

Supplement to

The Art and Logic
of Ramon Llull

by

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*Un livre ne commence ni ne finit : tout au plus fait-il semblant.*¹

¹ Stéphane Mallarmé, *Notes en vue du "Livre"*, in *Œuvres complètes*. Bibliothèque de la Pléiade 65. Paris, Gallimard, 1998, vol. I, p. 612.

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NOTE ON THE SUPPLEMENT

More than a dozen years have passed since the first version of *The Art and Logic of Ramon Llull* was published—twelve years of contributions from other scholars and of further reflections by the author, all of which have shed light on things that were missing, while also providing a broader view of the Art, which the author of the book, so absorbed in explaining the details of its inner workings, had failed to grasp. The first thing lacking was a reflection on the importance of the role of the *Book of Contemplation (BC)* as a precursor of the Art, with the beginnings of the search for a way of formulating a method of demonstration/persuasion based on the manipulation of individual concepts and on a way of representing it that was figurative—in the most literal sense of the word. Given that this formulation is such an essential component of Llull’s entire endeavor and was missing in the book, and that, in addition, it was presented in such a hesitant manner in the *BC*, the first part, Chapter 7,² has turned out to be the longest and most detailed in this *Supplement*. Next, Chapter 8 explains how the “illustration” of the quaternary Art provided Llull with a structure—an ontotheological cartography of sorts—within which to organize these concepts and systematize their manipulation. Chapter 9 provides a more detailed explanation of how the discovery of a dynamic ontology in the ternary phase allows Llull to return to a more conventional method of discourse. The same section covers several key aspects of the Questions and Rules which had not been properly addressed in the book. Chapter 10 includes general interpretations along with possible models for the functioning of the Art.

The first chapter of this *Supplement*, which concerns the *BC*, is an adaptation of a lecture that Albert Soler and I gave jointly at a congress in the Majorcan village of Valldemossa, which in turn was the result of our recent research on the genesis of the Art and its graphic representations.³ We have continued to work on it together, with the ideas of one enriching or correcting those of the other. Indeed, contrasting my thoughts with Albert Soler has occasionally made me examine questions I had been avoiding

² To facilitate cross-references, we have numbered the new chapters as continuations of the six of the original work.

³ See Bonner and Soler 2015 and Bonner and Soler 2016.

because of their difficulty, and by forcing me to do so, fairly important novelties came to light. In addition to expressing my gratitude, I would like to clarify that in this *Supplement*, the use of the first person singular—as at the beginning of this sentence—refers to the author of the original book.

There are others to whom I would like to express my gratitude, beginning with my daughter Deborah, who translated the original Catalan version, navigating adroitly between the Scylla of Llull’s unusual language and Charybdis of our attempts to explain it. Two other members of my family have also contributed to this *Supplement*: my wife, Eve, herself a translator of Ramon Llull, proofread the final text; and my son David, an engineer with years of experience working with object-oriented programming, which is precisely the kind discussed in the last section of Chapter 10, on which he was able to give me invaluable input. Others are, first of all, Jordi Gayà, who provided much needed help with a passage of particularly tortuous syntax and interpretation from the *Ars inventiva veritatis*; and finally, there is Teun Koetsier whose article (see the “Bibliography”) played a crucial role in liberating me from apprehensions about insisting on the Art, and especially in its logical role, as being built not on propositions but on individual concepts—a notion very foreign to medieval scholarship. To all my warmest and most sincere thanks.

ABBREVIATIONS⁴

Works

- AA* = *Art amativa (Ars amativa boni)*
AB = *Ars brevis*
ACIV = *Ars compendiosa inveniendi veritatem*
AD = *Art demostrativa (Ars demonstrativa)*
AGU = *Ars generalis ultima*
AIV = *Ars inventiva veritatis*
BC = *Book of Contemplation*
TG = *Taula general (Tabula generalis)*

Manuscripts

The manuscript of the *BC*, completed by Guillem Pagès in 1280, was divided into two volumes in the sixteenth century:⁵

A1 = Milan, Biblioteca Ambrosiana, A 268 Inf.

A2 = Milan, Biblioteca Ambrosiana, D 549 Inf.

Publications

Art&Logic = Anthony Bonner, *The Art and Logic of Ramon Llull. A User's Guide*, Studien und Texte zur Geistesgeschichte des Mittelalters 95 (Leiden/Boston: Brill, 2007).

ATCA = *Arxiu de Textos Catalans Antics* (Barcelona, 1982–).

DDL = Anthony Bonner and Maria Isabel Ripoll Perelló, *Diccionari de definicions lul·lianes / Dictionary of Lullian Definitions* (Barcelona/Palma, 2002). Now available online in *NGGL*.

EL = *Estudios Lulianos* (Palma, 1957-1990). See *SL*.

⁴ These are the abbreviations used in this *Supplement*, including those from the main volume in case the reader does not have it at hand.

⁵ See Perarnau 1990, 54.

- NGGL* = Colom Mateu, Miquel, *Glossari General Lul-lià*, 5 vols. (Palma: Editorial Moll, 1982-1985). Now available for reference online as *Nou Glossari General Lul-lià*, Centre de Documentació Ramon Llull, Universitat de Barcelona <<http://nggl.ub.edu/>>.
- MOG* = *Beati Raymundi Lulli Opera*, ed. Ivo Salzinger, 8 vols. (Mainz: Häffner, 1721-1742; reprint ed. F. Stegmüller, Frankfurt, 1965).⁶
- NEORL* = *Nova Edició de les Obres de Ramon Llull* (Palma: Patronat Ramon Llull, 1990–).
- OE* = *Obres essencials*, ed. Joaquim Carreras i Artau *et al.*, 2 vols. (Barcelona, 1957-1960).
- ORL* = *Obres de Ramon Llull*, ed. Salvador Galmés *et al.*, 21 vols. (Palma, 1906-1950).
- ROL* = *Raimundi Lulli Opera Latina*, I-V (Palma, 1959-1967) and VI– (Turnhout: Brepols, 1975–).
- SL* = *Studia Lulliana* (Palma, 1991–). Continuation of *EL*.
- SW* = *Selected Works of Ramon Llull (1232-1316)*, ed. Anthony Bonner, 2 vols (Princeton, 1985).

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⁶ Citations are given in the following format: “*MOG* I, vii, 44: 476”, listing the volume number, the section number, and the page number within that section, followed (after a colon) by the pagination within the whole volume according to the 1965 reprint.

