

# ISLAMIC INFLUENCES IN LULL'S LOGIC

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## I. IDEAS DERIVING FROM ARABIC LOGIC

That Ramon Lull was, at the beginning of his career, strongly influenced by the Islamic tradition of Aristotelian logic is an incontrovertible fact.

One of the very first works which Lull composed was the *Compendium logicae Algazelis*, a compendium based on a treatise on logic written by al-Ghazālī, a Persian theologian roughly contemporary with Anselm of Canterbury. Some years ago, I was able to show that Lull based this work on the treatise on logic from al-Ghazālī's *Maqāsid al-falāsifa*, an Aristotelian encyclopedia based in turn on Avicenna's Persian *Dānish nāmeḥ*. The works of Avicenna and al-Ghazālī are both made up of three treatises: logic, metaphysics, and natural philosophy. Al-Ghazālī's intention in making his adaptation of Avicenna's work was to refute its teaching, a task he undertook in his celebrated *Tahāfut al-falāsifa* or «Destruction of the Philosophers».

We do not know whether Lull was acquainted with al-Ghazālī's intention nor whether he knew the *Tahāfut al-tahāfut* or «Destruction of the Destruction» of Averroes which it called forth. His work covered, in any event, only the section on logic. His compendium was based on the Arabic original of Al-Ghazālī's work and was itself composed in Arabic. In its original form it seems to have been arranged in three sections: 1) On Universals, 2) On Propositions. 3) On Argumentation, following the division of logic according to the three operations of the mind which had been introduced by Avicenna.

Later —around the year 1290— when he was in the city of Montpellier, Lull translated this original compendium into Latin, adding material on the predicables, the categories, the figures of the syllogism, and the fallacies which he took from the standard Latin textbook on logic, the *Summulae logicales* of Peter of Spain. His later *Logica del Gatzel* is a Catalan adaptation of the Compendium made for those who knew neither Arabic nor Latin.

This influence of Islamic logic on the early Lull is generally recognized. But it seems that the mature Lull continued his study of Arabic sources and that these sources influenced not only his understanding of Aristotelian logic, but also the development of his own *Ars magna*.

In this paper I should like to enumerate several specific notions in the *Lo-*

*gica nova* of 1303 which can, with some probability, be ascribed to the influence of Arabic logic, before going on to discuss the way in which Lull integrated these notions into his own logic and the Art itself.

Let us recall briefly the contents of the *Logica nova*. After a short introduction, the first distinction replaces the traditional *arbor porphyriana* with a division of substantial being into the nine subjects of the Art; accidental being is divided among other things into accidents which are proper and appropriated. This first distinction also discusses nine questions which are meant to be an aid in the process of scientific discovery. The second and third distinctions reinterpret the Porphyrian predicables and the Aristotelian categories in function of Lull's own dynamic conception of reality by applying the nine questions to each of them. The fourth distinction provides a philosophical lexicon, containing a hundred definitions, of which the first eighteen match the nine absolute and nine relative principles of the Art. The fifth distinction presents Lull's theory of the syllogism and scientific proof in the light of his conception of the relationship between theology and philosophy. The sixth applies this new methodology to the concept of nature and the four faculties of theology, philosophy, law, and medicine. The seventh and last distinction lists a great number of questions which may be answered by means of the new logic; this distinction amounts to a sort of index to the whole work.

#### *The doctrine of first and second intention*

The introduction to the *Logica nova* explains Lull's reasons for wanting to compose a new logic. He criticizes the prolixity and uncertainty of traditional logic and maintains that a new logic must take account of both first and second intentions. A new logic must be a «philosophical logic», providing a «natural» knowledge not only of second, but also of first intentions.

The Latin Scholastics employed the terms «first» and «second intention» to define the subject-matter of logic. They distinguished between concepts of things and concepts of concepts. They called concepts of things «first intentions» and concepts of concepts «second intentions». Logic, in their understanding, concerned itself with concepts of concepts or «second intentions», and was thus distinguished from philosophy, which deals with concepts of things. This distinction seems to have been introduced in Arabic philosophy by al-Fārābī and have become known in the West through the Latin translations of Avicenna.

But al-Fārābī's use of these terms represented only a special case of more general distinction common in Arabic philosophy. In Arabic authors the distinction between the two types of intention was used in a much broader way.

The terms «according to the first intention» and «according to the second intention» seem to have been used originally in the Arabic translations of Aristotle where they stand simply for «primarily, in the first place» and «in the second place».

