic determinations, the infinitive clause and the determining clause must not only have the same predicate but also the *same subject*. According to Abelard, even when the subject term of the *dum*-clause is not explicitly stated, if the determination is *intrasumpta* we should always understand the *dum*-clause as if a relative pronoun "*ipse*" was implicitly contained as its subject, in order to grant the identity between the subject of the infinitive clause and the subject of the temporal clause. Abelard

says for instance that the proposition "It is possible for a certain man to run while is running" (*Possibile est quendam hominem currere dum currit*), in which the temporal clause has no explicit subject, must be taken as saying: "It is possible for a certain man to run while *he himself* is running" (*Possibile est quendam hominem currere dum ipse currit*) and not as saying "It is possible for a certain man to run while *some* man runs" (*Possibile est quendam hominem currere dum quidam homo currit*):

> Et videtur semper in determinatione huiusmodi, id est intrasumpta, relativa pronomina intelligi ac si diceretur "Possibile est quondam hominem currere dum ipse currit", alioquin non bene identitas rei in transumptione servaretur. Si enim diceremus "Possibile est quendam hominem currere dum quidam homo currit" et non diceremus "dum ipse currit", non intrasumpta determinatio videretur cum ad idem non referretur; nam proprie alium et alium quidam posset accipi. (LI *De Int.* 421.758-422 774)

Abelard limits the requirement of having the same subject only to modal claims that contain intrinsic determinations. This may suggest that, in case the determination is extrinsic, the subject of the determining clause might be different than the one in the infinitive clause. If this was the case, we could have determinate modal proposition of this sort: "It is possible for Socrates to run while Plato sits", or "It is necessary for every man to be rational while some animal is irrational". However, Abelard never gives examples of determinate modal propositions in which the subject of the determination is different than the subject of the infinitive clause. We should therefore limit the following discussion to determinate modal propositions in which the infinitive clause and temporal clause share the same subject.

Whereas for Abelard the predicate of an extrinsic temporal determination might be *any sort of predicate* that is different from the one included in the infinitive clause, Boethius and Garland only consider as extrinsic determinations[22] those in which the predicate is a verb like *existere*, *persistere*, *vivere*, such as in the two propositions "It is necessary for a man to have a heart while he lives" (*Necesse est hominem habere cor dum vivit*), or "It is possible for Socrates to read while he exists" (*Possibile est Socratem legere dum permanet*). In these two cases, the function of the determining clauses

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[22]Although neither Boethius nor Garland use the terminology of *intrasumptae* and *extrasumptae determinationes*.

"*dum vivit*" and "*dum permanet*" is to restrict what is said by the modal claim to only those times in which the subject term is in fact existing, as if it was said: "in those times in which Socrates exists, it is possible for him to read at these times", and: "in those times in which a man lives, it is necessary for him to have a heart at these times". Propositions of this sort are contrasted with unqualified or "absolute" modal propositions, such as "It is necessary for God to be immortal" (*Necesse est Deum immortalem esse*) or "It is possible for a bird to fly" (*Possibile est avem volare*). According to Boethius and Garlandus, if one wants to formulate a true necessity proposition whose subject is a contingent being, i.e., an individual or a species that does not exist sempiternally but only in some times, he can only do it by means of a determinate modal claim. Every absolute necessity proposition about non sempiternal beings will in fact turn out to be false. This is because an absolute necessity proposition as "It is necessary for S to be P" can only be true if it is impossible that "S is not P", i.e., if there is no possible situation or no possible time in which it is not the case that "S is P". But since the proposition "S is P" is false in those situations in which the subject S does not exist, if S is not a sempiternal being there will be times in which the claim is false, and therefore that S is P is not necessarily the case. Unqualified necessity propositions with non-omnitemporal subjects are then always false. On the contrary, a determinate proposition as "It is necessary for S to be P while S exists" is true if it is impossible for S not to be P only in those times and in those situations in which S actually exists. Garlandus explicitly deals with this problem in *Dial.* 84.25-85.9. He says there that if one admits as true any unqualified proposition in which a necessary property is predicated of a contingent being, absurd conclusions might be drawn from it. If, for instance, someone admits that "Socrates necessarily sits" and "this fire is necessarily hot" are true, an opponent might conclude from it that Socrates is immortal or that this fire exists sempiternally. This is the argument proposed by Garlandus: let us admit that the proposition (a) "Socrates necessarily sits" (*Necesse est Socratem sedere* or *Socrates ex necessitate sedet*) is a true proposition. If (a) is true, then proposition (b) "for Socrates it is impossible not to sit" (*Socrates non potest non sedere*) is also true. Proposition (b) means that there is no possible situation or time in which the claim "Socrates does not sit" is true. If this is the case, then there is also no possible situation in which Socrates is dead, because if

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there were a situation in which Socrates is dead, then the claim "Socrates does not sit" would be true in that situation.[23] If (b) is true, then, it is also true that (c) "For Socrates it is impossible to be dead" (*Socrates non potest mori*). Finally, if it is not possible for Socrates to be dead, we conclude that (d): "Socrates is immortal" (*Socrates immortalis est*), which is, according to Garlandus, absurd.[24] Garlandus' solution to the problem is that absolute claims concerning the necessary properties of contingent beings, such as "It is necessary for Socrates to sit", "It is necessary for men to be mortal" or "It is necessary for this fire to be hot", are always false,[25] and they must then be temporally qualified by means of an extrinsic determination, if we want them to be true and if we want to avoid absurd conclusions. This is how Garland advises the reader to understand them in *Dial.* 85.3-9:

> Quotienscumque aliquis fecerit tibi mentionem de necessario vel de possibili vel de contingenti, determinatum secundum quem modum acceperit. Nam si indeterminatum preterieris, inconveniens sepe inde habebis. Poterit enim tibi probari et hominem esse immortalem et ignem omni tempore durare ad similitudinem primi sophismatis. Si quis igitur tibi dixerit hominem ex necessitate esse animal et ex necessitate ignem calere, appone: "dum est homo" et "dum ignis calet".

Extrinsic temporal determinations are then used by Garland – and probably by Boethius as well, even if this is not always explicit – as devices that allow them to formulate true necessity propositions concerning contingent beings.[26] Abelard, on the contrary, is not interested in this use

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[23]Garlandus seems here to implicitly assume that the affirmative proposition "Socrates sits" has an implicit existential import, so that can only be true when Socrates exists, while the negative proposition "Socrates does not sit" has not such an import, so that it turns out to be true even if Socrates does not exist, as, for instance, in those times in which he is dead.

[24]See Garlandus's *Dialectica* 84.25-33: «Nisi taliter determinetur "necessarium" et "possibile", sophismata orientur inde. Verbi gratia: "Socrates est immortalis". Utrum. Si non potest mori, est immortalis; sed non potest mori. Utrum. Si non potest non sedere, et non potest mori; sed non potest non sedere. Utrum. Si ex necessitate sedet, et non potest non sedere; sed ex necessitate sedet. Utrum. Si est vera ista propositio quae dicit: "necesse est Socratem sedere", et ex necessitate sedet; si quis tibi istam propositionem concesserit sine determinatione, assume et regredere concludendo usque ad primam que in questione fuit».

[25]Not only they are false when their subject's referent(s) does not exist, but they are false in every time.

[26]Both Boethius and Garlandus allow instead that we can have absolute claims about possibility concerning non omnitemporal beings, such as "It is possible for a bird to fly" (*Possibile est avem volare*). This proposition is omni-temporally true because, i.e., it is

of extrinsic determinations. Although he is himself worried about the fact that the equipollence between (a) "It is necessary for S to be P" and (b) "It is not possible for S not to be P" is problematic in the case "S" refers to a contingent being, he does not solve the problem by resorting to extrinsic determinations. Rather, he uses extrinsic determinations for different purposes, such as to explore the relations of com-possibility or incompatibility between predicates, i.e., to investigate which predicates are possibly or necessarily predicated simultaneously of the same subject.

2.3.1 The meaning of the *dum*-clause

After having distinguished between intrinsic and extrinsic qualifications, Abelard moves on to consider the meaning and the logical properties of determinate modal propositions, focusing especially on propositions containing the temporal adverb "*dum*". Abelard claims in the *Dialectica* and in the glosses that a temporal clause introduced by "*dum*" always has a twofold role: (i) it posits the existence of a certain (present, past or future) moment of time and (ii) it states that a certain predication is true at that time. The temporal proposition "while Socrates sits" (*dum Socrates sedet*), for example, is taken by Abelard to mean: "a certain time t exists, such that Socrates sits at t". According to Abelard, when the predicate of the *dum*-clause is in the present tense, the existential assumption made by the *dum* qualification is referred to the present time. In parallel, if the predicate of the *dum*-clause is in the past or future tense, the "*dum*" is referred to some past or future moment.

> Si quidem praesens verbum ponitur in determinatione, praesens positio temporis fiat; si praeteritum vel futurum, praeterita vel futura, hoc modo: "Necesse est sedisse dum sedit" vel "non sedisse dum non sedit" vel "sessurum esse dum sedebit" vel "non sessurum esse dum non sedebit". (LI *De Int.* 426.892-896)

There are some passages, however, in which Abelard seems to think that even if the verb in the *dum*-clause is stated at the present tense, the "*dum*"

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true even in those times in which birds do not exist, insofar as it is possible for God to create them and to make things so that they can fly: «Item possibile est quod absolute omni tempore contingere potest, ut "possibile est avem volare": licet enim avis omni tempore non sit, potest tamen contingere ut fiat a Deo et ut volet» (Garlandus' *Dial.* 84.21-23).

might refer to some moment of time other than the present. For example, when Abelard considers in LI *De Int.* 425.860-877 the proposition "It is possible for Socrates to sit while he sits and while he does not sit" (*Possibile est Socratem sedere dum sedet et non sedet*) he says that there are two ways in which this proposition might be interpreted: either we take the temporal adverb "*dum*" in the determining clauses "*dum sedet*" and "*dum non sedet*" as referring to the present time only, or we can take only one of them as referring to the present and the other as referring "*indifferenter*" to some moment of time, which does not necessarily coincide with the present («sedere indifferenter utamur pro omni tempore et non sedere pro praesenti»). In the first case, the temporal clause "while he sits and does not sit" is taken to mean

a) there exists a time $t =$ now, such that ((Socrates sits at t) and (Socrates does not sit at t)).

In the second case, it is taken to mean:

b) there exists a time $t =$ now, there exists a time t', such that ((Socrates does not sit at t) and (Socrates sits at t').[27]

By allowing that the proposition "*dum sedet et non sedet*" might be understood in this second case, Abelard holds that in some cases a *dum* clause whose verb is stated in the present tense is not referred to the present time but "*indifferenter*" to any moment of time.[28] However, this is not the usual

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[27]Abelard considers these two possibilities in the following passage from the glosses: «Ad quod respondendum est quod, si sedet et non sedet praesentis tantum designative cum de Socrate stante agimus, non procedit [...] Si vero sedere indifferenter utamur pro omni tempore et non sedere pro praesenti et de eo loquamur qui aliquando sedet et modo non sedet, satis concedendum videtur a toto, quod videlicet, cum sit possibile eum sedere omni tempore vitae suae, possibile sit sedere dum sedet et rursus possibile sit sedere dum non sedet» (LI *De Int.* 425.869-874). Abelard makes the same point in *Dial.* 209.23-35, where he considers the proposition "Possibile est Socratem legere quando legit et quando non legit". Also in this case, Abelard says that the two temporal determinations "quando legit" and "quando non legit" can either be interpreted as referring both to the same present time or as referring to every time (*omnis temporis accipiuntur*). In the *Dialectica* and the *glossae*, Abelard proposes this interpretation of the temporal clause "*dum sedet et non sedet*", while trying to solve a puzzle that is raised by the admittance of modal propositions with universal temporal qualifications, such as "it is possible for Socrates to sit in every moment of his life". I shall consider in more detail this puzzle and Abelard solution in section 2.3.4.

[28]More accurately, Abelard proposes that when we have a conjunction of *dum* conditions, we may read one of them tenselessly as referring to all times and the other as referring to the present. He doesn't however suggest that this option is available when

interpretation Abelard gives of temporal clauses in the present tense, and in the other passages of the glosses and the *Dialectica* he is consistent in taking temporal clauses as referring to the time that is expressed by the tense of their predicates. We have then the following three cases:

"*dum Socrates sedet*" = "there exists a time t, $t = $ now (Socrates sits at t)";

"*dum Socrates sedebit*" = "there exists a time t, $t > $ now (Socrates sits at t)";

"*dum Socrates sedit*" = "there exists a time t, $t < $ now (Socrates sits at t)".

After having considered the meaning of the *dum*-clause, Abelard claims that a modal claim containing a temporal qualification cannot be true unless its determining proposition introduced by the *dum* is also true. Therefore, affirmative determinate modal propositions always entail their determining propositions, so that, for instance, the proposition "It is possible for Socrates to read while he reads" entails that "Socrates reads", and the proposition "It is possible for Socrates to read while he lives" entails that "Socrates lives".

> Cum enim determinatio tempus ponat in quo aliquid contingere dicitur, non potest ipsa vere copulari nisi contingeret quod in ea contingere dicitur. Quomodo verum esset "Possibile est me legere dum lego" vel "ubi lego" nisi tempus vel locus contingant in quibus legam? (LI *De Int.* 422.785-789)

This inference rule, to which I shall refer as the "from determinate to determining principle", is reported by Abelard as the "common opinion" on determinate modal claims (LI *De Int.* 422.780), and was indeed generally accepted in the eleventh and twelfth century discussions on modalities.[29] Abelard considers however some exceptions to this rule. First, he thinks the inference is invalid in case that the temporal clause introduced by "*dum*" falls within the scope of a negative particle (I consider this case in section 2.3.3 below). Second, the rule is invalid in the case that the temporal clause's

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we have only a single *dum* condition. Abelard proposes this interpretation while trying to solve a puzzling argument (which will be analysed in section 2.3.4 below), but he offers no further justification for it. The solution seems then to be *ad hoc*, and cannot be taken as the usual Abelardian interpretation of the *dum* qualifications.

[29]See in particular (Martin, 2016) for the discussion of the same rule in the Orléans treatises *M1* and *M3*.

predicate is stated at some tense other then the present, if the clause introduced by the "*dum*" is negative. Therefore, it is not possible to infer, from the truth of a determinate proposition like "*Necesse est Socratem sedisse dum non sedit*" the truth of its determination "*Socrates non sedit*". Nor it is possible to infer from "*Necesse est Socratem sessurum esse dum non sedebit*" the truth of "*Socrates non sedebit*". This is because by means of the temporal clauses "*dum non sedit*" and "*dum non sedebit*" is posited the existence of an indefinite but particular moment of time at which Socrates was sitting or at which Socrates will sit. However, by means of the simple propositions "*Socrates non sedit*" and "*Socrates non sedebit*" is said that *at every past time* or *at every future time* it is the case that Socrates does not sit at that time. Then, when we consider the proposition "*Si possibile est Socratem sessurum esse dum non sedebit, Socrates non sedebit*", the inference fails because by means of the antecedent it is said that there exists a time *t*>now such that Socrates does not sit at *t* and it is possible for Socrates to sit, but by means of the consequent it is said that for every time *t*>now Socrates does not sit at *t*. Abelard makes this point in the glosses (but not in the *Dialectica*, where temporal propositions whose tense is other than the present are not considered), when he says:

> Cum enim dicitur "dum non sedet sedebit", in "dum non sedet" praesens positio fit temporis in quo non sedet, ac si poneretur iam contingere illud tempus in quo non sedet, quod contingere non potest nisi simul vera sit haec proposition "Non sedet". Cum vero dicitur "sedebit dum non sedebit" tale est ac si diceretur "sedebit dum contingit tempus in quo non sedebit"; sed non ideo vera haec proposition "Non sedebit", quae omni tempore sedere removet; cum enim multa sint futura, non est verum quod, si non sedebit in eo futuro, non sedebit. At vero, cum unum sit praesens, oportet ut, quicquid non sedet in praesenti, quotiens in significatione praesentis tantum profertur, quotiens itaque determinatio praesentis supponitur verae modali et non removetur determinatio, oportet propositionem quae ad determinationem pertinent veram esse. (LI *De Int.* 427.915-427.928)

Abelard moves on to consider *the meaning* of modal propositions containing *dum*-qualifications. According to what Abelard says in *Dial.* 206.23-37 and LI *De Int.* 424.819-848, a proposition like (*) "It is possible for he who is standing to sit while he stands" (*Possibile est stantem sedere dum stat*) could be expounded in two different ways:

1) There exists a time t=now such that ((this person stands at t) and (it is possible for this person to sit));

2) There exists a time t=now such that (For this person, who is standing at t, is possible to stand and sit at t).

In the first case, we have a *temporal hypothetical proposition*, in which the "*dum*" adverb only works as a temporal qualification, i.e., it merely has the role of positing the existence of some moment of time in which the predication "this person stands" is true. What the proposition says according to this first sense is that there is a time in which the subject "*stantem*" actually stands and it is (unqualifiedly) possible for this subject to sit. The proposition is hypothetical because is a conjunction of two distinct proposition: a simple proposition ("this person stands at t") and a modal proposition ("it is possible for this person to sit"). If both the conjuncts are true, then the entire proposition is true:

> Ut, cum dicitur "Possibile est stantem sedere dum stat", unus sensus est temporalis hypotheticae constantis ex simplici categorica et modali, ad si diceretur "Existente tempore quo stans stat, verum est quod possibile est eum sedere", et est vera temporalis hypothetica ex veris propositionibus coniuncta. (LI *De Int.* 424.822-826).

In the second case, we have a *modal categorical proposition*, in which the "*dum*" qualification not only has the role of positing the existence of a time in which Socrates actually stands, but it also has the role of conjoining the predicate of the infinitive clause with the predicate of the temporal clause, in order to form a conjunctive predicate "*stare et sedere*" which is said to be possible for a certain subject. According to this interpretation, the proposition says that: there is a time (the present) in which the subject actually stands and it is possible for this subject to stand and sit at the same time t. According to this second interpretation, the proposition is true in this sense if two conditions are satisfied: (i) if there is a moment of time (the present one) in which the subject denoted by "*stantem*" actually stands, and (ii) if the predicate of the infinitive clause and the predicate of the temporal clause are not incompatible with each other and with the other predicates conjoined to the subject at time t:

> Alius vero est sensus cum dicitur "Possibile est stantem sedere dum stat", ut illud dum non solum ad existentiam temporis quo stat ponatur,

> sed magis ad coniunctionem accidentium circa idem subiectum, ac si
> diceretur stantem posse sessionem habere cum stationem quam habet
> (LI *De Int.* 424.831-836).

In both interpretations, the qualifying clause "*dum stat*" posits the existence
of a time in which the subject is actually standing, and therefore, however
interpreted, the determinate modal proposition "It is possible for he who is
standing to sit while he stands" entails its determining proposition "he who
is standing stands".[30] For this reason, the determinate claim "*possibile est
stantem sedere dum stat*", taken as a modal categorical, is not the same as
the simple *de sensu* claim "*possibile est stantem sedere manentem stantem*"
because whereas it is a necessary condition for the truth of the first that the
subject "*stantem*" is actually standing, this is not the case for the latter:

> Alius vero est sensus cum dicitur "Possibile est stantem sedere dum
> stat", ut illud dum non solum ad existentiam temporis quo stat ponatur,
> sed magis ad coniunctionem accidentium circa idem subiectum, ac si
> diceretur stantem posse sessionem habere cum statione quam habet. Si
> autem sic exponeremus: "stantem posse simul habere stationem et ses-
> sionem", minus diceremus quam construction exigat, et non possemus
> determinationem inferred quae ponitur. Quippe cum verum sit hunc
> album sedentem posse esse nigrum et stare, non potest inferri quod vel
> stet vel niger sit. At, si ita dicatur "Possibile est ipsum nigredinem
> habere coniunctam stationi quam habet", potest inferri quod stat; et
> hic est sensus quem habet haec modalis "Possibile est hunc esse nigrum
> dum stat". (LI *De Int.* 424.831-842)

The two propositions "*Possibile est stantem sedere manentem stantem*" and
"*Possibile est stantem sedere dum stat*" are therefore not equivalent, for
while the latter tells us something about what is presently the case, the
former does not assert anything about actual facts, but only about possibil-
ities.

In the glosses (LI *De Int.* 428.957-969), Abelard states a further pos-
sible interpretation of determinate modal claims, in which the temporal
determination is applied to the modal term itself, i.e., to the term that is
the predicate with respect to the grammatical structure:

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[30]As Martin shows in (Martin, 2016), the same distinction between these two possible
interpretations of determinate modal claims is also proposed in the Orléans treatises *M1*
and *M3*. In both treatises, this latter reading is proposed as the proper interpretation of
propositions of this sort.

Nunc autem determinationes necessarii consideremus. Cum dicitur
"necesse est hunc stare dum stat" constat modalem veram esse, non
temporalem. Sed, si iuxta expositionem possibilis hanc determinatam
de necessario exposuerimus, non minus falsa erit quam temporalis, ut
scilicet ita dicamus necesse est ita evenire ut dicit haec proposition
"Hic stat dum stat". Si enim necesse est, incommutabiliter verum est;
sed, cum iste non steterit, ex toto falsum est dicere "Hic stat dum
stat". Restat tertius sensus qui verus est, quando ipse modus, scilicet
necesse, determinatur ac si ita dicatur "Iste stat necessario dum stat",
hoc est "Stat ita quod non potest non stare retinendo stationem quam
habet"; et in hac quidem expositione determinatio quae est "dum stat"
est modi praedicati qui est "necesse". (LI *De Int.* 428.957-969)

In the passage just quoted, Abelard says that a proposition like "It is neces-
sary for Socrates to stand while he stands" (*Necesse est stantem stare dum
stat*) may be interpreted in the two senses just mentioned, as a hypothetical
temporal proposition or as a modal categorical propositions, but it could
also be interpreted in a third sense, where the determination introduced
by "*dum*" is applied to the modal term. The three senses distinguished by
Abelard can be represented in the following way:

1. There exists a time t=now such that ((this person stands at t) and (it
   is necessary for this person to stand));

2. There exists a time t=now such that (it is necessary that (this person,
   who is standing at t, stands at t));

3. There exists a time t=now such that (it is necessary at t that (this
   person, who is standing at t, stands at t));

Abelard claims that only when interpreted in the third way the proposition
is true. The temporal hypothetical proposition (1) is false because being
standing is not a necessary predication of Socrates (for, we may add, is not
required by his nature to stand). The modal proposition (2) would only be
true, Abelard says, if the simple proposition "this person stands while he
stands" were immutably true («*si enim necesse est, incommutabiliter verum
est*» (LI *De Int.* 428.962-963). But this is not the case, because there
are moments of time in which it is false, and therefore (2) is always false
(«cum iste non steterit, ex toto falsum est dicere "Hic stat dum stat"»).
Also in the case of proposition (3) the meaning of modal term "necessity"

is spelled out in terms of immutability. But since in this case the mode itself is determined, for this proposition to be true is not necessary that the simple proposition "this person stands while he stands" is immutably true in every time, but only in those times in which the subject actually stands. Abelard suggests in LI that the third possible exposition of determinate modal claims, in which the temporal qualification is applied to the mode itself, is suitable for propositions about necessity, but not for propositions about possibility (LI *De Int.* 428.969-429.981). The reason for this seems to be that while "*necesse*" is a proper mode, or mode *in sensu*, and as such it can be qualified by means of a temporal determination, "*possibile*" is only improperly said to be a mode, i.e., it is a mode only with respect to grammar, and not with respect to meaning, and being an improper mode it is not possible to temporally determine it. As was said in section 1.1.1 above, a mode is a mode *in sensu* if it functions as a qualification of the predicate to which is applied. Because "*necesse*" (or "*necessario*") is a mode *in sensu*, and it has then the role of qualifying a certain predicate, it can itself be qualified in turn, so that if we say "*Socrates stat necessario dum stat*", by means of the temporal determination "*dum stat*" we qualify the mode "*necessario*", positing the qualification of a qualification. If "*possibile*" were a mode *in sensu*, we would be able to qualify it too by means of a *dum*-clause, Abelard says in LI *De Int.* 429.978-981 («si vero possibile modum in sensu propositionis proximus possemus facere et supponere, ad ipsum quoque determination referretur») but since "*possibile*" is only an improper mode, we cannot qualify it.

Apart from temporal propositions introduced by "*dum*", Abelard also considers modal propositions in which a *quamdiu*-clause or a *quotiens*-clause is included. Abelard's remarks on these determinations are only scattered. Differently from propositions introduced by "*dum*" or "*cum*" (translated here as "*while*"), a temporal clause introduced by "*quamdiu*" ("*as long as*") has not the role of positing the existence of some moment of time in which a certain predication actually occurs, but it has instead the role of stating that a certain predication is possible or necessary for all those times in which the subject has a certain property or is in a certain state, even if this is not the case at the present time. The proposition "It is possible for Socrates to sit as long as (*quamdiu*) he lives", for instance, means that in every time in which Socrates sits, it is possible for him to live. This proposition differs

from the following one "It is possible for Socrates to sit while (*dum*) he lives" because it is a necessary condition for the truth of the second, but not of the first, that Socrates actually sits. The "from determining to determinate principle" does not hold for *quamdiu* determinations, because the simple proposition "Socrates sits" follows from the second but not from the first. We may conclude this from what Abelard says in *Dial.* 208.7-11 about the proposition "*eum legere [necesse est] dum legit*", which according to him could be expounded in two ways: either as saying that (a) "it is necessary for Socrates to read as long as he reads", or instead as saying that (b) "it is necessary for Socrates to read while he reads". He points out there that proposition (b) is false, while (a) is true. Proposition (b), he claims, would only be true if the corresponding non-modal claim "Socrates reads while he reads" were omnitemporally true. But this is not the case, for in those times in which Socrates is not reading, the proposition turns out to be false, because of the meaning he attributes to the *dum* clause. Proposition (a), on the contrary, is true, because it turns out to be true even in those times in which Socrates does not read and, one might suppose, even in those times in which Socrates does not exist.

> Si enim dicamus hoc totum subiectum "eum legere [necesse est] dum legit", idest hanc temporalem, falsum est, quia hoc quod ipsa dicit, non semper est, sed saepissime deficit, quando non legit. Si vero ita exponamus: "eum legere est necesse quamdiu legit", verum est, idest: "est unum de his quae necesse est esse quamdiu legit". (*Dial.* 208.7-11)

Because a *quamdiu* determination does not posit the existence of one single time but refers to every time in which a certain predication is the case, Abelard classifies it as a "universal determination"

> Nam "dum" vel "cum" indefinitae sunt significationis, "quotiens" vero vel "quamdiu" quasi universales.

2.3.2 The logic of determinate modal claims

After having considered the possible interpretations of modal claims that contain temporal qualifications, Abelard establishes some logical rules that describe their logical behavior and relate them to simple modal propositions and to propositions *de puro inesse*. As we have already seen, Abelard accepts as valid the inferential rule according to which we can infer from a

determinate modal claim its determining proposition. Boethius says in *De Syll. Hyp.* 236.59-62 that determinate modal propositions with intrinsic determinations not only infer their determining propositions, but *they are also equipollent to them.* According to him, propositions like (a) "It is necessary for Socrates to read while he reads" and (b) "It is possible for Socrates to read while he reads" are equipollent to the non-modal proposition (c) "Socrates reads". This is not the case for determinate propositions with extrinsic determinations, which infer their determining clause but are not inferred by them. In the *Dialectica* (207.29-208.4) Abelard takes Boethius' idea into consideration, but he notices that if we admit the equipollence between (a) and (c) and between (b) and (c), we must also admit that also the two propositions (a) and (b) are equipollent to one another, because whenever two propositions are both equipollent to a same third proposition, they are also equipollent to one another:

> Qui enim concedit istas duas: "Possibile Socratem legere dum legit" et "Necesse est legere dum legit" aequipollere huic: "Socrates legit", tunc ad se invicem ipsas aequipollere recipit; quaecumque enim eidem aequipollent, etiam sibi necesse est aequipollere. (*Dial.* 207.16-18)

Abelard thinks that this is problematic, for he does not want to admit that propositions about necessity can be inferred from propositions about possibility. He then says that, although it is true to say that the three propositions (c) "Socrates reads", (b) "It is possible for Socrates to read while he reads" and (a) "It is necessary for Socrates to read while he reads" always have the same truth value in every possible situation, and they are then in a relation of concomitance to one another, it is not correct to say that there also is a mutual "inference" between the three:

> Sunt igitur aequipollentes "possibile est Socratem legere dum legit" and "necesse Socratem legere dum legit", quod omnino mihi pro falso constat, sicut et de modalibus cum extrasumptis determinationibus, veluti istae: "possibile est sedere Socratem sedere, dum est homo" et "necesse est Socratem sedere dum est homo"; illa enim vera est, haec falsa. Similiter et istae cum determinationibus intrasumptis, si proprietatem modorum attendamus, non aequipollent. Neque enim "possibile" "necessarium" infert, sed ab eo infertur. Quamvis ergo una numquam sine alia ita reperiatur, gratia scilicet identitatis terminorum, quantum tamen ad complexionem et naturam modorum cassa

est et in his consecution "possibilis" ad "necessarium. Aequipollen-
tiam ergo, secundum Boethium, comitationis concedimus in istis, non
inferentiae. (*Dial.* 207.24-36)

Although Abelard does not explicitly say this, the equipollence (i.e., con-
comitance) between proposition (c) and proposition (a) only holds if propo-
sition (a) is understood as a modal categorical claims, not if it is understood
as temporal hypotheticals.
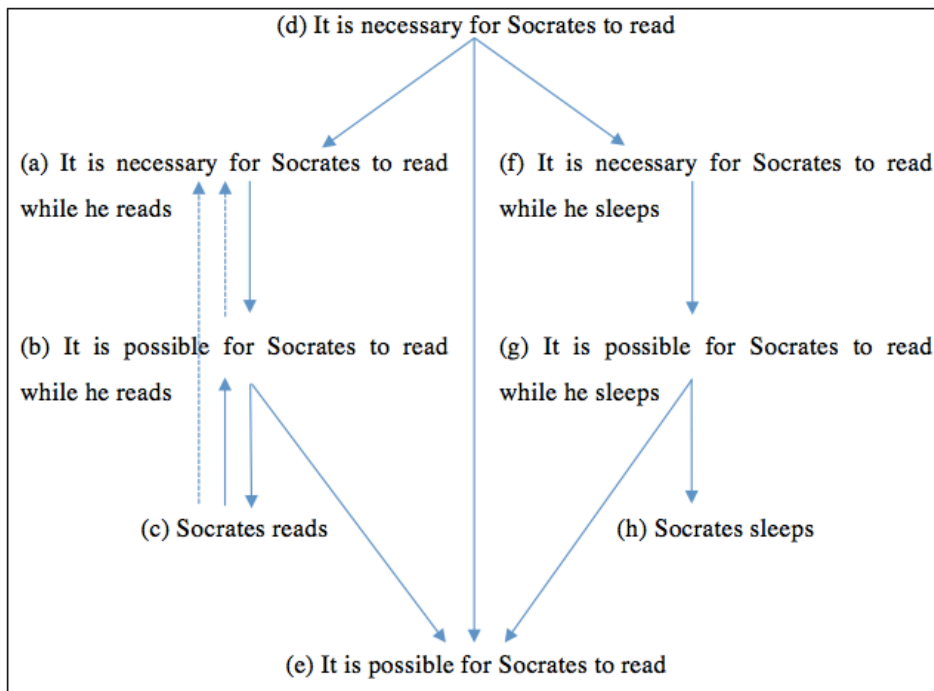
Figure 2.9: The logic of determinate modal claims.

In the glosses (but not in the *Dialectica*) Abelard also considers whether
any logical relationship between determinate modal propositions and sim-
ple modal propositions can be established. Abelard's claim is that any
affirmative determinate modal proposition about possibility implies the cor-
responding simple modal propositions, while the converse inference is not
valid. From the fact that (a) "it is possible for Socrates to read while
he reads" it follows that (e) "it is possible for Socrates to read", but not
viceversa. As far as propositions involving necessity are concerned, Abelard
establishes the opposite inference, i.e., he claims that any affirmative sim-
ple modal proposition about necessity implies a corresponding determinate

proposition. For instance, if (d) "it is necessary for Socrates to read", then (g) "it is necessary for Socrates to read while he reads" or (f) "It is necessary for Socrates to read while he sleeps" but the converse inference is not valid. This is because, according to Abelard, it is possible to infer an unqualified necessity from a determinate necessity, but a simple necessity is not entailed by a determinate necessity. Figure 2.9 represents the logical relationships outlined so far. Full arrows represent proper inferences, dotted arrows represent mere concomitance. The relations represented in the figure are valid both if we interpret determinate modal propositions as temporal hypothetical claims and if we interpret them as modal categorical claims, with the exception of the inference from (c) to (a), which only holds if (a) is interpreted as a modal categorical.

Once established the logical relations between determinate modal propositions, simple modal propositions and propositions *de puro inesse*, Abelard asks whether the relations of equipollence and opposition that were stated for simple modal claims (see section 2.2 above) are also valid for determinate ones. Abelard will answer positively, affirming that if claims of this sort are interpreted correctly, their logical behavior can be properly described by the same modal squares of opposition that he established for unqualified modal claims (these squares were represented above in figure 2.4 on page 110). In order to show how this is the case, however, we need to consider first determinate modal propositions containing negations, and establish which is the correct interpretation of negative adverbs included in them.

2.3.3 The interaction of mode, negation and temporal qualifications in determinate modal propositions

With respect to the grammatical structure, there are three different ways in which a negative particle can be applied in a determinate modal proposition: it can be included in the temporal clause, as in (1) "It is possible for Socrates to sit while he does *not* sit" (*Possibile est Socratem sedere dum non sedet*); it can be applied to the verb in the infinitive clause, in which case we have affirmative modal propositions *de non esse*, as in (2) "It is possible for this stone *not* to be a man while it is a man" (*Possibile est hunc lapidem non esse hominem dum est homo*); finally, it can be applied to the term that is the predicate with respect to the grammatical structure, that is, to the modal term, in which case we have negative modal propositions, as in (3) " It is

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not possible that Socrates is a stone while he is a stone" (*Non possibile est Socratem esse lapidem dum est lapis*). Abelard does not discuss at length the first case, which he seems to find unproblematic. His main interest is directed to propositions like (2) and (3). When dealing with the case of determinate modal propositions *de non esse*, Abelard distinguishes between three different ways in which they can be interpreted (see LI *De Int.* 422.789-797; 430.1028-1047). Just as determinate modal propositions *de esse*, these propositions can be understood as being temporal hypothetical propositions or as being modal categorical propositions. Furthermore, depending on the scope that we attribute to the negative particle, they also can be taken as negative modal claims, if the *dum*-determination is included within the scope of the negation, or as affirmative modal claims, if the *dum*-determination is external to the scope of negation .

The proposition (2) "It is possible for this stone not to be a man while it is a man" (*Possibile est hunc lapidem non esse hominem dum est homo*) – that Abelard considers in LI *De Int.* 422.789-797 and 430.1028-1047 – can be understood in the following ways:

(2.a) There exists a time t=now ((this stone is a man at t) and (it is possible for this stone not to be a man)).

In this case, the *dum* qualification only has a temporal meaning, and the proposition is then considered as a temporal hypothetical. As is the case for the other temporal hypothetical propositions, proposition (2.a) implies its determination "this stone is a man". Because the determination is false, the temporal hypothetical is false. We might also consider proposition (2) as a modal categorical in which the negative particle is applied to the infinitive clause and also to the temporal clause, so that the modal term "possible" is applied to the whole sense of a negative claim, as if it said: there is a possible situation in which the following is not the case, that this stone, which is actually a man, is a man:

(2.b) There exists a time t=now (it is possible that this is not the case (this stone, which is a man at t, is a man at t));

According to Abelard the proposition interpreted in this way is a true proposition, for there is indeed a possible situation in which the proposition "this stone, that is actually a man, is a man" is false. In this case, the temporal

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determination is part of the scope of the negative particle, or, as Abelard says, the negative particle "*intercipit*" the temporal clause. Because the *dum* determination is included in the scope of negation, and is then removed by means of the "non" particle, the "from determinate to determining principle" is not valid, and therefore we cannot infer from proposition (2.b) its determining clause, i.e. "this stone is a man".

Finally, we can consider proposition (2) as an affirmative modal categorical in which the negative particle is only applied to the predicate of the infinitive clause, not including the temporal determination within its scope:

(2.c) There exists a time t=now (it is possible that (this stone, which is a man at t, is not a man at t).

Proposition (2.c) is a modal categorical proposition in which the mode "possible" is applied to the whole sense of a proposition constituted by an affirmative claim ("this stone is a man at t") and by a negative claim ("this stone is not a man at t"), and says there is a possible situation in which the following proposition is true: "there exists a time t in which this stone is a man and is not a man". This, Abelard says, is entirely false. Because in (2.c) the temporal qualification is external to the scope of negation, it is valid to infer from (2.c) that "this stone is a man".

> Nunc et natura et vim modalium de non esse determinatarum consideremus. Hae quidem pluribus modis exponi possunt quam illae de esse, veluti cum dicitur "Possibile est non esse hominem dum est homo" vel "non sedere dum sedet". Nam (2.a) cum temporales hypotheticae, sicut et illae inteliguntur; et cum modales, dupliciter, ut scilicet (2.b) illud "non" praepositum verbo modo determinationem quoque intercipiat et simul removeat, (2.c) modo non, sed omnino eam relinquat. (2.b) Intercipit eam cum sic exponitur "Possibile est hunc lapidem non esse hominem dum est homo" ac si dicatur "Possibile est hoc totum contingere ut non sit hic lapis dum est homo"; et tunc videtur "possibile" ad totum sensum temporalis negativae, ac si dicatur quod permittit natura, ita quod omnino verum est. (2.c) Si vero dicatur ut permittat natura hunc lapidem non esse hominem, ita quod etiam hominem retineat, hoc est "non est homo quando est homo", falsum est omnino, et non est determinatio in negatione inclusa; et tunc tale est ac si ipsum "possibile" applicaretur huic temporali affirmationi constanti ex affirmativa et negativa "dum hic lapis est homo non est homo", ac si diceretur posse contingere ut proponit haec temporalis "Hic lapis, dum

est homo, non est homo". Idem de "necessario" tenendum est circa non esse; de "impossibili" autem, quoniam tantum est abnegativum "possibilis", ex "possibili" satis apparet. (LI *De Int.* 431.1028-1049)

We shall now consider the case in which the negative particle is attached to the predicate of the modal proposition, that is, to the modal term itself. In LI *De Int.* 431.1061-432.1085, Abelard considers the following proposition: (3) "It is not possible for Socrates to be a stone while he is a stone" (*Non possibile est Socratem esse lapidem dum est lapis*). There are again three possible ways in which the proposition can be interpreted.[31] It can be interpreted as an affirmative hypothetical proposition (3.a), as a negative hypothetical proposition (3.b) or as a negative modal proposition (3.c):

(3.a) There exists a time t=now (Socrates is a stone at t) and (it is not possible for Socrates to be a stone)

(3.b) It is not the case that (There exists a time t=now (Socrates is a stone at t) and (it is possible for Socrates to be a stone))

(3.c) it is not the case that (it is possible (There exists a time t=now Socrates, who is a stone at t, is a stone at t))

In both propositions (3.b) and (3.c) the negative particle is interpreted as an extinctive negation, i.e. it applies to the whole sense of the propositions that follows it (Martin, 2016, p. 132).[32] Because in both cases the temporal determination is included within the scope of negation, it is not possible to infer from (3.b) and (3.c) that "Socrates is a stone", which instead correctly follows from (3.a).

> Consideremus ergo utrum ista negativa "Non est possibile esse lapidem dum est lapis" sit (3.a) affirmativa temporalis vel (3.b) negativa temporalis hypothetica vel (3.c) negativa categorica modalis; his enim tribus modis accipi potest. Quod (3.a) si est affirmativa temporalis, ac si diceretur "Dum est lapis non possibile est esse lapidem", retento eodem consequenti servatur aequipollentia secundum consequens quod

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[31]Martin considers the possible interpretations of propositions of this sort in (Martin, 2016, pp. 131-132).