CHAPTER SEVEN¹

THE BOOK OF CONTEMPLATION AND ITS “FIGURES”

Alphabetic Substitutions

The method of working with letters to represent concepts first appears near the end of the *BC*, when, in Chapter 328, Llull starts using it abruptly and without any prior explanation. Until then, the reader is immersed in a text not unlike other medieval spiritual works about the elevation of the soul to the contemplation of God, when all of a sudden it becomes entirely removed from the tradition to which it apparently belongs. This way of proceeding can by no means be considered a simple caprice, given that it appears in the culminating section of one of Llull’s longest, most carefully crafted works.² In fact, these last chapters have always been considered the forerunners of the *Art* precisely because of the alphabetic substitutions.³

Before discussing their role in the *BC*, we ought to clarify three points. The first is to avoid a possible misunderstanding. Contrary to what one may expect, Lullian alphabetic notation is different from that of Aristotelian logic, so familiar to students since the Middle Ages—in which one formulated classic propositions such as “All A are B”, where A could refer to “men” or “fractions” and B to “animals” or “numbers”. They are what we call *term variables*, unknowns that refer to classes of things, the first of which, “men” or “fractions” is included among the second, “animals” or “numbers”.

Llull, on the other hand, uses substitutions in such a way that a letter can only refer to a single entity, as for example A which signifies “God”, or B which signifies “goodness”. This difference between letters that represent variables and those

¹ See n. 2 in the previous section for an explanation of this numbering.

² Significantly, of the last thirty-nine chapters in the *BC*, alphabetic substitutions take up the last twenty-five. In addition, we have calculated that in *OE II* these twenty-five chapters account for 121 pages out of a total of 1.161 for the work as a whole—in other words, over 10% of the entire work, the longest Llull ever wrote.

³ Especially in five previous studies: Platzeck 1962-4; Platzeck 1964; Llinarès 1988; Rubio 1997, in section 5, “L’origen de les figures de l’Art”, p. 107ff; and Rubio 2014.

representing constants is fundamental, especially for Llull, for whom the inclusion of one category of things within another was only of marginal interest, whereas the relationship between two concepts was at the very core of the Art.⁴ Now a letter used to represent a constant—a single concept—is what is called a placeholder, that is to say, a “marker” or “label”. This is important because, as we intend to demonstrate, the entire discourse in the first period of the Art relies on a system that involves combining a series of a kind of file cards—or labels used as pieces in a board game—which allow us to relate the concepts they represent in an almost mechanical way in order to determine whether they are concordant, contrary, etc., and draw conclusions accordingly.

The second point concerns the use of the term “figure” in the *BC*. In fact, in the final part of the work it is not applied to graphic displays, as is the case in the subsequent Art, but only to alphabetic substitutions.⁵ We will explain how it is done shortly.

The third point is about the graphic figures that do appear in this last part of the *BC*. In the main text, there are only two that have to do with alphabetic substitutions.⁶ In contrast with this scarce use of graphic resources, a “second hand”—possibly contemporary—added, in the margins of the same manuscript, one for each of the chapters that contain alphabetic substitutions, as a guide for the reader.⁷ These “added” figures are also enormously helpful for the present-day scholar, who can now see—almost at a glance—an evolution of these substitutions, especially in their two series: one with twenty chapters (328-347) and the other with six (359-364).⁸

⁴ A letter can represent more than one constant, as occurs in the Alphabet from the ternary Art, where each letter represents six. However, they represent six individual constants grouped for the sake of convenience: they are not a class, defined and dealt with as such, as in classical logic.

⁵ This was a generally accepted use in the Middle Ages. Blaise 1975, *s.v.*, lists the following meanings: “1. lettre, caractère; 2. chiffre, formule | diagramme, schéma.” The first meaning can be found, for example, in authors such as Hugh of Saint Victor: “littera est figura quae scribitur” (*Didascalicon* II, 28, cited by Sicard 1993, 162). See also Weijers 1991, 61-62.

⁶ An escutcheon with letters, and the table with the combinations of letters in Illustration 4. There is a third one with a circle that represents the Earth. See Soler and Bonner 2016, 217-220, for reproductions and explanations of these figures.

⁷ See Soler and Bonner 2016, 217, for an explanation of the role of this copyist, who may have worked during the last stage in the production of the codex, although the possibility of its being a later hand cannot be ruled out. See the same article, pp. 241-2, for a complete inventory of the graphic figures, both original and added by the second hand. The reader can see these added figures in the margins of Illustrations 1-4 below (in the last illustration, the figures accompany the one in the middle of the text).

⁸ Therefore, they are not present in chapters 348-358, in the second chapter of the second series (Ch. 360) and in the last two chapters of the book, 365-366, although in this last one Llull does mention, for example, “three figures” in §14. For all the graphic figures in the *BC*, see Soler and Bonner 2016. See also Llinarès 1988, 177.

The First Series of Substitutions (chs. 328-347)

The first chapter with alphabetic substitutions is 328; the second hand, following what Llull indicates in the text, represents them with a stair-like figure (Illustration 2) whose steps are marked with the letters A through I. Curiously, this figure is preceded by a prelude of sorts in chapter 326, which presents a similar stair figure (Illustration 1) without letters but with steps numbered 1 through 6, from “Sensuality” to the last of the three powers of the soul, “Will”. In §4 of this chapter, Llull explains that “The first step is called sensuality. Thus, we say that...”; in §7 he writes “The second step, O Lord, is called imagination”, and so forth, climbing one step every three paragraphs.⁹ In chapter 328 (Illustration 2), he introduces the letters and in §2 he explains his aim:



Illustration 1: Ms. A2, f. 438r



Illustration 2: Ms. A2, f. 442v.

{A}¹⁰ Let Your contemplator make a staircase of nine steps, by which his understanding may rise up to adore and contemplate Your holy, glorious and perfect goodness; and in each of the nine steps let him figure the appropriate letter so that by means of the figure and the sign of the letter he may have knowledge of each step. And thus, O Lord, Your servant places A on the first step and calls it sensual good, and B on the second step and calls it intellectual good...¹¹

Accordingly, beginning with §4, Llull devotes each paragraph to one of the letters. Thus, these letters, as the numbers in chapter 326, are simply the labels for the steps in the ascent; there is no attempt to use them in combinations. However, they are already described as “figures” that raise the reader’s understanding, providing a sort of introductory approximation to the procedure that allows the reader to start becoming familiar with it.

⁹ Ms. A2, f. 438r; *OE* II, 1054-5.

¹⁰ We use capital letters in curly brackets for the citations to which we will be referring in the text of this *Supplement*.

¹¹ Ms. A2, f. 442v; *OE* II, 1064.