In Muslim works like the *Encyclopedia* of the Brethren of Purity—a sort of gnostic sect, active at Basra around the end of the tenth century—much

use was made of this distinction, but in a rather more specific form. In this form, the term «first intention» takes on the meaning «essentially», whereas the term «second intention» means «accidentally» or «by chance». Applied to the question of the divine knowledge, for example, God knows himself «according to the first intention» and in this knowledge knows the world «according to the second intention». Applied to the divine action of creating the world, God's first intention can not be anything outside himself, but as a second intention his action causes the world.

Lull's use of the terms «first» and «second intention» seems to be related to this original Arabic distinction rather than to the Scholastic distinction in logic. In his earliest works he used the distinction in the sphere of ethics: God should be loved «according to the first intention», that is, for himself; all other things are to be loved «according to the second intention» or as a means to the first intention. But he soon applied the distinction in other areas as well, to the theory of the elements, to the problem of the relationship between faith and reason, and to the theory of knowledge.

In the *Logica nova* he applied the distinction to the problem of what logic is. This application is fundamental for the understanding of the newness of the *Logica nova*. Lull's «philosophical logic» deals less with the problem of the correctness of reasoning than it does with the problem of the theory of knowledge.

«According to the first intention» the object of the knowing intellect can only be intellectual things. It is only «according to the second intention» that knowledge is concerned with the sensible things which it finds in this world. We will discuss this application of the Arabic distinction between the first and second intention more fully later on.

### *The doctrine of the nine subjects*

Distinction I, chapters 1-2, of the *Logica nova* contains Lull's doctrine of the nine subjects which make up all of reality: God, angel, heaven, man, imaginative, sensitive, vegetative, elementative, and instrumentative things. This doctrine made its first appearance in the *Ars inventiva* in connection with a rule concerning three (positive, comparative, and superlative) degrees of knowledge. The doctrine played an important role in the final systematization of the Art in the *Ars generalis ultima*.

In the *Logica nova*, Distinction I, chapter 2, Lull explains how the nine subjects are derived. Substance, he tells us, is either incorporeal or corporeal. Incorporeal substance is made up of divine, angelical, and rational substance; corporeal substance of celestial, imaginative, sensitive, vegetative, and elemental substance.

This doctrine is clearly related to the Neoplatonic scheme of emanations from the One by way of Mind and Soul to Nature. The Neoplatonic scheme very early found its way into Islamic philosophy, generally in a form in which it was expanded into nine stages. A nine-fold emanation is found in the encyclopedias of the Brethren of Purity, Avicenna, and other authors.

The Brethren list the following subjects: God, intellect, soul, first matter,

nature, second matter, the celestial spheres, the elements, and the natural things of this world. The Budd al-'ārif of Ibn Sab'īn, a Sufi mystic of Murcia and somewhat earlier contemporary of Lull, is clearly dependent on this list. It divides existents into universal and particular things and defines universal things as comprising nine unities: God, intellect, soul, nature, matter, matter in three dimensions, the celestial spheres, the four elements, and the natural things of this world.

Although Lull, as a Christian, had to reject the idea of necessary emanations from God, his idea of nine subjects seems clearly related to the Neoplatonic scheme in its Arabic form. He could have learned of this form of the doctrine from various sources, but there are several indications that his immediate source was a work like that of Ibn Sab'īn.

The list of corporeal substances and especially the principle of division for their enumeration are similar in Lull and Ibn Sab'īn. Like Lull, Ibn Sab'īn divided corporeal substances into celestial and natural substances, and natural substances into composed (sensitive, vegetative, and mineral) and simple (elemental) substances.

Something like Ibn Sab'īn's division of incorporeal substance into intellect, soul, intelligible forms, and first matter is quite possibly behind the idea of a primordial chaos from which all things emerge—an idea which Lull developed in his *Liber chaos*, an appendix to the *Ars demonstrativa*, and then in various later works.

The inspiration for one of Lull's most important ideas seems also to derive from Ibn Sab'īn's version of the Neoplatonic scheme of emanations. In his treatise *De ascensu et descensu intellectus* Lull describes how it is possible to ascend through the various subjects to the divinity. In a similar way, Ibn Sab'īn follows up his own enumeration of the nine unities with the idea that it is possible to ascend from the particular things of this world through the nine universal things to the divinity and thence descend again from these universals to particular things. As an example of this ascent, Ibn Sab'īn shows how the mind may rise from stone to plant, thence to animal nature and rational soul, and finally by way of the active intellect to the separate intellect—a process much like that which Lull describes in the *De ascensu et descensu intellectus*.