[32]According to Martin, Abelard's discussion of determinate modal claims goes beyond other contemporary debates on the same issues, like the ones reported in the Orléans manuscripts *M1* and *M3*, exactly because it relies on a new extinctive and propositional understanding of negation.

est simplex modalis hoc modo: "Dum est lapis impossibile est esse lapidem" et "Necesse est non esse lapidem". Si vero (3.b) negatio fiat temporali hypotheticae hoc modo: "Non, dum est lapis, possibile est esse lapidem" secundum consequens quoque quod est simplex modalis servetur inferentia hoc modo: "Non, dum est lapis, non necesse est non esse lapidem". Si vero (3.c) sit negatio modalis determinatae, poterit etiam cum determinatione aequipollentia custodiri: Et cum dicitur "Non est possibile esse lapidem dum est lapis", id est "Non potest contingere id totum 'dum est lapis, est lapis'", similiter hoc totum impossibile dicamus, ut scilicet negatio quae intelligitur in "impossibili" totum similiter auferat; et cum dicitur "Necesse est non esse lapidem dum est lapis", illud "non" praepositum ad "esse" simul determinationem excludit, ac si diceretur id totum "Necesse est ut non sit lapis dum est lapis". Atque ideo quoniam determinationem quoque negatio intercipit non potest per se inferri propositio posita in determinatione.

The problem concerning the proper way of interpreting negation is related to the question about whether the logical rules of opposition and equipollence that are valid for simple modal proposition are also valid for determinate modal ones. Abelard reports in *Dial.* 208.21-209.11 one puzzling argument, by means of which some people want to show that if we were to admit these equipollence rules, we would end up with absurd conclusion, and that therefore these equipollences are invalid in the case of determinate claims. Martin has shown that this argument, to which he refers as "the Equipollence Argument" (Martin, 2016, p. 130-2) is already discussed in treatises *M1* and *M3* on modalities. The solutions proposed in these treatises and then by Abelard to the Equipollence Argument rest on the idea that, if the negative particle included in determinate claims is interpreted correctly, the logical rules represented in the modal squares of opposition are valid for determinate modal propositions just as they are for simple modal ones.

This is a reconstruction of the "Equipollence Argument", as Abelard presents it in *Dial.* 208.21-209.11. As was said above, it is generally admitted as a valid principle that we may infer, from a determinate modal claim, its determining proposition. We may then admit as true that (a) "If it is possible for Socrates to be a stone while he is a stone, then Socrates is a stone". By contraposition, we have that (b) "If Socrates is not a stone, it is not possible for Socrates to be a stone while he is a stone". Let us posit as true that (c) "Socrates is not a stone". From (b) and (c) follows (d) "It is not

possible for Socrates to be a stone while he is a stone". According to the rules of equipollence represented by the modal square of opposition (see figure 2.4 on page 110), proposition (d) should be equipollent to (e) "It is impossible for Socrates to be stone while he is a stone", which in turn is equipollent to (f) "It is necessary for Socrates not to be a stone while he is a stone". If we apply again the "from determinate to determining" principle, from proposition (f) is inferred that (g) "Socrates is a stone". But this, Abelard says, is impossible, for it contradicts the initial hypothesis (c). The argument is meant to show that the use of the standard equipollence rules between possibility, impossibility and necessity – applied here to obtain propositions (e) and (f) from (d) – leads to absurd conclusions, and that therefore these rules should not be accepted as valid for determinate modal claims. Against this opinion Abelard states that these equipollence rules are valid even for propositions of this sort, and that the absurd conclusions derived in the argument depend on the fact that the negative particles in propositions (d), (e), and (f) are not interpreted correctlyinvalid . According to Abelard, proposition (f) is equipollent to the other two only when interpreted in this way:

(f) "It is necessary that this is not the case: Socrates is a stone while he is a stone"[33]

that is, only if the modal term "necesse" is excluded from the scope of the negative particle (*Dial.* 209.5-8) and if the negation is applied to the predicate of the infinitive clause and also to the temporal determination (*Dial.* 209.2-3: «per negativam particulam similiter et esse lapidem cum determinatione ipsa denegamus»). The negative particle in propositions (d) and (e) must instead be interpreted extinctively, i.e. must be applied to the whole modal proposition, including the temporal determination (*Dial.* 208.32-209.3: «per negativam particulam totum propositionis sensum exstinguimus, idest ipsum praedicatum cum determinatione ipsa removemus», and again: «totum propositionis sensum privare et exstinguere debemus»), so that their meaning would be:

(d)=(e) "It is not the case that (It is possible for Socrates to be a stone while he is a stone")

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[33]See *Dial.* 209.1-4: «Cum etiam dicimus necesse non esse lapidem, dum est lapis, per negativam particulam similiter et esse lapidem cum determinatione ipsa denegamus, ac si diceremus: "necesse est hoc totum: 'non esse lapidem dum est lapis' "».

If negation is interpreted in this way, the three propositions are indeed equipollent. From their equipollence, however, no absurd conclusion is derived, for the temporal determination "while he is a stone" in (f) is included within the scope of the negative particle, and so the inference rule "from determinate to determining" is not valid. Therefore, the inference from (f) to (g) is not legitimate, and the puzzling argument proposed above is fallacious:

> Sed contra dico quia, si aequipollentias servare volumus, oportet in negativis non modum, sed praedicatum cum determinatione ipsa removeri. Cum ergo dicimus: "si falsa est Socratem esse lapidem dum est lapis, tunc vera est non possibile est Socratem esse lapidem dum est lapis", per negativam particulam totum propositionis sensum exstinguimus, idest ipsum praedicatum cum determinatione ipsa removemus. Si enim determinationem relinqueremus, falsum esset, quippe ita oportet esse ut dicit determinatio. Similiter et quando dicimus: "impossibile est Socratem esse lapidem dum esse lapis", totum propositionis sensum privare et exstingere debemus. Cum etiam dicimus necesse non esse lapidem, dum est lapis, per negativam particulam similiter et esse lapidem cum determinatione ipsa denegamus, ac si diceremus: "necesse est hoc totum: non esse lapidem dum est lapis". Cum etiam dicimus necesse non esse lapidem, dum est lapis, per negativam particulam similiter et esse lapidem cum determinatione ipsa denegamus, ac si diceremus: "necesse est hoc totum: non esse lapidem dum est lapis" [...] Quare non videntur posse servari et in determinatis modalibus simplicium modalium regulae, nisi forte per "non" ad "esse" appositum ipsum "esse" cum determinatione ipsa removeamus, ut prius dictum est. (*Dial.* 208.30-209.11)

In the *Dialectica* Abelard concludes so that the rules of equipollence and opposition represented by the modal squares correctly describe the logical behavior of determinate modal claims, once granted that all propositions containing negative particles are interpreted in such a way that the negation also includes the temporal clause within its scope: «Quare non videntur posse servari et in determinatis modalibus simplicium modalium regulae, nisi forte per "non" ad "esse" appositum ipsum "esse" cum determinatione ipsa removeamus» (*Dial.* 209.6-11).

In the *Logica Ingredientibus*, Abelard proposes a similar solution to the same puzzle. Again, he is concerned about the equipollence between the three propositions "It is possible for Socrates to be a stone while he is a

stone", "It is impossible for Socrates to be a stone while he is a stone", and
"It is necessary for Socrates not to be a stone while he is a stone" (LI *De
Int.* 431.1050 ff.), for this last proposition seems to imply that "Socrates is a
stone", which is absurd. And again, he thinks that the solution to the puzzle
lies in the fact that these propositions are ambiguous and we must carefully
expound their possibile meanings and carefully define the scope of the nega-
tive operator. The analysis provided in the glosses is slightly different from
the one in the *Dialectica*, for there Abelard takes into account all possible
interpretations of determinate claims that includes negation, which could be
affirmative temporal hypotheticals, negative temporal hypotheticals or neg-
ative modal categoricals. Abelard tries to show that, independently of how
the proposition is interpreted, the equipollence rules of modal propositions
can be saved:

> Sed si verissime secundum distinctos modos expositiones modalium
> determinatarum accipiamus, facile in his quoque aequipollentiam vel
> inferentiam custodire poterimus [...] Atque ita aequipollentiam et in-
> ferentiam modalium custodiamus in his quoque, quae huiusmodi de-
> terminationes temporales habent vel extra– vel intrasumptae. (LI *De
> Int.* 431.1050-432.1085)

The fact that the standard equipollences of modal claims are valid for
propositions containing temporal qualifications does not imply that they
are also valid for every sort of determination. In the *Logica Ingredientibus*
Abelard briefly considers two other kinds of qualifications – introduced by
the adverbs "*solum*" and "*tantum*", that will be translated here with "only"
– which might be included in simple or modal claims, such as in "This only
is Socrates" (*Iste tantum est Socrates*) or "For Socrates only it is possible to
be a man while he is a man" (*Possibile est solum Socratem esse hominem
dum est homo*). Abelard asks whether the standard equipollences that are
valid for simple modal propositions, and that he had just shown as valid
also for temporally-determinate ones, are also preserved for propositions
containing a *solum* or *tantum* determination. These equipollences seem in
fact to fail for propositions of this sort. Let us consider for example the
proposition (a) "For Socrates only it is possible to be a man while he is a
man" (*Possibile est solum Socratem esse hominem dum est homo*), which
means that Socrates is actually a man and that he is the only thing for which
is possible to be a man. This proposition, Abelard says, is clearly false, for

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there are many things for which being a man is possible. If the standard rules of equipollence are valid, proposition (a) should be equipollent to (b) "For Socrates only it is not impossible to be a man while he is a man" (*Non impossibile est solum Socratem esse hominem dum est homo*), which is in turn equipollent to (c) "For Socrates only it is not necessary not to be a man while he is a man" (*Non necesse est Socratem solum non esse hominem dum ipse est homo*). One might think however that while propositions (a) and (b) are false, proposition (c) is true, and therefore the equipollence between them seems to fail.[34] Nevertheless, Abelard thinks that there is a way to maintain the usual modal inferences also in propositions of this sort. Abelard's justification for how these equipollence rules are supposed to work is however not quite clear. He seems to suggest that since the three propositions (a*) "*Possibile est Socratem esse hominem dum est homo*", (b*) "*Non impossibile est Socratem esse hominem dum est homo*" and (c*) "*Non necesse est Socratem non esse hominem dum ipse est homo*" are equipollent to each other, and since the adverb *solum*, once included in them, maintain the same meaning in all, then also the three propositions (a), (b) and (c) should be equipollent:

> Fortasse autem quodammodo et servari poterunt supra positae inferentiae modalium cum his quoque determinationibus, si videlicet in huiusmodi adverbiis "solum" vel "tantum" appositis eandem remotionem secundum sensum semper retinuerimus quibuscumque vocibus adiungatur et magis sensum quam verba attenderimus; veluti, cum proponitur ad probandum quod "Possibile est solum Socratem esse hominem dum est homo" et illud "solum" ad hoc ponitur demonstrandum quod "Nil aliud possit esse homo dum Socrates est homo", in eodem ubique retineatur sensu; ut, cum dicitur "Non impossibile est solum Socratem esse hominem dum est homo", ita accipiatur "solum" quod nil aliud possit esse homo dum est homo, ut retineatur illud "solum" in eadem vim et in eodem sensu quem prius habebat et magis ad sensum

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[34]Abelard says that the fact that the inference rules of the modal squares are not preserved by propositions of this sort is perhaps not incongruous, for even when determinations like *tantum* and *solum* are included in propositions *de puro inesse*, many inference rules that are usually valid seem to fail. It is not the case, for instance, that "If only this is Socrates, then only this is a man" (*Si iste tantum est Socrates, iste tantum est homo*); or that "If it is not the case that only this is a man, then only this is a non-man" (*Si non hoc solum est homo, hoc solum est non-homo*). Therefore, it would not be too problematic if the usual modal inferences were not preserved by propositions that contain "solum" and "tantum".

premissae propositionis aspiciamus quam ad verba aliarum proposi-
tionum. Et ita aequipollentia ubique servabitur. Quippe propositiones
ipsae quibus apponitur "solum" invicem aequipollent et ubique illud
"solum" in eadem vi et in eodem sensu ponitur, licet et in ceteris propo-
sitionibus, sicut in prima propositione, non videatur proprie applicari
propter commutationem appositarum vocum ad eundem sensum quem
prius habebat.

Abelard's argumentation is not really convincing, because the fact that the
determination "*solum*" has the same meaning in the three propositions, and
that the corresponding non determined propositions are equipollent to one
another, does not *per se* guarantee that propositions (a), (b) and (c) are in
turn equipollent to one another. Perhaps what Abelard wants to suggest
here is that we must be careful in interpreting the propositions (a), (b)
and (c) in the same way, i.e. as being either all *de rebus* or all *de sensu*.
In his explanation he seems indeed to suggest that the three propositions
must be taken *de rebus*. According to the *de rebus* interpretation, the three
propositions have the following meaning: (a) "Socrates, and only Socrates,
has a nature which is compatible with being a man while he is a man", (b)
"Socrates, and only Socrates, has a nature which is not incompatible with
being a man while he is a man", (c) "Socrates, and only Socrates, has a
nature which does not require that he is not a man while he is a man". If
interpreted in this way, all three propositions are false, and so they correctly
can be considered as equipollent. If instead they are interpreted as being
de sensu (e.g., "There is a possible situation in which his is the case: only
Socrates is a man while he is a man"), the three propositions would be all
true, and they would still maintain their equipollence. The initial puzzle
concerning the equipollence between (a), (b) and (c) was due to the fact
that while (a) and (b) were interpreted *de rebus*, and resulted then to be
false, proposition (c) was interpreted *de sensu*, and then considered to be
true. Having solved – or attempted to solve – the puzzle concerning the
determinations "*solum*" and "*tantum*", Abelard is now able to conclude by
affirming that the rules of equipollence and opposition represented by the
modal squares in figure 2.4 on page 110 are valid not only for simple modal
claims but *also for determinate ones.*

2.3.4 A *sophisma* raised by determinate modal propositions

Both in the *Dialectica* (209.12-210.18) and in the glosses on Aristotle, (425.860-428.956) Abelard presents a puzzling argument that arises when we consider propositions containing universal temporal qualifications, such as: "it is possible for Socrates to sit in every time of his life" (*Possibile est Socratem legere omni tempore vitae suae*). According to the opinion of some, reported by Abelard in the *Dialectica* and in LI, propositions of this sort lead to absurd consequences, as for instance to the claim that there is a moment of time in which Socrates simultaneously sits and does not sit. This is a possible way to reconstruct the argument. Let us posit as true the proposition that says: (1) "it is possible for Socrates to sit in every moment of his life" (*Possibile est Socratem sedere omni tempore vitae suae*). This premise in considered true because there is nothing in the nature of Socrates that compels him to stand. From (1) it is possible to infer, in virtue of a *locus a toto*, that (2) "it is possible for Socrates to sit while he sits and does not sit" (*Possibile est Socratem sedere dum sedet et non sedet*). If in fact there is some property that is predicated of something in every time, then it is also predicated of it in each singular part of this time («quicquid enim convenit alicui in omni tempore aliquot, convenit ei in qualibet parte illius temporis» *Dial.* 109.19-21). Proposition (2) could be read as a conjunctive proposition saying that "(It is possible for Socrates to sit while he sits) and (It is possible for Socrates to sit while he does not sit)". From (2) follows that (3) "It is possible for Socrates to sit while he does not sit" (*Possibile est Socratem sedere dum non sedet*). This inference is granted by the fact that the truth of one conjunct follows from the truth of a conjunction. At this point, from (3) one might infer proposition (4): "Socrates does not sit" (*Socrates non sedet*), in virtue of the inference rule "from determinate to determining". But from proposition (2) one can also infer, by means of the same principle, that (5) "It is possible for Socrates to sit while he sits" (*Possibile est Socratem sedere dum sedet*), and then that (6) "Socrates sits" (*Socrates sedet*). From proposition (1), which we admitted to be true, we have therefore inferred that (7) "Socrates sits and does not sit", which is absurd.

Abelard's first reply to the argument is to point out that we should disambiguate the determinate propositions (2), (3) and (5), which, as we saw in section 2.3.1 above, can be understood either as temporal hypotheticals or as modal categoricals. Abelard thinks that the argument is plausible only

if they are understood as temporal hypotheticals:

> Illud notandum quod, cum dicitur si possibile est eum sedere omni
> tempore vitae suae, possibile est eum sedere dum non sedet, aliter
> probabilis non est nisi illud dum in vi temporis acceptum coniungat,
> as si diceretur "Possibile est ipsum sedere eo tempore existente in quo
> non sedet" sicut existente crastino tempore vel alio in quo non sedet
> praesentialiter, cum tempus nondum sit; et tunc illud dum ad exis-
> tentiam temporis tantum applicatur. Si vero non solum vim temporis
> habeat, verum etiam coniunctionis, tale est ac si diceretur "Possibile
> est sedere et non sedere dum non sedet", id est "Permanente iam tem-
> pore in quo non sedet, possibile est ita contingere ut dicitur in hac
> propositione 'Socrates sedet et non sedet' "; si enim vim determina-
> tionis temporalis recte attendamus, ut propositio quae in ea est inferri
> possit, oportet nos facere in ipsa determinatione quidem positionem
> temporis quo non sedet. (LI *De Int.* 425.878-426.891)

Although Abelard's answer is laid out differently in the two works, there is
one point that both the *Dialectica* and the *glossae* locate as the reason for
which the argument is invalid. This reason has to do with the meaning of
proposition (2) "*Possibile est Socratem sedere dum sedet et non sedet*". If we
expound this proposition as a temporal hypothetical, the *dum* clause has the
role of positing the existence of a certain time in which the determination
is true, that is of a certain time in which Socrates sits and of a certain time
in which Socrates does not sit. If we take these two times as referring both
to the present time, as if we said:

(2.a) "there exists a time t=now such that (Socrates sits at t) and (Socrates
does not sit at t) and (it is possible for Socrates to sit)",

then the proposition will be certainly false, because two incompatible pred-
icates – being seated and not seated – are simultaneously attributed to
Socrates. If this is the case, Abelard claims, the argument fails because
proposition (2) does not follow from (1) in virtue of an *a toto* inference,
because a time t in which Socrates both sits and does not sit does not exist,
and therefore t is not a *part* of "*omnis tempus vitae Socratis*":

> Sed dico illam consequentiam omnino falsam: si possibile est eum leg-
> ere omni tempore vitae suae, tunc legit quando legit et quando non

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legit, si in legit praesens tempus et in affirmatione et negatione attendatur. Tempus enim in quo praesentialiter legit et in quo praesentialiter non legit, non sunt partes temporis. Neque enim simul existere possunt tempus in quo praesentialiter legit et in quo praesentialiter non legit, sicut nec ipse simul legere et non legere potest. (*Dial.* 209.23-30)

The same opinion is held in the glosses:

Ad quod respondendum est quod, si sedet et non sedet praesentis tantum sint designative cum de Socrate stante agimus, non procedit, cum videlicet tempus in quo praesentialiter sedeat numquam contingat. (LI *De Int.* 425.866-869)

There is another way in which we can interpret proposition (2), that is as if the two predicates "*sedet*" and "*non sedet*" in the temporal qualification were referring not to the present moment only, but "*indifferenter*" to any time in Socrates' life. We can for example take the predicate "*non sedet*" to refer to the present time, and the predicate "*sedet*" to refer to some past or future time, so that the meaning of proposition (2) would be:

(2.b) "there exists a time t=now, there exists a time t', such that ((Socrates sits at t') and (Socrates does not sit at t) and (it is possible for Socrates to sit))",

As the reader might have already noticed, no absurd conclusion is inferred from proposition (2.b), for although we are still concluding that Socrates sits and Socrates does not sit, the two predicates refer to two different moments of time. The argument could be reformulated in the following way:

(1) "for every moment t such that Socrates lives at t, it is possible for Socrates to sit at t" [hypothesis]

(2.b) "there exists a time t=now, there exists a time t', such that ((Socrates sits at t') and (Socrates does not sit at t) and (it is possible for Socrates to sit))" [from whole to part]

(3) "(there exists a time t such that Socrates does not sit at t) and (it is possible for Socrates to sit)" [from conjunction to conjunct]

(4) "Socrates does not sit at t" [from determinate to determining]

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(5) "(there exists a time t' such that Socrates sits at t') and (it is possible for Socrates to sit)" [from conjunction to conjunct]

(6) "Socrates sits at t' "[from determinate to determining]

(7) "Socrates sits at t' and Socrates does not sit at t"[from determinate to determining]

Abelard proposes this first solution in the *glossae*, where he says:

> Si vero "sedere" indifferenter utamur pro omni tempore et "non sedere" pro praesenti et de eo loquamur qui aliquando sedet et modo non sedet, satis concedendum videtur a toto, quod videlicet, cum sit possibile eum sedere omni tempore vitae suae, possibile sit sedere dum sedet et rursus possibile sit sedere dum non sedet. Quod si inferatur "Ergo sedet et non sedet", non est inconveniens, cum sedet indifferenter acceptum sit omnis temporis, ac si diceretur "Sedet nunc vel sedit olim vel sedebit", et "non sedet" praesentis tantum sit temporis. (LI *De Int.* 425.869-877)[35]

However, Abelard seems to be unsatisfied with this solution, and both in the *Dialectica* and in LI he keeps on saying that, even if we understand proposition (2) in the sense of (2.b), that is as a temporal hypothetical proposition in which the two predicates refers to different moments of time, the inference from (1) to (2.b) is nevertheless illegitimate, and so the whole argument is invalid. Abelard's dissatisfaction with this inference derives from the idea that while by means of proposition (1) a certain possibility is ascribed to a subject (i.e., Socrates has the potency to sit as long as he exists), by means of determinate proposition (2), or any other temporal hypothetical proposition of this sort, not only a *potency* is ascribed to a subject, but is said that there is some moment of time, present or non present, in which Socrates *actually* has a certain property. But, Abelard says in the *Dialectica, we are never entitled to infer an actuality from a potency.* The fact that we can derive proposition (2) from proposition (1) might have some validity in virtue of the way things actually are. Nevertheless, it does not count as a proper inference, because it does not necessarily follow from

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[35]This solution is advanced as a possible solution to the puzzle also in the *Dialectica*, where Abelard says that in a proposition such as (2) the predicates "sits" and "does not sit" are understood as referring to every time, and not to the present only, as if we said "sometimes he sits and sometimes he does not sit" (*Dial.* 209.30-35).

the fact that Socrates has a possibility that this possibility is realized in some moment of time. This point is rehearsed by Abelard both in the *Dialectica*[36] and in LI.[37]

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[36]In the *Dialectica* the author insists that although the two propositions might be true together, and are actually true together, the locus *a toto* must not be accepted because it requires in this case to infer an actuality from a potency. See *Dial.* 209.35-210.18:«Mihi autem nullo modo hic locus a toto necessitate videtur tenere, sed semper constantia egere, ut etiam cum dicimus de Socrate etiam legente: "si possibile est Socratem leger omni tempore vitae suae, tunc possibile est legere dum legit" ac scilicet "cum tempus in quo legit, sit pars vitae illius". Alioquin sequeretur quod si possibile eum legere omni tempore vitae suae, tunc legit, quod nullo modo de eo vivente, legente sive non legente, consequitur. Neque enim potentia actum inferred potest. Sed [si] diceretur quod et ista: "si possibile est eum legere omni tempore vitae suae, tunc cum legit et cum non, legit" in hac sequitur constantia quod tempus in quo legit et in quo non legit sit pars vitae illius. Sed tunc falsum erit antecedens et "legit" et "non legit" omnis sunt temporis. Locum vero a toto omnino calumniari hic oportet, etiamsi tempus in quo legit sit pars. Sed si possibile est eum legere omni tempore vitae suae, tunc possibile est eum <non> legere dum legit, quia omne tempus vitae illius et illud in quo legit sine lectione potest esse».

[37]In LI Abelard says that, although the inference from (1) to (2.b) is a valid inference *ex actu* – that is, because of the way things actually are, (1) and (2.b) are true together – it is nevertheless not a valid inference *ex natura*, and only consequences *ex natura* must be accepted as proper consequences. Because according to Abelard it is sufficient for the validity of an argument that its consequence is always true together with the premises given the way things actually are, the derivation *a toto* of (2.b) from (1) can be considered as a valid argument. However, because this inference is not necessarily valid, it cannot be considered a true consequence: «Hi, qui omnes argumentationes in consequentias veras transferunt, poterunt fortasse eam recipere, ut dictum est, si sola positio temporis fiat, non coniunctio propositionum. Quod si procedatur hoc modo "Si possibile est eum sedere dum permanent tempus in quo stat, ergo stat", et ita per medium inferatur quod, "si possibile est hunc sedere omni tempore vitae suae, ergo stat", concedunt fortassis hanc quoque consequentiam gratia termini et per dissimilitudini medii termini resistunt, cum prior consequentia sit ex actu, secunda ex natura. Nos autem huiusmodi consequentias actuales nullo modo recipimus etsi argumentationes de his factas non reprobemus».

Chapter 3

Nature and Epistemology of Modalities

The catalogue of things that Abelard considers to be possible is exceptionally varied. In the *Dialectica*, he starts his discussion concerning the nature of modalities by saying that *it is possible for Socrates, who is a layman, to be a bishop*, and that this is true even if Socrates was never a bishop nor ever will be one (see section 3.2). It is clear then that Abelard's theory of modalities admits that some possibilities exist that are never realized in time. In his commentaries on Porphyry's *Isagoge* Abelard goes even further, by admitting that it is true to say that, in some sense of possibility, *it is possible for a human being not to be able to laugh*, even if the ability to laugh is inseparable in act by human beings, i.e. even if there is no possible situation in which a human being exists who is unable to laugh. In Abelard's texts, then, not only we encounter possibilities that are unrealized but also possibilities that are *unrealizable* (section 3.3). Other possible claims that Abelard admits as true are the ones saying that *it is possible for a blind man to see*, *it is possible for a crippled man to fight*, or again *it is possible for an amputee to walk*. All these claims are true, not in the sense that it would be possible for these facts to happen in the actual situation, but in the sense that they could have happened if things had gone otherwise than they actually went (section 3.4). Among the peculiar examples of Abelard's possibilities, we also find the one referring to *the possibility that a certain human being has of being dead* or *of being irrational* (section 3.5). And naturally, we have already considered and will return again on Abelard's

exposition of the modal claim stating that *it is possible for he who is standing to sit* (section 1.3; 3.4). In chapter 4 below, we will question instead whether, according to Abelard, things and events that are included in God's providential plan could happen differently than God foreknows them, and whether God's actions themselves – including God's creation of the world – might have been otherwise than they actually are. All these different senses of possibility are explained and justified by Abelard in terms of the *natures* of things, and of what is compatible with these natures. In this chapter, I investigate Abelard's definition of possibility as *non repugnancy with nature*, and I try to locate all the different senses that he attributed to the notions of possibility, impossibility and necessity.

3.1 Possibility as Non Repugnancy with Nature

In a well-known passage from the *Dialectica*, Abelard claims that the modal proposition "Socrates is possibly a bishop" (*Socratem est episcopus possibiliter*) is a true proposition, even if Socrates was never a bishop nor ever will be one. The truth of this proposition is justified by invoking the view that what is possible for a certain subject is *everything that is not repugnant to this subject's nature*. According to this understanding of the notion, many facts that never obtain are included among real possibilities, for there are indeed many things that are compatible with the nature of a subject and that nevertheless are never actualized at any moment of this subject's existence. Abelard presents this argument in *Dialectica* 193-194, while addressing the problem of how to give the truth conditions for sentences concerning possibilities, necessities and impossibilities. With respect to their truth conditions, the author says, modal sentences differ from simple categorical ones: while these latter are evaluated true when the property expressed by the predicate actually inheres in the thing referred to by the subject, and are evaluated false when this is not the case, modal sentences are not said to be true or false in virtue of some *actual conjunction or separation* between the predicate and the subject. The modal sentence "Socrates is possibly a bishop", for instance, is true not in virtue of the predicate being actually – or in any moment – conjoined to the subject, and in general to *possibly inhere* means something different than to *actually inhere* or to *inhere in some moment of time* (*Dial.* 193.19-23). Similarly, Abelard says that the modal proposition "It is impossible for Socrates to be a stone" is not true in virtue of the fact that being a stone never inheres in Socrates, but is true because the nature of Socrates is not compatible with being a stone (*Dial.* 193.25-26).[1] On the contrary, a proposition like "Socrates is possibly a bishop" is true in virtue of the fact that the predicate is *compatible with the nature* of the subject, or, in Abelard's words, the predicate is *non repugnant* with the nature of the subject:

> "Socratem possibile est esse episcopum", etsi numquam sit, tamen uerum est, cum natura ipsius episcopo non repugnet; quod ex aliis eiusdem speciei indiuiduis perpendimus, quae proprietatem episcopi

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[1] «Qui enim dicit: "Socratem impossibile est esse lapidem", non tantum lapidem dici monstrat non esse in Socrate, sed nec posse.».

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iam actu participare uidemus. Quicquid enim actu contingit in uno, idem in omnibus eiusdem speciei indiuiduis contingere posse arbitramur, quippe eiusdem sunt omnino naturae; et quaecumque uni communis est substantia, et omnibus; alioquin specie differrent quae solis discrepant accidentibus. (*Dial.* 193.31-194.5)

This passage from the *Dialectica* raises several interesting problems about Abelard's treatment of possibilities. First, the passage is used as evidence of the fact that Abelard explicitly admitted the existence of *unrealized possibilities*, i.e. of possibilities that are never realized in time. Second, it is evident in this passage that Abelard embraces a view according to which different individuals substances might be the same with respect to their nature. In third place, the passage could be read as a sketchy presentation of an *epistemology of possibility*: the author says that we *know*, or that we are entitled to *believe*, that it is possible for a subject to have a certain property because we have experience of other individuals – which are of the same nature as the subject under consideration – having that property in act. Empirical experience seems then to be treated by Abelard as a good guide to the knowledge of unrealized possibilities. All these aspects deserve a further analysis, which I deal with in the next sections (see in particular 3.1.1 and 3.2 below). For the moment I shall consider in more detail what Abelard means when he defines possibility in terms of *non repugnancy* with *nature*.

Evidence of such an understanding of possibility is quite widespread in Abelard's texts on modalities. The definition often occurs in the *Dialectica*, in particular in *Dial.* 196-198 and 200-204, and the same idea is rehearsed in *Dial.* 176.27-31,[2] *Dial.* 280.8-12,[3] *Dial.* 385.3-5,[4] and again in *Dial.* 98.16-18.[5] In the *Logica Ingredientibus* possibility is also conceived in conformity

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[2] «Haec igitur: 'quidam homo non est homo', idest 'quaedam res quae est animal rationale mortale, non est animal rationale mortale vel animal simpliciter', semper falsa est; est enim omnino impossibile quod ipsa dicit nec ullo tempore contingere potest nec eius exemplum natura patitur».

[3] «Non sunt ulla opposita quia sibi non cohaerent sed quia, cum sint in eodem, simul ea natura non patitur, ut sunt homo et lapis, quae etiam natura a se remota sunt; 'animal' autem ab 'homine' non alia causa removetur nisi quia ipse homo non ullo modo consistit».

[4] «"Potentiam" enim et "impotentiam" secundum naturam accipimus, ut id tantum quisque possit suscipere quod eius natura permittit, idque non possit quod natura expellit».

[5] «Nullam formam in nomine "potentis" intelligamus, sed id tantum quod naturae non repugnet; in qua quidem significatione nomine "possibilis" in modalibus propositionibus utimur».

with what is allowed or permitted by the nature of a thing («secundum hoc quod natura rei quoquo modo permittit»): see for example LI *Cat.* 124.33-37;[6] LI *De Int.* 266.541-5; 408.426-7; 414.568-415.594. Dispositions and dispositional terms (as "*fragile*", "*durus*", "*frangible*" and the like) – that are taken by Abelard to refer to a certain subject's passive possibilities or aptitudes – are also characterized by the author in terms of *nature* and of what is (more or less) likely to happen in conformity with the nature of the thing ("*secundum facilitatem naturae*": see *Dial.* 28-32; *Dial.* 425.37-426.18; LI *De Int.* 255.312-322).[7]

Abelard is certainly not the only nor the first author to give a definition of possibility in terms of compatibility with nature. On the contrary, such a definition was quite widely accepted among eleventh and twelfth century logicians. A similar characterization of modalities is to be found for example in Garlandus Compotista's *Dialectica*. In a passage of this logical treatise, the author seems to use exactly the same example that Abelard uses, when he says that the proposition "It is possible for Garland to be a bishop" must be considered true even if the property of being a bishop never actually inheres in the subject, inasmuch as there is no incompatibility between the nature of the subject and this property:

> Potentia vero extra actum quam effectus non consequitur, est illa cui
> nec natura repugnat nec tamen umquam erit, ut cum dico: "possibile
> est Iarlandum fieri episcopum", numquam tamen episcopus erit.

Immediately before this passage, Garlandus distinguished between potencies *in actu* and *extra actum*, and then between potencies *extra actum* which are followed by actuality at a certain time, and potencies *extra actum* which are never actualized, and remain then pure potencies. This distinction accurately follows Aristotle's distinction at the end of *De Interpretatione* 13, without much originality. What is new is instead the example Garlandus

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[6] «Potentia quoque cum dicitur posse inesse alicui, talis est sensus quod eam subiectam habere queat, hoc est naturae eius non repugnat, ut habeat».

[7] Although general or simple possibilities are defined *only* in terms of a subject's nature, aptitudes and dispositions are defined in terms of the subject's nature *plus* some other conditions, such as the subject's physical constitution, or the external circumstances. Consequently, whereas all subjects that have the same nature are thought by Abelard to have all the same general possibilities, they might not have the same dispositions or the same aptitudes, for their actual constitution or the circumstances they are in might vary. For a more detailed comparison between simple possibilities and aptitudes see 3.4 below.

gives of *extra actum* potencies which are not followed by actuality at a certain time: he says that it is true to say that "Garlandus is possibly a bishop" even if Garlandus was never a bishop and never will be one. And new is also the justification the author gives for the truth of this example, namely the fact that the proposition is possible in so far as *it is not repugnant to the nature of Garlandus to be a bishop.* Affinities with Abelardian understanding of possibility in terms of *non repugnancy with nature* seem evident, which shows that such an understanding of the modal notion was already in the air at the time in which Abelard writes the *Dialectica.*[8] Martin shows in (Martin, 2016) that a similar understanding of possibility is to be found also in two twelfth-century anonymous discussions on modalities, designated by Yukio Iwakuma as *M1* and *M3*, preserved in manuscript Orléans 266 and in manuscript Paris BN Lat 13368.[9] These two discussions, that report the opinions of some early-twelfth century logicians concerning modal propositions,[10] also take into account the issue of unrealized possibilities. They admit that there are things that are possible for a subject although they are never actualized in time, and the example they offer in that context is again the fact that it is possible for a peasant to be a bishop. In (Martin, 2016), Martin proposes that indeed this definition of possibility as what is compatible with nature, that is usually associated with Abelard, was in fact a standard position in the twelfth century.[11] However, although there is an indubitable affinity between Abelard's position and the positions of Garlandus and the ones presented in discussions *M1* and *M3*, and although the interpretation of possibility in terms of compatibility with nature should not be considered to be original to Abelard, it was nevertheless thanks to him that this idea went beyond a sketchy intuition to account for unrealized possibilities and gave rise to a systematic modal semantics. I will refer

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[8]The similarity between the positions of the two authors has been already highlighted by Paul Thom in (Thom, 2003b, p. 49), and (Thom, 2003a)).

[9]M1 = Orléans, Bibl. Municipale, 266: 166a-169a; Paris, Bibl. Nationale, lat. 13368, 175va-177ra. M3 = Orléans, Bibl. Municipale, 266: 252b-257b.

[10]The logicians whose opinions are described are referred to as Master W., Master Gos., and Master Gosl.; Martin notes that the first of these authors is probably William of Champeaux and the second is almost certainly Goselin of Soissons.

[11]The origins of such an idea might probably be traced back even further, to late ancient philosophy. Peter King suggests Abelard's idea of grounding a subject's possibilities on its nature might have been inspired by Boethius' analysis of modalities. According to King, Boethius as well conceived possibilities as "rooted in the natures of things" (King, 2004, p. 83 and note 62 p. 116). King proposes that this dependence of possibilities on natures was based on Boethius' interpretation of the Aristotelian notion of possibility.

to this modal semantics as the *compatibility semantics*. The definitions of modal terms on which this semantics is based are the following:

(i) to be *possible* is to be compatible with (or non repugnant to) the nature of a subject;

(ii) to be *impossible* is to be excluded by (or repugnant to) the nature of a subject;

(iii) to be *necessary* is to be required by (or included in) the nature of a subject.

As we may note from these definitions, Abelard's characterization of possibility and impossibility and his characterization of necessity match up perfectly, although in the first case the notion appeals to what is compatible or not compatible with nature, in the second to what is required or compelled by nature. This dissimilarity well agrees with the idea I defended in section 1.1.3 and 2.1.3, proposing that, while the two modal concepts of possibility and impossibility are treated by Abelard as being inter-definable, this is not the case for possibility and necessity, nor for necessity and impossibility. Although the modal notions of (im)possibility and necessity might be put in a logical relation of equipollence – as they indeed are put in Abelard's modal system, although only under certain conditions, as we have seen in 2.1.3 – they are not definable one in terms of the other, i.e., the meaning of "necessity" cannot be spelled out in terms of (im)possibility and *viceversa*. In the following pages, I'll try to provide a more detailed characterization of the notions of *nature*, of *compatibility* or *non repugnancy* between the nature of a thing and a certain predicate, and finally the notion of *being required by* or *be contained in* the nature of something.

3.1.1 Nature

According to Abelard, every (existent) individual substance has a nature. It is in virtue of having a certain nature that all individual substances are sorted out into natural kinds, and are "classifiable" so that we can refer to them as *men*, *donkeys*, *stones* and so on.[12] Such a classification is not conventional or mind dependent, but is grounded on the nature of things. This

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[12]Note that this is true only of natural substances, because for Abelard human products, as artifacts, do not have a specific nature. There is not something as, for example, the nature of tables, or the nature of books. One may wonder therefore in virtue of what

position – which has been called Aristotelian essentialism, or *strong natu-ralism* (Marenbon, 1997, p. 117 ff.) is an underlying and basic principle of Abelard's ontology. Abelard's theory of natures is based on the traditional distinction between accidental and substantial properties of individuals. Fol-lowing the Porphyrian tradition, Abelard thinks that accidental are all the features or "forms" that it is possible to separate, either in act or in thought, from the substance in which they inhere, without this substance being de-stroyed. Socrates' whiteness, for instance, is accidental to him for it can be actually separated by him: if Socrates gets a tan, he looses the property of being white, athough he remains the same individual and the same sort of thing. The ability to laugh is also accidental to Socrates, for it is possible to separate it from him *in thought*, i.e., it is possible to conceive Socrates as being without the ability to laugh and yet as being again the same individ-ual and the same sort of thing (see section 3.3 on this). Neither whiteness or ability to laugh are then part of Socrates' nature. The substantial features of an individual are instead those forms that cannot be separated in act or in though from a substance without incurring in its destruction. These forms are the ones that "constitute" or "are contained in" the substance's nature. The nature of an individual human being, for example, is constituted by the forms of animality, mortality and rationality, and by many other *differentiae* of which we are not aware.

Abelard's natures are *immutable*, both in the sense that the substantial forms constituting them do not vary through time and in the sense that individuals cannot vary with respect to their nature. It is in fact not possible for a certain individual to have a different nature and different substantial forms while remaining the *same* individual substance. If an individual looses one of its substantial forms (if, for example, a human being looses rationality or animality), it undergoes a substantial change and it is not the same individual anymore.[13] This implies that categorical propositions stating something about the nature of things, as for example "Socrates is a man",

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these different individual things are susceptible of being classified into kinds, or types, of things.