Chapter 329 is where Lull begins to use the “figures” in a definitive way, aiming to guide the reader towards concepts he can use to generate meaningful combinations in order to formulate arguments. To explain how this works, we will take a look at chapter 334. In §3 Lull presents the alphabet for the chapter, which in this case discusses “How one adores and contemplates the excellent, glorious patience of Our Lord.” We will begin with the end of the preceding paragraph, where he explains to the reader that, in order to reach this aim

{B} We must make sensual figures by which we will be able to ascend to the intellectual figures by which we will be guided towards prayer and contemplation. (§2)

{C} And that being so, O Lord, we say and declare that A is Your holy patience and B is the meaning of A; and we declare that C is the affirmation of Your holy glorious Incarnation, and D is the meaning of C; and we declare that E is the denial of Your Incarnation, and F is the meaning of E; and we declare that G is memory and intellect and will, and declare that H is the prayer and contemplation that we devote to Your patience. And thus, O Lord, when we have figured this sensual figure, we must put certain letters in others so that we can have such understanding, such memory and such will, that we will be able to and be worthy of adoring and petitioning and contemplating Your patience, which is the source and the mother of all patiences. (§3)¹²

In the *BC*, as we mentioned earlier, the term “sensual figure” (as in text {B}) usually refers to an alphabetic substitution or group of substitutions, and rarely to a graphic representation. “Sensual” means that the figure is written or drawn, and thus grasped by the senses, as opposed to an “intellectual figure”, which is purely mental. In addition, it is important to bear in mind that, for each chapter, Lull planned it so that the first time the letters that substitute concepts appeared in the text—precisely the place where he provides the equivalence to their meaning—each letter would be copied in red ink, making it easier to locate; he even advises readers to draw their own tables of equivalences on paper or a piece of wood, both of which heighten the material quality of the “sensual figure”:

And thus, O Lord, anyone who wishes to enter this Art and this investigation, must know how to consult the form of the figure written in red letters on its first appearance, and he will do well to draw the figures on a piece of wood or on paper so as not to forget them; and if he does forget them, he should go to the figure

¹² Ms. A2, f. 456r; *OE* II, 1094. This is reflected in the list added by the second hand in the bottom margin of the page.

figured in red letters to know to which letters the concepts of this Art have been assigned.¹³

The Second Series of Substitutions (chs. 359-364)

In the second series, with six chapters, things get more complicated. Now, in each chapter, the main figures—that is, the list of alphabetical substitutions—are broken down into subfigures that function as smaller conceptual bases. From the beginning of chapter 359 (§1-2) there is an explanation of how this will be done:

{D} And that being so, the art and the manner is to make six figures from which five intellectual figures are composed. Thus we say, O Lord, that A is the intellectual motive power; and B is the sensual motive power; and C is memory, intellect, and will; and D is the combination of A and B; and E is the vegetative, sensitive, imaginative, and rational power; and F is the first movement, the two intentions, truth, devotion, conscience, tempering of animosity, and hope.

{E} And once these six figures will have been formed and figured, from these six, five must be composed, the first of which is A C, the second is A C D, the third is A C F, the fourth is A C F E and the fifth is A B C E F D.¹⁴

This demonstrates the two meanings of the word “figure”. In the first, it is a synonym for “alphabetic substitution”; in other words, when a concept is assigned to a letter, the letter “figures” it (*l’afigura* in Catalan), as Llull says, shows what it represents.¹⁵ Therefore, according to this meaning, a “figure” is the letter along with what it represents, as we can see in text {D}. The second meaning is in text {E}, where “figure” refers to each one of the groupings of individual figures, groupings which in {D} Llull refers to as “five intellectual figures” for reasons we will explain further on. The graphic representation by the second hand in the manuscript clearly shows the two types of figures.¹⁶

¹³ Ch. 335, §29, Ms. A2, f. 460r; *OE* II, 1103. This is the suggestion that has been put into practice at the beginning of each of these last chapters of Ms. A2.

¹⁴ Ms. A2, f. 513v (on the same page as Illustration 3); *OE* II, 1214-5.

¹⁵ For the Catalan meaning, see *NGGL*, s. v. “afigurar”, 2.

¹⁶ On the right half of Illustration 3, we can see how the copyist has numbered the groups from one to five, a numbering used in the text in §4-8. For the increasing complexity of these subsets, see, for example, those in chapter 361, analyzed in Soler and Bonner 2016, 235-7.

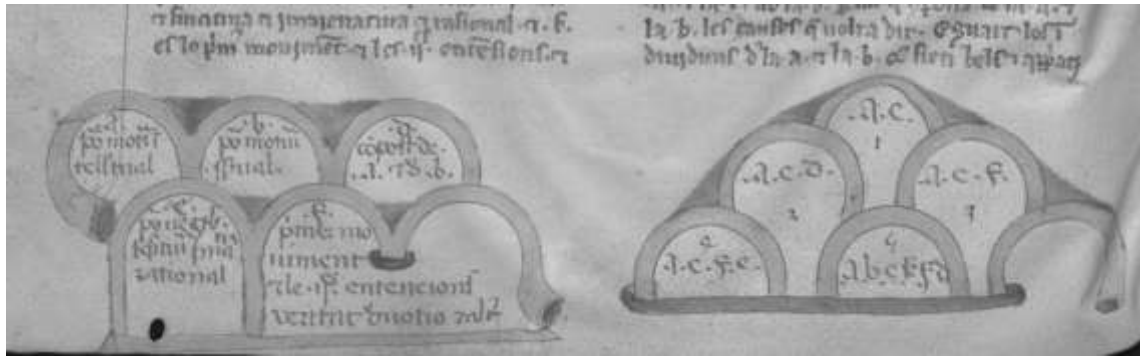


Illustration 3: Ms. A2, f. 513v.

This detailed distribution is repeated in the four following chapters (361-364),¹⁷ in the last of which—the last of the second series—Ramon adds a table with combinations of letters. We know that this one was done on his initiative because it is in the middle of the text and it is like a first attempt to organize a series of concepts visually, something that will become central to the Art.¹⁸



Illustration 4: Ms. A2, f. 528r.

¹⁷ Llinarès 1988, 182ff., views chapter 363 as another precursor of the Art. The last nine letters of the alphabet in this chapter represent the “virtues” of God, which constitute a “fourth theological figure” added to “the three figures of logic” (the three classic Aristotelian figures) which provides a “new way and a new art and demonstration”. See Ms. A2, f. 525r; *OE* II, 1235, §2.

¹⁸ The page on which it appears (Illustration 4) is interesting because, aside from the figure in the middle of the text, there are two additions by the second hand: the alphabet in the lower margin and the first of eight combinatorial medallions (corresponding to those of {E} above) in the upper right-hand margin. See Soler and Bonner 2016, 228-230, for more information about the figures in this chapter of the *BC*.