### *The doctrine of proper and appropriated accidents*

Distinction I, chapter 3, of the *Logica nova* divides accidents into proper and appropriated. Accidents like the warmth of fire are proper; the dryness which earth gives to fire is an appropriated accident. This distinction is related to the distinction between first and second intention. The first intention of any action is substantial and essential and its end or final cause; the second intention is accidental and by chance and the material cause or means to the end. Lull calls the end of an action the «first intention» and compares it to the fruit of a tree, while giving the name «second intention» to the means to the end, the tree itself. Proper accidents are ends and pertain to

the first intention of an action; appropriated accidents are means to the ends and pertain to the second intention.

A similar distinction is made by the philosophical *Encyclopedia* of the Brethren of Purity. According to this work the first, essential intention of an action is its proper end; the second, accidental intention is not the proper end, but that which is for the sake of the proper end. The authors explain, for example, that the first intention of the creator in creating is the permanence and welfare of creatures, whereas corruption and pain are accidental and due to the imperfection of matter, which is the means to that end.

In the same way, Lull held that each element has a «proper» quality — warmth in fire— due to its «natural» action in accordance with its first intention and an «appropriated» quality —the dryness of fire— due to its «contingent» action in accordance with the second intention.

These distinctions played an important role not only in the development of Lull's theory of the elements, but also in his epistemology and theory of instrumentality. They are essential, as we shall see, for the understanding of his conception of what a «philosophical logic» should be.

### *The doctrine of the nine fundamental questions*

Distinction I, chapters 6-16, of the *Logica nova* lists nine fundamental questions: *utrum, quid, de quo, quare, quantum, quale, quando, ubi, quo modo/cum quo*. These questions were substituted in the *Tabula generalis* for the rules for philosophical research which had been listed in the fifth distinction of the *Ars inventiva*.

In the *Analytica posteriora* Aristotle had enumerated four such questions: «whether», «what», «of what sort», and «why». In the tradition of the Latin Scholastics these questions lost a great deal of their importance, although two of them, the questions *quid* and *quale*, do appear in the discussion of the predicables in connection with the theory of definition in works like the *Summulae logicales* of Peter of Spain.

Lull could have found all of the nine questions in the *Encyclopedia* of the Brethren of Purity or the *Budd al-'arif* of Ibn Sab'in. The latter added to the discussion of the nine questions which he himself found in the Brethren remarks on the order in which the questions are to be asked and their applicability to God.

Lull's list could have been derived from either of these sources. It matches both of them with but two exceptions. Lull substituted a question *de quo* for their question «who» and added a question *cum quo* to the question «in what manner» found in these sources, possibly as a result of reflection on the notes on «being with» appended by Ibn Sab'in to his treatment of the categories.

### *The idea of a dictionary of philosophical terminology*

Distinction IV of the *Logica nova* provides a philosophical lexicon, containing a hundred definitions. The first eighteen of these match the absolute

and relative principles of the Art, the remaining definitions concern various aspects of change in nature. Similar lexica are found in the *Arbre de sciencia*, the *Ars generalis ultima*, and other works of Lull.

The idea of a lexicon of philosophical terminology derives, of course, from Aristotle himself. In the fifth book of the *Metaphysics*, for example, the philosopher lists and explains a great many technical terms. Other works contain similar lists.

In the Latin tradition of High Scholasticism, however, the idea of a dictionary of philosophical terminology did not appear until very late. In the thirteenth century the tendency to systematization was too strong. In his commentary on the *Metaphysics* Thomas Aquinas does not treat Aristotle's fifth book as a lexicon, but seeks rather to discover some system behind the list of terms.

Among the Muslims, however, such dictionaries represented a literary form which was very common. In their *Encyclopedia* the Brethren of Purity supplied a long list of definitions at the end of their treatment of definition and description. Ibn Sab'in added at the end of his logic a dictionary of the technical terms used by jurists, theologians, philosophers, and mystics.

It was undoubtedly in imitation of such models that Lull included a fourth distinction concerning 100 forms in his *Logica nova*.

### *The doctrine of the types of scientific proposition*

Distinction V, chapter 1, of the *Logica nova* distinguishes thirteen types of proposition according to their probative force. Five types of proposition meet the requirements of demonstrative science: axioms, propositions which contain their own proof, sense-data, data of immediate experience, and traditionally accepted statements. Eight other types of proposition are of use only in rhetorical and dialectical types of argumentation.