[13] We should say however that Abelard is not always coherent on this point, for he says at times that a certain individual, that is actually a human being, might have different substantial properties than the ones she or he actually has. This could lead us to suppose that Abelard maintains that an individual substance might be *the same individual* even if it had different substantial properties and therefore a different nature. Some evidence related to this point was presented in 3.5 on page 188.

"Socrates is rational" or "men are animals" are always true, at least as long as their subject is not empty, i.e., as long as its subject term refers to something that exists.[14] Natures are also immutable in the sense that the "number" of existing natural kinds, is invariable, i.e., there cannot be more or fewer natural kinds, nor different ones. The natures that were ordained by God during the secondary creation are in fact all the natures that exist, and that will exist in future.[15]

Abelard insists that, generally speaking, we are usually very ignorant about natures and about what constitutes them.[16] Most of the time we are in fact not able to specify which are the substantial forms of the different individual substances we have experience of. In a famous passage from the *Dialectica*, Abelard states that it is not the aim of the logician to investigate the nature of things, but that studying natures and their causes is the purpose of physics, or natural philosophy. He does nevertheless recommend to logicians and natural philosophers, who both are interested in natures even if for different purposes, to take each other achievements into consideration:

> Hoc autem logicae disciplinae proprium relinquitur, ut scilicet vocum impositiones pensando quantum unaquaque proponatur oratione sive dictione discutiat. Physicae vero proprium est inquirere utrum rei natura consentiat enuntiationi, utrum ita sese, ut dicitur, rerum proprietas habeat vel non. Est autem alterius consideratio alteri necessaria. Ut enim logicae discipulis appareat quid in singulis intelligendum sit vocabulis, prius rerum proprietas est investiganda. Sed cum ab his rerum natura non pro se sed pro vocum impositione requiritur, tota eorum intentio referenda est ad logicam. (*Dial.* 286.31-287.1)

Other remarks about our ignorance of natures are also to be found in LI *De Int.* 252.211-2[17] and 254.275-7.[18] How are we to interpret Abelard's

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[14] Hypothetical propositions whose truth is grounded in the nature of things, such as "if it is a man, it is an animal", "if it is a body, it is corporeal", are eternally true, even at those times in which the things they talk about are non existent.

[15] Abelard says that all sorts of species together with their essential features have already been determined by God, and it is false to say about species that do not exist, like chimaeras or goat-stags, that they might exist someday: «Nam coniunctionis actum in quibusdam cognovi et chimaeram vel hircocervus amplius, ut esse possint, seminaria in rerum natura non habere ex illa dei creatione, quae die septimo specierum omnium formas complevit, in quibus seminaria futurorum posuit, ut iam amplius nullam novam speciem crearet» (LI *De Int.* 249.157-162).

[16] See on this (King, 2004, p. 81 ff.) and (Marenbon, 1997, p. 117).

[17] «Quantum ad nos vero multae sunt occultae naturae praesentes, quae a nobis nullatenus comprehendi adhuc valet».

[18] «Quis enim deum veraciter et perfecte, ut in se est, comprehendere possit aut multa

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claims about our ignorance regarding natures? There are two ways in which we might be ignorant on the natures of things: (a) we might ignore, of all or some individual substances, to which natural kind they belong to; or (b) we might "unproblematically know to which kind any given particular substance belongs" (Marenbon, 1997, p. 117) but still not be able to describe what is the nature of a certain thing, i.e. what is the specific *differentia* that distinguishes a certain thing from other substances of different kinds. Abelard clearly claims that we are ignorant about natures in the second sense. It is less clear whether he also thinks that we are ignorant in the first sense, i.e., if we are similarly fallible in saying to which kind a certain substance belongs. It is probable, however, that the ignorance Abelard refers to should be intended only in sense (b), as Marenbon pointed out in (Marenbon, 1997, p. 117). If this is the case, although we have the capacity to correctly sort all substances out in their natural kind, we are not be able to say *in which respect* the members of a certain group are different from the members of another group, because we are not always able to specify their essential features, and consequently to associate them with their proper definition.

The notions of nature and of natural kind are a cornerstone of Abelard's metaphysics and semantics, as well as of his theory of modalities. However, some interpreters have thought that Abelard's assumption of the existence of *natures* could endanger one of his most strenuously defended philosophical positions, i.e., his nominalism, or irrealism. This is because Abelard claims, in *Dial.* 194.5 and elsewhere, that different individual things belonging to the same natural kind, like Socrates and Plato, are all of a *same nature* (*eiusdem sunt naturae*).[19] This idea is also to be found in *Dial.*

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etiam de occultis rerum naturis, quae suae deus tantum reservat scientiae?».

[19]Abelard does not defend the idea, at least not in these terms, in the *Logica Ingredientibus*. This seems to suggest that Abelard realized, after he finished to write the *Dialectica*, that the notion of many individual things having the same nature had problematic consequences for his ontology, and for this reason he did not employ the same idea in LI.

188.14;[20]211.26-27;[21]228.3;[22]385.6;[23]426.5;[24]582.19.[25] But if this is the case, and if natures are something that really exist, Abelard's ontology would admit the existence of things that are shared simultaneously and in whole by different individuals, and this is exactly what his irrealism wants to deny. Some interpreters[26] have defended the idea that, in admitting natures and natural kinds as having a real role in his ontology, Abelard did indeed run into an inconsistency with the irrealist thesis he endorses elsewhere. Other scholars[27] have claimed instead that Abelard's natures do not constitute a threat for his irrealism, and that Abelard's strong naturalism is consistent with his nominalism.[28] The core of the problem, in brief, is the following: the position Abelard maintains in *Dial.* 193.31-194.5 is that different particular individuals – say, Socrates, Plato and Aristotle – have the same possibilities and necessities in virtue of having *the same nature.* But Abelard's nominalism says that no universal thing has to be admitted in ontology, i.e., there could exist no thing which is *shared as a whole at the same time by different things.* If a nature is something that really exists, and it is the same in (i.e., it is shared by) different individuals at the same time, then such a nature would be a universal.

A possible way out of this problem consists in saying that Abelardian natures are reducible to other entities that are admissible in his ontology, such as individual properties or individual forms. As Martin has shown in (Martin, 1992, p. 111 ff.), Abelard's ontology could be characterized in

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[20]«Omnes quidem homines secundum eamdem naturam uniuntur».

[21]«Ex actu quidem rei nulla est certitudo, cum actus ipse qui futurus est, nondum est vel fuit; ex natura quoque nulla est certitudo, cum ceteros homines qui eiusdem naturae sunt, hos quidem homines legere, illos non legere; vel prandere fortasse et non prandere contingat».

[22]«Cumque substantiae nomen univocum sit, non est ipsius intellectus multiplex, sed unus, quod ex eadem naturae convenientia significatis est impositum».

[23]«Cum autem omnia eiusdem speciei particularia eiusdem sint naturae – unde etiam dicitur ipsa species tota individuorum substantia esse – , idem omnia recipere potentia sunt et impotentia».

[24]«Quas enim natura infert potentias aequaliter, sicut natura ipsa, omnibus inest, ut rationalitas s singulis hominibus».

[25]«Licet enim 'homo' et 'album' diversis imposita sint, idem tamen de singulis enuntiata notant et secundum eamdem naturam aut proprietatem omnibus imposita sunt».

[26]See for example (Spade, 1980) and (Panaccio, 2009); both are quoted in (Marenbon, 2015, p. 44 ff.).

[27]See for example (King, 2004) and (King, 2015), again quoted in quoted in (Marenbon, 2015, p. 44 ff.).

[28]For a presentation of the problem, see also (Marenbon, 1997, p. 117-137) and (Marenbon, 2015).

contemporary terms as a sort of trope theory, in which is posited the existence of individual accidental forms such as Socrates' rationality, Brunellus' blackness, or Sophroniscus's paternity, that are in various ways related to other individual forms or to individual substances (Socrates; Sophroniscus; Brunellus). Of all the individual forms that are attached to a certain substance, some are *separable* from it, in the sense that their attachment to the substance could "come and go" during the individual's lifetime. The relation between Socrates and the individual whiteness that Socrates has in some moments of his life is of this sort. Other forms are inseparable from the substance to which they belong in the sense that it is impossible for the substance to exist without these particular forms being attached to it. This second sort of relation is called by Martin "strict inseparability", and describes the relation that holds for instance between Socrates and Socrates's ability to laugh. These two first relations that may hold between individual substances and individual forms – the relations of separability and the one of strict inseparability – can be considered as *external relationships*, in the sense that they do not have to do with the *internal structure*, or essense, of a substance (Martin, 1992, p. 112). Finally, another sort of relation that might hold between an individual substance and an individual form is the one that there is between a substance and its individual generic form or its individual *differentiae*, and that characterizes, for instance, the attachment of Socrates' rationality or Socrates' animality to Socrates. This relation is stronger than the former two and was labelled by Martin "conceptual inseparability", in the sense that not only it is impossible for a substance such as Socrates not to have the *differentiae* it actually has, but it is also impossible to separate in mind or in thought Socrates from his individual animality or rationality. Abelard also says that having these forms is *required* for Socrates being the sort of thing that he actually is. The forms that are in such a relation to an individual are also called its *essential* or *substantial* forms.

Taking into account this ontology, one might suppose that the *nature* of an individual substance is nothing else than all the substance's individual essential properties taken together. Within this interpretation, talking about the nature of Socrates would amount to nothing more than talking about his individual animality, his individual rationality and so on. This view would then identify natures with structured sets or bundles of individual

properties, that are grounded in the individual bodies of substances, so that the nature of Socrates, for example, would then be something like:

$Nat_{Socrates}$: {Socrates' animality, Socrates' rationality, Socrates' mortality, ...};

while the nature of Plato would be instead identical to this other structured set:

Nat_{Plato}: {Plato's animality, Plato's rationality, Plato's mortality, ...}.

In this framework, each nature would be an individual thing, and therefore there would be no reference to universal entities. We could still maintain that both Socrates and Plato have the "same" nature, although their natures are really numerically different from one another, insofar as the two sets $Nat_{Socrates}$ and Nat_{Plato} are two instances of the nature of human beings:

$Nat_{humanbeings}$: {animality, rationality, mortality, ...}.

This is what Peter King seems to suggest in (King, 2004, p. 81), when he says that "an individual's nature is not something really shared with or common to other individuals; Abelard's refutation of realism has shown that this is impossible. Nor is the nature anything in addition to the substantial forms and attributes of the individual: Socrates does not have a human nature as well as his substantial form and the attributes consequent on having that form".

A consequence of this interpretation is that the natures of two individual substances of the same kind like Socrates and Plato cannot be "the same" in the sense of *numerical sameness*. The two entities $Nat_{Socrates}$ and Nat_{Plato} are in fact numerically different from one another. According to King, it is Abelard himself who points out that the sameness of different individuals' natures should not be taken in the sense of numerical sameness. Evidence for this is for example a passage from Abelard's *Tractatus de intellectibus*, where he says that «There is no nature that subsists indifferently; any given thing, wherever it exists, is personally distinct and found to be numerically one [...] What else is human nature in this man, i.e. in Socrates, but Socrates himself? Surely it is nothing other than exactly the same in essence» (*TI* 75-76, quoted and translated in King, 2004, p. 115).[29] We must note however

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[29]As King says here, Abelard expresses the same sentiment in many other passages, for instance LI Isag. 24.17–20.

that when in the *Dialectica* Abelard stresses the idea that two individual substances have "the same" nature, he never makes clear in which sense we should interpret this *sameness*, whether numerically or in some other sense. This interpretation of natures has then the merit of reducing natures to entities that are perfectly admissible in Abelard's ontology, but requires to interpret Abelard's idea that all individuals of the same kind have the *same* nature only in the sense that they have a nature of the *same sort*, not they their natures are essentially or numerically the same.

3.1.2 Repugnancy and requirement

The second notion that constitutes Abelard's definition of possibility is the notion of *non repugnantia*, usually translated as *compatibility*: Abelard says that is possible for a certain individual what is compatible (non repugnant) with its nature. The use of the notion of *repugnancy* in the logic and theory of modalities does not originate with Abelard but is to be found long before him, starting at least from Boethius. Thom recognizes four ways in which Boethius interprets this notion (Thom, 2003b, p. 36 ff.):

(1) Of three terms φ, χ and ξ, the two terms "φ" and "ξ" are repugnant (or incompatibles) if "φ" and "χ" are contraries, i.e. if they cannot be simultaneously predicated of the same subject, and if "ξ" entails "χ" or "χ" entails "ξ". This definition is based on what Boethius says in his *In Ciceronis Topica* (Boethius, 1988, p. 225).

(2) If there are two terms "φ" and "χ", of which the first entails the latter, then the proposition "if it is φ then it is ¬ χ" is an incompatible. As Stump points out (Boethius, 1988, p. 225 n. 4), it is propositions that are called incompatibles here, and not terms. This characterization tries to capture Boethius' idea that "an incompatible is that which cannot exist simultaneously with the thing with which it is said to be incompatible" (Boethius, 1988, p. 124). According to this characterization, examples of incompatibles are "if it is day, there is not light", or "if it is a man, it is dead", where "dead" stays for "not animate".

(3) Incompatibles are those terms that are not contraries to one another but rather are the consequents of contraries, so that if "φ" and "χ" are contrary terms, every term that is implied by "φ" is incompatible with every terms that is implied by "χ" (Boethius, 1988, p. 127).

(4) Incompatibles are those terms that are not contraries but rather the an-
tecedents of contraries (like for example the couple of terms "waking"
and "snoring", (Boethius, 1988, p. 134).[30]

In all these cases, the relation of repugnancy is said to hold either between
two terms or between *two propositions.*

Abelard uses the term *repugnantia* in different passages of the *Dialectica*
and of the *Logica Ingredientibus.* There are two senses in which Abelard
employs the word: in the first sense, *repugnancy* is a relation holding be-
tween linguistic items, two predicates or two sentences; in the second sense,
repugnancy is a relation holding between a predicate and the nature of an
individual thing, or nature in general.[31] Two predicates or two sentences
are in a relation of repugnancy if there is some kind of *opposition* – be
it contrariness or contradictoriness – between the two. For example, the
two terms "white" and "black" are said to be repugnant inasmuch as they
are contraries, i.e. they cannot be simultaneously present in one subject:
«*nullo modo eidem simul inesse possunt*» (*Dial.* 174.25 ff.). A relation of
repugnancy could also hold between contradictory terms or sentences. For
example, it holds between the two contradictory sentences "some man is
just" and "no man is just" (*Dial.* 173.29.32). Moreover, if two terms imply
or are implied by contrary or contradictory terms they are also said to be
repugnant to one another: the predicate "to snore" (*stertere*) and "to be
awake" (*vigilare*), for instance, are said to be repugnant inasmuch as "to
snore" implies the predicate "to sleep", which is contrary to the term "to be
awake" (*Dial.* 450.33 ff.). As could be easily seen, this notion of *repugnantia*,
which Abelard employs in order to define the modal concepts of possibility
and impossibility, is itself defined in modal terms. The notion of repugnancy
is in fact spelled out in terms of *contrariness* and *contradictoriness*, which
are in turn defined in terms of (im)possibility: two sentences are contraries if
they *cannot* be simultaneously true, they are contradictories if they *cannot*
be simultaneously true or simultaneously false. This is why King claims that
Abelard merely proposes an analysis of modal concepts, and not a reductive

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[30]For this list of various senses of *repugnancy* in Boethius (Thom, 2003b, p. 36-8).

[31]In LI *Cat.* 273.36 or LI *De Int.* 415.571-416.610, as in many other passages, we find
this second construal of the term, when Abelard says that some predicate is or is not
repugnant with the nature of Socrates, or the nature of human beings. We find instead
the first use of the term – repugnancy as a relation between predicates or sentences – for
example in *Dial.* 173-174, in *Dial.* 450, and in LI *Cat.* 129.30.

elimination of them (King, 2004, p. 116).

The second construal that Abelard offers of the term "*repugnantia*" concerns the relation holding between a certain predicate and the nature of some individual substance. Abelard says, for example, that the predicates "being irrational" or "being dead" are repugnant to the nature of Socrates. This second construal of the term can be easily led back to the first sense of "repugnancy", taken as a relation between terms or sentences, if we consider Abelard's natures as sets of predicates, as was suggested in 3.1.1 above. The nature of a certain individual subject, say Socrates, can be represented as a finite and well defined set of predicates, that are the substantial predicates of the subject in question, in this case the set $Nat_{Socrates}$: {"animal", "mortal", "rational"}. There is a relation of repugnancy between a certain predicate "φ" and the nature of Socrates if the term "φ" is incompatible with *at least one* of the predicates constituting the nature of Socrates. If we take as "φ" the predicate "irrational", for example, we say that it is repugnant with the nature of Socrates, because it contradicts one of the predicates constituting Socrates' nature, that is the predicate "rational". On the contrary, if the predicate "φ" is not repugnant to *any* of the predicates constituting the set $Nat_{Socrates}$, we say that the nature of Socrates is compatible with φ, or that the nature of Socrates "allows" or "tolerates" (*patitur*; *permittit*; *non expellit*) being φ.

Thanks to the definitions of the two notions of "nature" and "repugnancy" we are now able to give the truth conditions for possibility and impossibility propositions:

(i) a proposition "It is possible for S to be φ" is true iff the predicate "φ" is not repugnant to any of the predicates that constitute the set Nat_S;

(ii) a proposition "It is impossible for S to be φ" is true iff the predicate "φ" is repugnant to (at least) one of the predicates that constitute the set Nat_S.

I shall turn now to consider Abelard's semantics for modal sentences about necessities. As we said, to define necessity Abelard appeals to two notions: the notion of *nature*, and the notion of *being required by* or *being part of* a certain nature. According to Abelard, a sentence "It is necessary for S to be φ" is true when the predicate "φ" is *required* (*exigitur*) by the nature of S. At times he also says that the sentence is true iff "φ" is part of, or

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is contained in, the nature of S. This is the case when "φ" is a substantial (or an essential) predication of S, that is if "φ" is identical to one of the predicates constituting the set Nat_S, or, in other words, if "φ" is contained in Nat_S. We could then say that

(iii) A proposition "It is necessary for S to be φ" is true iff the predicate "being φ" is *identical* to one of the predicates constituting the set Nat_S.

We may be tempted, for sake of simplicity, to rephrase this third definition in terms of *nature* and *repugnancy*, so that we could have all definitions of modal concepts stated in terms of two notions only, nature and repugnancy. We could do this saying thatff

(iii.b) A proposition "It is necessary for S to be φ" is true iff the predicate "being non-φ" is repugnant to at least one of the predicates constituting the set Nat_S.

However, this is at the least questionable, in so far as Abelard never defined necessity in terms of possibility or impossibility, and the equipollence between necessity and possibility only holds under determinate conditions, as was shown in 2.1 above. The truth conditions (i)-(iii) define Abelard's "compatibility semantics" for modal sentences. It is possible to give along these lines the truth conditions for quantified modal sentences as well. This is what Abelard suggests in *Dial.* 200.22-32.[32] The sentence "It is possible for some man to be φ" is true if being φ is not repugnant to the nature of some man. Since all human beings have the same nature, the sentence is true iff the predicate "being φ" is not repugnant to one of the predicates constituting the set $Nat_{humanbeing}$. The sentence "It is possible for every man to be φ" is true if being φ is compatible with the nature of every man.

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[32] «Relinquitur ergo particularem negativam esse "quemdam hominem non est possibile esse album", sicut et "quidam homo non est albus". Et est talis sensus: "cuiusdam hominis natura repugnat albo vel non patitur album". Sic enim recte videntur mihi omnes huiusmodi propositiones exponi, ut de rebus ipsis agamus sic: "omnem homineni possibile esse album", idest: "natura omnis bominis patitur albedinem", idest: "nullius hominis natura repugnat albedini"; "nullum hominem possibile est esse album": "nullius hominis natura patitur album", idest: "uniuscuiusque hominis natura repugnat albo; quemdam bominem possibile est esse album": "cuiusdam hominis natum patitur album", idest: "non repugnat albo"; particularis autem negativa iam superius exposita est. Sic etiam alias modales de rebus exponas, ut eas quae de necessario fiunt, sic : "omnem hominem necesse est esse album", idest: "omnis hominis natura albedinem necessario exigit"».

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Again, the sentence is true iff "being φ" is not repugnant to one of the predicates constituting the set $Nat_{humanbeing}$. Note that, according to what I called here the Abelardian "compatibility semantics", the three modal sentences "it is possible for every man to be φ", "it is possible for some man to be φ" and "it is possible for Socrates to be φ" are equivalent, i.e. they have exactly the same truth conditions.

In the following section, I consider Abelard's admittance of unrealized possibilities, and I try to say something on the sort of epistemology of modalities we can extrapolate from his texts.

3.2 Unrealized Possilities and Their Epistemology

What is at first sight problematic about Abelard's example of Socrates being possibly a bishop is that, if we consider the proposition to be true, we have to justify how we can admit that the predicate "being a bishop" *possibly inheres* in Socrates even if it never *actually inheres* in him. Abelard says in fact that the proposition "It is possible for Socrates to be a bishop" is true even if Socrates was never a bishop and never will be one. Abelard seems to introduce the interpretation of possibility as compatibility with a thing's nature exactly to make room for the existence of *unrealized possibilities* of this sort. This understanding of possibility is indeed what allows him to claim that the meaning of *possible inherence* could not be spelled out in terms of *actual inherence.* This is what Abelard proposes in the *Dialectica*:

> Cum ergo dicimus: "Socrates est episcopus possibiliter" et uerum enuntiamus, quomodo per "possibiliter" inhaerentiam episcopi ad Socratem determinamus, cum ipsa omnino non sit? Nullo enim modo proprietas episcopi Socrati laico cohaeret. Nec "posse cohaerere" dicendum est "cohaerere". (*Dial.*193.19-23)

As was said above, the example used here by Abelard, concerning the unrealized possibility that a certain subject has of being a bishop, was already discussed in some debates on modal propositions prior to Abelard, at least starting from the late eleventh and early twelfth century. We find indeed similar examples in Garlandus Compotista's *Dialectica* and in the discussions on modalities by William of Champeaux and Goselin of Soissons reported in the two twelfth-century manuscripts *M1* and *M3*, that have been recently considered by Martin in (Martin, 2016).[33]

The discussion about unrealized potencies was probably motivated by the need of twelfth century logicians to interpret and comment on the theory of modalities developed by Aristotle in *De Interpretatione* 9 and 13. In the very end of *De Int.* 13, while presenting a list concerning all different sorts of possibilities that exist, Aristotle also includes some possibilities that he calls *pure potencies*, i.e. potencies that are never followed by actualization. Aristotle also deals with unrealized possibilities in chapter 9 of the *De Interpretatione*, where he claims that a proposition like "It is possible for this cloak to be cut up" should be considered true even if the cloak will never

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[33]For a brief presentation of these manuscripts, see 3.1 on page 151.

be cut up. Early medieval thinkers had then the necessity to include into their discussion of modalities an account of unrealized or "*extra actu*" possibilities, and the understanding of possibility in terms of non repugnancy with nature could have developed precisely to this purpose. If possibility is understood in this way, in fact, the admittance of unrealized possibilities becomes quite straightforward and unproblematic: according to this view, to say that something is possible for a subject has nothing to do with this subject's *potentialities*, *powers* or *capacities*, nor what is possible for a subject is determined by the external actual circumstances in which the subject finds himself, by its physical constitution or its contingent situation. Possibility is only defined in terms of non repugnancy with the subject's essential features.

The passage from the *Dialectca* where Abelard defends the possibility Socrates has of being a bishop is interesting not only for its explicit admittance of unrealized possibilities, but also as a hint of how we should understand Abelard's *epistemology of modality*, i.e. his theory concerning *how we know* and *how we can justify our belief* that something is possibly or necessarily predicated of a thing. In virtue of what, for instance, are we justified in saying that "It is possible for Socrates to be a bishop" is a true proposition, while, say, "It is possible for Socrates to be irrational" is a false one? In *Dialectica* 193-194, Abelard says that our perception of the actual world does not only guide us to the knowledge of *realized possibilities*, but in some sense it is also a good guide to the knowledge of *unrealized* ones. This is because our perception that some property actually inheres in a member of a certain species – e.g., that being a bishop actually inheres in the man S – does not only ground our knowledge that S possibly is a bishop, inasmuch as what is actual is also possible, but it also grounds our knowledge that being a bishop possibly inheres in all individuals that are of the same species as S, in so far as they all have the same nature, and therefore the same possibilities and the same impossibilities. From what we perceive as actual in one subject, then, we derive a knowledge about what is possibly (though not actually) predicated of the other subjects with the same nature. In this sense, perception is a guide not only to realized, but also to *unrealized possibilities*.[34] This is what Abelard defends in the *Dialectica*:

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[34]Note that this is not the case within an interpretation of possibility in terms of powers or potentialities. From the perception, say, that a certain man S has the power or dis-

Cum dicimus: 'Socratem possibile est esse episcopum', etsi numquam sit, tamen uerum est, cum natura ipsius episcopo non repugnet; quod ex aliis eiusdem speciei indiuiduis perpendimus, quae proprietatem episcopi iam actu participare uidemus. Quicquid enim actu contingit in uno, idem in omnibus eiusdem speciei indiuiduis contingere posse arbitramur, quippe eiusdem sunt omnino naturae; et quaecumque uni communis est substantia, et omnibus; alioquin specie differrent quae solis discrepant accidentibus. (*Dial.* 193.31-194.5)

A similar position is held by Abelard also in *Dial.* 385, where Abelard says that:

Quod enim in uno particularium uidemus contingere, id in omnibus eiusdem speciei indiuiduis posse contingere credimus; "potentiam" enim et "impotentiam" secundum naturam accipimus, ut id tantum quisque possit suscipere quod eius natura permittit, idque non possit quod natura expellit. Cum autem omnia eiusdem speciei particularia eiusdem sint naturae unde etiam dicitur ipsa species tota indiuiduorum substantia esse, idem omnia recipere potentia sunt et impotentia. (*Dial.* 385.1-8)

In this last passage, Abelard claims that possibility and impossibility (here, *potentia* and *impotentia*) are to be understood *with respect to nature* (*secundum naturam*), as what is permitted and allowed or instead as what is rejected by the nature of something. Because all individuals of the same species are all of the same nature, from what we see actualized in one individual we might derive a knowledge about possibilities which are yet unrealized in other individuals of the same species.

Nevertheless, perception – or *inductive abstraction*, as Knuuttila calls it (Knuuttila, 1993, p. 91) – is certainly not a complete or infallible guide to the knowledge of natures and possibilities. Perception is not fallible in the sense that we might be wrong about which individuals belong to the same natural kind, and consequently in thinking that a certain individual have the same nature as other individuals. This is because according to Abelard we are unproblematically able to classify things in the proper natural kinds (see 3.1.1 on page 155). It is fallible because not all the possibilities of a

position to be or to do φ we are not allowed to derive the general belief that all subjects with the same nature (in this case, all men) have the power or disposition to be or do φ. In this sense, perception is not a good guide to possibilities intended as *potentialities*.

thing could be known through our perception of what is actual in the other individuals of the same species, since the fact that a certain property does not actually inhere in any member of a species does not entail that having that property is impossible for them. There could be possibilities which are never manifested in any member of the species and are yet real possibilities of these individuals. Indeed, as I suggest in the next section, there are some possibilies that are *in principle non actualizable* in any member of a species but that are still possible for them, such as the possibility human beings have of not being able to laugh or the possibility for corporeal substances not to have a colour. Perception is then not an infallible or complete guide to the knowledge of modalities. It is though the only epistemic access that we have available to individuals' possibilities and necessities.

3.3 Unrealizable but Conceivable Possibilities

According to the "compatibility semantics" that Abelard advances to interpret modal propositions, some predication – say, "S is φ" – is necessary if φ is an essential or a substantial form of S. It is necessary in this sense that, for example, this man is an animal or that this man is mortal. The same predication "S is φ" is instead said to be possible if being φ is not repugnant to any predication that constitute the nature of S. We are so allowed to say, for instance, that it is possible for this man to be a bishop, or that it is possible for a blind man to see, or for an amputee to walk (I'll consider these last two examples in 3.4 below). Within this paradigm, we are also allowed to say that *it is possible for a man not to be able to laugh*, and, generally speaking, it is possible for any individual substance not to have one of its "inseparable accidents". This idea is defended by Abelard in his commentary to the theory of *propria* presented by Porphyry in the *Isagoge.* As it is known, Porphyry defined *propria* as kinds of *inseparable accidents*, i.e. as those properties that – although not constituting the essence or the nature of their subjects – are nevertheless inseparable *in actu* from them. Examples given by Porphyry of this peculiar kind of accidents are the ability to laugh for men, or the blackness for crows or Ethiopians. They are inseparable in so far as there is no realizable situation in which the subject does not have them: it would not be possible, for example, that a man exists who is not able to laugh. When taken in pair with the definition of "accident"

as that property which can belong or not belong to the subject without the subject being destroyed (*praeter subiecti corruptione*), Porphyry's definition of *propria* seems at a first sight to be self contradictory. In which sense do these properties *accidentally* belong to their subjects while being at the same time *inseparable* from them? The solution proposed by Porphyry to reconcile these two conflicting characterizations of *propria* (as both *inseparable* and *accidental*) was to consider these properties, although inseparable *in act* from their subjects, as *separable in mind* from them, in the sense that they could be *conceived* as separated from their subjects.[35] Essential properties would instead be the ones that are inseparable both in act and in mind, so that a situation in which they do not belong to their subjects would be not only unrealizable but also inconceivable.

In his *glosses* on Porphyry, Abelard compares Porphyry's treatment of *propria* to the one Boethius gives in his *De Divisione.* There, Boethius argues against Porphyry that *propria* are not separable from their subjects in any sense, neither in act nor in the mind. The abilities to count and to do geometry, for instance, are *absolutely inseparable* from human beings, because even if they are not part of human beings' substance, if they were separated from it, this substance would be destroyed.[36] Boethius' position seems here to be that, even if *propria* are not essential properties of the subject, because they do not constitute its nature nor they are part of its definition, they are nevertheless absolutely inseparable from it, i.e., they are not separable either in act or in reason. In LI *Isag.* 90-92, Abelard aims to reconcile the opinions of the two authorities, Porphyry and Boethius, by saying that their controversy rests on an ambiguity in the terminology.[37]

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[35] The relevant passage for this thesis is the *incipit* of *Isagoge* 05: «Accidens uero est quod adest et abest praeter subiecti corruptionem. Diuiditur autem in duo, in separabile et in inseparabile; namque dormire est separabile accidens, nigrum uero esse inseparabiliter coruo et Aethiopi accidit (potest autem subintellegi et coruus albus et Aethiops amittens colorem praeter subiecti corruptionem)».

[36] This is what Boethius says on this: «Aliud rursus est quod ratione separari non possit, quod si separatum sit species interimatur, ut cum dicimus inesse homini ut solus numerare possit uel geometriam discere. Quod si haec possibilitas ab homine seiungatur, homo ipse non permanet; sed haec non statim earum sunt quae in substantia insunt, nam non idcirco homo est quoniam haec facere potest, sed quoniam rationalis est atque mortalis» (LI *Isag.* 89.38-90.5).

[37] The reconciliation is though unbalanced on the side of Porphyry, because Abelard says that Boethius's position is not only contrasting with the one held by Porphyry, but is also inconsistent in itself: «At vero hoc loco Boethius tam sibi ipso quam Porphyrio contraries esse videtur» (LI *Isag.* 90.5-7).

There are in fact, according to Abelard, two ambiguities in Porphyry's and Boethius' discussions: the first concerns the notion of "separability in mind", the second concerns the notion of "possibility". As for the first ambiguity, Abelard says that "separability in mind" could be interpreted in two ways: with respect to our human mental abilities or with respect to "the nature of things". While Porphyry uses this latter interpretation, Boethius uses the first one. As for the second ambiguity, Abelard says that there are two ways in which some property is said to be *possibly belonging* to a subject; in the first sense it is not possible that *propria* do not belong to their subject, because there are no possible situations in which it happens that the subject exists and it is separated from one of its *propria*. Boethius, who uses this sense of possibility, is then right in denying that *propria* are separable from their subjects. There is however a weaker sense of possibility with respect to which we can truly say that it is possible for a subject to be without a *proprium*, in virtue of the fact that inseparable accidents are not *required* (*exiguntur*) by the nature of the thing.[38] In this second, weaker, sense, it is possible that a thing is without a *proprium*, e.g. it is possible for a man to be unable to laugh, in the sense that the ability to laugh is not included in human beings' nature.

This is the outline of Abelard's argument: Boethius says that *propria* are accidents. In saying so he admits that they are not *part of the nature* of their subject. Because, Abelard thinks, the nature of a thing is anterior, or prior, to its accidents, it must be true that accidents are separable from the substance in some sense, for there could indeed be no priority without separability. But if *propria* are in some sense separable from the substance of their subject, and clearly they are not separable in act, the only way in which they are separable is separability in reason (*ratione separari possunt*):

> Sed si, ut ipse ait Boethius, accidentia sunt propria, quomodo saltem
> ratione separari non possunt, quae natura separari permittit? Sicut
> et ipse Boethius ibidem in ipsis Diuisionibus glaucitatem oculorum a
> subiecto ratione diuidit, Porphyrius nigrum a coruo. Praeterea ipse
> Porphyrius ad differentiam proprii et speciei in sequentibus dicit, quod
> ante subsistit species quam proprium, proprium uero posterius fit in

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[38]Abelard refers to the ambiguity of the term "possibility" saying that this term could be understood *positively* or *negatively*. The term has a "positive" meaning if we take it as referring to what is actualizable or realizable; it has a negative meaning if we take it as referring to what is not repugnant to nature.

specie. Quomodo autem ante est quam proprium in natura, si non
possit ab ea proprium saltem ratione separari? (LI *Isag.* 90.10-18)

So what Abelard is maintaining here is that if some property is an accident, it
is posterior to the nature of a substance; if it is posterior, it is also separable
from its nature, and if it is separable from the nature, it is separable in
reason (*potest ratione separari*).

How are we to interpret this *separability in reason*? There are, Abelard
says, two possible interpretations for this notion: in the first sense, it is
"separable in reason" what we, as rational human agents, are able to conceive
as separated. This is what Abelard calls separability in reason "*quantum ad
discretionem hominum*". This is not the sense in which *propria* are separable,
and Abelard denies that we could in fact conceive or imagine a man who is
unable to laugh, or that in general we could conceive any substance as being
without its inseparable accidents. This is because our mental activity is very
much influenced by our experiences, so that our imagination is limited and
governed by what we have perceived as happening in act. Since Boethius
intends the separability in mind with respect to our discernment, he is then
right in denying that the ability to laugh or to count is separable in mind
from men. The second sense in which the separability in reason can be
interpreted, the one Abelard attributes to Porphyry, has nothing to do with
our mental capacities, but concerns the natures of things: some property is
separable in reason if it is not part of the nature of a thing. This is Abelard's
separability *quantum ad naturam rei*:

> Sed sciendum est quod duobus modis "separari ratione" accipitur, scil-
> icet uel quantum ad discretionem hominum uel quantum ad naturam
> rei. Quantum autem ad naturam Porphyrius dicit speciem priorem
> esse proprio, Boethius uero quantum ad discretionem nostram dicit
> potentiam numerandi uel discendi geometriam ratione non separari ab
> homine. (LI *Isag.* 90.19-24)

We should now ask whether "conceptual separability" *quantum ad naturam
rei* entails possibility in any sense in Abelard's mind, i.e. whether the fact
that something is conceivable entails that it is also possible, in some sense of
possibility. My opinion is that it does, and this interpretation rests mainly on
three passages from Abelard's *tractatus De proprio.* In the first, Abelard says
that the nature of human beings would allow, or would be compatible with

the lack of the capacity to laugh, because this capacity does not constitute its essence. But this is precisely the way in which Abelard defines possibility within the semantics that was presented above: possible is that which is allowed by the nature of a thing (i.e., that which "*natura permittit*", or "*natura patitur*"):

> [Propria] in natura rei iuxta eundem Boethium et Porphyrium separabilia sint, quia uidelicet *bene natura hominis pateretur ipsum esse sine risibilitate*, quippe ea substantiam eius non constituit sicut rationalitas et mortalitas nec per eam natura hominem facit sicut per illas. (LI *Isag.* 90.39-91.3, my emphasis)

In a second passage, Abelard distinguishes between two senses of what *possibly is*, i.e. of what "*contingere potest*": in a first sense it is impossible for a man to be without the ability to laugh, because it could not happen in act that there is a man who is unable to laugh. In another sense, however, Abelard admits that *it might happen* that a man is without this ability («alio modo contingere potest hominem posse esse sine proprio»), because it is not required by its nature to have this property («non ex eo quod est homo exigere proprium»):

> Sed licet homo non possit esse sine risibilitate quodammodo, quia uidelicet non potest contingere, ut homo sit et non risibilis, *alio tamen modo contingere potest*, ut uoluit Porphyrius *hominem posse esse sine proprio*, ut uidelicet negatiue intelligatur sic: non ex eo quod est homo, exigere proprium. (LI *Isag.* 91.11-16, my emphasis)

In the first sense, possibility seems to be understood as some sort of of *realizability* or *actualizability*: it is impossible that a man is without the ability to laugh because such a situation is not realizable. In the second sense, possibility is instead understood in terms of *compatibility* with a thing's nature. If some property is not *required* (*exigitur*) by the nature of a thing, it is not a necessary one, and therefore the contrary property is possible.

The last passage I want to propose as evidence that conceptual separability entails for Abelard some sense of possibility is the following:

> Quod itaque dicitur *homo posse esse sine risibili, duobus modis accipi potest*, scilicet uel quod *ex eo quod homo est, non exigat risibile, quod uerum iuxta acceptionem Porphyrii*, uel quod homo possit esse

> ita, quod non sit risibilis, quod quia falsum est, bene Boethius negat.
> Nec contrarius Porphyrius, cum Porphyrius "posse esse" negatiue ac-
> cipiat, Boethius affirmatiue acceptum remoueat. (LI *Isag.* 91.27-32,
> my emphasis)

The passage points out more explicitly that it is the notion of "being possible
for something" (*posse esse*) that Abelard charges of being ambiguous, and
susceptible of being interpreted in two different ways. Again, the distinction
between two senses of *being possible* is done in terms of what is *realizable* on
the one hand (e.g. it is realizable that some man exists who is not able to
laugh) and in terms of what is *compatible with the nature of something* on
the other (it is compatible with the nature of man to be without the ability
to laugh). In the first sense, the one used by Boethius, it is impossible that
a man is not able to laugh; in the other sense, the one Abelard attributes
to Porphyry, it is possible.

On the basis of this twofold interpretation of the notion of possibility, we
can now evaluate the statement "Socrates is not able to laugh" (*Possibile
est Socratem non esse risibilem*) in two ways, getting two different results:
in the first interpretation the statement is false, inasmuch as what it says is
unrealizable, in the second interpretation the statement is true, inasmuch as
it is "conceivable". The two different readings of the modal notion are not
reducible to one another. We might try however to interpret both of them
extensionally, drawing upon two different sets of possible situations:

(I) realizable situations, i.e. situations that are possible in the sense that
   they can happen, or that they are *in actu* possible,

(II) situations that are possible in the sense that *they are in some sense
   "conceivable"*, i.e, that are *non repugnant to* nature.

Let us note that set (I) of possible situations is a proper subset of (II), the
set of conceivable situations, for everything that is possible in the first sense
is also possible in the second. The converse does not hold, i.e. there are
conceivable situations that are not actualizable situations.

If the idea of conceivability, or separability in the reason, is present *in
nuce* already in Porphyry, it is Abelard who draws first a link from it to a
certain sense of *possibility*. Nevertheless, it is not easy to understand what
Abelard has in mind when talking of "conceivability *with respect to the na-
ture of things*". There are, I think, two ways in which we could understand

Abelard's notion of separability in reason. The first is to intend this conceivability as an epistemological notion, but referring it to some rational superior agent who would have, unlike human beings, a complete knowledge of the natures of things and therefore would be able to mentally separate the properties that constitute the nature of a substance from the properties that belong to it only accidentally. The second is to use the notion of "separability in reason" not as an epistemological notion, but instead as a metaphysical one. "Separable in mind" in this sense would refer to those properties that do not contradict the essential properties of an individual, independently of any reference to the epistemological capacities of rational agents. In both cases, this separability in reason has nothing to do with our mental capacities or with our ability to conceive things and situations. The capacity we have of conceiving or imagining is then not a "good guide" to possibility in any sense, and therefore the notion of conceivability plays no role in Abelard's epistemology of possibility. From what we are able to conceive, in fact, we can derive no knowledge whatsoever about what is possible or impossible for a subject.