The Point of Departure: The Sensual Sphere

As we have seen, the purpose of these alphabetic substitutions is to create “sensual figures by which we will be able to ascend to the intellectual figures”:¹⁹ This explanation is a litany of sorts which Lull repeats at the beginning of each one of these twenty-five chapters at the end of the *BC*.²⁰ Accordingly, the figures are intended to force the reader to use something that can be grasped by the senses to formulate strictly mental operations.²¹ To show how this ascent is carried out, we will first explain the starting point and then the final destination.

The letters (or, later on, in the Lullian Art, geometric figures) are visible things, and therefore belong to the realm of the senses. For Lull, it is also the realm of natural language,²² a realm that is clearly separate from that of the intellect, which is one of the powers of the rational soul.²³ The relationship between the two levels is addressed in chapter 155 of the *BC*, entitled “How one reflects on the concordances and contrarities between intellect and words”, in which he focuses primarily on the pitfalls of language.²⁴

The main problem is the difficulties posed by natural language when it attempts to tackle the realm of the divine. At the most basic level:

The word speaks, O Lord, and says “the arm of God”, or “the ears and eyes of God”, or “the hands and feet of God”; where words saying these things give meaning as if God were a thing having a body; whereas the intellect understands what the words mean when they say “the ears and the arm of God” and understands

¹⁹ See text {B} above.

²⁰ Another example: “Honored Lord! Whoever wishes to adore and contemplate Your holy truth must figure sensual figures through which he can rise to the intellectual figures, with which he will be able and know how to adore and contemplate Your virtuous truth.” (Ms. A2, f. 450r; *OE* II, 1080). For these repetitions and their importance, see Rubio 1997, 43. For the absence of this explanation in the quaternary Art, see Ch. 8, n. 7, below and the text to which it refers.

²¹ It is important to note that Lull does not refer to the Aristotelian process of knowledge by abstraction, in which the intellect, based on data perceived by the senses, develops general ideas that include lower-level categories (genera, species, individuals). What Lull proposes, as we will see, is a new method of argumentation in which the intellect can combine and compare specific letters referring to individual concepts.

²² Both in its oral and its written expression. Regarding the sense of hearing: “As the word is, O Lord, a heard expression”; referring to sight: “Words are written so when one reads, one understands the meanings shown by the words.” For the references to chapter 155, see n. 24 below; here the quotations are from §1 and §19.

²³ “As the intellect is, O Lord, within the soul and the word is outside the soul, formed in the air, thus, O Lord, the intellect is closer to the soul than the word.” (Ibid, §4; see the almost identical formulation in §16). One could consider that this distinction between the materiality of the word “formed in the air” and the interior quality of the intellect contains *in nuce* the Lullian theory of the *affatus*, which Lull developed much later on (1294). On the one hand, because the *affatus* is considered “the sixth sense”, and therefore a tool so critical to the process of knowledge—consider its role in the *Liber de ascensu et descensu intellectus*, belongs to the sensual realm. On the other hand, because Lull considers voice as a manifestation of an inner intellectual conception, it gives access to the mental realm.

²⁴ See Ms. A1, ff. 154rff.; *OE* II, 447ff. In this section we will simply cite passages by their paragraph numbers. Although from a slightly different angle, the same subject is addressed in Ch. 159.

that God is not a bodily thing, even though words give the meaning that You are a body". (§11)

Even more important is the inability of natural language to take on fundamental theological problems:

Thus, as the word fails to signify and demonstrate Your Trinity and Your Unity, and Your goodness and Your Incarnation, the intellect, O Lord, which is a nobler creature than the word, reaches where the word cannot succeed in giving meaning to that which the intellect understands. (§6)²⁵

While natural language is incapable of describing divine things, it is also unable to face other aspects of the Lullian program, such as finding a way of reaching the truth through demonstration (the italics are ours):

As the intellect is within the soul and words are outside the soul, therefore, O Lord, it is better to believe and better to grant the arguments and reasons that can be *demonstrated* by the intellect, than those that can be *demonstrated* in words. And that, Lord, is a reasonable thing, given that the *truth* is closer to the intellect than to the word, which is a sensual thing. (§16)²⁶

This also affects disputation:

When men, O Lord, *dispute* according to the meanings of words, they are not as well prepared to find the *truth* as they are when they *dispute* according to meanings understood by the intellect; for in a verbal expression there is often a double meaning, or a letter may be missing or added. That is why men are sometimes confused by those who *dispute* over words, since a word can have a *double meaning* or take on a different *meaning*. (§17)

These are programmatic statements about the drawbacks of words, particularly for Ramon's missionary aims, bearing in mind what he states in §16, that "it is better to believe and better to grant the arguments and reasons that can be demonstrated by the intellect". Therefore, the solution is to project the reader towards the realm of the intellect, whose structure is entirely different from that of words.

²⁵ He then proceeds to give a series of examples of these problems, such as in the case of Incarnation: "The word speaks, O Lord, and says that You were incarnate and that You suffered death and passion on the Holy Cross. Therefore the word, by saying so, Lord, signifies that Your deity was altered by taking on human form and suffered passion and death. Yet the intellect, O Lord, does not follow the meanings which the word fails to grasp, and corrects itself, by understanding that Your deity was not altered nor suffered passion nor death, since it was its human form which suffered passion and death to save us sinners" (§9).

²⁶ This formulation, almost identical to the one in n. 23 above, is strikingly similar to the quote from Aristotle referenced in Ch. 10, n. 9, below.

The Point of Arrival: The Intellectual Sphere

This is the sphere of the “intellectual figures” to which the reader can ascend using the alphabetical substitutions. Sometimes Llull simply calls them “intellectual things”,²⁷ and, in one instance, “intellectual forms”.²⁸ They are the intelligible forms that reside in the intellect. In the *BC* they are general (and real) concepts, such as “good and evil”, “truth” and “being”; theological, such as “predestination” and “Trinity”; or composite concepts, such as “God’s mercy”, the “affirmation of Incarnation”, the “meaning of A” and the “meaning of C”.²⁹

As we can see, this involves furnishing the intellect with pieces created specifically for each chapter—an approach that would be much refined with the revelation of the Art. What is important here is the elevation of the discourse to this mental sphere, so that if we learn how to accept the “intellectual forms”, we will have “knowledge in a disputation whether an affirmation or negation is true or false”.³⁰

This is the beginning of a struggle to overcome the language barrier, guiding thought towards an ontological reality, selecting, and manipulating intelligible forms and mixing them by means of a discourse not based on propositions, but rather on comparisons and evaluations. The basic tool for this new discourse is precisely the set of “figures” of the alphabetic substitutions, which allow Llull to solve the semantic problems of a propositional discourse by bypassing it altogether and projecting components of ontological reality directly onto the intellect, without having to cross a morass of words and verbal explanations.