This classification is already found in Lull's early *Compendium logicae Al-gazelis*—a fact which makes its source certain since al-Ghazālī's work is based on Avicenna's Persian *Dānish nāmeḥ*. Avicenna's enumeration of various types of proposition according to their probative force represents a development which is posterior to the *Encyclopedia* of the Brethren of Purity. Its inclusion in the *Budd al-'ārif* of Ibn Sab'in provides a valuable hint as to the philosophical and theological context in which both he and Lull wrote.

Avicenna's classification of propositions had its origin in the reform which he proposed for Islamic theology. Avicenna admitted that probable opinions, conjectures, and propositions accepted on faith could be employed in the argumentation of the jurists, but he denied that their argumentation could rise above the level of dialectic or rhetoric.

In the work which is the source of al-Ghazālī's logic, Avicenna proposed that theology be reformed in accordance with Aristotle's ideal of a demonstrative science, so that it is a strict science based on true and certain premises and proceeding by syllogistic deduction. As a part of this reform, Avicenna distinguished thirteen types of proposition, classifying them according to

the Arabic canon of Aristotle's works on logic into propositions which could be used in scientific, rhetorical, dialectical, and sophistic argumentation.

The fact that both Ibn Sab'in and Lull —originally independently of one another— included Avicenna's classification of propositions according to their probative force in their works is revealing. Both the Muslim Sufi of Murcia and the Latin «artista» of Majorca thought of theology not as separate from philosophy, but rather as strict sciences, forming parts of a scientific encyclopedia. Theology is that part of the encyclopedia of philosophical disciplines, in which the teachings of faith are demonstrated.

It was in this context that Lull took up Avicenna's list and —shortly after the composition of the *Logica nova*— made his repeated efforts to find a method by which opinative syllogisms could be transformed into demonstrative ones. The new method of demonstration, the *novus modus demonstrandi*, which he elaborated in his last works, is the culmination of this effort.

#### *The doctrine of «the fallacy of contradiction»*

Distinction V, chapter 14, of the *Logica nova* deals with the fallacies. It concludes with the formulation of a new type of fallacy, not known to Aristotle. Lull described this fallacy as «the fallacy of contradiction». It proceeds by opposing two contradictory statements and concluding to the truth of one of them, generally by showing the meaning of one of the propositions to be equivocal.

The theme of contradiction had fascinated Lull since the period when he composed his early *Compendium logicae Algazelis*. The theme gained increasing importance from the time of the *Logica nova* on, as he was confronted with the standpoint of the Latin theologians who maintained that the doctrines of the faith could not be proved. The «fallacy of contradiction» then developed into the «twentieth fallacy», then into the method of «contradictory syllogisms», and finally into the *novus modus demonstrandi*.

The method of the *reductio ad absurdum* was known to Aristotle, but in the history of Islamic theology it gained great importance because of the attempts of some theologians to mediate between the views of the orthodox and those of the Mu'tazilite sect which was inclined to use philosophy in theology. The methodology of these theologians consisted in the dialectical confrontation of two opinions, concluding either with the affirmation or denial of one of the opinions or with a distinction.

For example, where the orthodox understood the Quran's reference to God's hearing literally and the Mu'tazilites rejected it, the theologians distinguished, claiming that God hears, but not as men do. In this dialectical approach they made considerable use of the *reductio ad absurdum*. For example, they proved that the divine properties are not identical with the divine essence in the following way: If the properties were identical with the essence, then there would be contradictory properties (say mercy and justice) in the one essence. But this is impossible; therefore...

This method of argumentation will be familiar to readers of Lull's late works. It is the basis for his *novus modus demonstrandi*.

## II. LULL'S USE OF ARABIC LOGIC

Thus Ramon Lull appropriated for his own purposes a great many ideas from an Islamic tradition in logic which were not accessible to his Latin contemporaries. But his use of these ideas in his own logic and in developing his *Ars magna* completely transformed their meaning.

In accordance with his apologetic purpose Lull introduced a category in the history of metaphysics which was completely new. He spoke not only of principles of being, but also of principles of action.

Taking his departure from a point which his Islamic partners in dialogue admitted, the dynamism of the process of knowledge (the knowing intellect, the known object, and the act of knowledge) and love (the lover, the beloved, and love itself), Lull maintained that we must admit the activity of all the divine perfections. True goodness must produce something good; true greatness must produce something great.