The commentary on Porphyry's treatise on *propria* is not the only place where Abelard treats statements about possibility as being ambiguous and susceptible of being evaluated both true and false depending on the meaning we give to the modal term. In the next section I consider other modal propositions treated by Abelard as ambiguous, such as the propositions "it is possible for an amputee to walk", "it is possible for a crippled man to fight" and "it is possible for a blind man to see".

3.4 Simple Possibilities and Determinate Potentialities

In *Dialectica* 96.17-99.24, Abelard presents his theory of "natural potencies and impotencies" (*potentiae et impotentiae naturales*), i.e. possibilities and impossibilities that belong to substances in virtue of their nature and not in virtue of being acquired through some sort of learning, experience or training. Here, Abelard introduces an interesting distinction between "simple" potencies (*potentiae simplices*, or that belong *simpliciter* to their subject) and "determinate" potencies, that the author also calls "aptitudes" (*potentiae determinatae* or *aptitudines*). Potencies that belong "*simpliciter*" to their owners are in turn divided into those ones that are *required* by the nature of a thing, inasmuch as they constitute the thing's nature, and those that are simply *compatible* with the nature of the thing, and which belong to their owners only accidentally. Potencies that belong *simpliciter* and that are required by the nature of their subject are for instance the potency human beings have of being rational and mortal,[39] or the potency that honey has of being sweet.[40] Simple potencies that are merely *compatible* with the nature of their owners are, for example, the potency human beings have of being white or black, and also the potency they have to run or to fight. We know that these last potencies are compatible with the nature of human beings because we have experience of some men and women who are actually runners or pugilists: because all human beings are of a same nature, what is actualized in one is compatible with the nature of all. Natural simple possibilities are then *the same for all members* of the same species. They are also *immutably belonging to their owners*, in the sense that it is impossible for an individual to loose one of its simple possibilities or to gain different ones during its lifetime. Because the nature of a substance is invariable, everything that is compatible or required by it in a certain moment, it is so in every moment of time (or better, in every moment in which the substance exists). Furthermore, simple potencies belong to their owners *independently*

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[39] «Sunt autem aliae potentiae vel impotentiae quae naturae propriae sunt, non aptitudinis, in eo scilicet quod non solum eas natura contulit, verum etiam eas exigit, ut *rationalitas*, *irrationalitas*, *mortalitas*, *immortalitas*, quae speciei cui insunt, naturam totam occupant nec ei per accidens, sed substantialiter insunt. Omnes enim homines rationales sunt vel mortales, sed non omnes salubres vel pugillatores dicuntur; unde haec per accidens inesse clarum est» (*Dial.* 96.34-97.3).

[40] See *Dial.* 99.21-24.

of the external circumstances, *of the physical constitution* and *of any contingent condition* their owners find themselves into. The only condition that determines which simple natural potencies an individual has or has not is this individual's *nature*.

Determinate potencies, or *aptitudes*, are somehow also dependent on the nature of their subjects: it is a necessary condition for having an aptitude that its possession is not incompatible with the nature of the thing. However, the possession of an aptitude also depends on other conditions, such as the physical conformation of an individual and perhaps – Abelard is not clear on this point – the external and contingent circumstances the individual is in.[41] The distinctive mark of determinate potencies, which differentiates them from simple ones, is that they usually require, when they are attributed to a thing, a certain qualification or determination, that is usually expressed by means of an adverb: determinate potencies are for instance the ability to fight *well*, to run *rapidly*, or to be *easily* broken. It is because of this that Abelard refers to them as "*potentiae determinatae*" or "*cum determinationes*". Other examples of aptitudes are the potency that certain material things have to be hard or soft (i.e., to be hardly or easily broken and cut), or the potency that some animate things have to be in good or bad health (i.e., the aptitude they have of getting more or less easily sick).

> Neque enim cursor aut pugillator a simplici potentia currendi vel pugnandi (quae enim fortasse substantialiter insunt), nominantur, immo a potentia pugnandi facile vel currendi leviter. Potentiarum itaque

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[41]It is not clear whether the possess of a determinate potency is also dependent on the external circumstances in which the subject is. Paul Thom (Thom, 2003b, p. 51) seems to think that external circumstances could prevent a subject from having a certain determinate potency. Thom alludes there to the Stoic problem, reported by Alexander of Aphrodisias, concerning whether chaff which is in the depths of the sea still has the possibility to burn. Thom says that, according to Abelard's understanding of possibility, it would be true to say that chaff has the *simple* potency to burn – insofar as it is compatible with its nature: "Chaff at the bottom of the ocean has precisely the same nature as chaff on dry land". But chaff does not have the determinate (Thom says, the "concrete") potency to burn because of the external circumstance in which it finds itself. This concrete possibility is prevented by an external circumstance, and not by an inappropriate physical constitution of the chaff. Thom is here suggesting that for Abelard the possess of determinate, or concrete, potency is not only dependent on the nature and the physical constitution of a thing, but also on other external contingent conditions which are independent of the thing itself. However, as far as I know, Abelard never provides examples of such a situation, i.e. of a situation in which a subject is prevented from having a determinate potency because of some external factor.

> vel impotentiarum huiusmodi aliae sunt ad aliquid facile faciendum,
> ut potentiae vel impotentiae facile pugnandi vel currendi, aliae non
> ad patiendum facile, sed magis ad resistendum facile, ut "sanativus"
> dicitur eoquod possit non facile infirmari, idest resistere vehementer
> infirmitati, ac vix eum contingat infirmari, "aegrotativi" vero aecon-
> trario dicuntur, ex impotentia scilicet eiusdem, per quod videlicet non
> queant facile resistere infirmitati. "Durum" quoque dixit secundum
> potentiam non facile secari, hocest secundum id quod facile sectioni
> resistat; "molle" vero secundum impotentiam eiusdem, de eo scilicet
> quod non possit non facile secari, idest facile resistere sectioni. (*Dial.*
> 97.4-14)

When a determinate potency belongs to an individual, it does not necessarily
also belong to all other individuals of the same species. Not every human
being, for instance, has the determinate potency to fight easily, only some
do. In particular, only human beings that have a particular, and similar,
physical consitution have this aptitude, for instance those ones who have
the appropriate flexibility of arms and legs:

> Alia enim est potentia pugnandi simpliciter, quae omnibus aequaliter
> inest hominibus, alia potentia pugnandi facile secundum flexibilium
> membrorum aptitudinem, quae non omnibus inest. (LI *Cat.* 229.25-
> 27)

Moreover, differently from simple possibilities, determinate potencies do not
omnitemporally belong to their subjects: even if a human being has the
ability to fight easily in a certain time, this does not necessarily mean that
he or she has this potency in every time in which exists. It is in fact possible
for an individual to loose (and maybe also gain, although again Abelard
is not clear on this) one of its determinate potencies: because the possess
of such potencies depend on the physical conformation of a subject, and
because the physical conformation of a substance are susceptible to change,
the subject's aptitudes are also susceptible of varying through time. The
famous boxer Muhammad Ali certainly had the determinate ability to fight
well, but he probably did not have such an ability when he was a small
child, nor when he was an old man. If circumstances had changed – e.g. if
he were to loose an arm in a certain moment of his life – he would have lost
perhaps the determinate potency to fight easily from that moment on. He

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would have nevertheless maintained, as a member of the species of human beings, his *simple potency to fight.*

Abelard's distinction between simple and determinate potencies could also be described as a distinction between "abstract" and "concrete" potencies of individuals. This is how Paul Thom characterizes the distinction (Thom, 2003b, p. 51). Simple potencies are said "abstract" potencies inasmuch as they do not refer to what the individual is concretely *able to do* and to what he is actually capable of. Determinate potencies, instead, are the possibilities that are really open to a subject, in the sense that they represent the subject's effective capacities, powers and dispositions. I will also refer to determinate potencies as the *potentialities* of an individual substance, in so far as – differently from simple potencies, which are permitted by nature but could be unactualizable – determinate potencies are susceptible of being actualized in a certain moment of time, given the actual condition of their owners (and maybe also given the suitability of the external circumstances).

Abelard thinks that in common language, when we talk of an individual's capacities, we usually refer to this second sense of the term "possible", i.e. to what a subject is *concretely* able to do, or to what an individual can *really* become. The sense of possibility we use in common language refers then to aptitudes, or determinate potencies (LI *Cat.* 229.34-36).[42] However, Abelard says that the proper and more fundamental sense of possibility is the first one, i.e, the sense of simple possibilities. Using a distinction I already proposed in section 3.3 above, we could say that the distinction between simple and determinate potencies retraces the distinction between a wider sense of possibility as non repugnancy with nature and a stricter sense of possibility as what is "realizable" or "actualizable" in a certain possible situation. Just as I said there that what is possible in the sense of "realizable" is for Abelard a proper subset of what is possible in the sense that it is "compatible with nature", so we could say that all determinate potencies that are effectively realizable by their subjects are properly included in the general potencies that these subjects have in virtue of their nature.

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[42] «Mancus in natura possit pugnare, sicut curtatus pedes habere vel ambulare, non tamen eum ad hoc *potentem* dicere solemus, cum aptitudine careat» (LI *Cat.* 229.34-36, quoted in (Martin, 2001, p. 102)).

3.4.1 An amputee can walk and a blind man can see

The distinction between simple and determinate *potentiae* or *impotentiae* is to be found in many passages of *Dialectica* and *Logica Ingredientibus*.[43] Consistently with the passage just read, Abelard always interprets simple potencies as the ones that are compatible with (or required by) the nature of a thing *secundum hoc quod natura rei permittit* (*exigit*) (LI *Cat.* 229.25), while determinate potencies correspond to potentialities – or concrete, actualizable potencies – and can be represented as a sort of "subset" of simple potencies. It is in referring to this distinction between two senses of possibility that Abelard claims that modal propositions like "A crippled man possibly fights" (*Mancus pugnare potest*) is susceptible of been considered both true and false: it is true if we interpret it according to the first sense of possibility, since the *simple* potency to fight is properly attributed to all human beings and for all their lifetime; it is false if we interpret possibility in the sense of potentialities or aptitudes, because a man who is now crippled had lost (or never had) the concrete possibility to fight. With a similar argument, Abelard says that other modal propositions could be considered both true and false, such as the one stating that "an amputee can have feet" or that "it is possible for an amputee to walk" (*Possibile est curtatum pedes habere vel ambulare*): again, this is true if we take "possible" as indicating the simple potency the amputee has to walk, in so far as having this potency is allowed by his nature and not repugnant to it. We know that the ability to walk is compatible with the nature of man because we observe some member of the same species exercising this ability, just as we know that the ability to fight is compatible with the nature of man because we observe some man who are actually fighting (LI *Isag.* 105.3-4; LI *Cat.* 229.34-5).[44] On the ba-

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[43]See in particular *Dialectica* 96-99; 384-389; 391-392; LI *Isag.* 96-109; LI *Cat.* 122-139; 223-251; 259-285; LI *De Int.* 265.516-519.

[44] Indeed, if Abelard were to follow the tradition in considering *bipedalitas* as a substantial predication of human beings, and part of the definition of "man", he would be forced to say not only that "it is possible for an amputee to have two feet" is a true modal proposition, but also that "it is necessary for an amputee to have two feet" is true. If indeed *bipedalitas* is a substantial form of human being, it is a property which is required by the nature of man, and therefore every man has it of necessity and could not loose it without his substance being lost and destroyed too: «cum bipes homini sit substantiale, non potest amittere esse bipedem, nisi corrumpatur secundum substantiam hominis, quam necessario bipedalitas facit sicut rationalitas et ceterae differentiae» (LI *Isag.* 104.18-23). If it is so, however, it is hard to deal with the case of the amputee, which seems to offer a counterexample to the thesis for which necessarily every man is bipedal. This is why Martin suggested that probably Abelard was quite discontent with considering *bipedalitas*

sis of the same distinction between simple potencies and aptitudes, Abelard justifies his idea that it is possible for a man who has lost his sight, or who was born blind, to see. Because the simple capacity to see is not repugnant to the nature of human beings, and because the possess of a simple potency is independent of the actual, contingent physical constitution of a subject, the proposition saying that *a blind man can see* should be considered true, if we interpret this possibility *secundum naturam*, i.e. as a simple potency:

> Quilibet enim homo, etiam ille qui caecus est, possibilis est uidere. Bene enim tota eius natura pateretur ut et tempore suo uisionem suscepisset et eam in uita sua custodisset, ut numquam in eo caecitas conti[n]gisset. Quod enim in uno particularium uidemus contingere, id in omnibus eiusdem speciei indiuiduis posse contingere credimus; "potentiam" enim et "impotentiam" secundum naturam accipimus, ut id tantum quisque possit suscipere quod eius natura permittit, idque non possit quod natura expellit. Cum autem omnia eiusdem speciei particularia eiusdem sint naturae – unde etiam dicitur ipsa species tota indiuiduorum substantia esse -, idem omnia recipere potentia sunt et impotentia. (*Dial.* 384.2-385.8)

The example of the blind man who possibly sees offers some interesting elements concerning Abelard's understanding of possibility. The blind-man case was analysed in detail by Martin in (Martin, 2001) and (Martin, 2004b), who argues that from the way Abelard deals with it we might infer two important things about his conception of modalities: first, that contingency must be referred not only to the future but also to the present and the past, which shoud not therefore be considered necessary, inasmuch as things could have happenend differently than they did or do; and second, that there are, according to Abelard, many alternative possible histories, i.e. many possible ways in which things could have been, different from the one that actually takes place.

Abelard talks of the two properties of having sight and being blind as if they were in a relation of *habitus* and *privatio*, and he follows Aristotle in maintaining that anyone who is susceptible of the *habitus* is also susceptible

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as a substantial form of man (Martin, 2001, p. 103). Anyway, Abelard tries in LI *Isag.* 104-105 to keep both things together – the existence of men that are amputees and the thesis for which *bipedalitas* is an essential feature of man – by saying that we should understand *bipedalitas* as the disposition or the natural capacity of having two feet, instead of understanding it as the actual possess of two feet, just as we should understand *risibilitas* as the ability to laugh and not as the property of being actuallly laughing.

of the corresponding *privatio*. Any human being who has sight might lose this potentiality and become blind, just as any man with a thick head of hair might become bold.[45] Starting from the moment in which a natural potentiality such as the ability to see or to walk is lost, the *habitus* "turns" into the corresponding *privatio*, which is according to Abelard an irreversible state, i.e., there is no possibility for the former *habitus* to be reinstated. This means that once someone has become blind, there is no chance for his sight to be restored, and no chance that he might have the concrete potentiality to see again:

> Cum autem de habitu transitus fiat in priuationem, de priuatione in habitum impossibile est fieri regressionem. (*Dial.* 384.28-30)

In order to interpret Abelard's understanding of modalities, it is very important to stress the impossibility of a reversion from *privatio* to *habitus*: when Abelard says that there is a sense in which *it is possible for a blind man to see*, this is not to be understood in the sense that possibly, *in some future time*, a man who is now blind will see again.

Generally speaking, the blind man's possibility to see is not referred to a *time other* than the time in which the man is actually blind: what Abelard maintains is that a blind man has the possibility to see *in the same time* in which he is blind («Posset enim contingere, ut is qui caecus factus est, videret *hoc etiam tempore quo caecus permanet*»). This, Abelard explains, should be taken in the sense that things might have gone in such a way that the person who is actually blind did not become blind but would have the effective, concrete ability to see (Martin, 2001, p. 110):

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[45] A subject is susceptible of a *privatio* only after having had the corresponding *habitus* – or, if he never had the *habitus*, only after having reached the time in which, in virtue of its nature, he should have had the *habitus*. For example, Abelard says, it is not correct to say that a newborn dog is blind before he reached the time in which he should naturally have the ability of sight, while it is correct to say that the animal is blind if after having had the ability to see he looses it, or if after nine days from his birth (i.e. the time after which he should be naturally able to see) he still does not have the ability to see: « Tunc autem tantum priuationem contingere dicimus quando habitum in suo quoque tempore, quod scilicet ei natura determinauit, deesse uidemus, ueluti, si in nono die catulus uisionem non recipiat, eum caecum esse non dubitamus. Non itaque omnis ille priuationem habet qui non habet habitum, sed qui, inquit Aristoteles, quando contingit habere, non habet, id est tempore quo naturaliter fuerat susceptibilis habitus. "Edentulum enim, inquit, non omnem illum dicimus qui non habet dentes nec caecum qui non habet uisum, sed qui, quando contingit habere, non habet", id est in tempore quo debuit habitus inesse» (*Dial.* 384.15-24).

Unde omnes homines concedimus posse videre, etiam eos qui caeci sunt, nec tamen regressionem posse fieri de privatione ad habitum. Posset enim contingere, ut is qui caecus factus est, videret hoc etiam tempore quo caecus permanet, ita quidem, ut numquam habuisset caecitatem atque nulla esset regressio. Sed hoc omnino impossibile est, ut is qui caecus est, vel quislibet alius possit videre, postquam caecus est, hoc est praecedente caecitate reperiret visionem. Concedimus itaque eum qui caecus est, posse videre simpliciter, quia si videre posset, ut numquam habuisset caecitatem, sicut ceteri faciunt, posse autem eum videre, postquam caecus est, non est possibile. Sic curtatum concedimus posse habere duos pedes, sed non posse habere, postquam amiserit, hoc est non posse recuperare pedes; et stantem concedimus sedere in praesenti, sed non posse sedere dum stat, in eo scilicet quod possit habere stationem et sessionem. Nullo itaque modo concedimus, quod sie caecum possibile est videre simpliciter, quod possit fieri regressio de caecitate ad visum. Quippe, ut dictum est, ita ille qui caecatus est, posset videre, ut numquam contigisset in eo caecitas et ita illud non esset regressio caecitatis post visionem. (LI *Cat.* 273.39-274.18)

In the same way in which we say that a blind man possibly sees, we also say that *an amputee possibly walks*, or that *a person who is sitting possibly stands*: in all cases, the subject has the simple potency to see, walk or stand, inasmuch as these potencies are compatible with the subject's nature, but at the same time the subject lacks the determinate potency to do it, i.e. the realization of this potency is not possible given the conditions in which the subject is in the actual situation and time. However, the subject might have had the concrete, determinate potency to see, walk or stand, in the sense that things might have gone so that this person who is actually blind now would have been seeing now, the person who is actually amputee would have been walking now, and the person who is sitting now would have been standing now.

All the modal propositions "It is possible for a blind man to see", "It is possible for an amputee to walk" or "It is possible for he who is sitting to stand" could be interpreted as having the following logical form

– It is possible for S, who is now P, not to be P.

Propositions of this form are susceptible of being interpreted in two ways, synchronically or diachronically, dependently on the temporal index we at-

tribute to the modal term "possibly".[46] We can interpret the sentence *diachronically* as saying:

(i) It is possible for S, who is P at time *t*, not to be P at time *t'*,

or it could instead be interpreted synchronically as saying:

(ii) It is possible for S, who is P at time *t*, not to be P at time *t*,

As Martin has shown, Abelard's treatment of the blind man case suggests that he interpreted possibilities in the second sense, as synchronic possibilities. A man who is blind at a certain time, for Abelard, has the possibility to see *at the very same time in which he is blind.* Furthermore, because a man who is blind has no actual possibility to regain his sight in the future (because there is no possible reversion from *privatio* to *habitus*) the possibility he has to see is not referred to some future time in which he might be actually able to see.

In this respect Abelard distances his view from Aristotle's understanding of possibilities and modalities in general. In Aristotle's view, a proposition of the form "S is P and possibly S is not P" (e.g. "Socrates sits and possibly Socrates does not sit") should be understood as saying that: *Socrates is sitting now and there was in a precedent moment (e.g., yesterday) the possibility that Socrates would be sitting now.* Similarly, when one says that "Socrates is sitting now and it is possible now that he stands", he means, according to an Aristotelian understanding of modalities, that *it is possible for Socrates, who is now sitting, to stand at some future moment of time, e.g., tomorrow.* This understanding of possibilities is said *diachronic* because, in sentences like "It is possible for S, who is now *P*, not to be P", the modal term is indexed to a certain time that is different (in the case of Aristotle, antecedent) from the temporal index given to the sentence "S is P". This is not the case in Abelard's paradigm, at least from what we could infer from the way in which he deals with the blind-man case: the set of (simple) possibilities that are open for an individual – which is, as we saw, determined by what is compatible with its nature – is immutable and remains the same for all the individual's lifetime, independently of the

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[46]This distinction between a diachronic and a synchronic understanding of modal sentences was presented by von Wright in (von Wright, 1984). For the use of this distinction in understanding medieval interpretations of modality, see (Knuuttila, 1993). For the specific case of Abelard's theory, see (Martin, 2001) and (Martin, 2004b).

properties that this individual actually has in a certain moment of time. The (simple) possibilities that were open for an individual are the same in past and future times.

3.4.2 The coincidence between the simple-determinate distinction with the *de sensu-de rebus* distinction

Because of the ambiguity of the notions of "possibility" and "potency", modal propositions like "It is possible for a crippled man to fight", "It is possible for an amputee to walk" and "It is possible for a blind man to see" are susceptible of being evaluated both as true propositions or as false propositions: they are true if we consider the term "possibility" as referring to the *simple possibility* that a man has, *qua* human being, to fight, walk or see; they are false if we instead make reference to the *determinate possibilities* (i.e., to the "real", "concrete" potentialities) of the three subjects, and if we consider the subjects not simply as human beings but *qua* amputee, *qua* crippled or *qua* blind person. An interesting point of the discussion of simple and determinate potencies is that Abelard refers the semantical ambiguity of these propositions as being related to the ambiguity that is present in the proposition "He who is standing possibly sits" (*Possibile est stantem sedere*). As was seen in section 1.3 above, this last claim could also be considered as both true or false depending on the scope that we attribute to the modal term. When Abelard speaks about the distinction between the *de rebus* and *de sensu* interpretation of modal sentences – which he also calls the distinction between the divided (*per divisionem*) and compound (*per compositionem*) sense – Abelard says that the claim in question is true if we interpret the proposition *de re*, or *per divisionem*, while it is false if we interpret it *per coniunctionem*. It seems indeed that Abelard conceives the two distinctions between

(i) *per divisionem* – *per coniunctionem* possibilities,

(ii) simple – determinate possibilities,

not only as being related, but as if they were pointing out *the same semantical ambiguity*. Abelard explicitly makes this connection both in the *Dialectica* and in LI:

> Est igitur aliud enuntiare simpliciter possibile, aliud cum determinatione, cum hoc verum sit, illud falsum, sicut et hae[c] propositiones

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de Socrate sedente: "possibile est Socratem stare", "possibile est stare
dum sedet"; prima enim uera est, secunda falsa (*Dial.* 385.14-15).

Concedimus itaque eum qui caecus est, posse videre simpliciter, quia si
videre posset, ut numquam habuisset caecitatem, sicut ceteri faciunt,
posse autem eum videre, postquam caecus est, non est possibile. Sic
curtatum concedimus posse habere duos pedes, sed non posse habere,
postquam amiserit, hoc est non posse recuperare pedes; et stantem
concedimus sedere in praesenti, sed non posse sedere dum stat, in eo
scilicet quod possit habere stationem et sessionem." (LI *Cat.* 274.7.14)

According to what Abelard says, when the proposition "It is possible for
he who is standing to sit" is interpreted in the divided sense, in order to
evaluate it we must consider whether there is a relation of compatibility
between the predicate "being seated" and the nature of the subject to which
the term "*stantem*" refers. Let us assume here that the subject "*stantem*" is
referring to a human being, say Socrates. Because there no incompatibility
between the predicate "being seated" and the set $Nat_{Socrates}$, i.e. the set
of predications constituting Socrates' nature, the proposition is true. On
the contrary, when the proposition "It is possible for he who is standing to
sit" is interpreted *per coniunctionem*, in order to evaluate its truth value we
still have to consider the predicate "being seated" and the thing to which
the subject "*stantem*" refers, but we do not consider the thing which is
standing only *qua* human being, i.e. only with respect to what constitutes
his nature, but we consider it as being in a certain specific condition, e.g.
as being actually standing, and we must evaluate whether there is a rela-
tion of compatibility (a) between the predicate "being seated" and all the
predications which constitute the set $Nat_{Socrates}$; (b) between the predicate
"being seated" and the additional determination that we attribute to the
thing, i.e. the predicate "standing". The proposition in question satisfies
condition (a) but fails to meet condition (b), because there is a repugnancy
between the two predicates "sitting" and "standing", and it is then false *per
coniunctionem*, although it is true *per divisionem*.[47]

We should now ask in what sense does this distinction coincide with
the distinction between simple natural potencies and aptitudes. It is easy
to see the coincidence between simple potencies and *de rebus* possibilities:

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[47]The *per divisionem-per compositionem* distinction is analysed in more detail in section
1.3 above.

both are only defined in terms of what is compatible with the nature of their owner, and they are independent of any other condition, being it the physical constitution of the subject, the external circumstances or the contingent properties that he has in a certain moment of time. Also, they both are invariable through time, in the sense that they cannot be "gained" or "lost" by their owners, and they are the same in all members of a species. Finally, just as the correct and proper understanding of the notion of posibility is, according to Abelard, in the sense of simple or unqualified natural potencies, so he maintains that the proper sense of modal propositions is the *de rebus* interpretation.

The connection between determinate (i.e concrete, realizable) potencies and the *de sensu* interpretation of modal claims is perhaps less straightforward. However, what Abelard probably wants to suggest is that in both cases we use the notion of possibility referring not to what is generically possible for a subject and to what is compatible with its nature, but referring to what is potentially realizable for this subject *given its actual conditions* and *given the contingent properties that it actually has*. For instance, we say that a blind man does not have the determinate potency to see or that a person who is now sitting does not have the determinate potency to stand because, as long as their actual condition lasts (which in the first case is irreversible, in the second case is merely contingent), their simple potency to stand or to see is not realizable. Correspondingly, the propositions "It is possible for a blind man to see" or "for he who is sitting to stand" are false when taken *per compositionem* because there is an incompatibility between the predicates "to stand" and "to see" with the specific description we give of the subject – that is considered not only as a human being but as actually sitting, or as being actually blind. Determinate potencies correspond to *per compositionem* possibilities also in the sense that, just as all possibilities *per compositionem* are a proper subset of the corresponding possibilities taken *per divisionem* (see 1.3.2 above), similarly all the potencies that are concretely realizable for a certain subject are a proper subset of the generic potencies that the subject possesses in virtue of having a certain nature.

What Abelard seems indeed to be interested in, while referring to all these semantical distinctions, is a way to distinguish a wider – we could say almost "logical" – sense of possibility as what is non contradictory or contrary with the nature of things, from a stricter sense of possibility – which

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is included in but not coincident with the first – as what is in effect realizable or actualizable given the way things actually are. The several semantical distinctions considered above – the *de rebus-de sensu* in section 1.3; the *conceivable-actualizable* in section 3.3; and finally the *simple-determinate* in this section – aims to characterize in different ways these two interpretations of the notion of *possibility*, and to argue for the priority of the first sense over the second one.

3.5 Some Puzzles about Abelard's Modalities *De Rebus*

As was seen in section 1.3 above, the usual way in which Abelard defines the *de rebus* interpretation of possibility is the following: it is possible *de rebus* for a subject to have a certain property if having this property is *compatible with its nature*. This is the proper and more fundamental sense in which, according to Abelard, the notion of possibility should be understood. Within this interpretation of modalities, impossible is what is *excluded by* (or *incompatible with*) the nature of a substance, and necessary is what is *required by* it. If someone considers for instance a proposition like (*) "It is possible for Socrates to be dead", in order to evaluate if (*) is true in the *de rebus* interpretation he has to check whether the predicate "dead" is repugnant to some of the predicates constituting the nature of Socrates. This nature, just as the nature of every other human being, is constituted by the substantial predications "animal", "rational", "mortal", and by many other substantial predications that are yet unknown to us.[48] Because being an animal requires being animate, and so "animate" is also included in the nature of Socrates, there is indeed an incompatibility between this nature and the predicate "dead". Therefore, proposition (*) should turn out to be false if possibility is interpreted in this way. There are nevertheless several examples of true possibility propositions, advanced by Abelard both in the *Dialectica* and in LI, the truth of which cannot be accounted for by means of this *de rebus* interpretation (nor of the *de sensu* one), and that indeed seem to raise some puzzles about Abelard's understanding of possibility. In particular, Abelard tries to argue for the truth of propositions like "*It is possible for this individual, which is now a man, to be dead*" (*Dial.* 196.29-197.31), and "*It is possible for this individual, which is now a man, to be irrational – or to have a different rationality than the one it actually has*" (LI *Isag.* 84.16-21; LI *Isag.* 92.21-33).

The first example is proposed by Abelard in the *Dialectica*. Here, the author says that the proposition "*possibile est hominem mortuum esse*" – which should be false along the usual *de rebus* interpretation because being dead is incompatible with being animate – might still be considered true if we take the subject as referring to the individual "thing" that is now Socrates

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[48] For this reading of natures see 3.1.1 on page 153.

– i.e., to the individual body, or the individual *substantia*, that is Socrates in the actual situation. This is because, whereas being dead is incompatible with Socrates, if we consider the *substantia* that Socrates is there is nothing in the nature of this *substantia* that is incompatible with being dead:

> Restat autem nunc post conversiones ut ostendamus secundum eorum expositionem eas falsas quas veras aestimant, ut istam: "possibile est hominem mortuum esse", sic scilicet expositam: "possibile est quod haec propositio dicit: 'homo est mortuus'". [...] Nullo itaque modo videtur vera haec propositio: "possibile hominem mortuum esse", ut scilicet de sensu simplicis exponatur. Cum vero de rebus exponitur, vera videtur hoc modo: "possibile est hominem esse mortuum", idest id quod est homo, potest mortuum fieri. Sed dico quia fieri mortuum non est esse mortuum; fieri enim mortuum, mori est; non mortuum esse. "Moriens" autem et "mortuum" adversa sunt; "moriens" enim viventis nomen est: neque enim moritur nisi vivens. Videtur ergo possibile hominem mori, unde mortalis dicitur, sed non mortuum esse. [...] Ea ergo quae natura rei non exspectat, non possumus confiteri posse illi inesse, sed quae tantum in esse advenientia naturam rei non expellunt. Possumus itaque hoc corpus, quod tamen homo est, confiteri posse mortuum esse, si corporis proprietatem tantum attendamus, sed non hunc hominem. "Corpori" enim "mortuum" non repugnat, sed "homini". [...] At vero mortuum numquam homini inhaerebit: neque enim ipso existente neque non existente; quod quidem patens est, cum videlicet alterum non patiatur alterum. *Sed tamen hoc corpus, quod homo est, mortuum erit; quippe ut "corpus" acceptum "mortuo" non repugnat . Sicut ergo fatemur quia hoc corpus erit mortuum, sic et recipimus quia possibile est hoc corpus esse mortuum, sed non ideo hominem, quamvis tamen et hoc corpus homo sit. Aliud est enim corporis simplicem attendere in eo naturam, aliud hominis proprietatem in eodem considerare. Secundum namque substantiam quae homo est, remanebit homine in se destructo, non tamen homo.* (*Dial.* 196.29-197.31, my emphasis)

Abelard seems to suggest that there is indeed a sense in which it is true to say that it is possible for this individual, that is actually a human being, to be dead, but only granted that we consider it not *qua* human being, but *qua* body, or corporeal thing. This is because the predicate "dead" is incompatible with the nature of human beings, but not with the nature of bodies (« *"Corpori" enim "mortuum" non repugnat, sed "homini"* »). What

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Abelard is suggesting here is that there is a particular reading of modal claims - which does not coincide with the *de rebus* interpretation nor with the *de sensu* one - in which possibilities and necessities are referred to things not *qua* belonging to the natural kind to which they actually belong, but as "bare individuals", i.e., merely as corporeal things. According to this reading, the notion of possibility is still spelled out in terms of compatibility (*non repugnantia*) with nature, just as it is in the standard *de rebus* interpretation, but the nature into consideration is the one of the substance taken as a mere body, or as a mere *substantia*.

This peculiar reading of the notion of *possibility* might be of help to interpret also what Abelard says in some passages of the LI, where he claims that the individual thing that is now the human being Socrates might have had other substantial forms or a different nature than the ones it actually has. We may find this idea in LI *Isag.* 84.16-21:

> Sed profecto omnis differentia de specie universaliter dicitur praedicari et destructa ea necessario destrui res. At vero haec rationalitas pluribus non inest neque propter eam homo periret. Ipse quoque Socrates, sicut hic homo est per eam, *ita etiam posset esse per aliam*, sive quae sit, sive numquam sit;

and also in LI *Isag.* 92.21-33:

> Nota etiam, quod <cum> ait: abesse et adesse praeter subiecti corruptionem, hoc substantialibus quoque formis conveniat. Sic enim rationalitas adest huic homini, ut non corrumpatur, et sic posset hic homo sine ea esse, ut ideo non corrumperetur. *Posset enim contingere, ut haec substantia hominis numquam rationalis fuisset, ideoque numquam corrumperetur propter rationalitatem, cum eam numquam habuisset.* Posset etiam fortassis contingere, ut sic ista careret, quod aliam rem habuisset et nunquam istam et ideo numquam per istam corrumperetur.[49]

Again, Abelard says that there is a sense in which it is possible for a certain subject to have different substantial forms than the ones it actually has: "*Socrates sicut hic homo est per eam* [*rationalitatem*], *ita etiam posset esse*

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[49]This and the previous passage were considered and analyzed by Marenbon in (Marenbon, 2008); the passage of the *Dialectica* in which Abelard claims that it is possible – in some sense of possibility – for this human being to be dead was analyzed also by Cameron in (Cameron, 2015).

per aliam"; "*Posset enim contingere ut haec substantia hominis numquam rationalis fuisset*". At least in the second passage, however, Abelard is careful in pointing out that it is not this individual human being (e.g., Socrates) who has the possibility of being not rational, but it is *the thing that is now a human being* (*haec substantia hominis*) that might have been not rational, and that indeed might have been not a human being at all, but a different sort of thing.

The idea that it is possible for an individual thing to have different substantial properties than the ones it actually has could be justified by referring to Abelard's ontology of substances and *differentiae*. As was proposed by Martin in (Martin, 1992), and then developed by Marenbon in (Marenbon, 2008), Abelard's ontology could be characterized in contemporary terms as a sort of trope theory, where accidents and *differentiae* exist and are individuated independently from the substances that are their bearers in the actual situation. Moreover, in Abelard's ontology accidents and *differentiae* seems to be only contingently connected to their bearers, in the sense that the same forms that are attached to a certain individual in the actual history might have gone to a different individual, and other forms might have attached to this one, so that at least for all created individual substances it is true to say that, in some sense, they could have had different forms and a different nature than the ones they actually have. Properly speaking, however, the fact that it is possible for an individual taken *qua* mere individual body (or qua *mera substantia*) to have a different nature does not imply that it is possible for an individual *substance* to have a different nature. In particular, the fact that it is possible *for this thing that is Socrates* (or, *for this thing that is a man*) to be irrational does not imply that it is possible *for Socrates* or *for this man* to be irrational. Indeed, Abelard thinks that the two claims "this man is possibly irrational" and "Socrates is possibly irrational" have the entirely same meaning – because the two expressions "Socrates" and "this man" have the same meaning (LI 64.14-24; LI 65.3-19)[50] – and are both false. They could only be true if instead of referring to the individual Socrates *qua* member of a certain natural kind, we refer to it *qua* body, or *qua substantia*, which we can do by replacing the subject "this man" and "Socrates" with the expressions "this thing that is a man"

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[50]Abelard's idea that proper names have a sense is advanced by Martin in (Martin, 1992, p. 113).

or "the substance that is Socrates".

The three passages above are also interesting because they provide some evidence about Abelard's understanding of *individuality*, and about which are according to Abelard the necessary and sufficient conditions that an individual thing must satisfy in order to be *the same* individual. What is said in the passages quoted seems in fact to confirm that for Abelard things are *individualized* – and we may say even *identified* or *identifiable* – independently from their actual forms and *differentiae*, and that there is for Abelard a sense in which an individual can be considered as *the same individual* through time or across possible situations even if it does not have the same accidents and the same substantial forms. Things are individualized independently of their forms in the sense that for Abelard things are personally distinct (*discretae*) not in virtue of their forms but in virtue of their concrete *essentia*, i.e. of the matter of which they are composed out (see LI *Isag.* 13.19-25 and (Marenbon, 2008) on this). Furthermore, according to Abelard, things are also *indentifiable* independently of their forms, in the sense that we can refer to the same individual thing – both through time and counterfactually – not referring to it *qua* member of a natural kind, but only *qua* mere substance, or *qua* corporeal thing. Abelard admits that we can do this either by means of linguistic items such as "*this*" or "*this substance*", which «*ex sola discretione inventa sunt et meras significant substantias*» and «*simpliciter secundum discretionem personalem inventa sunt*», or by means of some expressions such as "*haec substantia hominis*" or "*id quod est homo*" or again "*hoc corpus quod homo est*". This point is raised explicitly in LI 39.18-26, where Abelard says:

> Veluti cum dico: "ego", "hic", singularis sunt significationis, nullius tamen superioris proprie individua dicuntur, quia ex sola discretione inventa sunt et meras significant substantias, quarum nullam naturam vel proprietatem determinant, quia "hic" per se dictum neque dicit "haec substantia" neque "hic homo" neque "hoc rationale" vel "hoc album", sed simpliciter secundum discretionem personalem inventum est.

It is then possible for Abelard to refer to something as an individual without including its accidental or substantial forms in our reference, and this is exacly what Abelard does when he says that it is possible for the individual that is now a man to be dead or to be irrational.

Chapter 4

Abelard on Future Contingents

The existence of contingent events – i.e., of events that are equally apt to happen or not to happen in time – is taken by Abelard as an evident and indubitable feature of the way things are. According to him, contingency characterizes both the natural world, inasmuch as some natural events are not the outcome of a chain of natural causes but happen by chance, and the human world, in the sense that some events that take place are the result of human free will and unconstrained deliberation. Generally speaking, Abelard holds that it is possible for things to be otherwise than they actually are, and that there are many alternative ways in which things might be. As any indeterminist, however, Abelard has to deal with several fatalist arguments, that aim to prove either that the existence of contingent events is *per se* untenable or that it is incompatible with some fundamental and irrevocable principles of logic or theology. In particular, in the *Dialectica* and the *glossae* on *De Interpretatione* 9, Abelard deals with two kinds of deterministic arguments. The first kind, which is usually labelled *logical determinism*, includes arguments formulated to demonstrate the incompatibility between admitting contingent future events and the validity of the logical principles of bivalence and of excluded middle. According to these arguments, if someone admits that every proposition is necessarily either true or false, and that of all pairs of contradictory statements necessarily one of them is true and the other is false, then he also must admit that all propositions – including future ones – are necessarily true or necessarily

false, and therefore that none of them is contingent. Abelard considers three different but related arguments for logical determinism, and tries to solve all of them by arguing for the compatibility between general bivalence and contingency. A second kind of fatalism, that is commonly called *theological fatalism*, includes arguments that aim to prove the incompatibility between contingency and some theological dogmas or principles. In particular, one puzzle that Abelard considers in the *Dialectica* and in the *Logica Ingredientibus* asks whether divine omniscience is compatible with human free will, and with our power to do other things than the ones we actually do. Once again, Abelard's purpose is to argue for the compatibility between God's complete and infallible knowledge and the possibility that things have to be otherwise than they are.