An Interface between “Sensual Things” and “Intellectual Things”

To see how this procedure works, we will go back to chapter 334 discussed earlier, with the two texts {B} and {C} and the series of “figures” or alphabetic substitutions established there. In the following chart, we have represented them as a group of eight labels, each made up of two parts: the first is the sensual part, with “the sign of the

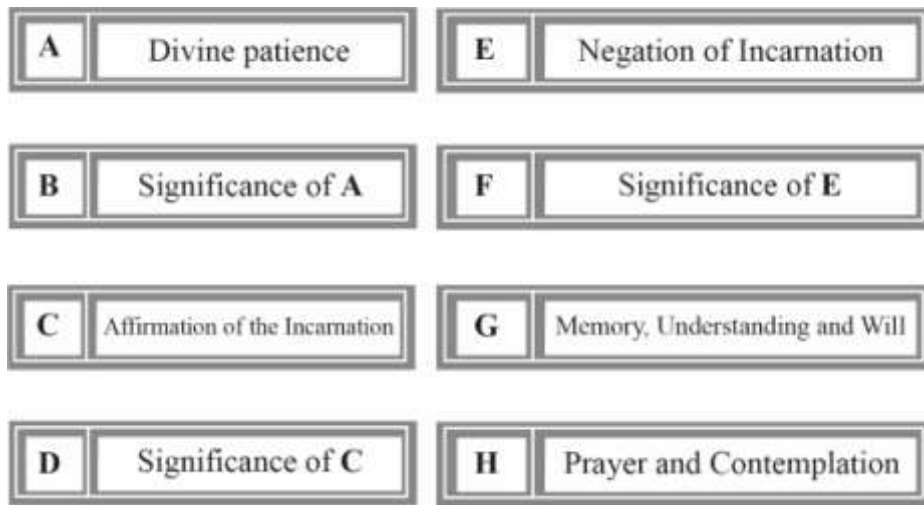
²⁷ As, for example, in *OE* II, 1065, 1070-1 and 1082.

²⁸ *OE* II, 1230.

²⁹ The wording *significació de* (‘meaning of’), taken from the text {C} quoted above, is often repeated in the last chapters of the *BC*. It is important to note that the letter “C” already represents a composite concept, “affirmation of Incarnation”. The reader should note that in {D}, when Llull says that the figures of {E} are “five intellectual figures”, it is not because they include alphabetic substitutions, but because, as groups of letters, they can only be treated mentally since they do not form words.

³⁰ Ch. 362, §1, Ms. A2, 522r; *OE* II, 1230. For the mental sphere, see the second part of n. 21.

letter” (as Llull says in text {A} above) and the second represents the intellectual part, the concept which it designates.³¹



So, for example, when we read text §5 in this chapter

{F} And that being so, we must *put B in G with D and F to try out and test* for which of the letters B demonstrates A to be greater and nobler in G, whether with D or with F.³²

we find ourselves forced to use the designated labels as pieces in a mental board game, moving B over to G (or “putting” one on the other, as Llull would phrase it), in order to test the combination with D or with F, and see which of the two is best for A.

In order to properly understand his proposal, what Llull wants us to do is not to make the arduous effort of reading these chapters while applying each and every one of the corresponding verbal substitutions, which is what we tend to do as modern readers when we attempt to follow the text.³³ What he aims for is much more than that: to have his readers change the way they read and understand the text.

³¹ Ch. 334, §3, Ms. A2, 456r; *OE II*, 1094.

³² Ms. A2, f. 456v; *OE II*, 1095. The italics are ours.

³³ And it makes sense that it be so. See, for example, Perarnau 2006, 490, who, when quoting a text from chapter 346 in the *BC*, finds himself having to give the equivalences of the letters: “[...] N [the intelligence of man] understands what B [the meaning of Christ] demonstrates for A [Christ], and memory remembers that the Holy Trinity and the Holy Incarnation that B [the meaning of Christ] demonstrates for A [Christ] is not what the Saracens [...]” Villalba 2015, 240-258 and 267-273, applies the same system in his edition of these chapters. Simply replacing the letters with their concepts does not make the text any more approachable; see, as an example, what happens in the case of text {F} mentioned above: “That being so, we must put the meaning of divine patience in memory, the intellect and will with the meaning of the affirmation of Incarnation and the meaning of the negation of Incarnation...” Either of the two procedures, going on for pages on end, makes, as the Carreras y Artau brothers said, “for reading to become, not only difficult, but insufferable” (1939-1943: I, 552, quoted in *OE II*, 1268, n. 264). See also Platzeck 1962-4, I, 324, quoted in Koetsier 2016, 59.

What he proposes is a language that will streamline reasoning processes because it works like a simple combining of pieces in a board game. The reader’s mental space—if he or she is willing to make the necessary change in mindset—is configured in such a way that understanding does not arise from the meanings generated by the articulation of a discourse,³⁴ but rather from the combination of abstract elements whose meanings have been established arbitrarily—the letters are semantically unrelated to the concepts they represent—and which the reader simply has to accept as pieces in the proposed game. Clearly this requires an effort of memory —or for the reader to take notes, drawing a chart for the meanings like the one shown here, or to write them down “on a piece of wood or on paper”.³⁵

Llull insists that, given its brevity, this procedure speeds up reasoning because it corresponds to the nature of the intellect, which is quick and does not need the rhetorical deployment of a discourse in order to work properly:

The final reason why this Art can be better determined with sensual figures than without the figures, O Lord, is that the nature of the intellect is that it understands better with words that are brief yet sufficiently understandable than with long ones. Thus, since a letter is uttered more briefly than “Incarnation” or “Trinity”, and so on, hence the intellect, as soon as it receives a brief expression or sentence, can rapidly move from one thing to another; but when the expressions or sentences are long, the intellect cannot move so rapidly nor go from one thing to another so rapidly nor so often within a given time as it can with brief expressions and words.³⁶

We can see an example of this in text {F}, the key to which is in the words we have highlighted in italics, telling us we must “put” (one label in another) “to try out and test” (which combination of labels gives the desired result). It is as though Llull wanted to lead us to an imaginary assembly table on which we are asked to try out several combinations of the pieces laid out before us. It is not a text that stems from reasoned propositions, which would allow us, according to given premises (for example, axioms

³⁴ To such a point that, for example, if one expects an explanation of the “Meaning of A”, one is faced with a void. It is nothing more than the concept for the label B; according to the game that Ramon proposes, we see that it serves the purpose of assessing the nobility of A in terms of the evaluation of G (the three powers of the soul) depending on whether D or F are placed next to it. In this respect, we must point out that before the ternary phase, Llull never defines or explains anything about the terms of his alphabetic substitutions or the subsequent graphic figures.