Because action presupposes a principle or source, that which is produced, and a bond between them, he spoke not only of the dignities, but also of their acts and the «correlatives» of their action. To designate these correlatives, he formed new words which appear strange in Latin and were probably formed on the analogy of the forms of the Arabic verb. In a sermon given in Tunis he explained:

Actus ... bonitatis dico bonificativum, bonificabile, bonificare; actus etiam magnitudinis sunt magnificativum, magnificabile, magnificare; et sic de aliis omnibus divinis dignitatibus.

Lull generalised this idea to the extent that he could speak even of the abstract moments of activity as *-tivum*, *-bile* and *-are*. He defined these moments as substantial and intrinsic principles of action which are valid for all reality. Because the correlative principles are intrinsic to all activity, action and passion are not, as in Aristotle, accidental. For Lull, being and activity both belong to the substance of things and are identical.

In this way Lull was able to recognise images of the triune Christian God in all aspects of the created world, in the form, matter and conjunction which make up corporeal things; in the form, subject and property which constitute the nature of the angels; and even in the three dimensions of bodies and the two premisses and one conclusion of the syllogism —above all in the union of Knower and person Known in the act of mystical Knowledge and in the union of lover and beloved bound together in true, active love.

But Lull understood not only the necessary activity of the divine persons *ad intra*, but also the contingent activity of God *ad extra* in creation as involving correlatives of action. God is the absolute *-tivum* by whose free choice the contingent *-bile* of the world is created.

In his application of these ideas to the creation of the world, Lull strongly emphasized not only the dynamic character of God's causal action, but also that of its effect, the created world itself. He applied the distinction between necessary activity *ad extra* and contingent activity *ad intra* to the activity of

creatures. To explain how the distinction applies to creaturely activity, he drew on the distinction of accidents into proper and appropriated which he had found in Arabic writers.

Fire, for example, must necessarily burn, but whether it heats water or burns wood is contingent. Within itself fire is active «substantially» and «in a proper way»; in water or earth it is active «accidentally» and «in an appropriated way». The form of whiteness is active within itself, but when it contingently whitens (*albificat*) this or that body, it is present in the body in a «contracted» way.

For Lull therefore creation is a likeness of God because of its dynamic character. Not only does God's activity of creation not cease with the bestowal of being on the world, but the world which God has created is itself active, tending to its own perfection. Just as whiteness can seek to increment its contract perfection in an appropriated way by whitening more and more individual bodies, so also the creator has so created the various species that they tend to increase their perfection by numerical multiplication.

But the individual concrete things in the world tend not only to their extrinsic, numerical multiplication. They tend also to their intrinsic, proper perfection. By nature each concrete thing strives to fulfill the abstract essence from which it has emerged.

But although the particular, individual things of which the world is made up are in process tending toward their intrinsic, proper perfection, no individual thing can attain the full perfection of its species. The species is the limit to which the perfection of the individual approaches, the *genus* that of the species, the universe that of the *genera*.

It was in this sense that Lull maintained that the categories and predicables are real things. The abstract is already really present in individual things as the limit of their striving toward infinity.

The distinction between necessary, proper activity and contingent, appropriated activity was also crucial for Lull's idea of man. He defined man by way of his relationship both to God and to the world.

With respect to creation, Lull held that man is a «microcosm». Although he was referring to the traditional motif which saw man as a world in miniature, he modified the traditional understanding of this idea radically. Man is a microcosm because he forms the center of creation, uniting in himself the two fundamental divisions of being which Lull had found in Ibn Sab'în, the lowest level of intellectual reality and the highest reach of sensible being. He is thus a bond which holds creation together.

With respect to the creator, man is himself creative *ad extra*, bringing forth ideas, instruments, tools, and works of art. In producing instruments, man uses materials he finds in nature, but the forms he gives them are not mere imitations of natural things. They are true productions of his own mind.

Man's creative power thus approaches that of God. But whereas God brings forth as real beings the things that he understands, man's mind is not able to produce real beings, it can only represent them and appropriate them to itself.

The metaphysical distinction between necessary activity *ad intra* and contingent activity *ad extra* was fundamental for Lull's understanding of man above all because it enabled him to analyze more profoundly the nature of human knowledge. He had maintained that things like fire and whiteness have their own necessary, proper, and intrinsic correlatives of action, whereas their objects *ad extra* (earth or water, this or that body) are contingent and appropriated to them.