In this chapter, I examine all the arguments that Abelard considers for logical determinism (4.1) and for theological determinism (4.2) in his logical works, and the many ways in which he attempts to answer them. I also try to provide a brief analysis of the various sources that Abelard used for his discussion of the topic, which are especially Aristotle's *De Interpretatione* 9 and Boethius' commentaries on it for what concerns logical determinism (4.1.1); Cicero's *De Fato*, Augustine's *De civitate Dei* and *De libero arbitrio*, Boethius' *Consolation of Philosophy* and William of Champeaux's *Sententiae* for theological determinism (4.2.1). In section (4.1.2) I consider Abelard's definitions of some notions that have a crucial role in his discussion of future contingents: the notion of *future events*, the notion of *contingency* and the notion of *determinate* or *indeterminate* events or truth values. Finally, in section 4.2.3, I compare the theory of contingency that Abelard maintains in his logical works with the one he embraces in his theological works, in order to specify more clearly in what sense and to what extent Abelard's indeterminism should be interpreted.

4.1 The Compatibility between Contingency and Bivalence

4.1.1 Logical determinism from Aristotle to Boethius

In the central chapters of *De Interpretatione*, Aristotle advances three different but related principles, which capture what he thinks is the nature of assertoric propositions and of contradictory statements. In the first place, Aristotle advances a principle that is usually referred to as the PRINCIPLE OF BIVALENCE [PB], according to which for every statement p, either p is true or p is false.[1] Moreover, in chapters 6-8 of the *De Interpretatione*, where Aristotle deals with *opposite* or *contradictory statements*, he says that statements of this sort "divide truth and falsity", so that of any pair of contradictory propositions p and q, it is always the case that one of them is true and the other is false (*De Int.* 17b38-18a7).[2] Here, he advances the following two principles: first, the idea that for any pair of contradictory statements p and q, it is necessary that either p or q, principle that is also known as the LAW OF EXCLUDED MIDDLE [LEM]; and second the idea that exactly one of p and q is true and the other is false, which has been called the RULE OF CONTRADICTORY PAIRS [RCP].[3]

As is well known, the general validity of all these principles is questioned in the ninth chapter of *De Interpretatione*, where Aristotle considers future contingent statements, i.e., propositions referring to future events that might equally happen or not happen, such as "There will be a sea battle tomorrow". In this chapter, Aristotle asks whether principles [PB], [LEM] and [RCP] hold for future propositions of this sort or whether they must

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[1]See for instance *De Int.* 4.16b33-17.a4, where Aristotle says that: "Every statement is significant [...] but not every sentence is a statement-making sentence, but only those *in which there is truth or falsity*. There is not truth or falsity in all sentences: a prayer is a sentence but is neither true nor false". Translated by Ackrill in (Ackrill, 1963, p. 45-6). For the same principles see also *Categories* IV 2a7-10 (cf. X 13a37-b3, b27-35): "Every affirmation seems to be either true or false, whereas none of the things said without combination is either true or false, e.g., "man", "white", "runs", "wins""; and *De anima* III 6,430b26-7: "An affirmation is something said of something, as is a denial too, and every one is true or false". Quoted and translated in (Ademollo, 2010, p. 97-8).

[2]I use the ordered pair (p,q) rather than the ordered pair (p,¬ p) in order to avoid questions on whether Aristotle's conception of negation is internal or external to a proposition.

[3]For the difference between [LEM] and [RCP] see (Jones, 2010, p. 12-7). For the use of these principles in Aristotle's *De Interpretatione* see also (McKim, 1972); (Gaskin, 1995); (Crivelli, 2004).

be admitted only for past and present propositions. The question arises because when the three principles are applied to future statements, some deterministic consequences seem to follow. One might claim in fact that if every future statement is *necessarily either true or false*, and therefore is *always true or false*, as [PB] requires, then the correspondent future event is already now bound to happen or not to happen, and its happening or non-happening is then inevitable, not contingent. Similarly, if we consider a pair of contradictory future propositions such as "There will be a sea battle tomorrow" and "There will not be a sea battle tomorrow", and we say that it is necessarily the case that exactly one of the two is true and the other is false, then we will have it that of the two corresponding future events one is necessarily going to be realized, while the other necessarily is not. The argument in *De interpretatione* 9 has the structure of a dilemma, and two ways out are set before us: either we maintain the unqualified validity of [PB], [LEM] and [RCP] and we accept the fatalistic consequences that follow from them, i.e. the idea that there are no contingent events and everything necessarily happens as it happens, or we reject the general validity of the three principles and we admit that they are only valid for past and present propositions, but not for future contingent ones.[4]

It is evident from what Aristotle says in *De Int.* 18b26-19a22 that he takes determinism as an absurd position, which must be rejected. Much less clear is which is Aristotle's way-out from the dilemma, and how he is able to argue against the deterministic argument. In particular, it is not clear whether Aristotle decides to reject the general validity of bivalence and of the rule of contradictory pairs, or whether instead he maintains the unqualified validity of the two principles and argues for the compatibility between them and the existence of contingent events. Setting aside the problem of which is the correct interpretation of Aristotle's text, I shall focus here on the interpretations that have been given of it by ancient and early medieval commentators, in order to understand the background of Abelard's discussion of the topic, which I deal with in section 4.1.3 below. There are three main lines of solution that have been advanced to address the dilemma posed by Aristotle.[5] According to the first, Aristotle would end up by rejecting

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[4]For a recent systematic reconstruction of Aristotle's argument in *De Int.* 9 see (Crivelli, 2004, p. 198-233).

[5]See in particular (Gaskin, 1995, p. 12-7) and (Sharples, 2009, p. 208-9) on this.

general bivalence and by saying that future contingent propositions are neither true nor false. According to the second, Aristotle would answer the deterministic argument by making a distinction between truth and necessity, and by claiming that the actual truth of future statements does not entail their necessity. Finally, according to a third possible interpretation, Aristotle would be able to maintain both the unqualified validity of principles [PB] and [RCP] and the existence of contingent facts by invoking a distinction between *determinate* and *indeterminate* truth values. I give in what follows a brief reconstruction of the three interpretations.

The First Solution: future contingent propositions are neither true nor false

First, one might opt for the rejection of the general validity of [PB] and [RCP], and claim that the two principles do not hold for future contingent propositions. This means to say that propositions of this sort are *neither true nor false*, and that of at least for some pairs of contradictory statements p and q it is not necessarily the case that either p is true or q is true. This solution is at times referred to as the "Standard interpretation" of Aristotle's dilemma,[6] or as the "antirealist" interpretation, or again as the "oldest interpretation", for it is the first interpretation of Aristotle on record. As Boethius reports in (Boethius, 1880, II 208, 1-4), Stoics thought that this was Aristotle's way out from the dilemma, and the solution that he chose in order to maintain indeterminism.[7] On their part, Stoics did not embrace Aristotle's solution, for they opted for the other horn of the dilemma, i.e., they accepted the universal validity of bivalence and maintained that for every past, present and future event it is impossible to happen otherwise than it actually happens.[8] As Simplicius reports in his commentary on Aristotle's *Categories* (Simplicius, 1907, 407.6-13), also some Peripatetics interpreted the Aristotelian argument in *De Interpretatione* 9 as if a qualification of bivalence was required, and other ancient commentators as well attributed

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[6]See (McKim, 1972, p. 81); (Kretzmann, 1998, p. 24-5); (Sharples, 2009, p. 209).

[7]«Now some people – the Stoics among them – thought that Aristotle says that future contingents are neither true nor false. For they interpreted his saying that nothing [of that sort] is disposed more to being than to not being as meaning that it makes no difference whether they are thought false or true; for they considered them to be neither true nor false [in Aristotle's view], but falsely.» (Boethius, 1880, II, 208.1-4, translation by N. Kretzmann).

[8]See (Cicero, 1968, 20-21); (Bobzien, 1998, p. 59-86).

this solution to Aristotle and accepted it as the right answer to the problem, such as Epicurus, the Platonist Nicostratus and probably also Alexander of Aphrodisias.[9]

The idea that future contingent statements are neither true or false is ascribed to Aristotle also by many modern commentators, in particular starting from Łukasiewicz' interpretation in (Łukasiewicz, 1957) and (Łukasiewicz, 1967). According to Łukasiewicz, [PB] must not be applied to future contingent propositions, and a third truth value ("neither true nor false") must be introduced for propositions of this sort.[10] As we shall see shortly, it is not clear whether Boethius's interpretation of Aristotle must also be understood as involving a qualification of bivalence, or if instead he took Aristotle as maintaining [PB] and [RCP] as valid for every assertoric statement. It is, however, very clear from what Abelard says in the *Dialectica* and the LI that he takes principles [PB], [LEM] and [RCP] to hold unqualifiedly, and he explicitly rejects the idea that future contingent statements are neither true nor false (see 4.1.3 below).

The Second Solution: the present truth of future events does not entail their necessity

Other interpreters, both in antiquity and modern times, have resisted the idea of propositions being neither true nor false, and argued that Aristotle aims in *De Int.* 9 to maintain both general bivalence and indeterminism. This view is usually referred to as the "non-standard interpretation" of Aristotle (McKim, 1972, p. 83-4), and it is different from the standard one for it requires no qualification of principles [PB], [LEM] or [RCP]. This means that every statement is true or false, and there are no truth values other than these two. According to the proponents of this solution, Aristotle's aim is to point out that the fatalist argument is based on some confusion concerning the use of the two notions of *necessity* and *truth*. In particular,

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[9]For anti-realist interpretations in Antiquity see (Łukasiewicz, 1970a, p. 125); (Łukasiewicz, 1970b, p. 176-8); (Sorabji, 1980, p. 93); (Weidemann, 1994, 303-8, 319); (Mignucci, 1996, p. 305-10); (Mignucci, 1998, p. 75,85); (Sorabji, 1998b, p. 3, 13); (Crivelli, 2004, p. 226-7).

[10]Among interpreters who have followed this line of interpretation, and who think that Aristotle's solution consists in a qualification of bivalence, see in particular (Frede, 1970), (Frede, 1985), (Sorabji, 1980), (Craig, 1988), (Weidemann, 1994), (Gaskin, 1995), (Crivelli, 2004).

he claims that the principle according to which of every pair of contradictory statement necessarily one is true and the other is false is not to be confused with the principle stating that of every such pair one member is necessarily true and the other is necessarily false. In other words, the modal operator of necessity cannot be distributed over disjunction, and it is not valid to infer from the truth of this principle

– for every pair of contradictory statements *p*, *q*, necessarily (*p* or *q*);

that the following principle is also true:

– for every pair of contradictory statements *p*, *q*, (necessarily *p*) or (necessarily *q*);

Among ancient philosophers, this solution was sustained by the Academic Sceptic Carneades, as Cicero reports in his *De Fato*.[11] Also some modern commentators have attributed this solution to Aristotle. This second interpretation is mainly based on a famous passage from Aristotle's *De Interpretatione* 9, where the Philosopher distinguishes between the necessity that things have to be as they are *while they are*, from the "unqualified" necessity of being in a certain way.[12] Anscombe and others take this passage as an indication that Aristotle aims to solve the puzzle by distinguishing between truth and necessity, and by claiming that the necessity of the event is a different issue from the analytical necessity involved in the definition of the term "true" (Sharples, 2009, p. 210).

The idea that the necessity of a disjunction does not entail the necessity of either disjunct is very fortunate in history of logic, and it will be employed also by Abelard in his commentaries on *De Int.* 9 (see 4.1.3 below).

The Third Solution: future proposition are indefinitely true or indefinitely false

Finally, a third solution that in late antiquity and early medieval times had been attributed to Aristotle is the idea that although future contingent statements are either true or false, and so they respect just as past and

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[11]See (Sharples, 2009, p. 209) on this.

[12]See *De Int.* 19a23-6): «That what is is when it is, and what is not is not when it is not, is necessary; but it is not the case either that all that is, necessarily is, or that [all] that is not, [necessarily] is not. For it is not the same thing for all that is to be of necessity when it is, and [for it] to be of necessity without qualification».

present statements the principle of bivalence, they are nevertheless only *indeterminately* or *indefinitely* true or false. This solution was adopted by Boethius in his two *Commentaries* on *De Int.* 9, and thanks to him became very popular in early latin medieval discussions on logical fatalism. According to the proponents of this solution, all statements are either true or false, and all pairs of contradictories have exactly one member that is true and the other that is false. In particular, they maintain that every present and past statement is *determinately* true or false, inasmuch as it corresponds to events that are definite or determined, in virtue of their happening or having happened in time. On the contrary, future contingent propositions such as "there will be a sea battle tomorrow" are only indeterminately true or false, because the event to which they correspond is not yet determined.

Boethius is not the first to propose such a solution to the problem of logical fatalism. We find a similar position already in Ammonius, who claims that all pairs of contradictory future sentences divide the two truth values not in a definite way (ὡρισμένως, ἀφωρισμένως) but in an *indefinite* (ἀωρίστων) one (Seel, 2001b, p. 234). Despite the similarity between their opinions, Boethius probably did not draw on Ammonius' commentary, for although their terminology is similar, they use the terms "definite" and "indefinite" in a quite different way (Sorabji, 1998b). It is more likely that Boethius and Ammonius drew on a common tradition of earlier Greek commentaries on *De Interpretatione* 9, which are now lost but probably included some treatment of logical fatalism(Ebbesen, 2009, p. 29).[13]

What exactly Boethius' and Ammonius' solution to the problem of logical determinism involves has been object of debate. First, it is not entirely clear what they intended with the terms *definite* and *indefinite*, and whether by means of this distinction they were in effect able to maintain principles [PB] and [RCP] without incurring in deterministic consequences. Second, it is unclear why Boethius and Ammonius – or the earlier proponents of this third solution – thought that this was a proper interpretation of the Aristotelian text, given that Aristotle never employs the concept of *definite* and *indefinite truth* in *De Int.* 9. To answer first to this second question, Kretzmann proposes that Aristotle himself may provide a source for Boethius'

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[13]On Ammonius' treatment of *De Int.* 9, and on the differences between his and Boethius' approach, see (Mignucci, 1996); (Mignucci, 1998); (Sorabji, 1998a); (Sorabji, 1998b); (Seel, 2001a).

and Ammonius' interpretation: even if he does not employ the concepts of "definitely true" and "indefinitely true" in the *De Interpretatione*, he used nevertheless a similar terminology within his discussion of contraries, in the tenth chapter of the *Categories* (Kretzmann, 1998, p. 28 ff.). There, the author discusses couples of contraries, such as black and white or hot and cold, and considers cases in which, of a pair of contraries, one of the two belongs to a substance "by nature"; as, for instance, being hot belongs by nature to fire, or being white to snow. Aristotle says that, in these cases, of two contraries one *definitely* (ἀφωρισμένως) belongs and the other definitely does not belong to a certain subject (*Cat.* X 12b38-40). This passage on pairs of contraries – whose members can belong to a subject either definitely (i.e., by nature) or indefinitely – was probably put in parallel with the Aristotelian discussion of pairs of *truth values* – whose members also belong definitely or not definitely to assertoric statements. This is probably why Boethius feels entitled to "emend", without further explanation, Aristotle's text in *De Int.* 9, adding the term "definitely":

> And so he [viz. Aristotle] concludes the whole question of propositions that are future and contingent, and says that it is evident that it is not necessary that all affirmations and negations be *definitely* true [or false] ("*Definitely*" is missing [from Aristotle's claim], however, and so must be supplied in one's understanding). For of those that are contingent and future it is never the case that one is *definitely* true and the other false. (Boethius, 1880, I 125,16-22)

> He next introduces this: "therefore, it is necessary that the affirmation or the negation be true or false" – i.e. with "*definitely*" supplied in one's understanding (Boethius, 1880, 141,18-20)

The parallel between the discussion in *Categories* 10 and the treatment of future contingent might be confirmed by what Abelard says in *Dial.* 219.36-220.9. There, Abelard refers to a similar connection between the problem of future contingents' truth and what Aristotle said in his "*tractatus oppositorum*". Abelard claims that when we consider a pair of contraries, none of which belongs to a subject "by nature" (such as *sanus* and *non sanus* referred to Socrates), it is necessarily true that one contrary belongs to the subject and that one does not belong to it, but this does not mean that it is *one and the same contrary* that necessarily belong to the subject, while the

other necessarily does not belong to it. In the same way, he says, when we consider a pair of future contingent propositions, necessarily truth belongs to one proposition and not to the other, but this does not mean that one and the same proposition is necessarily true and the other is necessarily false.[14] An analogy between Aristotle's discussions of opposites and his discussion of future contingents is then explicitly proposed in Abelard's *Dialectica*, and it is perhaps relying on this analogy that Boethius introduces the terms *definitely* and *indefinitely* in the context of logical determinism, implicitly suggesting that – just as opposites can belong to a subject *definitely* or *indefinitely* – in the same way truth and falsity can belong to propositions both in a definite way or in an indefinite way.[15]

The main thesis of Boethius' response to logical determinism is advanced in many passage from his commentary on *De Interpretatione*, such as the following:

> It is necessary that either the affirmation be true or the negation, but not that either of them be *definitely* true, the other *definitely* false. For if someone else denies what we say: – "Alexander is to be bathed" – and says "Alexander is not to be bathed", it is indeed necessary that this whole [state of affairs] come about – that either he is bathed or that he is not bathed – and it is necessary that one be true and the other false: either the affirmation, if he has been bathed, or, if he has not been bathed, the negation. But it is not necessary that *definitely* the *affirmation* be true, because in cases of this sort the negation could come about; but neither is it ever *definite* that the *negation* be true ([and] the affirmation false), because the negation can fail to come about. Accordingly, as regards the whole contradiction it is of course necessary that one be true, the other false. But that one be *definitely* true, the other *definitely* false – as is the case regarding things that are past and those that are present – is not possible in any way. (Boethius, 1880, I 106,30-107,16, translated in (Kretzmann, 1998))[16]

It is clear from the passage quoted that Boethius wants to preserve not only [LEM] but also principles [PB] and [RCP], but it is not evident in what

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[14]I consider this passage in detail in 4.1.3 on page 222 below.

[15]According to Kretzmann (Kretzmann, 1998, p. 28-9), evidence for this parallel could be found also in Ammonius, and was probably suggested in some earlier commentary on *De Interpretatione* (maybe already by Alexader of Aphrodisias).

[16]Other passages in which Boethius advances this idea are: (Boethius, 1880, I, 108,18-26; 125,20; II, 204,8-25); see also (Boethius, 1880, I, 109,9-17; 110,28-112,4; 114,8-24; 208,7-23; 211,26-213,4; 219,5-17).

exactly his concept of "indefinite truth" consisted. Contemporary interpretations of this Boethian concept may be divided in two groups (Knuuttila, 2010). According to a first group of interpreters, the idea is that all pairs of contradictory future statements differ from the other contradictory pairs because truth and falsity are *not definitely distributed* between them, and so future contingent propositions are neither definitely true nor definitely false. Propositions of this sort only have the disjunctive property of being *true-or-false*. Each future proposition would then be now true-or-false, but it would not have either truth value definitely.[17] This solution has the risk of collapsing into the "standard interpretation" of Aristotle's *De Int.* 9 (here, the "first solution"), for indeed the truth value *true-or-false* that is attributed to contingent statements seems to be a third truth value, different from the two traditional truth values "true" and "false", and therefore these statements seems not to not respect principle [PB] or [RCP]. If this is indeed Boethius' position, his interpretation of Aristotle would entail a qualification of bivalence, after all. Another possible interpretation claims that, according to Boethius, future contingent propositions are not definitely true or false because their truth-makers are not yet determined. They are however still either true or false, although in an indeterminate way. This second reconstruction of Boethius' interpretation involves no qualification of the principle of bivalence, nor of the rule of contradictory pairs. Every statement is in fact either true (determinately or indeterminately) or false, and all pairs of contradictory propositions necessarily have exactly one member that is true and the other false.[18]

Boethius' commentaries concerning the Aristotelian answer to logical determinism, along with his own distinction between definite and indefinite truth values, became widely influential in Middle Ages, and were the main source for Abelard's discussion of the same topic. Just as Boethius, Abelard argues for the compatibility of the existence of future contingent events (and of corresponding future contingent propositions) and the validity of principles [PB], [LEM] and [RCP], which he takes to hold unrestrictedly for any sort of propositions. Before going into the details of Abelard's arguments against logical determinism, I shall discuss a number of notions that are

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[17]Among interpreters that have supported this interpretation, Knuuttila mentions (Frede, 1985); (Craig, 1988); (Gaskin, 1995); (Kretzmann, 1998).

[18]This interpretation of Boethius and Ammonius is advanced for instance in (Mignucci, 1988); (Mignucci, 1998); (Seel, 2001b); (Beets, 2003).

relevant to his discussion of future contingents, i.e. the notions of *future propositions* and *future events* (4.1.2), the notions *determinacy* and *certainty* (4.1.2 on page 209), and finally the notion of *contingency* (4.1.2 on page 214).

4.1.2 Some key concepts in Abelard's discussion of future contingents

In this section I consider some notions that are central in Abelard's discussion of future contingents. Abelard offers a definition and an analysis of these concepts both in the *Dialectica* and in the *glossae* on Aristotle's *De Int.* 9; where needed, I will try to highlight the differences or stress the similarities between the two works. In general, Abelard's terminology quite closely follows the one used by Boethius in his two commentaries on *Peri hermeneias*, in particular for his definition of contingency and for his distinction between determinate and indeterminate (in Boethius: definite and indefinite) events or truth values. What is quite new in Abelard is that he pays a greater attention to what should we understand as being the ontological correlates of some of these notions. For instance, he devotes some time to discuss the ontological *status* of *eventus rerum*, and the ontological correlate of *contingency* and *chance*.

Propositions and events

According to Abelard, sentences may be classified into three categories: propositions about the past (*propositiones de praeterito*), propositions about the present (*de praesenti*) and propositions about the future (*de futuro*). Such a classification is carried out depending on the tense of the sentence's main verb or copula.

> De praesenti autem tempore propositiones fiunt, quaecumque dicunt aliquid esse vel non esse aliquid, sive praesentes res sint, sive praeteritae, sive futurae, sive omnino numquam sint, veluti iste: "crastina dies est" vel "chimaera est" vel "non est". De praeterito etiam tempore sive de futuro de eisdem fieri possunt, quotiens scilicet aliquid, sive sit sive non, dicimus fuisse vel fore vel negamus idem. (LI *De Int.* 249.145-151)

Abelard's main concern while commenting on *De Interpretatione* 9 are evidently propositions in the future tense. Propositions about the future can

be divided into two further categories: in the *Dialectica* Abelard labels the two categories "natural future propositions" (*de futuro naturale*) and "contingent future propositions" (*de futuro contingenti*); while in LI he refers instead to them as determinate (*de eventu determinato*) and indeterminate (*de eventu indeterminato*) future propositions. The sentences in the first category signify future events that are instances of a *natural law*. These are for example "Socrates will die" or "God will be immortal". Although these propositions refer to future events, Abelard thinks that they are *determinate propositions*, for reasons that will be explained in 4.1.2 below. The second category of future sentences includes sentences that signify contingent future events, the happening of which is not required by nature and that therefore might equally happen or not happen (*ad utrumlibet se habent*). Examples of a future contingent proposition are "Socrates will eat", or "Socrates will die tomorrow". The events signified by these sentences are indeterminate because they cannot be known either in virtue of the act of things (since it still have not taken place yet) nor in virtue of the nature of Socrates: if indeed someone had a complete knowledge of the nature of human beings, he would conclude that it is possible for Socrates both to read and not to read tomorrow, and so he could not know, before it has happened, which one of the two events will indeed take place tomorrow.

> Si quis dicat "Socrates comedet" vel "morietur cras", indeterminatum eventum proponit, de quo scilicet nulla natura rei cuiusquam nos certificare potest. (LI *De Int.* 250.162-164)

In the *Dialectica*, Abelard makes a further distinction between natural future sentences that are *necessary* (such as "God will be immortal") and natural future sentences that are *not necessary* (such as "Socrates will die"). As we have seen in section 2.1.3 above, in the *Dialectica* Abelard maintains that only those propositions whose subject is a sempiternal being (e.g., God) are necessary propositions. A proposition like "Socrates will die", which has a non-sempiternal being as a subject, is therefore not necessary.[19]

In the glosses, Abelard thinks that only contingent or indeterminate propositions are properly considered *future* claims, for he says that proposi-

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[19]This is because, if such a proposition were necessary, it would be impossible for it to be false (for necessary is defined, in the *Dialectica*, as what the contrary of which is not possible). But indeed there are some possible situations in which the propositions "Socrates will die" is false, namely those situations in which Socrates does not exist.

tions *de futuro naturale*, such as "Socrates will die", are really propositions about the present, and not about the future. This is because propositions of this sort say something about the essential features of a subject, i.e. about the subject's nature, and natures are for Abelard invariable in time, so that what will constitute the nature of a thing in the future is just the same as what constitutes its nature in the present.[20] The ontological correlate of
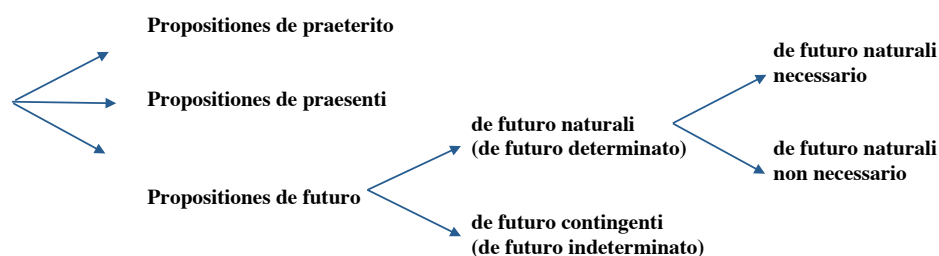

Figure 4.1: Abelard's division of propositions with respect to tense.

propositions are what Abelard calls *eventus*, or *eventus rei*, which we could translate as "events", "states of affairs", or – in order to avoid any strong metaphysical commitment – the "obtaining" or the "coming about" of things (King, 2004, p. 105).

Just as propositions, events are classified by Abelard as being present, past and future (*Dial.* 211.2); necessary, natural or contingent (*Dial.* 211.2; 215.9); and also determinate and indeterminate (*Dial.* 211.5-6; 211.29; LI *De Int.* 250.163; 252.27). Events are indeed the proper bearers of determinacy and indeterminacy, and propositions are said to be determinate or indeterminate only in virtue of the determinacy of the *eventus* to which they refer:

> Sicut autem eventus contingenti futuri indeterminatus est, ita et propositiones quae illos eventus enuntiant indeterminatae verae vel falsae dicuntur. Quae enim verae sunt, indeterminatae verae sunt, et quae falsae, indeterminatae falsae sunt secundum indeterminatos, ut dictum est, eventus quos pronuntiant. (*Dial.* 211.28-32).[21]

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[20]See LI *De Int.* 254.282-286: "Hoc autem tantum futurum, quod contingens dicitur, Aristotelem futurum vocare arbitramur, quia ea futura, quae naturaliter contingunt, non tamquam futura, sed tamquam praesentia reputat, quia sic iam certa sunt quasi praesentia".

[21]Events are also the truth makers of propositions, that is the thing in virtue of which

We have it that (i) whenever an *eventus* is determinate, the corresponding proposition is also determinate. One might wonder whether the opposite entailment is also true, i.e. whether (ii) whenever a proposition is determinately true or false also the event to which it refers is determinate. As Kretzmann points out in (Kretzmann, 1998, p. 29-30), Boethius' maintained both (i) and (ii), which he probably derives from his Aristotelian correspondence theory of truth, according to which the nature of events is perfectly mirrored into the truth and falsity of propositions.[22] Abelard seems to suggest a similar principle when he says in the *glossae* that if a proposition like "Socrates will eat" is determinately true, then it must be also the case that the future event *that Socrates will eat* is also determinate, for the truth of propositions depends on the events:

> At vero si "Socrates comedet" est vera determinate, oportet et determinatum esse, quod Socrates comedet, quia sicut veritas propositionum ex eventu rerum pendet ita et cognitionem ueritatis uel falsitatis ex cognitione euentuum necesse est haberi. (LI *De Int.* 251.189-191)

I will argue however that this will turn out to be problematic, and that Abelard maintains (i) but rejects (ii) in both the *Dialectica* and the LI, where he holds that there are propositions which are determinate although their correspondent event is indeterminate (see 4.1.3 below).

With the exception of the pages devoted to the discussion of future contingents, where the concept of *eventus rei* or *eventus rerum* is frequently employed, Abelard does not use the concept in many other parts of his philosophical works. This makes it difficult to properly characterise what it is to be an event and what role events play in Abelard's ontology. In LI *De Int.* 253.245-254.269, Abelard says that there are two ways in which one can intend the term *eventus*: either they are the *things themselves* that propositions are about (*res ipsae de quibus agunt propositiones*), or they are the senses, or the *dicta*, of propositions (*id totum quod propositio dicit*).

> Sed ad hanc profecto positionem sententiae, quae scilicet omnes propositiones de praesenti vel praeterito determinatas iudicat ex eventu de-

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propositions are true or false: «Ex his itaque Aristoteles manifeste demonstrat ipsas affirmationes et negationes in proprietate veri ac falsi sequi illos eventus rerum quos enuntiant, gratia quorum tantum esse verae vel falsae dicuntur» (*Dial.* 251.3-5).

[22]See for instance (Boethius, 1880, II 188.14-17): «Predicativarum autem propositionum naturam ex rerum veritate et falsitate colligitur. Quemadmodum enim sese res habent, ita sese propositiones habebunt, quae res significant».

terminato et non illas de futuro contingenti, quaestio occurrit, quid eventum rei accipiant. Si enim res ipsas, quae eveniunt, eventus appellent, profecto "chimaera est hircocervus" vel "non est" non habet eventum, id est res aliquo modo evenientes, quia nil omnino umquam sunt, nec ex se notitiam dare potest magis quam futurum bellum, quam ex se ipso non habet, cum nil omnino sit. [...] Si quis autem id totum quod propositio dicit, eventum vocet, id utique nil est, nec magis hic eventus quam ille praesens est vel praeteritus vel futurus dici poterit, cum omnino nil umquam sit. (LI *De Int.* 253.242-257)

Abelard discusses this problem while considering the position according to which every past and present proposition is determinate. He says here that however we intend the term "event", this position is problematic, for there are at least some events that are said to be determinate but do not exist. If we take events to be the "things themselves" that a proposition is about, there will be some past or present propositions – such as "A chimaera is not a goat-stag" or "The world was created on the first day" – that do not refer to any existing *eventus*, for the things they talk about do not exist. If we instead interpret events as the *dicta* to which propositions refer, we will have it that all events do not exist, for *dicta*, according to Abelard, are not real components of the ontology. In both cases, then, either *some* or *every* present and past proposition is about an event that does not exist, and if they do not exist it is hard to explain how they can be determinate. The natural conclusion could be to state that either (i) not every present and past proposition is determinate (for those which correspond to non existing events are not), or that (ii) events are neither things nor *dicta*. Nevertheless, Abelard seems not to opt for any of these two solutions, and he never explicitly state his opinion about what is the correct interpretation of the *eventus rerum*. In fact, he is content with dropping this problem as soon as he has raised it.

Although it is true that Abelard is never explicit on this point, some commentators have argued that Abelard's notions of *eventus* and his concept of *dictum* could be assimilated, for just as *dicta*, events are the "cause" of the proposition's truth or falsity. Moreover, just as in the case of *dicta*, Abelard does not commit himself to the existence of events, and he avoids saying that they have a real place in ontology.[23] Not everyone agrees however in the

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[23]Marenbon notes in (Marenbon, 1997, p. 205) that in the *Sententiae Parisienses* it

identification of *dicta* with events. Lewis, for example, argues against this position in (Lewis, 1987, p. 87-8), saying that Abelard's view is not clear and that he presents the identification of events with *dicta* as problematic in the glosses on *De Interpretatione* 9. Also King, insisting in (King, 2004, p. 105) that Abelard's use of the term "*eventus*" does not commit him to the existence of events, seems to say that the *eventus rerum* are nothing other than the *things themselves* and their occurrence or coming about.[24] Whatever the word "*eventus rei*" is supposed to mean, what we can conclude from Abelard's discussion in LI *De Int.* 253.242-257 is that we might say that a certain event is determinate (which, as we will see in a moment, means that it can *produce some knowledge* about itself) without committing to the *existence* of these events.

We shall now pass to investigate Abelard's notion of *determinacy*, together with the correlate notion of *certainty*.

Determinacy and certainty

The notion of determinacy is spelled out by Abelard in epistemological terms, although as we shall see it is not properly speaking an epistemological notion, but a metaphysical one. According to him, an event is determinate if and only if it is "accessible to knowledge", or, as Abelard puts it, if it is *knowable in itself* (*ex se cognoscibilis*, *aptus ex se ipso sciri*). There are two ways in which an event might be *knowable in itself* (*ex se ipso*): (i) it might be knowable in virtue of its existence, i.e. in virtue of its happening in some past or present moment of time (*cognoscibilis ex existentia sui*, *cognoscibilis ex actu*) or (ii) it might be knowable in virtue of nature (*cognoscibilis ex natura*), i.e. in virtue of the fact that it is an instance of some natural law. Events that are happening or have happened in time are knowable *ex actu* in the sense that we might have experienced them, witnessed to

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is stated explicitly that events are not things, and so an interpretation of them as *dicta* would be natural. Nevertheless, Marenbon himself also points out that the two notions cannot be exactly coincident, for there are some propositions which refer to a *dictum* but have no corresponding *eventus*, such as false propositions.

[24] «Thus the *eventus* of the sea-battle does not refer to the event of which the sea-battle is a part, but to the occurrence (or "obtaining") of the sea-battle. But the occurrence of the sea-battle is nothing other than the sea-battle, just as Socrates's existence is nothing more than Socrates: neither the occurrence nor his existence outlasts or is outlasted by its subject. And the sea-battle itself is nothing but the ships and sailors and their doings. Hence Abelard's use of the term *eventus* doesn't commit him to the existence of events, or anything beyond concrete individuals».

them, or because we remember them (see LI *De Int.* 254.277-280).[25] Events that are instances of natural laws are instead knowable in the sense that, as was explained elsewhere (see 3.1 on page 150), by means of our perceptual experience we might gain some informations about what is compatible or required by the nature of things.

It follows from this characterization of events *that all past and present events are determinate*, inasmuch as they are knowable *ex actu*. However, it is not the case that all past and present *propositions* are also determinate, and there are in fact some past and present propositions whose truth value is indeterminate.[26] In the glosses on *De Int.* 9 (251.196-204), Abelard gives the following examples: "Socrates is the name of the man who will eat tomorrow" (*Socrates est nomen hominis comesturi in crastino*), or "I see the man who will eat tomorrow" (*video hominem comesturum in crastino*), These propositions are indeterminate, although being at the present tense, because "the discernment of their truth or falsity depends on the future" (*discretio veritatis vel falsitatis earum ex futuro pendet*). Although Abelard does not explain in which sense the truth value of these sentences depends on the future, we might suppose that propositions of this sort are indeterminate because there is no present *eventus* to which they correspond (if there were, this event would be determinate and so would be the proposition), and that even if they are formulated in the present tense they actually refer to some future, indeterminate, event.[27]

Among future events, there are also some determinate events, the ones that are knowable in virtue of the nature of things. Events of this sort are signified by sentences that Abelard calls "*de futuro naturali*" (see figure 4.1 on page 206). These events are just as *knowable* as present and past events are: because the nature of things is fixed and unchangeable, if someone knows what the nature of human beings consists in, and he then knows, for

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[25] «Cum autem quorundam praesentium vel praeteritorum notitiam habemus, aut praesentiam rei alicuius ratio percipit aut recordatio est eius quod percepit, et saepe de occultis ex manifests certificamur» (LI *De Int.* 254.277-280).

[26] This is because there are, according to Abelard, some propositions that are in the present or past tense but refer to future events.

[27] There is another kind of propositions that, although stated in the past or present tense, it would be tempting to consider indeterminate, i.e. those propositions in which it is predicated the present or past truth of future propositions, such as: "It is true that Socrates will eat tomorrow" or "It was true that Socrates will eat tomorrow". Abelard maintains however that propositions of this sort are determinate propositions, corresponding to determinate events, and this causes him some troubles, as we shall see in 4.1.3 below.

example, that mortality is required by such a nature, he will also know that Socrates will die, even if such an event has not yet happened.[28]

Although it is spelled out in terms of *knowability*, Abelard's notion of determinacy seems not to be an epistemological notion in the end, for things are said to be determinate not on the basis of the fact that they are effectively known by us or by some other agent, nor of the fact that they are accessible to knowledge given our epistemological powers as cognizers. Rather, they are said to be determinate on the basis of their *nature*: inasmuch as they happened or inasmuch as they express a natural law. Both in the *Dialectica* and in LI, Abelard is very careful in distinguishing between what is *knowable* from what is *actually known* by us. He refers to the first as "determinate" (*determinatus*) and to the second as "certain" (*certus*).[29] There are a great number of things that are knowable but that we do not actually know. For example, Abelard says, which is the number of stars and whether this number is even or odd *is knowable*, inasmuch as it is a present event, but is not actually known by us (*Dial.* 212.2-7; LI *De Int.* 250.176-181). Also many other present, past or natural future events are determined but actually unknown, and so uncertain. We may also say that there are a great deal of events that Abelard considers determinate (i.e., knowable) although not only they are not actually known by us, but also they are in principle not accessible to our knowledge, given our epistemological powers. Many events that are determinate in virtue of nature, for instance, are epistemologically inaccessible to us, because natures themselves are mostly inaccessible to our

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[28]Abelard says that also sentences like "A chimera will not eat" and "A chimera will not be a goat-stag" are determinate (see LI *De Int.* 249.155-157), and in particular, are determinately false. The events to which these propositions refer are in fact again "knowable" in virtue of the nature of things, for if someone had a complete knowledge of nature, he would know that there are no such things as chimaeras and there will never be, and therefore these propositions are necessarily false. The natural kinds God had created in the past are all the natural kinds that will ever exist, and there could not be more (or less) natural kinds in the future: «Propositiones autem futuri temporis aliae fiunt de eventu indeterminato, id est omnino incerto, quantum in ipso est, aliae de eventu determinato cognitione aliqua naturae. Ut si dicatur *Socrates morietur* vel *albedo* vel *chimaera non comedet* vel *chimaera non erit hircocervus*, singula quae dicuntur certificari nobis possunt ex natura aliqua rerum iam incognita. Nam coniunctionis actum in quibusdam cognovi et chimaeram vel hircocervum amplius, ut esse possint, seminaria in rerum natura non habere ex illa dei creatione, quae die septimo specierum omnium formas complevit, in quibus seminaria futurorum posuit, ut iam amplius nullam novam speciem crearet» (LI *De Int.* 249.152-250.2).

[29]On the distinction between *certus* and *determinatus* see in particular *Dial.* 212-213; LI *De Int.* 252.227-254.281).

knowledge. Similarly, some events that are determinate in virtue of their happening are inaccessible to us, in the sense that there is no way in which we could have experienced them or got acquainted with them. The event to which this proposition refers "The world was created in the first day", which Abelard takes as being determinate, is certainly unknowable by us in virtue of acquaintance, for there is no way in which we could have perceived or in which we could remember this event as happening in time. It seems then that even if Abelard introduces the notion of determinacy in terms of knowability, the determinacy of events has nothing to do (or, not much to do) with what we actually know or with what we are capable of knowing, i.e., with our epistemological capacities as human beings. Abelard's notions of determinacy and indeterminacy cannot then be properly considered as epistemological notions.