³⁵ See the Llull’s suggestion in n. 13 above.

³⁶ Ch. 335, §30; Ms. A2, f. 460r; *OE* II, 1103, quoted in Rubio 2014, 99, n. 1 (a work focused entirely on the subject of brevity). Maybe we ought to add that, in terms of brevity, this algebraic notation has a parallel with that introduced in mathematics by Viète and Descartes, which culminated a series of endeavors by Italian mathematicians of the sixteenth century. Before, a formula such as $2x^2 + 6xy - 3y = 17$, for example, had to be expressed as “two times the square of a number, plus six times the product of that number with another, minus three times the second number, equals seventeen”, which made mathematical generalizations and advances in its field far more difficult.

or citations of authorities) to draw out chains of consequences in order to reach convincing conclusions. Neither does he begin with any basis of argumentation—“put B in G with D in F” is unlike the beginning of any conventional discourse—nor does he end with a conclusion. In fact, Llull almost never gives a solution: he only shows readers the path they must take to find it. What he demands is an active, not a passive reading, where readers generate their *own* conclusions (which, if the process is followed properly, will never contradict the truth of the Christian faith).

This operation of “putting” a label or concept inside another—which we already saw in {C}, where Llull says “we must put certain letters in others” in order to achieve the desired devotional purpose—,³⁷ is aimed at studying the meaning of that conjunction. Later on, in the ternary Art, it becomes a “mixture” (*mixtio* in Latin), which shows that it is a fundamental procedure throughout the production of the Art.³⁸

³⁷ Also in Ch. 336, §2, he explains that when one has figured (*afigurat* in the original) the sensual figures, “then one must try out and test the letters, with some entering and exiting others” (Ms. A2, f. 460v; *OE* II, 1104). In Ch. 340, §2-3, after having introduced the “sensual figures” where the letter “I is the intellect of man” he says that “we must then put all the figures in I to try out and test that letter to find out by which one or ones we will be able to understand and know the principle of good and evil” (Ms. A2, f. 467v; *OE* II, 1121). In Ch. 346, he explains that by learning the letters, the reader will be able to “perceive and know the art and the path and the manner of converting the entire world to the way of salvation” (Ms. A2, f. 480r; *OE* II, 1149, §2), which corresponds to one of the objectives of the Art.

³⁸ In the *Tabula generalis*, for example, Llull explains of Figure A that “it is circular because one can put the principles circularly one in the other, that is, goodness in greatness eternity, and so forth in succession, and greatness in goodness eternity, etc. And this putting (*metiment*) and entering...” (*ORL* XVI, 302). The word *metiment* is translated as *mixtio* in the Latin version (*ROL* XXVII, 10); regarding this concept, see the last section of Chapter 9 below.

CHAPTER EIGHT

THE FOUNDATIONS OF THE SYSTEM IN THE QUATERNARY ART

An All-Encompassing New System

In its first version in the *ACIV*, the Art emerged with a series of geometric figures that changed the ascent from the sensual sphere to the intellectual sphere in several ways. The first is in the system used for making this ascent, and in the meaning given to the word “figure”, which now, instead of simply referring to alphabetic substitutions, begins to designate graphic representations—a meaning more familiar to the reader.¹ However, the explanatory or demonstrative discourse arising from it can be almost identical, as we can see if we compare the following example from the *ACIV* with text {F} quoted above:

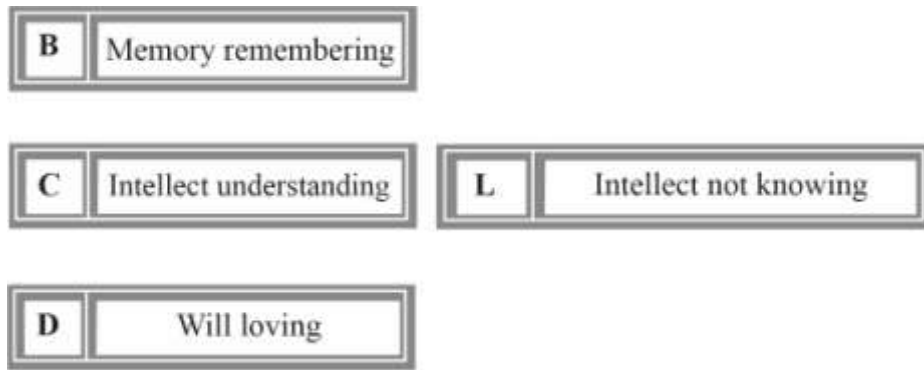
{G} B must remember that D is not greater than C, so that D does not convert C into L...²

It would be even more similar if we interpreted it with a series of labels based on the equivalences of meaning represented by the letters:³

¹ Alphabetical substitutions continue to be present but are no longer described as “figures”.

² *MOG* I, vii, 12: 444; Vat. Lat. 5112, f. 15v. *MOG* reads “does not pervert C into L”.

³ Which, curiously, Lull does not present in the *ACIV*; see in Bonner and Soler 2007 how he leaves his readers in the lurch, forcing them to search for the meanings of the letters in the figures, and to be clever enough to realize that most come from Figure S. The solution is eventually offered in the *Ars demonstrativa*, with the Alphabet Lull provides at the beginning of the work.



The second and most important change brought about by the Art is the development of an integrated system of graphic devices and letters that is used consistently throughout the work, even in all the works of the quaternary phase. What is more, this system aims to represent the actual structure of reality; in other words, after his attempts in the *BC*, Llull found a way of organizing the scattered pieces of what we could call an incipient ontology to offer one that was general. Needless to say, he did not do so *in extenso*. In fact, developing a full-fledged general ontology of the world would be like recreating the map of the world in the short story by Borges: if it were to be complete, it would have to be as big as the world itself.⁴ That is why Llull invented—or, rather, had the revelation of—a navigational instrument that he could use as a guide to reach every last corner of this world: the conceptual profile organized by the graphic apparatus of the Art, that goes from the summit of Figure A, of God and his dignities, to the material level of the Elemental Figure, and including the ethics of Figure V with the virtues and vices. These figures represent the foundations of an interactive ontology insofar as they contain components that one can manipulate in order to make it work; for example, Figure T, which offers the tools for comparing two things (whether one is greater or lesser than the other, whether two things are concordant or contrary, etc.), and Figure S, which determines the relationship between the components of the system and the rational soul (whether the results obtained are memorable, intelligible and lovable or not). This means that the series of small collections of labels written specifically for