In the very important late work *De potentia, obiecto et actu* Lull drew the consequences of this idea for human knowledge. The sensible things which the mind encounters in the world are not necessary objects of knowledge. Even the instruments and tools which the mind itself produces are objects appropriated by the mind to itself. The proper object of the mind must be an interior reality. Just as the proper object of fire is not earth or water, but rather fire itself as ignitable, so also the proper object of the mind can only be the mind itself as knowable.

From this vantage-point it is easy to appreciate the originality of Lull's *Logica nova*. The logic of this work is new because it is meant to be a logic of pure knowing, a logic whose first intention is to consider the intellectual things which are the proper objects of the intellect. It is only in a second intention that the new logic must consider the appropriated objects of the intellect, the ideas which the intellect abstracts from sensible things.

Here Lull adopts the distinction between a first and a second intention, not as it was current in Latin logic, but as he had found it in the Brethren of Purity and Ibn Sab'in. In order to define the nature of logic, he identified it with the distinction between proper and appropriated qualities.

Reflecting the idea of an ascent of the intellect, the second figure of Lull's *Ars generalis ultima* distinguishes three degrees of knowledge: sensible knowledge of sensible things, intellectual knowledge of sensible things, and intellectual knowledge of intellectual things.

The *Logica nova* was conceived as a logic of pure knowing, a logic for the third degree of knowledge, the intellectual knowledge of intellectual things. But it is at the same time a critique of the traditional logic and the theory of knowledge on which it was based. For Lull, Aristotle's logic was deficient because it limited itself to the intellectual knowledge of sensible things.

It is true that in the twelfth century certain Latin writers recognized the possibility of a logic for the intellectual knowledge of intellectual things. Following Boethius, they distinguished between *intelligibilia*, that is, the objects of the second degree of knowledge, and *intellectibilia*, those of the third degree. But the thirteenth-century reception of Aristotle focused attention on the formulation of a logic of the second degree of knowledge, the intellectual knowledge of sensible things, and precluded an attempt to analyze the conditions of its possibility.

This is the reason why Lull's prologue to the *Logica nova* speaks of the unstable character of the traditional logic and proposes to reconstruct it on a new foundation, that of the third degree of knowledge.

Because it concerns intellectual knowledge of intellectual things, Lull spoke in his *De modo naturali intelligendi* of this highest degree of knowledge as

a «natural» manner of knowing. Making use of his distinction between the necessary and the contingent correlatives of action, he regarded intellectual things as the necessary, intrinsic, proper objects of knowledge and criticized the traditional logic as one which treats only the contingent, extrinsic, appropriated objects of knowledge, the sensible things encountered in this world. The traditional logic has limited itself to a «peregrine» manner of knowing.

Man's true nature is spiritual and turned to intellectible things. But he must go out to corporeal reality and appropriate to himself sensible things in order to be able to return to his proper self. Corporeal things—the subjects of the *Art, imaginativa, sensitiva, vegetativa, elementativa*—are all only instruments for man's realization of reason in the world. It is for this reason that the *Logica nova* situates man on the border-line between spiritual and corporeal reality.

Man's proper function—as *homificans animal* in the enigmatic definition of the *Logica nova*—is the hominization of the animal, vegetable, and elemental kingdoms, and through them of the whole universe. Man is a microcosm, a bond joining spiritual and corporeal reality because the *-tivum* of his rational nature is able to appropriate to itself the various objects which make up the universe. But the condition of the possibility of this appropriated knowledge lies in the proper, third degree of knowledge for which the *Logica nova* is meant.

CHARLES LOHR, *Islamic influences in Lull's logic.*

La influència de la lògica islàmica en el Llull primerenc (*early Lull*) és, en general, reconeguda. Partint de la hipòtesi segons la qual el Llull madur (*mature Lull*) va continuar el seu estudi de les fonts àrabis i aquestes fonts el van influir no només en la seva interpretació de la lògica aristotèlica, sinó també en el desenvolupament de l'*Ars Magna*, el ponent analitza diverses nocions específiques de la *Logica nova* (1303) que podrien ser producte de la influència de la lògica islàmica i examina la manera en què el Beat va integrar aquestes nocions en la seva obra.

CHARLES LOHR, *Islamic influences in Lull's logic.*

The influence of Islamic logic in early Lull is, in general, recognised. Starting from the hypothesis that the mature Lull continued his study of Arabic sources and that these sources not only influenced his interpretation of Aristotelian logic, but also the development of the *Ars Magna*, the author analyses various specific notions of the *Logica Nova* (*New Logic*), 1303, that could be the result of the influence of Islamic logic and examines the way in which Lull integrated these notions in to his work.