Strange as it may seem, there are according to Abelard also things that are indeterminate, i.e. not "knowable" in the sense stated above, but that are actually known. If for example a prophet or an angel informs us that an event will occur in the future, we would know that this event will happen, although the event is in itself indeterminate, i.e., not knowable. In this case, the event is considered to be indeterminate because it is not known "in virtue of itself" (*non ex se ipso sciri*), but it is certain because we might know it in virtue of some divine authority. Our knowledge of future events that is derived by prophetic elements in the Scripture is of this sort: it concerns events that are known but are still indeterminate:

> Aliud etiam "determinatum" sonare videtur quam "certum", quia determinatus dicitur eventus, qui ex se cognoscibilis est nobis, ut paritas vel imparitas astrorum ex ipsa praesentia, quam habent, de se cognitionem dare potest; certa vero sunt, quae quoquo modo actualiter cognita sunt. Ut si quid de futuro contingenti testimonio angeli ad discretionem veniret, certum quidem illud esset mihi non ex se, sed ex auctoritate angeli. Sed determinatum non esset, quia ex se ipso cognoscibile non esset. Non omne itaque determinatum certum est vel e converso, quia "certum" actualiter accipimus, quod iam scilicet actualiter alicui constat, "determinatum" autem possibiliter sumimus, quod videlicet aptum est ex se ipso sciri. (LI *De Int.* 252.226-233)[30]

Although Abelard does not make any explicit reference to it, at the basis

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[30]For the same distinction in the *Dialectica* see *Dial.* 212.21-23.

of this idea there might be the intuition, that Abelard could have taken from Boethius, that things can be known either *according to their nature and power* or *according to the capacity of their cognizers*. According to this idea, there are certain things and states of affairs that cannot be known by themselves because their nature is indefinite but that can be yet known by God in virtue of the power that God has of cognizing all things. This principle, that Marenbon has called "the Modes of Cognition Principle" and which is related but not coincident with the "Iamblichus's Principle", was used by Boethius in order to explain how indefinite events could be known by God in a definite way (Marenbon, 2013b, 14-6). This principle might be also at the basis of Abelard's idea that there are some things which are indeterminate, and so not knowable, but are known by God, and could also be known by us if God's knowledge is revealed to us in some way – *via* an oracle or a prophecy.[31]

In LI Abelard also distinguishes between what is actually known by us, as rational human agents, from what is known by God. He stresses there the idea that, with respect to our knowledge (*quantum ad nos*), many past and present events, as well as many future natural events, are unknown, because we are often ignorant about what happens and about the nature of things, but are nevertheless determinate. With respect to God's knowledge (*quantum ad Ipsum*), on the contrary, many events that are indeterminate are actually known, because God has knowledge of future contingent events as well. He knowns for example whether the child that a woman will conceive will be a boy or a girl or whether in the day of reckoning a man will be saved or damned (LI *De Int.* 251.204-252.212). Later in the *glosses*, Abelard will say that in fact God has a complete and simultaneous knowledge of all the events that take place in all times, from which we can infer that, from God's perspective, all events are equally both determinate and certain. This reference to God's complete knowledge posits several problems, concerning the compatibility between God's foreknowledge and the admission of contingent future events. I deal with this problem in section 4.2 below. Now, I shall consider Abelard's analysis of the other core notion that comes into play in his discussion about *De Interpretatione* 9, that is, the notion of contingency.

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[31] Also Boethius embraced the idea that there are events that are certain although they are not determined, see (Boethius, 1880, I 107.88); (Boethius, 1880, II 189.23).

Kinds of contingency

In the glosses on *De Intepretatione*, Abelard says that the name "contingency" (*utrumlibet*) is imposed on things or events not in virtue of a common property that they have but in virtue of a *common cause*, i.e., in virtue of the fact that these events are equally apt to happen and not to happen. This remark is in line with something that Abelard insists on elsewhere, i.e., the idea that modal terms (necessity, possibility and, here, contingency) do not refer to substances nor to some *property* or quality that things have, but are indefinite terms (see 1.1.4 above). The name "*utrumlibet*" refers to all events that are equally apt to happen and not to happen:

> Est itaque "utrumlibet" nomen quorumlibet tam existentium quam non-existentium, secundum hoc quod se ad fieri et non feri se habent quae numquam erunt sicut illae quae erunt. Et hoc est nomen "utrumlibet", non ex proprietate aliqua datum, sed ex causa communis inventumex eo scilicet quod res, quibus convenit, aeque ad fieri et non fieri se habent, id est aeque, ut dictum est, possibile est eas evenire et non.
> (LI *De Int.* 255.304-311)

Following Boethius, in the *Dialectica* Abelard divides contingency into three "species": chance (*casum*), free will (*liberum arbitrium*) and natural disposition (*facilitas naturae*).[32] CHANCE (CASUS) is a name that refers to unexpected events (*inopinati eventus*), unexpected not just because we did not foresee them, but because they are they are not governed by a simple natural law such that they could be forseen by us («*inopinatus non quantum ad actionem nostrae cognitionis sed quantum ad naturam*»). Events that happen by chance may be the outcome either of some natural cause or of a human action. We only say that a chance event is the outcome of a human action if such an action is not preceded by any deliberation, judgement or hope to obtain that result. For instance, if a man digs a hole in a field, with the purpose of planting a tree, and he discovers a treasure, we might say that his discovery happens by chance, because it is a result of a human action that was undertaken with the purpose to obtain a different outcome than the one it actually obtains (*Dial.* 215.9-15; LI *De Int.* 256.332-257.349). FREE WILL (LIBERUM ARBITRIUM) is a name that refers to events of which our

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[32]This division retraces Boethius' distinction in (Boethius, 1880, II 190.1-6, 194.15-17, 195.4).

action is the efficient cause and the achievement of which is preceded by the will (*voluntas*) to obtain that result and by a certain judgement of the mind (*iudicio mentis*). An event achieved by a certain agent is a result of free will if in the agent there is a conjunction of will and mental deliberation, together with an absence of external constraints that would prevent him from achieving that result. NATURAL DISPOSITION (FACILITAS NATURAE) is a name that refers to events that happen because some subject has a natural disposition to bring them about, but that are not required by nature and so might also not happen. For example, a glass has a natural disposition to break, and if it does break we would say that the cause of this event is a certain natural disposition, or a natural potency, that the glass has to break (*Dial.* 215.28-32). The efficient cause of these events is neither human action nor chance. The analysis of contingency that Abelard proposes in the *Logica Ingredientibus* is slightly different from the one proposed in the *Dialectica*. Rather than following Boethius' division of contingency in chance, free will and natural disposition, in LI Abelard only says that contingent events might have three possible efficient causes: they might happen in virtue of nature (*ex natura*), in virtue of human action (*ex nobis*) or in virtue of a conjunction of the two.

As some commentators have noticed,[33] Abelard thinks that contingency should be referred not only to future events, but also to present and past events, for even if these events have already happened, things might have occurred in such a way that they did not take place (see section 3.4.1 above). For instance, Abelard thinks that even if it is true that Socrates is sitting now, we might still say that it is now possible for Socrates not to sit, for things might have been so that Socrates was not sitting now, but standing.[34] The existence of contingency and contingent states of affairs is taken for granted by Abelard, just as it was by Aristotle and Boethius. In the next section I consider the three argument that he advances in the *Dialectica* and

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[33]See in particular (Knuuttila, 1993); (Martin, 2004a); (Martin, 2001) and (Knuuttila, 2010). For the distinction between diachronic and synchronic paradigm of modalities see (von Wright, 1984).

[34]With respect to this point, Abelard's position is different from the one embraced by Boethius, who made use of a *diachronic* paradigm of modalities, in which past and present are characterized as necessary insofar as they are inevitable, and possibilities are only referred to the future. It is not clear whether Abelard is the first to propose a sort of synchronic reading of possibilities or whether this paradigm was also held by his contemporaries.

the LI against logical determinism.

4.1.3 Abelard's three arguments against logical determinism

Abelard considers three different arguments that someone might advance in favor of the incompatibility between contingency and principles [PB], [LEM] and [RCP]. The FIRST ARGUMENT (*Dial.* 210.31-211.1, 212.36-213.28 and LI *De Int.* 245.59-66) aims to demonstrate that the principle of bivalence does not hold for future propositions, relying on the idea that since future propositions do not have a determinate truth value, they do not have a truth value at all, i.e. they are *neither true nor false.* If propositions of this sort are neither true or false, the proponent of the argument goes on, the nature of contradictory statements does not hold for them, and so principles [LEM] and [RCP] do not generally hold. Abelard considers then a SECOND ARGUMENT (*Dial.* 213.29-214.25 and 219.25-222.25, LI *De Int.* 245.1-246.71), which has a form of a *reductio ad absurdum.* The proponent of such an argument claims that, if for any pair of contradictory propositions "p" and "¬ p" it is necessarily the case that either "p" is true or "¬ p" is true, as principle [RCP] wants, then we have it that either what is said by "p" is necessarily the case or that what is said by "¬ p" is necessarily the case. If it is so, the events signified by "p" and "¬ p" necessarily occur or not occur, and therefore they are not contingent events. But since it is evident that there are future contingent events and that not everything that happens happens necessarily, principle [RCP] does not hold unrestrictedly, and in particular it does not hold for future sentences. Finally, Abelard devotes a long part of his work to a THIRD ARGUMENT (*Dial.* 212.10-23, LI *De Int.* 252.215-253.241), which, differently from the first two arguments, is not set out in in Aristotle's or Boethius' discussions on future contingents. The argument is developed from the consideration of propositions like "that Socrates will eat tomorrow *is* true", in which truth is predicated in the present tense of some future contingent proposition. According to the proponent of this argument, the truth value of present sentences like "that Socrates will eat tomorrow *is* true" must be determinate – inasmuch as it signifies a present state of affairs that is determinate. But if this is the case, the future event expressed by these propositions (in the example, *that Socrates will eat tomorrow*) must be determinate too, because it seems that if the present proposition "that Socrates will eat tomorrow is true" is determinate, then also the future state

of affairs *that Socrates will eat tomorrow* should be determinate. But if this future state of affairs is determinate, then it is not contingent. Since one could rephrase a similar argument for every future event, because for any future event π we could formulate a proposition such as "it is (or it was) true that π", if the argument proposed above is valid, then one may argue that every future event is already determinate, and therefore not contingent.

Abelard's general answer to the arguments of logical determinism may be summarized in the following way. First, Abelard claims that the principle of bivalence ([PB] above) holds unqualifiedly, and therefore every proposition either has the truth value *true* or it has the truth value *false*, and he recognizes no other truth values beyond these two. In particular, Abelard explicitly argues against the position that future contingent claims are neither true nor false (see 4.1.3 below), and he also seems not to embrace Boethius' idea that some propositions are only disjunctively *true-or-false*. In this respect, his analysis of future contingents differs not only from the one proposed by Boethius (see 4.1 on page 195) but also from the position of some authors contemporary to him, such as the author of the 12th-century treatise *editio super Aristotelem De Interpretatione*, who offers a solution similar to the one advanced by Boethius,[35] and Garlandus Compotista, who claims in the *Dialectica* that all assertoric propositions may be included in the following three cases: true propositions, false propositions, and *either-true-or-false* ones (*alia vera, alia falsa, alia vel vera vel falsa*).[36]

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[35]For an analysis of the position presented in this work see (Knuuttila, 2010, p. 81-2), who summarizes it in the following way: «Contradictory present tense propositions are determinately true and determinately false and also disjunctively determinately/necessarily true or false (*etiam sub disiunctione*), whereas contradictory future contingent propositions are merely disjunctively true or false (*sub disiunctione tantum*; 100,13-19: 112,7-113,3). The author does not explain this distinction, but he seems to understand Boethius's comments in the way most contemporary commentators do and to accept the idea that future contingent propositions are merely true-or-false».

[36]See (Garlandus Compotista, 1959, 74.19-31): «Sic dividitur perfecta oratio: alia vera, alia falsa, alia neque vera neque falsa, alia vel vera vel falsa. Vera est illa quae determinatam veritatem habet, ut "homo animal est"; falsa que determinatam falsitatem habet, ut "homo lapis est", alia neque vera neque falsa, sicuti illa que non est enuntiativa, velt hec: "putasne anima immortalis sit?"; alia vel vera vel falsa, sicuti illa que neque determinatam veritatem habet neque determinatam falsitatem; sed alterum necesse est habere indeterminate, ut hic patet: "cras finiemus Periermeneias": hec enim indeterminatam veritatem habet vel indefinitam falsitatem, quia neque ad verum neque ad falsum se habet, sed secundum utrumlibet, idest secundum dispositionem idest pro voluntate nostra vel secundum casum idest secundum hoc quod casualiter aliquid evenit sine dispositione nostra: potest enim vera esse vel falsa». It is interesting to note that here Garlandus mixes up Boethius' terminology, which distinguished propositions as being "definite" and

Second, Abelard considers the Aristotelian principle [RCP], according to which of every pair of contradictory statements "p" and "¬ p" it is necessary that exactly one is true and the other false. This is taken by Abelard to hold unrestrictedly and unqualifiedly for all propositions, independently of their modal status and tense. The general validity of principle [RCP], however, does not entail any deterministic consequences because, Abelard says, it is not valid to infer, from the necessity of a disjunction, the necessity of the disjuncts.

Third, Abelard thinks that future contingent propositions, although they already have one of the two truth values *true* or *false*, are now only *indeterminately* true or false. This is because their truth-maker (that is, the *eventus rei* to which they refer) is not yet determinate, where determinate is taken to mean "knowable in virtue of its happening or in virtue of nature" (*Dial.* 211.28-32). Abelard does not only embrace this idea but attributes it to Aristotle himself (LI *De Int.* 245.59-246.71). Nevertheless, even if the future statements "p" and "¬ p" are only indeterminately true or false, the proposition which says "Necessarily: either p or ¬ p" is not only true but *determinately* true (*Dial.* 212.36-213.3).

Finally, while discussing the third argument Abelard points out that it is possible for a future proposition to be determinate without the corresponding future event being determinate as well. For example, we might indeed say that propositions like "Socrates will eat tomorrow" is determinate, according to the fact that a this proposition is either true now or it is false now, but this does not necessarily entail that the future event *that Socrates will eat tomorrow* is also determinate. In what follows, I shall consider the three arguments of logical determinism in more detail, together with the solutions that Abelard proposes to invalidate them. I will pay a special attention to the third argument (see 4.1.3 on page 226) for although it has been object of some modern interpretations – in particular in (Normore, 1985); (Lewis,

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"indefinite", with the terminology that will be used by Abelard, of being "determinate" and "indeterminate". Another interesting point made by Garlandus in his discussion of future propositions is that when we talk about statements that are indefinitely or indeterminately true or false, this indeterminacy has nothing to do with our ignorance, i.e. the fact that we are uncertain (*incerti*) of their truth value, but it depends on the nature of the states of affairs to which these propositions refer: «Indeterminatam veritatem vel falsitatem dico habere ista propositionem non ideo quia nos ignoremus eius veritatem vel falsitatem, sed quia ad utrumque, vel ad verum vel ad falsum, se potest habere aliquo casu vel aliqua dispositione». This topic will be developed also by Abelard, who distinguishes carefully between determinacy and certainty (see 4.1.2 above).

1987); (Knuuttila, 2010) – many points of it are still controversial, and I will try to offer some new insights on it.

The First Argument: future contingent propositions are neither true nor false

The First Argument that Abelard considers is based on the idea that future contingent propositions have *no truth value.* The proponent of such an argument claims first that sentences about future contingents are neither true or false, and second that if neither "p" nor "¬ p" is true, the disjunctive proposition "p or ¬ p" is also not true, and therefore the logical principles [RCP] is not valid for propositions of this sort. Future contingent propositions are considered not to have a truth value because their truth-maker (i.e. the event they express) is not yet determined. The idea that a proposition can be true or false only if it is determinately true or false is an implicit assumption of this first argument, and it is exactly this claim that Abelard tries to dismiss, by saying that a proposition could be true or false also *indeterminately.*

Abelard only mentions briefly this argument in *Dial.* 210.31-211.1, where he reports the idea of some people that contingent propositions like "p" and "¬ p" are not properly *dividentes* and do not constitute a contradictory pair, for neither of them is true, inasmuch as they are not determinate:

> Contradictio [enuntiationum de futuri contingenti] quibusdam non videbatur posse fieri, hocest affirmatio et negatio dividentes, eo scilicet quod nulla propositio de huiusmodi futuro vera videtur; pro eo videlicet quod, dum adhuc futurum est, non sit eventus rei determinatus. Nulla enim vera videbatur posse dici propositio nisi quae determinate esset vera, et falsa similiter, ut sunt omnes illae *de praesenti* vel *praeterito* et *necessario futuro* vel *naturali.*

The same idea is presented again in the *Dialectica* (213.3-10) and appears once also in the *glossae* on *De interpretatione*:

> Quoniam autem propositiones de praesenti et praeterito, quaecumque verae sunt vel falsae, determinate verae sunt vel falsae, nulla autem veritas vel falsitas contingents futuri determinata erat, plerique propositiones de contingenti futuro veras vel falsas omnino esse denegebant, eo videlicet quod ea, quam habent, veritas vel falsitas eis nondum

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aperiri posset. Unde non ita proprietatem contradictionis recipiebant
in propositionibus de futuro huiusmodi sicut in praesenti et praeterito.
(LI *De Int.* 245.59-66)

The argument could be outlined in the following way:

(1) Let "p" be a future contingent proposition. The event π to which
proposition "p" refers is not determinate, i.e. π is not knowable in
virtue of its happening or in virtue of the nature of things.

(2) Since π not determinate, proposition "p" is neither determinately true
nor determinately false.

(3) Because it is not determinately true or false, "p" does not have a truth
value, i.e., it is neither true nor false. The same is the case for propo-
sition "¬ p"

(4) If neither "p" nor "¬ p" are now true, the disjunctive proposition "p or
¬ p" is also not true. In particular, it is not determinately true.

(5) If "p or ¬ p" is not true now, even more so it is not necessarily true.
Proposition "p", and all propositions of this sort, are exceptions to the
validity of [RCP]

Abelard answers to this argument in two steps. First, he attacks passage (3)
of the argument, saying that having a determinate truth value is not a nec-
essary condition for having a truth value. Some propositions might be true
or false even if only indeterminately. This answer relies on the definition
Abelard gave of determinacy. An event is determinate, according to him, if
it is "knowable", i.e. if it can produce a knowledge about itself ("*notitiam
de se conferre potest*"). Abelard says that we cannot infer, from the fact
that it is impossible *to know* which is the truth value of a proposition, that
this proposition is neither true nor false, because we must be careful to dis-
tinguish the *knowability of truth* from truth itself. People who propose this
idea, according to Abelard, make reality depend on knowledge or ignorance,
which is wrong.

> [Propositiones de futuro contingenti] dividentes esse denegebant, cum
> neutram illarum veram vel falsam dicerent, eoquod determinate quae
> vera vel falsa esset, nescirent. Cum enim neutram per se veram esse

> vel falsam recognoscerent, neutram veram esse vel falsam volebant;
> ac si minus, aliquid eorum quae propositiones dicunt, in re esset vel
> non esset propter eorum cognitionem vel ignorantiam, secundum quae
> scilicet ipsae propositiones verae esse vel falsae dicendae sunt. Si enim
> ita est ut propositio dicit, vera est; si autem non, falsa, sive haec nobis
> cognita sint sive non. (*Dial.* 212.36-213.11)

Second, Abelard makes use of Boethius' idea of *indeterminate* truth values,
i.e. he claims that propositions can be true or false not determinately but
indeterminately. Future contingent propositions have a truth value, even if
only an indeterminate one. Abelard attributes this solution to Aristotle him-
self, who assigns truth and falsehood equally to all propositions, although
truth is not determinate in all of them (see LI *De Int.* 246.69-71):

> Quorum errorem postea [Aristoteles] corriget veritatem vel falsitatem
> omnibus aequaliter assignans, licet non sit in omnibus determinata.

But again an opponent might insist that we cannot consider future propo-
sitions to be true, for we only assign truth to propositions that say what is
actually the case (*quod est in re*), and future contingent propositions never
express something that is actually the case, but only something that will
be the case. What Abelard answers to this is not entirely clear to me. He
says that although it is right to say that future propositions do not express
things that are actually the case, what they say might however be true and
will be true, and so they too, in some sense, express something that "*est in
re*".

> Sed fortasse dicitur non esse vera illa propositio quae id dicit quod in re
> non est; verum propositiones de futuro id quod nondum est enuntiant;
> unde verae esse non videntur. Sed ad haec dico quod dum adhuc ipsa
> res futura est de qua propositio agit, id tamen etiam in re esse potest
> quod propositio dicit, ut ea quae de bello futuro fit, hoc modo: "bellum
> fiet". Dum enim nondum fit ita est ut propositio dicit, quod scilicet
> fiet; dum autem ipsum fit, non iam quod fiet dicetur, sed quia fit.
> (*Dial.* 213.21-28)

To conclude his answer to the first argument, Abelard claims that even if
a future contingent proposition "p" is only indeterminately true or false,
the disjunctive proposition "p or ¬ p", as well as the state of affairs to
which it refers, is nevertheless *determinately* true. According to Abelard, the

determinacy of a composite proposition does not depend on the determinacy
of its components:

> Cum autem propositionum *de contingenti futuro* nulla sit vera vel falsa
> determinate, omnium tamen dividentium determinatum est et necesse
> alteram veram et alteram falsam, cuiuscumque sint temporis, ut sunt
> illae et quae *de futuro contingenti* fiunt, veluti istae: "Socrates hodie
> leget", "Socrates hodie non leget". (*Dial.* 212.36-213.3)

Whether or not Abelard's answer to this argument is satisfactory, it shows
very clearly that both in the *Dialectica* and in the glosses he takes the princi-
ple of bivalence and the rule of contradictory pairs to hold unrestrictedly for
all propositions, and in order to maintain this he employs the traditional
distinction between determinate and indeterminate truth values.

**The Second Argument: from the necessity of disjunction to the
necessity of disjuncts**

Abelard presents then a second argument that could be advanced against
the validity of what Abelard calls the "*proprietas contradictionis*" – i.e. our
principle [RCP] – for future contingent propositions. The argument retraces
quite closely Aristotle's discussion in *De Int.* 9, and it claims that, if we
admit that it is necessarily the case for any pair of contradictory proposi-
tions "p" and "¬ p" that either "p" is true or "¬ p" is true, then we have
it that either what is said by "p" is necessarily the case or that what is said
by "¬ p" is necessarily the case. If it is so, the events signified by "p" and
"¬ p" necessarily occur or not occur, and therefore they are not contingent
events. This leads to the destruction of contingency, and in particular to the
destruction of human deliberation (*consilium*) and actions (*negotium*). But
since it is evident that there are some events that are brought about by hu-
man beings' deliberation and their free actions, the premise of the argument
must be false, and therefore principle [RCP] does not hold unrestrictedly,
and in particular it does not hold for future sentences.

The argument is considered both in the *Dialectica* (213.29-214.25; 219.25-

222.25)[37] and in LI (245.1-246.71),[38] and it has the form of a *reductio ad absurdum*, that could be expounded in the following way:

(1) For all pairs of contradictory propositions "p" and "¬ p", it is necessary that exactly one of them is true and the other false.

(2) Either it is necessary that the event signified by "p" is the case or it is necessary that the event signified by "¬ p" is the case.

(3) Let us consider the future contingent propositions "q" and "¬ q", and the future events χ and ¬ χ to which these propositions refer. If the principle stated in (1) holds, it is necessary that either "q" is true or its contradictory "¬ q" is true, therefore either χ will be necessarily the case or ¬ χ will.

(4) This means that the future events χ and ¬ χ are not contingent, inasmuch as they are not equally apt to happen and not to happen. Rather, they are necessary events.

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[37]This is how the argument is expounded in the *Dialectica*: «Id falsificare nitebantur sic argumentantes: si omnium affirmationum et negationum, dividentium scilicet, necesse est alteram veram et alteram falsam, tunc omnium eorum quae dividentes propositiones enuntiant, alterum necesse est esse, quod scilicet vera dicit, alterum non esse, quod videlicet falsa proponit. Quare et eorum quae contingentia futura sunt, necesse est alterum esse, quando scilicet, alterum non esse. Hic enim "esse" et "non esse" circa quaelibet tempora propositionum accipienda sunt, cum iam scilicet nulla amplius ad esse et non esse aequaliter sese habeant, quod est proprium utrumlibet, ubi scilicet omnia ex necessitate contingunt; ii namque addunt quod irrita fiunt amplius consilium et negotium. [...] Utquid enim oporteret consiliari vel negotiari ut ea quae fieri volumus, fierent, cum ex necessitate futura sint, quippe vel quae fierent, etsi nullum esset aut consilium aut negotium nostrum? Quod enim ex necessitate contingendum est, nullo poterit casu disturbari vel impediri. Assumunt autem postea per consequentis destructionem, hoc modo: sed ista non pereunt; idque ex eo demonstrant quod multa futura sunt quae ad utrumlibet se habent, hocest quae fieri et non fieri aequaliter possunt, ut hanc vestem, quae incidenda est, possibile incidi et non incidi. Plura etiam contingere videremus per consilium et negotium nostrum. Concludunt itaque illud quoque destruendo quod in proximo praecessit, hoc modo: quare non omnium eorum quae dividentes propositiones dicunt, necesse est alterum esse, alterum non esse. Unde etiam primum destruunt antecendens, hoc modo: quare non omnium dividentium propositionum necesse est alteram veram, alteram falsam».

[38]In the glossae (LI *De Int.* 245.1-246.71) Abelard presents the argument in a similar way, although more concisely. He states there that the unqualified admission of the [RCP] implies that everything takes place by necessity, and therefore that both human deliberation and free actions do not exist («Si omnis contradictionis alteram partem necesse est esse veram et alteram falsam, tunc omne necesse est esse vel non esse. Quod, si ita est, perit utrumlibet et consilium et negotium»). But since it is evident that they exist («sed illa non pereunt»), we conclude, by means of the destruction of the consequent, that the antecedent ("si omnis contradictionis *etc.*") is destroyed as well, and so that [RCP] does not hold for every proposition: «Unde non ita proprietatem contradictionis recipiebant in propositionibus de futuro huiusmodi sicut in praesenti et praeterito».

(5) If there were no contingent future events, human deliberation and actions (*consilium* and *negotium*) would be abolished, for there would be no point in choosing and deliberating if everything that happens happens necessarily.

(6) But this is absurd, because it is evident that many events are brought about by means of deliberation and actions.

(7) We must then reject the first premise, and claim that it is not the case that of every pair of contradictory propositions "p" and "¬ p", necessarily one is true and the other is false.

Abelard's reply to the Second Argument is rather well known. His solution consists in saying that the first premise of the argument – i.e. the Aristotelian rule of contradictory pairs (*omnium affirmationum et negationum necesse est alteram esse veram et alteram falsam*) – is ambiguous, for it could be read as having different senses. The first thing to do in order to solve the argument is then to consider the meaning of this premise and to disambiguate it:

> Sed prius nobis inspiciendum est qualiter ipsius antecedens Aristoteles intellexerit, a quo argumentatio incipit, hoc videlicet: omnium affirmationum et negationum necesse est alteram esse veram, alteram esse falsa, ut hoc prius discusso ipsum ab inconvenienti facilius absolvamus. (*Dial.* 219.32-6)

In order to explain the meaning of this principle, Abelard puts it in analogy with another Aristotelian principle about contraries, which says that of any pair of contrary predicates, such as healthy and non-healthy, it is necessarily the case that one inheres in a substance while the other does not inhere (*De Int.* 17b26 ff.). This claim however should not be taken as saying that, of the two contraries, *one and the same* always inheres in the substance and the other always does not inhere in it, but it must be taken as saying that always *one or the other of the two* inheres and always *one or the other of the two* does not inhere. Similarly, it is not the case that of every pair of propositions "p" and "¬ p", one and the same proposition is necessarily true and the other is necessarily false, but it is true that *one or the other of the two* is necessarily true and *one or the other of the two* is necessarily false. The ambiguity seems to lie in the use of the term "*altera*", which could be

understood either as picking one of the two propositions rigidly (one and the same proposition is necessarily false) or as picking *indifferenter* and *sub disiunctione* one proposition or the other. In the latter case, Abelard says, the term "*altera*" must be read in the sense of "*alterutra*". If we read the principle in the first sense, as saying that for every pair "p" and "¬ p" "it is necessary that p is true or it is necessary that ¬ p is true", the principle is false. If instead we read it in the second sense, as saying that "it is necessary that indifferently one of p or ¬ p is true" the principle is true.

> Potest autem et vere et falso accipi, sicut et illud quod in tractatu oppositorum de eisdem affirmationibus et negationibus dixit, alteram scilicet semper esse veram et alteram falsam, veluti istarum: "Socrates est sanus" et "Socrates non est sanus". Si enim intellexeris quod uni et eidem semper verum inhaereat, falsum est, cum potius neutra illarum veritatem custodiat, sed modo vera sit eadem, modo falsa. Si vero ita sumpseris ut "alteram" non circa una tantum teneas, sed indifferenter accipias ac si dicas "alterutram", verum est. Semper enim alterutra vera est, hocest semper ita se habet quod vel haec vel illa vera est. Haecque Aristotelis acceptio exsistit, cum scilicet ait alteram semper esse veram et alteram falsam, ut illud scilicet "dividue" sumeret ac si "alterutram" diceret. Sic quoque et hoc loco, cum ait alteram necesse est esse veram et alteram falsam.

That this was also Aristotle's own solution to the problem, Abelard claims, is clear from what he says when he distinguishes absolute necessity from conditional necessity, i.e., when he distinguishes things that are unqualifiedly (*simpliciter*) necessary from things that "necessarily are when they are":

> Sic quoque et hoc loco, cum ait alteram necesse est esse veram et alteram falsam, quod quidem ipse manifeste in sequentibus in solutione huius argumentationis declaravit, cum ait: "igitur esse quod est, quando est, et non esse quod non est, quando non est, necesse est; sed non omne quod est necesse est esse nec quod non est necesse est non esse; non enim idem est omne quod est esse necessario, quando est, et simpliciter esse ex necessitate".

The distinction between unqualified necessity and conditional necessity is, according to Abelard, at the basis of Aristotle's answer to the Second Argument. In the case of principle stated in premise (1), the modal term "necessary" could be attributed to propositions "p" and "¬ p" either unqualifiedly

(*simpliciter*) or conditionally, i.e. under disjunction (*sub disiunctione*). Because we are never entitled to infer from a conditional necessity an absolute necessity, we are also not entitled to infer from the fact that it is conditionally necessary that either "p" is true or "¬ p" is true, the fact that one of "p" and "¬ p" is absolutely necessary (or, we might say, we are not entitled to infer from the necessity of a disjunction the necessity of either disjunct).

> Quemadmodum "necessarium" simpliciter enuntiamus sub disiunctione de his omnibus quae dividentes affirmationes et negationes dicunt, sic et de orationibus. Omne enim esse vel non esse necesse est et futurum esse vel non. Sic quoque omnem affirmationem et negationem veram esse vel falsam necesse est, sed non semper veram esse necesse est nec semper falsam esse necesse est.

The Second Argument is then harmless according to Abelard, because if premise (1) is taken in the proper sense, as saying "Necessarily (p is true or ¬ p is true)", then (1) is true but (2) does not properly follow from it and so the argument is invalid; if instead premise (1) is taken as saying "Necessarily (p) or necessarily (¬ p)", then (2) does indeed follow from (1) and so does the conclusion of the argument, but the whole argument is based on a false premise.

The Third argument: all future contingent events are determinate

Finally, both in the *Dialectica* and in the glosses, Abelard proposes a third argument that an opponent could use to argue that, if we admit the principle of bivalence as unqualifiedly holding for every proposition, there is no future event which is not determined. This argument locates a problem in Boethius' way out of logical determinism, i.e. in the use of the distinction between determinate and indeterminate truth values. According to the proponent of this argument, this distinction does not save us from the threat of the fatalistic consequences of unrestricted bivalence, for if we admit that future contingent propositions are already now either true or false, it follows that they also are already now *determinately true or false.* The puzzle is based on the idea that for any future contingent proposition, as for instance "Socrates will eat tomorrow", it is possible to formulate a present (or past) proposition which predicates the truth or the falsity of the former proposition, as in "that Socrates will eat tomorrow *is* true", or "that Socrates will eat tomorrow *was*

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true". The propositions that we obtained refer to present or past state of affairs, and therefore they should be determinately true, if every present and past event is determinate. However, one might think that if the proposition "that Socrates will eat tomorrow is true" is determinately true, then also the state of affairs *that Socrates will eat tomorrow* must be determinate, because the determinacy of a proposition depends on the determinacy of the event to which it refers. But if this is the case, then also the future event *that Socrates will eat tomorrow* is already determinate, and not contingent. Since one could construct a similar argument for every future event, because for any future event π it is possible to formulate a proposition such as "it is (or was) true that π", if this argument is valid, then every future event is already determinate, and then not contingent.

Among all the three arguments that Abelard considers concerning logical determinism, this seems to be the one that troubles him the most, and to which he dedicates the greatest attention. What his solution consists of has been matter of debate,[39] and also the exact form of the argument is obscure. In the following pages, I shall try to provide a reconstruction of the argument, and I propose what I think is Abelard's solution to it, which, in my view, is the same in both the *Dialectica* and the *Logica Ingredientibus*. The argument posits four different entities, two propositions and two events:

 – a future contingent proposition (p) = "Socrates will eat";

 – a future event (π) = *that Socrates will eat*, which is the referent of proposition (p);

 – a present proposition (q) = "that Socrates will eat is true";

 – a present event (χ) = *that truth inheres in proposition (p)*; which is the referent of proposition (q).

The argument moves from the determinacy of event (χ) to the determinacy of proposition (q),[40] then from the determinacy of (q) to the determinacy of (p); and finally from the determinacy of (p) to the determinacy of (π). In order to formulate the argument we must first identify some principles that Abelard more or less explicitly accepts as premises:

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[39]In particular, the argument is discussed in (Normore, 1982), (Lewis, 1987) and (Knuuttila, 2010).

[40]Proposition (q) is determinate in the sense that it is either determinately true or determinately false.

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(I) An event is determinate if and only if it is knowable in itself (*cognosci-bilis ex se)*, i.e. if it is apt to produce some knowledge about itself (*notitiam de se potest conferre*) either in virtue of its happening in the present or in the past, or in virtue of being an expression of a law of nature.

(II) For every proposition (p), it is necessary that either (p) is true or (p) is false.

(III) Every present event is determinate, in virtue of its happening in the present.

(IV.a) A proposition is determinately true or false if the event to which it refers is determinate.

(IV.b) A proposition is determinately true or false only if the event to which it refers is determinate.[41]

(V) If the proposition " 'p' is true" is determinate, then proposition "p" is determinate.

The first premise is Abelard's definition of determinacy, which was considered in detail in 4.1.2 on page 209. Textual evidence for this definition may be found in *Dial.* 212.13 ff. and LI *De Int.* 252.227-254.281. When discussing the third argument, Abelard is very careful in distinguishing between *determinate* events and propositions from *certain* ones: while the first concept refers to what is *knowable*, the second refers to what is *actually known*.[42] The distinction between the two concepts is of great relevance for Abelard's discussion of the argument, for he thinks that while the argument is valid when we talk about certainty, it is not valid in the case of determinacy.

The second premise is principle [PB]. As was said above, Abelard argues that this principle is valid for all sorts of propositions, and therefore also for future contingent ones. I think that recent interpretations of this third argument of logical determinism underestimate the role of principle [PB]

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[41] Saying that a proposition is determinate and that it has a determinate truth value is the same thing.

[42] As was said in 4.1.2, in the *Dialectica* Abelard thinks that not everything that is certain is also determinate, for we might actually know that some future event is going to happen (maybe because a prophet or a divine sign told us so) although this event is not knowable in itself (*ex se*).

for the validity of the argument. As I show below (see 4.1.3 on page 233), without the acceptance of this principle, the argument would not be as problematic as in fact Abelard takes it to be. In particular, the acceptance of this principle is the reason for which a proposition like "that Socrates will eat is true" – and the event to which it refers - are taken by Abelard as being *determinate.*

The third premise follows from Abelard's definition of determinacy. Abelard states several times that any present or past event is determinate at least in its nature (*saltem in natura sui*), which means that even if we do not know it, it is nevertheless knowable in virtue of its happening.[43] The conjunction of this principle with premise (IV.a) leads to the conclusion that all propositions which refer to present events are determinately true or false. Evidence of this idea could be found in the *Dialectica*, where Abelard says that all present events and all corresponding present propositions are determinate:

> [Sunt determinate verae, et falsae similiter] omnes illae *de praesenti* vel *praeterito* et *necessario futuro* vel *naturali.* Quia enim omnium praesentium vel praeteritorum vel futurorum necessariorum vel naturalium eventus in natura sui determinatus est, quaecumque propositiones de istis verae sunt, determinatae verae sunt, et quaecumque falsae, determinate sunt falsae, in eo scilicet quod determinatos eventus rerum enuntiant de quibus agunt. (*Dial.* 210.35-211.5)

We find a similar position in the *glossae*:

> Propositiones vero de praesenti vel praeterito, quaecumque verae sunt vel falsae, vera vel falsa determinate iudicant, quia etsi actualiter cognita non sit veritas earum vel falsitas, in natura tamen definita est, quia iam in rerum praesentia vel est vel fuit. Unde notitiam de se conferre possunt, et quantum in ipsis est, cognosci. (LI *De Int* 250.169-176)

Premises (IV.a) and (IV.b) taken together say that not only whenever an event φ is determinate the proposition which is about φ is determinately true or false, but also that whenever a proposition has a determinate truth value then it must be about some determinate event, i.e., there is no other way for a proposition to be determinate unless it refers to some determinate

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[43]See for instance *Dial.* 211.1-2: «Omnium praesentium [...] eventus in natura sui determinatus est»; *Dial.* 212.1-2: «Quod autem praesens est, determinatus est saltem in natura».

event. The first side of the principle is uncontroversially accepted by Abelard as true. The other side of the implication, from the determinacy of the proposition to the determinacy of the event, is instead more controversial. Abelard does say at times that the determinacy of a proposition always depends on the determinacy of the event *de quo agit*. See for example the following passage:

> At vero si (p) "Socrates comedet" est vera determinate oportet et determinatum esse, quod (π) Socrates comedet, quia sicut veritas propositionum ex eventu rerum pendet, ita et cognitionem veritatis vel falsitatis ex cognitione eventuum necesse est haberi.

Nevertheless, I argue that Abelard does not embrace principle (IV.b) and that his solution to the puzzle turns exactly on his rejection of premise (IV.b), because he thinks that although it is true that whenever an event is determinate the propositions that refer to it are also determinate, the converse is not given, because a proposition can be determinately true or false *even if the event to which it refers is not determinate*[44].

The fifth premise is not explicitly recognized by Abelard as a premise and never really justified by him. However, at least once in his discussion of the argument he passes, although without giving any further justification for this inference, from the determinacy of proposition (q) "that Socrates will eat is true" to the determinacy of proposition (p) "Socrates will eat". In LI *De Int.* 251.184-192, in fact, he says that:

> Veluti cum dicitur (p) "Socrates comedet", haec propositio iam profecto praesentialiter est vera vel falsa, et haec propositio quae dicit (q) " 'Socrates comedet' est vera" de praesenti est et ideo iam vel determinate vera est vel determinate falsa saltem in natura praesentis inhaerentiae veritatis vel falsitatis quam habet. At vero si (p) "Socrates comedet" est vera determinate oportet et determinatum esse, quod (π) Socrates comedet.

In this passage, Abelard seems to pass from the fact that proposition (q) is determinate to the determinacy of proposition (p), and then to the determinacy of the future event (π). Nevertheless, he does not feel the need

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[44]As I will say later, this position seems indeed to be a rather *ad hoc* and not entirely persuasive solution, for it is unclear how Abelard can maintain that it is possible for a proposition to be determinately true or determinately false even if the event to which it refers - that according to Abelard's theory should be the *truthmaker* of the proposition - is itself indeterminate.

to justify this entailment. He does not say, for instance, that this entailment holds because proposition (q) infers (p) and determinacy is preserved in valid inferences. The passage quoted, however, leads us to think that Abelard does accept the principle formulated in premise (V), and uses it in his discussion of the third argument.[45] Indeed, that the determinacy of a proposition like (p) follows from the determinacy of (q) seems evident if we consider Abelard's definition of determinacy in terms of knowability: if in fact it is *knowable* that "Socrates will eat is true", it is also knowable that "Socrates will eat".

These premises given, we can now try to outline the argument.