⁴ Jorge Luis Borges, *Del rigor en la ciencia (On Exactitude in Science)*. *The Tree of Science* (Rome, 1295-1296) is possibly the work that comes closest to this “ontological world map”. It is a version of the Art in the form of an encyclopedia, which, instead of organizing clusters of data, describes the interconnected structure of the world, based on the general principles of the Art which inform all of reality.

each chapter of the *BC* have evolved into a system of diagrams which offers a veritable *repraesentatio mundi*.⁵

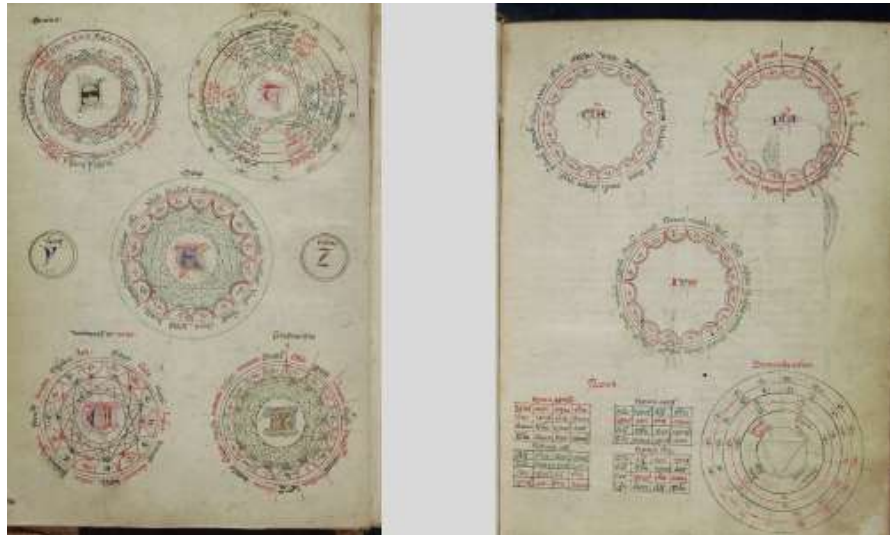


Illustration 5: Venice, Biblioteca Marciana, Lat. VI 200, ff. 3v-4r.⁶

Being both an ontological and an epistemological system, there is no need for an explanation of the use of the sensual figures as instruments for ascending towards the intellectual figures, which Ramon repeated so obsessively in the *BC*.⁷ An explanation is unnecessary because he has replaced the (mental) labels, which served as “ice axes” essential for readers wanting to set out on the ascent, with a “map” charted out from the summit which offers a direct view of the intellectual sphere. The reader no longer has to make a new effort at every step: Lull opens a panoramic window, and now it’s just a matter of opening one’s eyes and exploring the new terrain.

Particularities of the Mechanisms of the Quaternary Art

The differences between the mechanisms of the quaternary Art and those of the *BC* lie mainly in the way the ascent from the sensual to the intellectual sphere is approached. First of all, there is a continuation and an extension of the alphabetic substitution with:

⁵ The expression is from Ruiz Simon 1986, 91.

⁶ Unlike the figures in the *ACIV*, the figures in the *Ars demonstrativa*—the ones shown here—are grouped on two facing pages at the beginning of the text, offering an overview of its content. In the *ACIV*, they were placed within the actual text of the work. However, the differences in content between the two versions are minimal (see *Art&Logic*, 100-2).

⁷ It only reappears in one text from the quaternary phase, the *Compendium seu commentum Artis demonstrativae*, but in the context of possible uses of the various components of the work.

(1) letters such as Y and Z, each of which represents one single concept;⁸ (2) sixteen other letters that represent the concepts inside Figure S.⁹

Secondly, there is the novelty of finding whole words that act as “sensual figures”, as in the following example from the *AD*:

{H} 1. *Question*: Whether God exists?

Solution:

A	A	being perfection	privation imperfection	S V.	Y Z.
---	---	------------------	------------------------	------	------

¹⁰

Here, in addition to words referring to concepts, Llull seems to be using words to designate the very same words, which may strike us as unusual. In fact, he uses these words to designate or “figure” (*afigurar*) intelligible forms of the Art’s inner workings, just as he does with the letters. The only difference is that, in this case, the two steps in the *figuració*—the representation—have exactly the same physical appearance, which does not change their use as labels. In the sensual sphere, the “perfection” of the text acts exactly like the letters: as a symbol that points towards

perfection

. This, by virtue of being inside a box,¹¹ no longer belongs to the sensual sphere of verbal discourse: instead, it has become a new label that points to the intellectual sphere of the Art, where, in fact, it is a component of Figure X. We can see this in an excerpt from Llull’s explanation of {H}:

{I} If it [that is, A = God] [...] does not exist, **imperfection** *accords with* all **being**, and all **perfection** *accords with* **privation**, which *accords with* all **imperfection**. And if A exists, there exists some **perfection** and some **being** without **privation** and **imperfection**; therefore A exists.¹²

As the reader can see, these words function exactly the same way as letters—that is to say, as identifiers of the labels that link the sensual sphere to the intellectual sphere. What is interesting is their interrelations when they move across the new game board. In this case, one moves from a word to a thing—that is, to a real entity, the intelligible

⁸ If they appear inside circles, it is to show how they are grouped within the mental furniture of the Art.

⁹ See *Art&Logic*, 64.

¹⁰ For this text, as well as {I} below, see *Art&Logic*, 80ff., where they are followed by an extended analysis.

¹¹ It is part of the same strategy explained in n. 8 above, except here with boxes (compartments) substituted for circles. We must add that Llull does the same with the dignities in Figure A, for which he does not provide letters.

¹² See n. 10 above. We have used boldface for the four concepts in the two compartments from Figure X, and italics for a usual synonym of “is concordant with” from Figure T.

form—that has the same designation. What we have here, instead of an alphabetic substitution, is a lexical substitution.¹³

It is important to note that the Art, as in example {H}, does not tend to structure its arguments as much with individual labels as in the *BC*, but rather by pairing them in binary “compartments”. Here, for example, the evident coherence of the being perfection compartment is compared with the incoherence of a supposed being imperfection. This is a fundamental strategy in the *AD*, prevailing throughout the entire work.¹⁴ In addition, Llull explains that “each compartment is a universal in which one should seek the particular”.¹⁵ As a result, the joining or mixing of ontological entities—with apologies for the redundancy—is now systematized in the second distinction of the *AD*, where Llull shows the reader how to introduce the fifteen concepts of Figure T to evaluate the concept pairs from each compartment of the Elemental Figure and of the Alphabet of the work.