(1) Let (p) be the future proposition "Socrates will eat". Let (π) be the future event *that Socrates will eat*, to which (p) refers;

(2) it is necessarily true (= it is *true in every time*) that either (p) is true or (p) is false [Principle II];

(3) it is *now* true that (p) is true or (p) is false [*ex toto* from principle II];

(4) either it is *now* the case that truth inheres in (p) or this is not the case;

(5) let (χ) be the present event *that truth inheres in proposition (p)*, and let (q) be the present proposition "that Socrates will eat is true", which refers to event (χ);

(6) event (χ) is determinate (i.e. it is determinately true or determinately

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[45]In his reconstruction of the argument, Lewis says that this principle (V) has no role in Abelard's discussion of the argument, for Abelard directly infers the determinacy of the future *eventus* (π) from the determinacy of the present proposition (q), without passing *via* the determinacy of proposition (p). Lewis' position is based though on some emendation on the text, which concerns the exact passage that I take as evidence of Abelard's inference from proposition (q) to proposition (p), i.e. passage LI *De Int.* 251.184-192 quoted above. In Lewis's interpretation, the passage goes: «At vero si "'Socrates comedet' est vera" [est vera] determinate, oportet et determinatum esse quod Socrates comedet». In this interpretation, the passage states the inference from proposition (q), which is said to be determinate, to the *eventus* (π). In the recent edition of the text by Jacobi and Strub, to which I refer here, Lewis' emendation was not integrated, and the text goes instead in the following way: «At vero si "Socrates comedet" est vera determinate oportet et determinatum esse, quod Socrates comedet», and it states then both that proposition (p) is determinately true – which is inferred by the truth of (q) – and that the determinacy of (p) implies the determinacy of (π). In my reconstruction of the argument, I follow Jacobi and Strub's edition of the text, and I consider the passage at stake as referring to the determinacy of proposition (p), and not of proposition (q), which was said to be determinately true in the passage before this, LI *De Int.* 251.184-189.

false) in virtue of its happening in the present time (either it occurs now, or it does not occur now) [principles I, III];

(7) if the event (χ) is determinate, the present proposition (q) is determinate [principle [IV.a];

(8) proposition (q) is determinate;

(9) if proposition (q) is determinate, proposition (p) is determinate [principle V];

(10) proposition (p) is determinate;

(11) if proposition (p) is determinate, the future event (π) is determinate [principle IV.b];

(12) the future event (π) is determinate.

The third argument seems to be a valid argument, and therefore a rejection of it must rely on the rejection of one of the premises, i.e., one of the principles (I)-(V). Interpreters have proposed different solutions in this sense. Normore claims in (Normore, 1982, p.361-3) that Abelard offers two possible solutions to the argument, one in the *Dialectica* and one in the *glossae*. In the *glossae*, Abelard solution is, according to Normore, to say that not every present proposition is determinately true or false, and in particular that proposition (q) is not determinate. Abelard does indeed say in LI that there are some past and present propositions that are not determinate, because their determinacy, or "knowability", depends on some future contingent event. Propositions like "Socrates is the name of the man who will eat tomorrow" (*Socrates est nomen hominis comesturi in crastino*) or "I see the man who will eat tomorrow" (*video hominem comesturum in crastino*) belong to this category (LI *De Int.* 251.196-204):

> Sed nec istae de praesenti "Socrates est nomen hominis comesturi in crastino" vel "homo comesturus in crastino est Socrates" vel "video hominem comesturum in crastino" determinari possunt nisi per futurum [...] Non itaque omnes de praesenti vel praeterito propositiones verae vel falsae determinate esse videntur, quando videlicet veritatis vel falsitatis earum discretio ex futuro pendet. [...] Si autem ad humanam scientiam rescipiciamus, cum hic Aristoteles iuxta humanam opinionem disputet, non omnes propositiones de praesenti vel praeterito definitae videntur. (251.196-215)

This solution seems reasonable, for it is reasonable to think that some present propositions are true or false only indeterminately, if their determinacy (i.e. knowability) depends on an indeterminate event. However, as Lewis says in (Lewis, 1987, p. 102) this seems not to be Abelard's solution to the puzzle: there is no doubt that Abelard admits the existence of present and past propositions that are not determinate,[46] but proposition (q), which is at stake here, is not one of them. This might sound odd, for it seems that the knowability of proposition (q) depends on some future event, and as such it should be indeterminate. Lewis says that the reasons for which Abelard does not want to put propositions as "that Socrates will eat tomorrow is true" in the same boat as propositions like "Socrates is the name of the man who will eat tomorrow" are unclear. I think instead that Abelard has important reasons for saying that propositions like (q) are determinately true or false, and that these reasons have to do with Abelard's acceptance of [PB], i.e. principle (II) above. According to this principle, every proposition – even future contingent ones – necessarily have either the truth value true or the truth value false. This means that in the present moment of time, a future proposition like (p)= "Socrates will eat tomorrow", is either true or false, even though only indeterminately. If the future proposition is *now* either true or false, then it is necessary that there is *now* a present state of affairs which consists in the inherence or non-inherence of the truth to proposition (p), i.e., in the present time either the property of being true inheres in (p) or it does not. One of these two possible states of affairs is present, and as such it must be determinate in virtue of its happening. This conclusion might be avoided by saying that future propositions like (p) are neither true or false in the present moment, because they will only obtain a truth value in some future moment. However, Abelard wants to maintain that every proposition already has a truth value and is so either true or false. Dropping this idea would in fact imply the rejection of general bivalence.

Propositions like "Socrates is the name of the man that I will see tomorrow" or "Socrates is the man who will eat tomorrow" are different from propositions like (q). The former propositions are indeterminate because,

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[46]This is why I chose to state, as a premise of the argument, Abelard's principle that all *present events* are determinate, and not that all *present propositions* are determinate. The idea that there are indeterminate present propositions is stated by Abelard only in the *Logica Ingredientibus*, for in the *Dialectica* Abelard seems to think that every past and present propositions is determinately true or false.

although they are stated in the present tense, there is no present *eventus* to which they refer, but they are instead about some future event. There is in fact no such present event as Socrates having the property of being the man that I will see tomorrow, or as Socrates having the property of being a man who will eat tomorrow. The admission of indeterminate present propositions does not threaten the validity of principle (III) nor the validity of principle (IV.a) above, because present propositions which are indeterminate do not refer to any present or determinate event. On the contrary, for propositions like (q) this way out is not possible, because proposition (q) does indeed correspond to some present event – the actual inherence or non inherence of truth in (p) – which being present must be determinate. Because of Abelard's acceptance of principle (II), then, he is obliged to accept that propositions like (q) are determinate propositions, and so Normore's first way out cannot be Abelard's solution to the puzzle.

Another possible way out to the puzzle, which according to Normore is Abelard's solution in the *Dialectica*, would be instead to reject principle (V), used in the argument in passage (10), i.e. the idea that the determinacy of (q) necessarily entails the determinacy of (p). As Normore says, the rejection of principle (V) is a particular case of the rejection of the general idea that determinacy is preserved in valid inferences (Normore, 1982, p. 362). Normore's interpretation is based on two passages, one from the *Dialectica* and one from the LI. In *Dial.* 212.19-21, Abelard says that:

> Non ergo vero recipimus quod si determinatum sit antecedens, determinatum sit et consequens. Sed fortasse si certum fuerit antecedens, certum erit et consequens.

In the glosses there is a similar passages, where Abelard says that although we admit that when a consequent properly follows from an antecedent, then if the antecedent is *certain* the consequent is also certain, we do not admit that if the antecedent is *determinate* the consequent is also determinate:

> Aliud etiam "determinatum" sonare videtur quam "certum", quia determinatus dicitur eventus qui ex se cognoscibilis est nobis [...] certa vero sunt, quae quoquo modo actualiter cognita sunt. [...] Unde et si talis consequentia recipiatur, "Si 'Socrates comedet' est vera, Socrates comedet", et certum sit antecedens, certum erit et consequens. Sed non fortasse, si determinatum sit antecedens, et consequens, quia praesens eventus ex se cognoscibilis est, sed non ita futurus contingens.

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I think however that these two passages do not give us Abelard's solution to the argument. In them, Abelard simply points out that we must not infer from the determinacy of the present proposition (q) "that Socrates will eat is true" that the future event π *that Socrates will eat* is also determinate. This tells us what Abelard is trying to demonstrate, but not *how* he justifies his conclusion.

Finally, a third interpretation of Abelard's solution is proposed by Lewis, who attempts in (Lewis, 1987) to provide a systematic reconstruction Abelard's answer to the third deterministic argument. According to Lewis, the puzzling conclusion of the argument depends on the fact that determinacy is misleadingly understood by some people as *certainty*. What Abelard would be saying is that when we consider two events like our χ and π, and we assume that the first is certain, i.e. actually known by us, then we cannot but conclude that the second is also certain, i.e. from the certainty of χ necessarily follows the certainty of π. It seems evident in fact that whenever we *actually know* that Socrates will eat is true we also know that Socrates will eat. However, determinacy is different from certainty, as Abelard often insists, and although this argument is valid if we were speaking of certainty, it does not work when we speak of determinacy. Although it is true that Abelard stresses the distinction between certainty and determinacy, pointing out this distinction cannot *per se* be Abelard's justification for the invalidity of the third argument. The fact that the argument is plausible only if we speak of certainty but not if we speak of determinacy does not tell what exactly is wrong in the deterministic reasoning represented in (1)-(12). Lewis is then right in pointing out that Abelard's distinction between *certus* and *determinatus* is crucial in his exposition of the Third Argument, but it is not in this distinction that Abelard's solution lies.

As I mentioned, my idea is that Abelard solves the argument by rejecting principle (IV.b) above, which is needed to infer the determinacy of the *eventus* (π): *that Socrates will eat* from the determinacy of proposition (p): "Socrates will eat". He thinks in fact that while the determinacy of the present event (χ) entails the determinacy of the present proposition (q), and the determinacy of (q) entails the determinacy of the future proposition (p), the fact that (p) is determinate does not necessarily entail that the event it talks about is also determinate. To show this, I turn now to consider Abelard's text. I shall first follow the exposition that Abelard gives in the
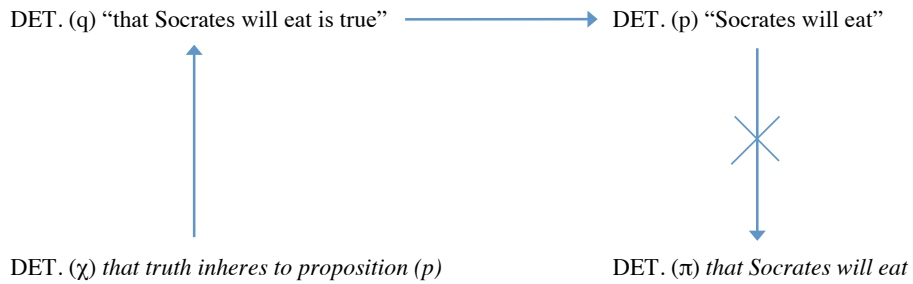
DET. (q) "that Socrates will eat is true" ⟶ DET. (p) "Socrates will eat"

DET. (χ) *that truth inheres to proposition (p)*   DET. (π) *that Socrates will eat*

Figure 4.2: The chain of entailments from the determinacy of the present event to the determinacy of the future event in the Third Argument.

Logica Ingredientibus, for there the author considers the argument in more detail. I will then try to show that the exposition and solution presented in the *Dialectica* agrees with this, although is laid out in a more concise way, with the exception of some minor points that I will point out.

The Third Argument in the *Logica Ingredientibus*

In LI, Abelard starts by saying that, although it is reasonable to think that every present and past proposition is determinate, inasmuch as it refers to a determinate event, and that every future contingent proposition is indeterminate, inasmuch it refers to an indeterminate event, a question arises concerning those present or past propositions such as "that Socrates will eat is true", that are not knowable but by means of some future contingent event.

> De quibusdam tamen praesentibus sive praeteritis restat quaestio, utrum definita sint, scilicet in natura, cum <non> nisi per futura indeterminata sciri queant. Veluti cum dicitur (p) "Socrates comedet", haec propositio iam profecto praesentialiter est vera vel falsa, et haec propositio quae dicit (q) " 'Socrates comedet' vera est" de praesenti est et ideo iam vel determinate vera est vel determinate falsa saltem in natura praesentis inhaerentiae veritatis vel falsitatis quam habet. At vero si (p) "Socrates comedet" est vera determinate oportet et determinatum esse, quod (π) Socrates comedet, quia sicut veritas propositionum ex eventu rerum pendet, ita et cognitionem veritatis vel falsitatis ex cognitione eventuum necesse est haberi. (LI *De Int* 250.182-251.189)

Abelard says here four things. First, that proposition (p)= "Socrates will eat" is either true or false in the present moment, in virtue of the principle

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of bivalence, as stated in principle (II). Second, that because (p) is presently true or false, there is a present event (χ) which consists in the present inherence or non inherence of truth to proposition (p). Event (χ) is determinate, in virtue of the fact that all present events are determinate, as principle (I) says. Third, since proposition (q) refers to a determinate state of affairs, it is determinately true or false itself, on the basis of principle (IV.a). Fourth, he passes from the determinacy of (q) to the determinacy of (p), using implicitly principle (V) above, and finally from the determinacy of (p) to the determinacy of the future event (π) using principle (IV.b), which says that if proposition (p) is determinate, and (p) is about event π, then π must be determinate as well.

Starting from this last passage, Abelard tries to provide a solution to the puzzle. The fact that both the present event (χ) and the present proposition (q) are determinate seems not to be questioned by Abelard. What is problematic is the *status* of proposition (p): does the fact that (q) is determinate imply that also (p) is determinate? And, if so, does the determinacy of proposition (p) imply the determinacy of the future event (π)? What I think Abelard answers to this is the following: proposition (p) is determinate. However, when we say that a proposition is determinate we could intend this in two different ways: either according to the fact that it refers to a determinate event (*quantum ad eventum*), or according to the property that it presently has of being true or false (*quantum ad veritatem ipsam*, or *quantum ad praesentem et determinatam inhaerentiam veritatis*). The first is the proper (and, according to Abelard, the Aristotelian) way of intending the term "determinate", and in this proper sense proposition (p) is not determinate. Proposition (p) is instead determinate in the second, improper sense, inasmuch as there is a determinate present event (χ) consisting in the inherence or non inherence of truth in (p).

> Sunt autem qui dicunt, quod (p) "Socrates comedet", quae fortassis praesentialiter vera est, determinate vera est quantum ad veritatem ipsam, scilicet proprietatem quam praesentialiter habet, quippe determinatus est eventus proprietatis praesentialiter ei inhaerentis, et ipsam iam determinate veritatem habet. Sed licet determinate vera dicatur propositio quantum ad praesentem et determinatam inhaerentiam veritatis, quantum tamen ad eventum, quem loquitur indeterminatum, indeterminate vera est. Et hoc loco Aristoteles determinate vel indeterminate veras vel falsas propositiones dicit quantum ad eventus,

<blockquote>
scilicet determinatos vel indeterminatos, quos proponunt. (252.215-
225)
</blockquote>

There is then a sense in which (p) is determinate (*quantum ad praesentem
et determinatam inhaerentiam veritatis*), but this does not lead to the con-
clusion that the event expressed by (p) is also determinate, because it is not
the case that if a proposition is determinate in the second improper sense,
the event to which it refers is determinate as well. Abelard's solution to
the puzzle is then to reject the general validity of principle (IV.b): there
are propositions which are determinately true (if we intend "determinate"
in the second improper sense) even if the event to which they refer is not
itself determinate.

Only after giving this solution, Abelard proceeds to say that the ar-
gument above, although it does not work when it involves *determinacy*, is
instead plausible and valid if we replace *determinacy* with *certainty*, i.e. if
we speak not of what is knowable but of what is actually known by us. This
is why we must be careful in distinguishing the meaning of "determinate"
(*determinatum*) from the meaning of "certain" (*certum*). Again, what differs
in the behavior of the two "operators" of determinacy and certainty is the
fact that while principle (IV.b) is invalid for the first, it is a valid principle
for the second: whenever it is the case that a proposition is *certain* (i.e.
actually known by us) it is also the case that the event expressed by that
proposition is equally certain, because anyone who knows that, for instance,
"Socrates will eat" is true, also knows that Socrates will eat.

<blockquote>
Aliud etiam "determinatum" sonare videtur quam "certum", quia de-
terminatus dicitur eventus, qui ex cognoscibilis est nobis, ut paritas
vel imparitas astrorum ex ipsa praesentia, quam habent, de se cogni-
tionem dare potest; certa vero sunt, quae quoquo modo actualiter cog-
nita sunt. [...] Unde et si talis consequentia recipiatur: "Si 'Socrates
comedet' est vera, Socrates comedet", et certum sit antecedens, certum
erit et consequens. Sed non fortasse, si determinatum sit antecedens,
et consequens, quia praesens eventus ex se cognoscibilis est, sed non
ita futurus contingens. (252.226-253.241)
</blockquote>

The inference that Abelard is considering here («Si "Socrates comedet" est
vera, Socrates comedet») is the one in which the antecedent is our propo-
sition (p), and the consequent is the future contingent event (π). If the

antecedent was certain or actually known by us (which is not), then the consequent would also be certain, but it is not the case for determinacy or knowability. This means that we might have cases in which a proposition is determinate without the corresponding event being determinate, which confirms the fact that Abelard's solution to the argument lies in the rejection of principle (IV.b).

I shall now consider more in detail Abelard's discussion of the argument in the *Dialectica* (211.32-212.23).

The Third Argument in the *Dialectica*

Although Abelard's discussion in the *Dialectica* is much more concise than the one proposed in the *glossae*, the two expositions are similar, and they have the same structure. First, Abelard states that all present and past propositions are determinately true and false, while future contingent propositions only have an indeterminate truth value, depending on the determinacy or indeterminacy of the *eventus* to which they refer:

> Sicut autem eventum contingentis futuri indeterminatus est, ita et propositiones quae illos eventus enuntiant indeterminate verae sunt, et quae falsae, indeterminate falsae sunt secundum indeterminatos, ut dictum est, eventus quod pronuntiant. (*Dial.* 211.28-32)

However, Abelard goes on, one might wonder whether a future proposition is already determinately true or false in virtue of the fact that we might presently predicate its actual truth or falsity (*secundum praesentem inhaerentiam veritatis vel falsitatis*).

> Nam fortasse et verae determinate vel falsae quodammodo secundum praesentem inhaerentiam veritatis vel falsitatis videbuntur enuntiationes de huiusmodi quoque futuro. (*Dial.* 211.32-35)

Abelard outlines then the argument, establishing the premises from which it moves. The first premise is that all present events are determinate, for even if we have no knowledge about them they are definite or determinate in their nature:

> Quod autem praesens est determinatum est saltem in natura. Cum enim secundum scientiam numerus astrorum incertus sit, utrum videlicet ipsa paria sint an imparia, in natura tamen determinatum est illud

> quod est, hocest, non recusat ex se cognosci, quod iam actu subsistit
> (212.1-6)

and then he claims that every present proposition refers to some present determinate event, and that any proposition which refers to a determinate event is itself determinate:

> Omnia praesentia determinatum eventum habent (211.35-36)
> Sic quoque et quaelibet praesentia naturaliter ex se ipsis determinata
> sunt (212.6-7)

Abelard has then assumed what we called principle (III) – every present event is determinate – and principle (IV.a) – if the event is determinate, the proposition is determinate. The fact that he claims here that all present propositions refer to a present event would suffice, together with principles (III) and (IV.a), to claim that any present proposition is also determinate.[47] However, Abelard also invokes another reason for the fact that a proposition like (q) "that Socrates will eat is true" is determinate, which is a consequence of what we called above principle (II). Abelard says that every proposition is necessarily (i.e., in every time) either true or false, and therefore even for future propositions like (p) "Socrates will read today", either the property of being true inheres in them or does not inhere in them *in the present time.* There is then a present (and so determinate) *eventus* (χ) consisting in the inherence or not inherence of the property of being true in the proposition (p).

> Cum enim omnia praesentia determinatum eventum habeant omni-
> umque dividentium certum sit alteram veram esse, alteram falsam, de
> quocumque tempore proponatur, cum dicimus: "Socrates hodie leget",
> oportet iam alteram veram esse, alteram falsam, ut iam videlicet huic
> praesentialiter verum insit, illi verum falsum. (211.35-212.1)

Abelard has then established the determinacy of event (χ): *that truth inheres in proposition (p)*, and consequently the determinacy of the corresponding present proposition (q): "that Socrates will read today is true". He now passes to infer, from the determinacy of (q) the determinacy of the future

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[47]The *Logica Ingredientibus* differs from the *Dialectica* for Abelard abandons there the idea that every present proposition refers to a present event, and he holds that some present propositions are indeterminate; see 4.1.3 on page 232.

proposition (p), by saying that every proposition which has the property of being true or the property of being false already in the present, must be itsef determinately true or determinately false, even if it is determinate only *secundum susceptionem veritatis*, and not *secundum certitudinem eventus de quo agit*:

> Unde et quaecumque propositio veritatem iam habet, determinate eam habet, ac determinate fortasse vera dici potest secundum susceptionem veritatis, non secundum certitudinem eventus de quo agit. (212.7-9)

I take this passage as an instance of principle (V) above: if proposition "it is true that (p)" is determinate, proposition (p) is determinate. Moreover, Abelard suggests here that the term *determinate*, when referred to propositions, could be interpreted in two different senses, just as suggested in LI. In a first sense, a proposition is said to be determinate *secundum certitudinem eventus de quo agit*, i.e. according to the knowability of the corresponding event. In a second sense, it is said determinate *secundum susceptionem veritatis*, i.e. according to the fact that it is possible to predicate in the present moment of time its truth or falsity, obtaining a determinate proposition. The distinction corresponds to the one Abelard makes in LI *De Int.* 252.220-225; but while in LI Abelard says that only the first sense is the proper interpretation of propositions' determinacy, in the *Dialectica* he is silent on this point. At this point, Abelard asks whether, from the fact that the future proposition (p) is determinate follows that the future event (π) to which it corresponds is also determinate.

> Sed fortasse dicitur et ipse eventus rei determinatus esse. (212.10)

And finally Abelard gives his solution, saying that although it is plausible that whenever it is *certain* that a proposition is true, it is also certain that the event to which the proposition refers is the case («quicumque de veritate propositionis certus est, de eventu quoque dubitare non potest»), it is not the case that whenever a proposition is determinate, the corresponding event is also determinate:

> Cum enim ex veritate propositionis rei eventus numquam videatur inferri, quicumque de veritate propositionis certus est, de eventu quoque dubitare non potest; si enim certum est antecedens, et consequens. Sed aliud certum, aliud determinatum. Ea namque tantum determinata

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sunt quae iam ex se ipsis cognosci possunt. Futura vero ex se cognosci non valent, sed si aliquam certitudinem per responsum divinum vel per signa aliqua de futuris habere contingeret, certa quidem esse possent quocumque modo cognita, sed non determinata, nisi ex proprio eventu cognoscerentur. Non ergo verum recipimus quod si determinatum sit antecedens, determinatum sit et consequens. Sed fortasse si certum sit antecedens, certum erit et consequens. (212.10-21)

Just as he does in the glosses, Abelard concludes then that from the determinacy of (p) one cannot infer the determinacy of (π), invalidating therefore passage (10) of the argument, which was justified by principle (IV.b).

It is clear now that in the two works the structure of the argument is the same. Abelard considers a future event (π) which is supposed to be contingent, and so indeterminate, and the future proposition (p) which corresponds to it. He starts the argument by saying that, in virtue of the definition of "determinacy", every present event is determinate. He assumes then what I called above principles (I) and (III).[48] He proceeds stating that, in virtue of principle (II), there is a present event (χ) consisting in the actual inherence or non inherence of truth in the future proposition (p), which is determinate in virtue of its happening in the present.[49] He claims then that the determinacy of (χ) entails the determinacy of the present proposition (q), in virtue of principle (IV.a), and that the determinacy of (q) entails the determinacy of (p), in virtue of principle (V).[50] Proposition (p), however, is determinate only in an improper sense, not "*quantum ad eventum*" but "*quantum ad praesentem et determinatam inhaerentiam veritatis*". Because proposition (p) is determinate only in this improper sense, it does not follow from its determinacy that also the future event (π) is determinate, for it is not always the case that if a proposition is determinate the event to which it refers is also determinate.[51] Abelard's solution is then that a proposition might be (improperly) determinate although the event to which it refers is indeterminate. The argument is invalid because premise (IV.b) is to be rejected. Abelard also says that a same argument might be validly proposed if we substituted *certainty* to *determinacy*, and that we must be careful in

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[48]See *Dial.* 212.13 ff. and LI *De Int.* 252.227-254.281 for principle (I). See *Dial.* 211.1-2; 212.1-2; LI *De Int* 250.169-176 as evidence of principle (III).

[49]See *Dial.* 211.35-212.1; LI *De Int.* 252.215-225 as evidence of principle (II).

[50]See LI *De Int.* 251.184-192 and *Dial.* 212.7-9 as evidence of principle (V).

[51]See *Dial.* 212.7-9; LI *De Int.* 252.215-225 for the discussion of the two meaning of "determinate" and for the rejection of principle (IV.b).

distinguishing the two concepts.

Abelard's idea of distinguishing two different ways to understand the determinacy of a proposition, however, might seem an *ad hoc* solution, and far from convincing. What this Third Argument does in fact show is that the traditional proposal, advanced by Ammonius and Boethius, of solving the puzzles of logical determinism by means of the *determinate-indeterminate* distinction is not entirely satisfactory, and it could raise further difficulties. Abelard is however able, to his satisfaction, to provide an answer to all three arguments for logical determinism that he considers in the *Dialectica* and in the *glossae*. In the same two works, he also deals with another sort of deterministic arguments, the ones that are raised by the idea that God has complete and invariable knowledge of all events that happen in time. I discuss these arguments in the next section.

4.2 The Compatibility between Contingency and Divine Foreknowledge

As we have seen, Abelard devotes a long discussion to the problem of logical determinism, i.e. to the puzzles that the logical principles of bivalence and excluded middle give rise to with respect to the existence of contingent future events. However, at least until the beginning of the twelfth century, the most troublesome fatalistic arguments that medieval authors had to deal with were not connected to logical determinism but, instead, to *theological determinism*. In particular, many puzzling arguments were raised from the idea that God is *omniscient*, i.e. that he has a complete knowledge of all events, including future contingent ones. God's knowledge was generally assumed to be not only complete but also *eternal* and *immutable*, and many authors maintained therefore that already in the past God "foreknew" all events that would take place in the future.[52] When these assumptions on God's knowledge are taken in conjunction with the intuition – quite common in ancient and medieval philosophy – that whatever is past or present is somehow fixed and necessary, they seem to imply the idea that if it is or was known that it will be the case that *p*, then necessarily it will be the case that *p*.[53] How could this principle be reconciled with the idea that there are contingent events, which might equally take place or not take place, and with human freedom of choice, i.e. with the idea that there are open alternatives in the future among which human agents can freely choose?

The problem of compatibility between God's knowledge and the existence of contingent events and of human free choice (and consequently hu-

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[52]The immutability of God's knowledge was usually maintained as a consequence of God's simplicity and invariability. For the connection between immutability of God's knowledge and determinism in Aristotelian and medieval thought see (Gelber, 2004, p. 22 ff.). See also (Kretzmann, 1966); (Castañeda, 1967); (Kenny, 1979).

[53]For the formulation of this principle and his connection to the other problems related to future contingent propositions, see (Normore, 1982, p. 358-9) and (Normore, 1985, p. 3-4). Normore notes that this principle is associated to the idea that if it is (was) known that *p* then necessarily it is (was) known that *p*. Normore also notes that another related deterministic argument that Christian authors had to deal with concerns the concept of *prophecy* and the admission of prophetic elements in the Scripture. This argument is based on the principle according to which necessarily, if it was prophesied that *p*, then it will be the case that *p*, and aims to conclude that all future events that are prophesied in the Scripture will take place necessarily and not contingently. Abelard does not deal directly with this argument in his logical works, and so I will not consider this variation of theological fatalism in what follows.

man beings' responsibility for their actions) is not the exclusive property of medieval Christian authors, but can be traced back to antiquity.[54] An ancient source that is particularly relevant for medieval developments on the theme is Cicero's argument in *De Fato*, which poses the problem of incompatibility between divine foreknowledge and contingency and aims to solve it by rejecting the idea that God has a complete knowledge of all events. Cicero's argument will be the basis for Augustine's and then Boethius' discussions on theological determinism, which constitute the main sources for eleventh-century debates on future contingents, and also for Abelard's own discussion of it in the *Dialectica* and in the glosses on *De Interpretatione* 9.

In the following section, I shall consider briefly Augustine's and Boethius' attempts to reconcile foreknowledge and contingency, and I will draw attention to some early medieval developments on the problem (in particular, in Anselm of Canterbury's and William of Champeaux's works). In section 4.2.2 I shall proceed to analyze the way in which Abelard enters the debate and tries to solve the puzzle of theological determinism. Abelard's solution, although partly based on Augustinian and Boethian elements, is innovative and interesting, for it is an application of the distinction between the *de rebus* and *de sensu* interpretation of modal proposition, that he himself had developed in his logical works. In contrast to Abelard's way out of logical determinism, which did not have a great impact among his successors and was usually rejected in favor of different solutions, Abelard's analysis of foreknowledge was highly influential in Middle Ages, and became the standard solution to the problem, although it was usually repeated in the slightly modified form in which Peter Lombard put it in his *Sententiae* I, 38.2 (Knuuttila, 2010, p. 84).

4.2.1   The problem of divine foreknowledge before Abelard

Augustine

Although Aristotle's *De Interpretatione* had already been translated into Latin at the time in which Augustine writes his discussion of future contingents, Augustine never quotes the Aristotelian text, and he was probably not familiar with it.[55] What instead seems to have stimulated Augustine's the-

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[54]As Craig notes in (Craig, 1988, p. 59), this problem was already discussed in Ammonius and even before him.

[55]See on this (Craig, 1988, p. 59-60) and (Holopainen, 2006, p. 109).

ory on future contingents is Cicero's discussion of the topic in his *De Fato*. There, the Latin philosopher argues against the Stoic theory of determinism, according to which everything that happens, including human choices and actions, is predetermined and therefore happens necessarily. The fatalist dilemma considered by Cicero and then commented on by Augustine has the following form (Craig, 1988, p. 64):

(1) If God foreknows [all future things and hence foreknows] that a man is going to sin, it is necessary that the man sins.

(2) If it is necessary that a man sins, the man does not sin voluntarily, but sins by necessity.

(3) Either God does not foreknow all future things or the man does not sin voluntarily but by necessity.

Cicero's answer to the argument is that we must reject the idea of a divine foreknowledge, in order to preserve the existence of human freedom of choice, which, according to him, is the foundation of the notions of responsibility and morality. Cicero claims in fact that there can be no foreknowledge without a determined order of causes, and there could be no freedom of choice if such an order of causes exists. Augustine, on his part, rebuts Cicero's idea that there is no foreknowledge (and, in particular, no divine foreknowledge), for the completeness and eternity of God's knowledge is to him an inescapable principle which cannot be dropped, not even to save the contingency of human actions.

However, according to Augustine, the solution cannot be to choose the other horn of the dilemma either, and say that what is to be rejected is contingency and freedom of choice, for he thinks, just as Cicero did before him, that freedom of choice is what grounds human beings' responsibility for their actions and then moral behavior. Human beings are "free" not only in the sense that their acts are not constrained by some external causes, but also in the sense that they have the real possibility of choosing between different alternative courses of action. For instance, whenever a man commits a sin, he is taken to be responsible only if before committing the evil action it was possible for him both to commit and not to commit it, and if facing these opposite paths he deliberately chose the evil one. Therefore, both divine foreknowledge and freedom of choice are non negotiable principles,

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and, as Augustine says, «the God-fearing mind chooses both freedom and foreknowledge. It accepts both and supports both with religious loyalty».[56] The only solution to the argument should be to prove that there is no incompatibility between these two principles. This is what Augustine attempts to do in his *De civitate Dei* V, 8-11 and in *De libero arbitrio* III, 1-4.[57]

It is not easy to provide a clear interpretation of what Augustine's answer to the dilemma posed in (3) consists in. Some interpreters, e.g. Craig in (Craig, 1988), read Augustine as adopting the same solution that will be later adopted by Boethius (see 4.2.1 on the next page), i.e. as saying that since God's knowledge is timeless and eternal, it is not strictly speaking *fore*knowledge, but it is just as our knowledge of the present. Just as we know the things that we see presently happening in front of us, God, who is timeless, simultaneously knows everything that happens in all times. But just as our knowledge of the present does not impose any necessity on events, in the same way God's knowledge does not make events necessary or predetermined. What Augustine would be suggesting according to this interpretation is that although it is indeed necessary that whatever God knows will happen, this is a harmless sense of necessity, and does not imply that all events are predetermined and not contingent (Craig, 1988, p. 66-73).

Other interpreters have more recently shown that, although it is true that Augustine frequently refers to God and God's knowledge (or "*providentia*") as being timeless and eternal, differently from Boethius in the *Consolation of Philosophy*,[58] he does not use this idea to solve the puzzle of theological fatalism. According to these interpreters, Augustine's solution does not consist in saying that God's knowledge of future events is like our knowledge of present things, but it consists instead in denying that the existence of a

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[56]See (Augustine, 1955, V, 9), transl. Green, 173. Quoted in (Holopainen, 2006, p. 110).

[57]For Augustine's discussion of Cicero's argument see (Craig, 1988, p. 59-60); (Knuuttila, 1993, p. 66-70); (Holopainen, 2006, p. 109-10).

[58]See (Holopainen, 2006, p. 110-11) on this: «In his attempt to show how they can be compatible, Augustine does not refer to God's eternity, and he is happy to speak of God's knowledge of the future as "foreknowledge" (instead of speaking of it as "present knowledge" insofar as it is the knowledge possessed by a timeless being). However, in the background of Augustine's discussion, there is one idea which often goes together with the idea of divine eternity, namely, the idea of divine providence. The determined order of causes on which foreknowledge is based can also be called "providence" – at least as far as we are talking about things which are good. If God's being is timeless, the same seems to apply also to his providence. In the present context, however, Augustine does not refer to the timeless nature of providence. What matters here is that there is a determined order of causes which depends on God and is known by him».

determined order of causes, which God knows, would bring it about that the human will could not choose freely. On the contrary, Augustine says that God's foreknowledge is what "guarantees" the existence of contingency and freedom of action: the fact that God already knows that some actions will result from unconstrained deliberation and free choice makes it sure that these actions are in fact free and not predetermined. Human wills would then be at the same time both free and part of the determined order of causes which God knows (Holopainen, 2006, p. 110).

Boethius

Whether it is, or is not, a part of Augustine's reply to theological determinism, the Neoplatonic idea that God's knowledge is eternal, immutable and somehow "timeless" or "tenseless" is very influential in medieval discussions on future contingents and foreknowledge (Craig, 1988, p.73-8). In particular, this idea is one of the elements that constitute Boethius' solution to the puzzle of divine foreknowledge: in his *Consolation of Philosophy* Boethius argues that God's knowledge is not strictly speaking *fore*knowledge, i.e. knowledge of the future, because God, who is eternal, does not *foresee* events but simply *sees* what happens in the entire span of temporal series as if it was presently happening. This idea is used by Boethius to argue that, just as our knowledge of the present does not impose necessity on things, in the same way God's knowledge of events does not make future events necessary, unless we intend "necessity" in a weak and harmless way. I shall now look at this argument in more detail.[59]

As is well known, in the *Consolation of Philosophy* Boethius engages in a dialogue with the personification of Philosophy, by whom he is gradually convinced to give up his complaints about the adversities of his condition. Lady Philosophy persuades him that the divine providence has already set everything in the right way and for the best, including human actions and his own fortunes. Philosophy also tries to convince the Prisoner that, despite the existence of a fixed providential plan, there are things that happen not necessarily but contingently, some of which are the result of human free

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[59]For an interpretation of Boethius' argument against theological determinism see in particular (Craig, 1988, p. 79-98); (Galonnier, 2003); (Marenbon, 2003); (Marenbon,); (Evans, 2004); (Marenbon, 2005); (Holopainen, 2006, p. 105-9); (Sharples, 2009); (Zagzebski, 2011); (Marenbon, 2013b).

choice and deliberation. The argument for theological fatalism is proposed by Boethius in the following way:

> If God foresees all things and cannot be mistaken in any way, what providence has foreseen will be, will necessarily happen. So, if God foreknows from eternity not just what humans do but also their plans and volitions, there will be no freedom of choice, for there will not be able to be any deed, or any sort of volition that infallible divine providence has not foreseen. For if volitions are capable of turning out differently from how they have been foreseen, then there will not be firm foreknowledge of the future, but rather uncertain opinion, and I judge it wicked to believe that about God. (Boethius, 1973, quoted and translated in Marenbon, 2103, p. 11)

As Marenbon points out, in the passage just quoted the Prisoner is setting out is a "transcendental argument": we can be sure that the world is such that God can foreknow all things. But, if any of these things could turn out differently, then God could not foreknow them. It is not true then to say that some events are contingent – i.e., that they can equally either happen or not happen – because it is impossible for them to be otherwise than God knows them. No future event – not even human volitions – is such that it will not, in the Prisoner's terminology, necessarily take place: the future is fixed, not contingent (Marenbon, 2013b, p. 12).

Boethius' way out from the fatalistic consequences of the argument is constituted by three different elements (Sharples, 2009, p. 216-20).[60] First, Boethius says that things that are known are not always cognized in virtue of their nature, but rather they are cognized in virtue of the power and capacity of the knower, in this case, God:[61]

> The cause of this error is that each person considers that all the things that he knows are cognized only from their own power and nature. It is the complete reverse: for everything that is cognized is cognized, not according to its own power, but rather according to the capacity of those who are cognizing. (Boethius, 1973, IV.24-25, quoted in

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[60] As Sharples notes, all these three elements were already present in Ammonius' discussion of future contingents and in other discussions precedent to Boethius' *Consolatio*, but differently from Boethius, Ammonius does not combine the three in a unique solution.

[61] This claim can be traced back to the Neoplatonist philosopher Iamblichus (c.245-c.345 AD) and has been labelled in (Evans, 2004, p. 268-9) the 'Iamblichus Principle'.

A second element of Boethius' solution is the distinction between two different kinds of necessity: absolute or simple necessity and conditional necessity. The kind of necessity that might be inferred from God's foreknowledge is the last, harmless sense of necessity. It is in this second sense of necessity that one could say that, if I know that Socrates is walking now, then necessarily he is walking now. The same works for God's knowledge: if God knows that something will happen, then this thing will necessarily happen, but only in a conditional sense, not in the sense that its happening is inevitable and not contingent.

> For there are really two necessities, the one simple, as that it is necessary that all men are mortal; the other conditional, as for example, if you know that someone is walking, it is necessary that he is walking. Whatever anyone knows cannot be otherwise than as it is known, but this conditional necessity by no means carries with it that other simple kind. (Boethius, 1973, p. 428-430)

As emphasized in (Sharples, 2009, p.218-9), the distinction between conditional and absolute necessity is part of the solution, and not itself the solution that Boethius advances to argue against theological determinism. What still needs to be guaranteed in order to solve the puzzle of theological fatalism, and which constitutes the third element of Boethius' solution, is the idea that God's knowledge is not properly speaking *fore*knowledge, because God can know all past and future events as if they were simultaneously present to him.[63]

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[62]This is a distinction that will be relevant also in Abelard's discussion of future contingents: there are some things that are *knowable* or *cognizable* in virtue of their nature or in virtue of their being happened in time. These are the things that Abelard calls "determinate". There are also, according to Abelard, other things that are not cognizable nor accessible to our knowledge, because they have not happened and their nature is indeterminate, but that can be "certain" or "actually known" by us (maybe inasmuch as a prophet or an angel informed us about them). As strange as it may seem, there are therefore things that are not *knowable* but are nevertheless *known*. This is what happens with God's knowledge of future contingents: these events are not knowable, because their nature is indeterminate, but are nevertheless known by God (and can be known by us, if some divine prophecy informs us about them) because they are cognized in virtue of the cognizer's capacity and not in virtue of their own power and nature.

[63]As Marenbon notes in (Marenbon, 2013b), whether this position must be read metaphysically or epistemically is matter of debate. In the first reading, the idea is that God is atemporally and eternally present, and therefore simultaneous with everything that hap-

Putting the three elements together, Boethius is able to deny the general claim according to which if it is known by God that p will be the case, then it is (absolutely) necessary that p will be the case. He argues for this using an analogy with our own knowledge of the present: if someone knows that a man is walking, because he sees that this man is walking now, then it is necessary that this man is walking now. However, necessity should be taken here in the sense of conditional necessity, in the following way:

[Necessarily (it is known that this man is walking → this man is walking)]

and not in the sense that walking is itself necessary for this man, as if it was said:

[This man is walking → necessarily (this man is walking)].

Because God's knowledge of the future is like our knowledge of the present, in virtue of the fact that he knows all events *as if* they were happening now, it is true to say that if God knows that this man will be walking tomorrow, then necessarily this man is going to walk tomorrow, but this claim is just as harmless as saying that if I know that this man is walking now, then necessarily this man is walking now. God's knowledge of the future does not impose any necessity on the events, but is rather derived from the happening of these events.

Theological determinism in the eleventh century

Boethius' argument for the reconciliation between God's complete knowledge and contingency is extremely influential in early medieval discussions, and it will be rehearsed in part also in Abelard's discussion of theological determinism. In the eleventh century, however, Augustinian sources on foreknowledge were just as important as Boethian ones. At least in the first half of the century, the question on future contingents was discussed almost only in connection with God's foreknowledge and omnipotence, and not with

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pens in time; in the second reading, «it is not the case that all events past, present and future are simultaneous with God's eternal present, but it is a feature of his way of being that he is able to know them as if they were present» (Marenbon, 2013b, p. 18). Marenbon opts for the second interpretation and argues that the metaphysical ground for this third element of Boethius' solution is not the *atemporality* of God but rather his *simplicity* and *immutability*: being simple and unchanging, God's knowledge cannot be influenced by the happening of things, and must be itself simple and simultaneous (Marenbon, 2013b, p. 17-9).

respect to the problems of logical determinism presented in *De Interpretatione* 9 and in Boethius' commentaries on the Aristotelian texts.[64] The authors of this period make reference to the question whether the idea that everything that has happened and will happen stands eternally in the divine plan is compatible with human free choice. Nevertheless, many authors thought that the puzzling consequences raised by divine foreknowledge were a merely apparent problem, that could be avoided by making reference to a distinction between different kinds of necessity, i.e. conditional and absolute necessity. This is for instance what Anselm of Canterbury says in *Cur Deus homo* (Holopainen, 2006).[65]

Anselm refers to the problem of the harmony between God's providence and human free choice in several works, such as in *De Casu Diaboli* (ca. 1080), where the problem of future contingents is referred to as "*the very celebrated question*" (Holopainen, 2006, p. 104), in his last treatise *De Concordia* (1107-1108), and particularly in his *Cur Deus homo* (1098).[66] What is particularly notable in Anselm's discussion of foreknowledge is his distinction between antecedent necessity (*necessitas praecedens*) and sequent necessity (*necessitas sequens*). Antecedent necessity is, according to Anselm, necessity in the proper sense, i.e. it is the necessity that is imposed on a thing by its external efficient cause (see in particular *Cur Deus homo* II 17, 125.6-126.2). Things that are said necessary in the sense of sequent necessity, on the contrary, are those things that are necessary in virtue of their happening in a certain moment of time, as if I say that if Socrates is walking now it is necessary that he is walking, for it is impossible for him not to be walking while he is walking. Anselm thinks that the problem of future contingents might be solved by invoking the distinction between two kinds of necessity, for, he claims, future contingent events are only necessary in the second and

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[64]See (Holopainen, 2006) on this point.

[65]For a survey of these sources see (Holopainen, 2006). In this essay, the author considers the discussion of divine foreknowledge in Anselm of Besate's *Rhetorimachia* (1045-48), in Peter Damian's *De divina omnipotentia* and in Anselm of Canterbury. Holopainen argues that all these sources lead us to think (i) that the problem of future contingents was already debated already in the 1020s, and (ii) that Augustine, rather than Boethius, constituted the main source for these debates. See also (Holopainen, 1996) and (Holopainen, 1999) on this point.

[66]As pointed out by Holopainen, in this last work there is the only reference Anselm makes to the problem of future contingents as a separate problem, distinguished from the problem of divine foreknowledge (Anselm of Canterbury, 1961a, II 17), quoted in (Holopainen, 2006, p. 104).

improper sense of necessity, and not in the sense of being predetermined by some external efficient cause. It is in this sense of subsequent necessity that what is past is necessarily past, what is present is necessarily so, and what will be necessarily will be,[67] and it is in this sense that what God foreknows necessarily will come to pass (Normore, 1982, p. 359-61). Also, according to Anselm, it is to the second sense of necessity that Aristotle is referring to in his *De Interpretatione* 9, when he worries about whether all future events are necessary:

> Haec est illa necessitas quae, ubi tractat Aristoteles de propositionibus singularibus et futuris, videtur utrumlibet destruere et omnia esse ex necessitate astruere. (*Cur Deus homo*, II 17, 125, 20-22, quoted in (Holopainen, 2006))

In order to explain what it means to say that things are necessarily going to be as God knows them to be, or as we ourselves know them by means of some prophecy, he says that neither God's nor our knowledge of the future impose any necessity on things, because this knowledge is not the *cause* of their happening, in the sense that it is not the efficient external constraint that brings them about.[68]

Another author writing in the late eleventh and early twelfth century who is interested in the question of theological determinism and whose work will be a source for Abelard's discussion of the topic is William of Champeaux (ca. 1070-1122). Exactly as Abelard will do in the *Dialectica*, William considers the following puzzling inferences:

(i) if God's foreknowledge is infallible, then future events – including the actions of human beings – all happen of necessity;

on the other hand,

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[67] «Pariter autem verum est quia fuit et est et erit aliquid non ex necessitate, et quia necesse est fuisse omne quod fuit, et esse quod est, et futurum esse quod erit» (Anselm of Canterbury, 1961b, p. 249, 10-12), quoted in (Normore, 1982, p. 360).

[68] As Knuuttila shows in (Knuuttila, 2014), in explaining Mary's believing the truth of a prophetic statement concerning the death of Christ, Anselm writes: «Therefore, since her faith was true faith it was necessary that things would be as she believed. But if you are once again disturbed by my saying "It was necessary...", then remember that the truth of the virgin's faith was not the cause of his dying freely but that her faith was true faith because this was going to happen.» (*Cur Deus homo* II 17, 124.27-125.3; quoted in (Knuuttila, 2014)). On Anselm's theory of modalities and future contingents see also (Serene, 1981); (Knuuttila, 1993); (Marenbon, 1996); (Holopainen, 1999) and (Knuuttila, 2004).

(ii) if future events, including the actions of human beings, could occur otherwise, then God's foreknowledge is fallible.[69]

William thinks that both entailments (i) and (ii) are invalid, and that determinism of future events cannot be inferred from God's infallibility. In order to show this, he first argues that God foreknows not only the actions that human beings will choose in the future, but also all the range of possibilities among which they can choose (William of Champeaux, 1959, § 237-238) and he also foreknows the "modes" of these actions, i.e. whether future actions are contingent or necessary (Marenbon, 1997, p. 226).[70] William also claims that although the events to which future contingent propositions refer are not determinate, inasmuch as they do not exist yet, God knows them as being determinately true or determinately false (William of Champeaux, 1959, § 238, 36, quoted in (Guilfoy, 2012)).

The proposition which says that "if future events could occur otherwise, then God's foreknowledge is fallible", was interpreted in several ways by William's contemporaries (Guilfoy, 2012). In order to save the infallibility of God's knowledge, some rejected the idea that things can be otherwise than they actually are. Others held that, because some events could occur otherwise than they do, God is actually fallible and they dismissed so God's infallibility arguing that rather he is just "very lucky epistemically" (Guilfoy, 2012). William rejects both views, by claiming that the inference from "the event could occur otherwise" to "God is or could be deceived" is not necessary (William of Champeaux, 1959, §237.68). However, William does not provide a justification for the invalidity of entailments (i) and (ii) above. Abelard will also consider these inferences both in the *Dialectica* and in the *Logica Ingredientibus*, and he will explain their invalidity saying that they are based on a confusion between the *de rebus* and *de sensu* interpretation of modal claims.

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[69]See (Guilfoy, 2012) on this.

[70]Marenbon quotes a passage from William's *Sententiae* as evidence for this idea: «Nota etiam quia Deus non solum providet actus hominum, sed etiam omnes modos. Cum enim modo sedeam, hoc providet Deus et modum etiam, scilicet posse non sedere; sedere enim et posse non sedere non sunt contraria» (William of Champeaux, 1959, § 238, p. 197, 18-21).

4.2.2 Abelard on theological determinism

While commenting the ninth chapter of *De Interpretatione*, Abelard says that there are some people who claim that everything that happens happens of necessity, and they try to demonstrate this by referring to God's providence or predestination. They say in fact that because God has already established a providential plan and knows that everything will happen in a certain way, things cannot happen but in conformity to his knowledge, which is infallible, and according to his providential plan, which is unchangeable («*secundum eius providentiam, quae falli non potest, et institutionem praedestinationis, quae mutari non potest*»), and so every single event happens necessarily the way it happens and when it happens:

> Sunt autem nonnulli, qui nil utrumlibet appellent nec aliqua futura contingentia dicant, sed omnia quae eveniunt ita ut eveniunt ex necessitate evenire. Quod ex dei providentia sive praedestinatione conantur ostendere. Aiunt enim, quod deus, qui in sua providentia falli non potest, omnia ab aeterno providit et pradestinavit ita evenire ut eveniunt, et tunc evenire quando eveniunt; quare secundum eius providentiam, quae falli non potest, et institutionem praedestinationis, quae mutari non potest, necesse est singula ita et tunc evenire ut eveniunt et quando. Et ita omnia sub necessitate costringunt, ut nullatenus vitari possit, quin eveniant, sicut eveniunt et quando. (LI *De Int.* 259.388-398)[71]

A consequence of this opinion, Abelard goes on, is that everything that happens is determined by God, who in this way would be chargeable for both every good things and every evil thing that come about («omnium bonorum laudem vel malorum culpam in auctorem omnium refundebant»), while every human being would be relieved from the responsibility for her or his own actions. This opinion, Abelard says, is execrable not only with respect to Christian religion but also with respect to natural reason, and in particular to Peripatetic philosophy:

> Quae pessima omnium haeresum non solum christianorum religioni, verum etiam philosophorum naturali rationi abominatio est, et maxime (teste Boethio) < Peripateticorum > (LI *De Int.* 259.402-4)

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[71]The same problem is posed in *Dial.* 217.19-22: «Cum enim ab aeterno Deus omnia futura esse, sicut futura erant, providerit, Ipse autem in dispositione suae providentiae falli non possit, necesse est omnia contingere sicut providit; si enim aliter contingere possent quam lpse providerit, possibile esset Ipsum falli».

Abelard strongly rejects the idea that the infallibility of God's knowledge and the fixedness of God's providential plan imply that there are no contingent events and that nothing is up to human beings' free choice. Before investigating the fallacies in this fatalistic argument, he devotes part of his discussion to define what he means by the terms "providence" (*providentia*; *vis providentiae*) and "predestination" (*vis praedestinationis*).[72]

According to Abelard (LI *De Int.* 259.404-260.410), when we speak of "*providentia*" we refer to God's knowledge of future events (*praescientia futurorum*). This consists in the simultaneous knowledge of every singular state of affairs that takes place in the future, before it happens (*simul singula praescivit, antequam eveniret*), and is the knowledge not only of the good things, which are efficiently caused by God, but also of the evil things that we, not God, are responsible for (« *est providentia non solum praescientia bonorum, quae ex eo procedunt, verum etiam malorum, quae a nobis fiunt* »). Abelard's *praedestinatio* is instead the same as fate (*fatum* or *fatatio*), i.e. it refers to those things that God has established to happen in history and that are brought about by him: « *praedestinatio idem esse quod fatum, id est fatatio, videtur, quando videlicet bonum quod providet stabiliendo mente disposuit, ut eveniat, quando ipse voluerit* ». In contrast to providence, which, as was mentioned above, is the knowledge of both good and bad things, predestination only includes good things, for evil things that happen are caused by us and not by God. Following Augustine, Abelard thinks in fact that predestination is nothing other than "*praeparatio beneficiorum dei*". The distinction between the two concepts of providence and fate was already proposed by Boethius in (Boethius, 1973, IV.6),[73] and Abelard makes a direct reference to his work in LI *De Int.* 261.425-444, where he says that Boethius distinguished between "*providentia*", which is the same as *divina ratio*, and "*fatum*", which is the divine *dispositio* of events that take place in the world of moving things (*rebus mobilibus dispositio*). Abelard notes that

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[72]This distinction is proposed only in the glosses on *De Int.* 9, and not in the *Dialectica*, where Abelard only speaks of *providentia* or divine foreknowledge, and never of predestination.

[73]This distinction had a long history already before Boethius. See (Sharples, 2009, p. 214) on this point. As Sharples notes, this distinction « became particularly significant in the Platonist tradition of which Boethius is part, where it was emphasized not only that fate is the working-out of the providential plan in space and time, but that rational human souls can rise above the level of fate ». The topic was debated, for instance, in Plotinus, Proclus, Calcidius and Augustine. See (Sharples, 1991, 29-31) and references there.

there is an ambiguity in Boethius' words, because he presents foreknowledge and predestination as being at the same time two different things and the same thing. According to Abelard, it is correct to consider the two as being *essentially the same* thing, and to say that both God's providence and predestination are nothing more than God himself. This is because, he says, it is somehow improper to distinguish among different attributes of God, given that God's nature is simple and indivisible.[74] However, the two are also considered to be different from the point of view of human beings because the two names are assigned according to a different *causa impositionis*:

> Quae quidem verba habent ambiguitatis, cum scilicet modo idem fatum et providentiam vocat, modo diversa. Sed cum in deo nil sit aliud ab ipso nec aliud sit sapientia eius vel providentia vel praedestinatio (id est fatalis stabilitio) eius, quam ipse, recte idem essentialiter dixit; quia vero homines <imponentes> nomina tam creatori quam creaturis aliunde providentem, aliunde fatalem dixerunt, recte secundum diversas vocabolorum causas diversa fatum et providentiam dixit, sicut aliud risibile esse, aliud navigabile esse dicimus, cum tamen idem sit penitus navigabile et risibile, ac est tale, ac si dicatur quod aliud sonat "risibile", aliud "navigabile" secundum diversas impositionis causas. Sic et deus et providentia dicitur ex eo quod providet et praescit, et fatum ex eo quod stabilit et disponit in creaturis. Nec ullae sunt proprietates, quas in eo intelligamus, dum eum providentem vel fatalem dicimus vel scientem vel intelligentem vel bene agentem, sed more humano loquentes simplicem eius essentiam et in se omnino invariabilem pro his, quae per eum invariabilem varie fieri contingunt et varie a nobis exscogitantur, variis designamus nominibus. (LI *De Int.* 261.444-262-462)

After having distinguished between foreknowledge and predestination, Abelard insists that neither of them impose any necessity on things, for by means of foreknowledge God knows whatever will be, including future contingent events, but knows them as being contingent and not as being necessary. Similarly, predestination does establish what will take place in the future but again not as taking place necessarily:

> At vero, cum provideat vel praedestinet futura, neque providentia eius neque praedestinatio necessitatem rebus infert. Providet enim futurum fieri, sed non ex necessitate fieri; stabilit futurum, ut fiat, sed non

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[74]For Abelard's discussion of God's simplicity see in particular LI *De Int.* 262.455-263.485.

ut ex necessitate fiat. Sic enim providet et stabilit futura, sicut sunt eventura, ut scilicet sic eveniant ut possint etiam non evenire. Quippe sic eventura sunt ut possint etiam non evenire (LI *De Int.* 264.491-497)

Sic ergo integre providentiam eius consideremus, quae omnia simul praescivit, quae ad meum actum sive possibilitatem pertinebant, et ita me ambulare modo et simul modo posse non ambulare providit, secundum eius providentiam et me ambulare contingit et posse non ambulare quia utrumque in eius providentia aequaliter persistit. (LI *De Int.* 264.507-512)

Moreover, Abelard recalls Boethius' analogy between God's knowledge of the future and our own knowledge of present facts. Just as from the fact that I see someone walking in front of me, and that I know that he is walking, this does not imply that he is walking necessarily, so it is not right to infer from the fact that God already knows that I will be walking or that I will sin that I do so of necessity:

Sicut enim, si quis ante me ambulet, quem videam et sciam ambulare, visus meus et scientia non confert ei, ut ex necessitate ambulet, nec tamen ambulantem videre vel scire possum, nisi ipse ambulet, ita dei providentia me ita ambulaturum providit vel peccaturum, ut mihi necessitatem in altero non inferret; alioquin ipse me compelleret peccare, nec reus essem, qui coactus peccarem, sed ipse per quem peccare cogerer. (LI *De Int.* 264.501-7)

Although Abelard does not explicitly hold the idea that God's knowledge is not strictly speaking *fore*knowledge, we might infer that he, like Boethius, embraces this idea by his insistence that God knows all events simultaneously (*omnia simul praescivit*, see LI *De Int.* 264.508; 259.407). As Marenbon suggests it is the case for Boethius (Marenbon, 2013b, p. 17-9), the metaphysical ground on which Abelard bases the idea that God knows future events just as he knows past and present events is not God's eternity or his atemporality, but rather his simplicity, and the consequent immutability of his knowledge.

Finally, Abelard considers the "astute but quibbling" argument (*callida sed cavillatoria argumentatio*) which claims that, if it is possible for things to happen otherwise than they actually happen, then it is possible for God to fail (*si res aliter evenire possunt quam eveniunt, possibile est deum falli*):[75]

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[75]This argument is considered in *Dial.* 217.16-219.24 and LI *De Int.* 265.520-267.3.

Si possibile est rem aliter evenire, quam evenit, possibile est rem aliter evenire, quam deus eventuram esse providit. A pari. Et ita possibile est deum rem aliter providere, quam evenit, et ita possibile est deum falli. Si enim aliter evenit res, quam deus providit, vel aliter providit deus, quam evenit, deum fallitur. Unde si possibile est aliter evenire, quam deus providit, vel aliter providisse, quam evenit, possibile est deum falli. Cuiuscumque enim antecedens est possibile, possibile est et consequens. [...] Cum itaque haec consequentia vera sit: "Si res aliter evenit, quam deus providit, vel aliter providit, quam evenit, deus fallitur", vera est et haec: "Si possibile est aliter providisse vel evenire, possibile est deum falli". Itaque per medium probata est proposita consequentia, haec scilicet: "Si possibile est rem aliter evenire quam evenit, possibile est Deum falli". (LI *De Int.* 265.524-266.539)

The argument could be represented in the following way:

(1) If things happen otherwise than they happen, then things happen otherwise than God foreknows.

(2) If things happen otherwise than God foreknows them, then God is wrong.

(3) For any two propositions *p* and *q*, if *p* entails *q*, then if it is possible that *p* it is possible that *q*.

(4) If it is possible for things to happen otherwise than they happen, then it is possible for things to happen otherwise than God foreknows.

(5) If it is possible for things to happen otherwise than God foreknows, then it is possible for God to be wrong.

(6) If it is possible for things to happen otherwise than they happen, then it is possible for God to be wrong.

(7) It is possible for thing to happen otherwise than they happen.

(8) It is possible for God to be wrong.

Abelard's answer consists in pointing out that modal propositions used in the argument are ambiguous, for they can be interpreted in different ways. In

As main source for a discussion of this argument Abelard explicitly refers to Augustine's *De civitate Dei*, V 9, and to the Augustinian treatment of Cicero's position in *De fato* (cap.10-20), *De natura Deorum* and *De divinatione* (II.6.15).

particular the proposition (7): "It is possible for things to happen otherwise than they happen" (*Possibile est rem aliter evenire quam eveniunt*) might be understood (i) *de rebus*, i.e. as saying that it is compatible with the nature of things to be otherwise than they actually are; or (ii) *de sensu*, as saying that the whole sense of this proposition is possible: "things are otherwise than they are". In the first sense, the proposition is true, in the second sense the proposition is false. The same is the case for proposition: "It is possible for things to happen otherwise than God foreknows them", which is according to Abelard true *de rebus* but false *de sensu*:

> Cum dicitur: "Possibile est rem aliter evenire quam evenit", duo sunt sensus, sicut duo, cum dicitur: "Possibile est stantem sedere". Si enim ita dicimus, quod rem illam quae stat, natura permittit sedere, verum est; si vero ita, quod natura permittit ita esse ut dicit haec propositio: "Stans sedet", falsa est. Similiter si dicamus, quod possibile est rem evenire aliter modo, quam evenit vel quam deus adhuc in sua providentia habueritm qui tantum eam evenire providit, verum est. Si vero dicamus quod possibile sit ita contingere, ut haec propositio dicit: "Res evenit aliter, quam evenit" vel "aliter, quam deus providit" falsum est. (LI *De Int.* 266.541-550)

A very similar position is maintained by Abelard in the *Dialectica*. Although he does not employ there the same terminology, it is clear from the discussion of theological fatalism that the distinction between the *de rebus-de sensu* interpretations of modal claims was already fully developed in the *Dialectica*, for Abelard says that in the proposition "It is possible for things to happen otherwise than God foreknows them" (*Possibile est rem aliter evenire quam Deus providit*) might be true or false, dependently on the *scope* we assign to the different syntactical components of the proposition. Instead of speaking of the modal operator being attributed to the thing itself (*de rebus*) or to the sense of a proposition (*de sensu*), Abelard explains the difference between the two interpretations in the following terms: although in both cases "possibile" is the predicate of the proposition and "to happen" is the subject,[76] nevertheless in the first case we must interpret the expression "otherwise than God foreknows" as being a determination of the predicate, in the second case as being a determination of the subject, in this way:

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[76]See 1.1.1 above.

(i) for things to happen $_{(\text{subj})}$ [it is possible $_{(\text{pred})}$ otherwise than God foreknows$_{(\text{det})}$];

(ii) [for things to happen $_{(\text{subj})}$ otherwise than God foreknows$_{(\text{det})}$] it is possible$_{(\text{pred})}$.

The proposition is true when interpreted in the first sense, and it signifies that things have *the potency* of happening differently than they actually happen ("[*res*] *potentiam aliter proveniendi habet*"), so that the term "possible" is attributed to *the things themselves* and refers to their potentialities; it is false if we instead attribute the modal term to the whole sense of a categorical proposition, which entirely is the subject of the modal term (*totum subiectum est*), as if we said that this whole sense is possible ("*istud totum est possibile*"): "things happen otherwise than God foreknows". The same could be said of the other modal claim involved in the argument: "it is possible for things to happen otherwise than they happen", which is again true *de rebus* and false *de sensu*.[77]

Coming back to the puzzling argument, Abelard argues that the argument is only valid if all modal claims are interpreted *de sensu*, for the principle stated in (3) is only valid for *de sensu* propositions, and not for *de rebus* ones. But since the modal proposition stated in (7) is false when taken *de sensu*, even if the conclusion stated in (8) follows from it, it is itself false, for it is inferred from a false premise:

> Si dicamus quod possibile sit ita contingere, ut haec propositio dicit: "Res evenit aliter, quam evenit" vel "aliter, quam deus providit" falsum est, et ex hoc falso et impossibili satis concedendum est sequi illud falsum et impossibile, id est quod possibile est deum falli. Tunc enim regula praedicta locum habet: cuiuscumque antecedens possibile est, et

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[77]See *Dial.* 218.26-219.2: «Dicimus autem eam ["si possibile est rem aliter evenire quam Deus providit, possibile est Deum falli"], quodammodo intellectam, veram esse, cum scilicet antecedens quoque ipsius verum est, alio vero modo, falsam, cum videlicet ipsum antecedens falsum accipitur. Est autem verum hoc modo intellectum, cum illud "aliter quam Deus providit" determinatio est praedicati quod est "possibile", hoc modo "rem evenire est possibile aliter quam Deus providit", quippe potentiam aliter proveniendi habet. Si vero ad subiectum determinatio ponatur, quod est "evenire", atque ita dicatur: "rem evenire aliter quam Deus providit" (istud totum) *est possibile*, falsum est nec probari potest. Omnino enim impossibile est quod haec propositio dicit: "res aliter evenit quam Deus providit", quod scilicet totum subiectum est, "possibile" vero simpliciter praedicatum, sicut et istud: "res aliter evenit quam evenit". Multum autem refert ad sententiam orationis determinationes praedicatis modis adiungi seu eorum subiectis, sicut in tractatu modalium supra monstravimus».

> consequens, quia tunc "possibile est" ad totas propositiones, non ad res
> applicatur. Si autem ex vero procedimus secund priorem expositionem,
> non sequitur, ut possibile sit deum falli magis, quam si diceremus: "Si
> is qui stans est potest sedere, possibile est stationem et sessione, eidem
> inhaerere simul". (LI *De Int.* 266.548-558)[78]

Abelard is then able to maintain both that things can be otherwise than
they are, in the sense that being in the actual way is not compelled by their
nature, and that they can be otherwise that God foreknows, in the sense
that if they were otherwise, God would have a different knowledge of them:

> Posset enim aliter evenire <res> quam deus habuit in providentia sua,
> quam habuit. Nec tamen falleretur deus, quia sicut res aliter posset
> evenire, ita et ipse aliter posse providisse, ut, sicut hoc modo tantum
> providit, ita et alio tantum providisset, qui similiter cum eventu alio rei
> concordasset sicut et iste modus providentiae cum isto eventu. Et sic
> sana tunc esset providentia sicut et nunc. (LI *De Int.* 266.555-267.564)

> Posset enim aliter evenire quam evenit, et secundum Dei providen-
> tiam contingere, pro eo scilicet quod aliam providentiam habuisse pos-
> set quam istam quam habuit secundum alium eventum. (*Dial.* 219.19-
> 21)

4.2.3 Was Abelard really an indeterminist?

From what Abelard says in the *glossae* and in the *Dialectica* it is easy to in-
terpret him as a defender of indeterminism, or at least as a defeder of the idea
that there is no incompatibility between indeterminism and the admittance
of some essential logical principles (such as bivalence or the rule of contra-
dictory pairs) or certain theological dogmas that Abelard takes as indis-
putable and undeniable (such as the completeness and infallibility of divine
knowledge). In both works, Abelard insists on the fact that the acceptance
of these principles does not *per se* exclude that *things might be otherwise
than they actually are*, and that some events happens contingently and not
necessarily. However, as Marenbon pointed out in (Marenbon, 2013a), the
interpretation of Abelard as indeterminist seems to be less secure once we
take into consideration some ideas that he defends in his theological works,
in particular in the *Theologia Christiana* (c. 1122-26) and in the *Theologia*

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[78]The same solution is proposed in about the same words in the *Dialectica* (219.2-9).

Scholarium (later 1130s). Here, Abelard embraces and argues for the thesis that *it is impossible for God to do more things or different things than the ones he actually does.* The core idea of the argument is that, because God is supremely good and being good is one of his essential features, whenever God chooses among a set of alternative courses of actions he cannot but will to choose for the best one, and since he is also able to bring about whichever he wills, he cannot but bring about the best action among all alternatives. It is then impossible for him to choose otherwise than he chooses, and to act otherwise than he acts. This means that God necessarily does whatever he does, in the sense that even if there are many courses of actions that are possible, God's choice among these alternatives is necessitated or "compelled" by his nature (Marenbon, 2013a, p. 45-74). Although this thesis does not directly argue for determinism, inasmuch as it concerns the necessity of God's choices, and not the necessity of all natural events or human beings' actions, Marenbon points out that Abelard's acceptance of this thesis might threaten his own acceptance of contingency: if we admit for instance that God necessarily acts as he acts, and that everything that happens is part of God's providential plan, then all course of history, and every action or intention included in it, are entirely determined and have no possibility of happening differently then they actually happen (Marenbon, 2013a, p. 87).

It is interesting to take into consideration Abelard's discussion of God's possibilities and necessities for two reasons. First because in this discussion Abelard refers to the theory of modalities that he had developed in his logical works. Secondly because by an analysis of this discussion we could try to establish whether there is continuity or discontinuity between Abelard's logical works and his theological works with respect to his theory of contingency and indeterminism. Marenbon gives in (Marenbon, 2013a, p. 45-87) a rich and detailed analysis of the argument in question, which he labels the "NAG" (i.e. "No Alternatives for God") argument, providing a reconstruction of the argument's premises and a comparison of the ways in which the argument is presented first in the *Theologia Christiana* and later in the *Theologia Scholarium*.[79] I follow here Marenbon's reconstruction of

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[79]As Marenbon points out, the argument is, as far as we know, Abelard's invention, although it was probably influenced by ancient and medieval sources, in particular by Plato's *Timaeus*, by Augustine's discussion about God's mnipotence and Jerome's idea that God is rigidly bound to act according to reason (Marenbon, 2013a, p. 47-8). A first analysis of the NAG argument is presented by Marenbon in (Marenbon, 1997, p. 216-225).

the argument, to which I will try to contribute by adding a few remarks that I think might be of help to understand Abelard's positions on the topic.

In the version that Abelard uses in the *Theologia Scholarium* (3.27-8), the argument has the following structure:

(1) God does x at t.

(2) God cannot do anything at any time which is not good to do at that time.

(3) If it is good for x to be done at t, it is not good that x be desisted from being done at t.

(4) It is good that x be done at t.

(5) It is not good that x be desisted from being done at t.

(6) God cannot desist from doing x at t.

(7) God cannot do other than x at t.

A necessary premise for the validity of this argument is the idea that God is omnipotent, in the sense that he is able to bring about watchever he wishes, and that being absolutely good is part of his nature and essential to him, so that it is necessary for him to act in the best possible way. As Marenbon notes, the understanding of necessity and possibility that Abelard uses here is exactly the same as the one he uses in the *Dialectica* and *Logica Ingredientibus*, where something is necessary for a certain subject if it is required or included in this subject's nature, i.e. if it is one of its substantial properties. What is possible for a subject is instead whatever is compatible with the subject's nature, i.e. if it is not repugnant to the subject's substantial properties, even if it is not actualizable or realizable because of the subject's actual constitution or because of the external circumstances. In this respect, there is then absolute continuity between Abelard's logical works and his theological ones.

Another essential premise for the argument to work is that there is always only one course of action which is the *best action* or the *best choice*. Therefore, if we say that God necessarily does what is best, this "best" picks out univocally one single option.[80]

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[80] Abelard has an argument to justify this premise, see (Marenbon, 2013a, p. 61-2).

Although it does not directly argue for determinism, the NAG argument seems to have deterministic consequences. For instance, a possible objection that Abelard thinks could be moved to the argument claims that, if God necessarily does what he does, then all human beings who are going to be damned because of the way things are in the actual history are necessarily damned, i.e. it might not have been possible for them to be saved (Marenbon, 2013a, p. 53-5). Let us consider a *damnandus*, i.e. a person who deserves damnation because of the evil actions he or she has done in life. Abelard starts by saying that the following inference is true:

(1) If this man is saved by God, then God saves this man.

Then, he advances a logical principle according to which, whenever of two propositions one entails the other, it is true that if the first proposition is possible, the second must be also possible. This principle is held by Abelard as valid on several other occasions (see for instance 1.3.1 on page 57 and 4.2.2 on page 259). Marenbon refers to it as the "*transfer of possibility principle*", that might be represented in this way:

(2) For any two propositions p and q, if p entails q, then if it is possible that p it is possible that q.

If we accept both (1) and (2) as true inferences, we can infer that

(3) if it is possible for this man to be saved by God, then it is possible for God to save this man

and, in virtue of contraposition, that

(4) if it is not possible for God to save this man, then it is not possible for this man to be saved by God.

Because it is the case, in the actual course of history, that this man is in fact damned, and not saved by God, and because – in virtue of the NAG argument – it is impossible for God to act otherwise than he actually acts, we should assume that

(5) it is not possible for God to save this man

and therefore we finally conclude that

(6) it is not possible for this man to be saved by God,

(7) it is necessary for this man to be damned.[81]

The *damnandus* argument moves then from the thesis that God necessarily does whatever he does to the conclusion that all human beings that are actually going to be damned are necessarily damned, and consequently they necessarily commmitted those sins that rendered them worthy of damnation.

As Marenbon correctly points out, Abelard's solution to the *damnandus* problem consists in saying that, even if (1) is true, the inference represented in (3) is false, because whereas the antecedent "it is possible for this man to be saved by God" is true, the consequent is false. According to what Marenbon says, however, it is not entirely clear how Abelard justifies this, given his acceptance of the transfer of possibility principle stated in (2) and the evident truth of (1).

Marenbon notes that Abelard includes, as a complement to his answer to the *damnandus* problem, a digression concerning the different possible interpretation of modal claims, saying that modal propositions like "it is possible for this man to be saved" or "it is possible for God to save this man" could be understood as being either *de rebus* or *de sensu*. How could the distinction *de rebus-de sensu* justify Abelard's idea that (1) and (2) are true while (3) is false? As Marenbon says, the solution cannot lie in the fact that the antecedent and consequent of (3) must be understood one as being *de rebus* and the other as being *de sensu*, for Abelard very clearly states that both propositions must be understood as being *de rebus*, so that in both of them the modal term is referred to *the thing* that is the subject and to what is compatible or incompatible with its nature. Marenbon then suggests that the reason Abelard refers to the *de rebus-de sensu* distinction is because he wants to make an argument by analogy: just as two equivalent propositions *p* and *q* might have different truth values when they are modalized, for one can be used *de rebus* and the other *de sensu*, similarly there are also other cases in which the modalization of equivalent propositions results in assigning the two a different truth value. The two propositions "God saves this man" and "This man is saved by God", that are equivalent when non modalized, could have a different truth value if a modal term is applied in them, even if they are both *de rebus* propositions. Generally speaking, Marenbon suggests that the switch from the active form to the passive form

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[81]Marenbon gives this reconstruction of the *damnandus* argument in (Marenbon, 2013a, p. 53-55).

of a same proposition might result in a change of truth value when a modal operator is applied in it:

> Abelard's explanation relies [both in the *Theologia Sholarium* and in the *Theologia Christiana*] on the idea that, when the subject of a verb changes, as it does in the shift from passive to active, then the thing about which a divided-sense, *de re* possibility is asserted also changes, since the possibility is attached to the subject of the verb. The analogy with sentences interpreted according to divided or composite sense is merely intended to provide other examples of cases where statements which have the same meaning and truth values in their simple form diverge in meaning and truth value when modalized. (Marenbon, 2013a, p. 72)

If this is indeed what grounds Abelard's reply to the *damnandus* argument, his justification is a bit obscure and sophistical, and perhaps not entirely convincing. In particular, it is unclear what this explanation would make of the "transfer of possibility principle" stated in (2): is it valid only when the subject term in the antecedent and in the consequent is the same? How can we decide when the modal operator in antecedent and consequent has the same *force*?

I think that, although Marenbon's interpretation of Abelard's answer to the *damnandus* argument is substantially correct, the justification Abelard gives for the invalidity of the inference from (1) to (3) could be more easily and straightforwardly explained. A comparison with what Abelard says in the glosses on *De Interpretatione* 9 might shade some light on this. In the glosses, Abelard argues that although the proposition "If things happen otherwise than they happen, then things happen otherwise than God foreknows them" is true, the proposition "If it is possible for things to happen otherwise than they happen, then it is possible for things to happen otherwise than God foreknows them" is false, because its antecedent is true and the consequent is false (see 4.2.2 above). Also when discussing this case, Abelard says that the two propositions should be understood *de rebus*, and also in this case he claims that one might think that the first proposition entails the second in virtue of what Marenbon calls the "transfer of possibility principle". However, Abelard blocks the inference between the two propositions by saying that the "transfer of possibility" principle is only valid for *de sensu* propositions, and not for *de rebus* ones, i.e. only when the modal

term is applied to sentences, and not when it is applied to things:

> Tunc enim regula praedicta locum habet: cuiuscumque antecedens possibile est, et consequens, quia tunc "possibile est" ad totas propositiones, non ad res applicatur. (LI *De Int.* 266.548-558)[82]

This argument presented by Abelard in the glosses is entirely analogous to the case of the *damnandus* in the *Theologia Christiana* and *Scholarium*. Also in that case, Abelard aims to block the inference from (1) to (3) by attacking the use of the "transfer of possibility principle", saying that this argument is invalid because the principle stated in (2) only applies to *de sensu* statements, and is not valid for *de rebus* ones. This is why Abelard includes his digression on the distinction *de rebus-de sensu* while he answers to the *damnandus* argument. The structure of the *damnandus* argument is very similar to the one of the argument concerning divine foreknowledge (see 4.2.2 above), and in both cases Abelard is able to block these puzzling arguments by making reference to the *de rebus-de sensu* distinction and to some logical principles that he had stated when developing his modal system, such as the idea that the "transfer of possibility principle" only works for *de sensu* modal claims, not for *de rebus* ones.

Even if Abelard is able to block the *damnandus* argument, and therefore to deny that the necessity of God's actions implies that a person who is actually going to be damned is necessarily damned, his ideas about God's impossibility to act otherwise than he does might still entail some deterministic implications. Indeed, if we accept that God necessarily does what he does and at the same time we assume that God not only already knows everything that is going to happen, but also has established a fixed providential plan for the world – a plan that could not have been different for it is necessary as any other divine actions – then every event that happens in time, including all intentions and decisions of human beings, happens necessarily and could not be otherwise than it actually is. Abelard could still maintain that it is *possible* for human beings not to choose and not to behave as they actually do, but only in the sense that it is not incompatible with their nature to do so. But, as Marenbon notes, this idea of possibility would be purely notional and abstract, for it would not consist in a real and effective freedom of choice and of action. If this was the case, it would be

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[82]The very same idea is proposed in about the same words in *Dial.* 219.2-9.

right to say that it is possible for the *damnandus* to be saved by God, but only in the sense that being damned is not something required by the nature of human beings. There would be however no possible history or possible alternative course of action in which this same individual is not damned but saved. If this is the right interpretation of Abelard's position, would there be room in Abelard's philosophy for real contingency and actual freedom of choice?

Marenbon says that a possible answer to this puzzle, which tries to vindicate both Abelard's admittance of contingency and his ideas about the necessity of God's actions, is to say that God's providential planning does not extend to everything that happens in the world, and in particular it is not extended to all the intentions and the choices of agents, either to their good intentions and especially to their bad intentions, which lead them to deserve damnation (Marenbon, 2013a, p. 82-7). Because not everything that happens is included in God's providential plan, the necessity of this plan does not imply that everything that happens is similarly necessary.

To reinforce this interpretation, it might be useful to recall Abelard's discussion about the compatibility between contingency and divine foreknowledge in the glosses on *De Interpretatione* 9. There the logician carefully distinguishes between God's *providentia*, which he takes to be the same as God's knowledge of future events, and divine *praedestinatio*, which coincides with the plan that God has established for the world and with all events that are efficiently brought about by God himself. According to what Abelard says here, although it is right to say that God's knwledge of events is complete and contains everything that happens, including both good events or intentions and bad ones, his providential plan only includes good things and intentions, and excludes all sins or evil actions, of which God could not be taken responsible for (for this distinction between *providentia* and *praedestinatio*, see 4.2.2 on page 256). The distinction drawn by Abelard in his logical texts between foreknowledge and predestination could be succesfully applied here, to help us rule out the idea that Abelard's position on the modal status of God's actions and his acceptance of contingency are inconsistent to one another. Indeed, what Abelard says is that even if God has a complete knowledge of everything that happens and that will happen in the future, and he then also knows that a certain person is going to be damned because of his sins, this does not mean that the person's sins are themselves

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necessitated, and this for two reasons. First, because God's knowledge (i.e., his *providentia*) does not impose necessity on things, as Abelard demonstrated in his logical texts (see 4.2 above). Second, because the fact that God knows every sin does not imply that these sins are included in God's providential plan (i.e., his *praedestinatio*), nor that these sins have the same modal status that God's providential plan, which is necessary, has.

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