This binary basis can even be found in texts that appear to be more “literary”, such as the *Book of the Gentile and the Three Wise Men*. It is a well-known fact that in this work the graphic apparatus of the Art is limited to a display of the divine dignities along the human virtues and vices in three trees whose flowers show their possible binary combinations. The first proof provided in the book, that precisely concerning the existence of God, begins with a flower with two dignities from the first tree:

{J} Goodness greatness

It is clear to the human understanding that **goodness** and **greatness** *accord with being*; for the **greater** the **good**, the more *it accords* with *essence*, or with *virtue*, or with both together...¹⁶

The method for manipulating labels to see which are concordant and which are not is exactly the same as in example {I}, although now it is only done by lexical substitutions, so as not to confuse the reader with a text that looks algebraic. In other words, it is as if it were the explanation of a proof like {H}, which conceals its algebraic origin in order to sugar the pill for those readers unfamiliar with the Art.

¹³ One of the works from the quaternary phase that relies entirely on lexical substitutions is the *Book of the Gentile and the Three Wise Men* (see text {J} quoted below). In the ternary phase, one of the few instances in which lexical substitution is allowed is in the *Tree of Science*, as we can see in passage {P} quoted below in Ch. 9.

¹⁴ The first distinction, for example, which he says deals with the figures, only presents the second figures, the half-matrices, which display all these “compartments” on which the work is based.

¹⁵ Llull says this of Figure V (*SWI*, 329), but repeats it for each one of the other figures as well.

¹⁶ *SWI*, 119 and n. 2. We have written the words from the flower in boldface and used italics for the other entities from the Art that are not presented as such in the work. We could even have italicized “It is clear to the human intellect”, corresponding to “intellect understanding” (letter C) in Figure S.

CHAPTER NINE

THE REORIENTATIONS OF THE TERNARY ART

*New Foundations*¹

The innovation that permitted the birth of the ternary Art, with the disappearance of the discourse based on the combination of “labels”, was the discovery of an ontological dynamism that was applicable to all beings, both created and uncreated, with the corollary that this dynamic reality could be used to formulate definitions such as:

{L} Goodness is that thing by reason of which good does good.²

This is of the utmost importance in the reformulation of the Art, for three reasons:

1. It is an ontological definition—it does not explain what a *word means*, but rather what a *thing does*, due to its inherent dynamism. That is what allows Llull to formulate apparently absurd definitions, such as “man is a manifesting animal”.³

2. With the use of correlatives, the expression of this dynamism can be transferred automatically, and in general, to any other thing—for example, to fire (*ignis*), which unfolds into an active form (*ignificativum*), a passive form (*ignibilis*) and a verb that connects them (*ignire*).⁴

3. The definitions—an entirely new element, there are none in the quaternary Art—⁵ offer a propositional basis for the discourse of the Art, which would have been

¹ This section is a reformulation of *Art&Logic*, 121-2.

² *SWI*, 589. For the definitions in general, see *Art&Logic*, 134ff.

³ *SWI*, 609. For variations on and a brief defense of this definition, see *DDL*, s. v. “home, hom”.

⁴ To understand the doctrine of correlatives, we must take into account that for Llull activity represents the essence of a thing, or, as he states in the *Ars compendiosa Dei*: “The essence is the thing whose being is its own act” (*ROL XIII*, 27, quoted in *DDL*, s. v. “essència/essentia”); Llull even goes so far as to reify the correlative triads by using only suffixes (*-tivum*, *-bile* and *-are*). This doctrine provides the basis for his theology and allows for rational demonstrations of the Trinity and Incarnation. For this question, see *Art&Logic*, 107ff., based to a large extent on Gayà 1979.

⁵ The ones that appear in *MOG I*, vii, 45-49: 477-481, in *De definitionibus principiorum*, an appendix of sorts for the *ACIV*, are spurious. See Bonner 1986, 88-89.

impossible in the previous system, which only worked with combinations of individual entities. It is not a basis in the traditional sense of a small number of statements (axioms or maximal propositions) which provide the foundations for an entire system, but rather a model that can be followed to formulate new propositions about any concept whatsoever. And the nature of this formulation—namely that each definition has an identical dynamic mechanism—makes it so this very dynamism can operate as an axiomatic basis.

This allowed Llull to develop arguments that seemed far less alarming to thirteenth-century reader—and were entirely unrelated to texts such as {H} and {I} cited above. As an example, we will examine a proof from the *AIV* about a subject related to {H}, but adapted to the new dynamic model. The question is, “Whether God exists, as much by acting in Himself as by existing”, to which Llull answers:

{M} The definition of goodness in the First Distinction manifestly shows that the solution for this question must be in the affirmative, given that, since goodness is that being because of which good does good, it clearly follows that infinite goodness is an infinite being, because of which infinite good also does infinite good. Because otherwise it would not be infinite according to the conditions of infinite good. Therefore, since God is infinite goodness itself and infinite good itself, He necessarily produces infinite good in Himself from Himself, which could not be otherwise, because nothing is infinite other than He Himself: therefore, for God, acting in Himself is the same as existing in Himself, since He Himself is that good which exists and bonifies. (*ROL* XXXVII, 165)

As we can see, the argument is based on the definition of “goodness”, which can be applied to “an infinite being [...] because otherwise...”. Therefore, what we have is a series of consequences resulting from an initial proposition—a procedure that is entirely unrelated to the combining of individual concepts in the quaternary Art and is perfectly compatible with standard scholastic texts.⁶

⁶ Or, as Fernando Domínguez suggests, we have shifted from the Art based on *principia* that were *incomplexa*, i.e. *simplicia*, to an Art built upon “the principles on which the philosophy accepted in Paris was based and according to which it operated, which were *principia complexa* i. e. *enuntiabilia*” (*ROL* XIX, 41-43). The same author quotes a passage in which Le Myésier explains that he wants to include a work—the *Principia philosophiae*—in the *Electorium* in order to show “how with a universal Art one could produce complex, true, and necessary principles [...]. And I did so for those who wanted to approach the Art, because it does not always work everywhere with propositions, but often with incomplex universal principles” (from *Epitome electorii*, transcribed in Hillgarth 1971, 403). The adjectives he chooses for describing the two methods are drawn from a *topos* of scholastic logic which Le Myésier clarifies in the “Pars antecedens” of the *Electorium*: “There are two kinds of significative discourse, given that there is one that is called complex, such as a sentence, or incomplex, such as an expression or word taken by itself” (see Pindl-Büchel 1992, 120); possibly from William of Sherwood (see William of Sherwood 1983, 223) or from Peter of Spain (see Peter of Spain 1972, 2). It is important to note that this terminology, appropriate though it may be, was never used by Llull himself. See also *Art&Logic*, 274-5. Last of all, we must add that at this point, any combinations that we encounter are not of isolated concepts but presented in terms of them *with* their definitions (but all the same, see the last paragraph of Chapter 9).

*Rules and Questions*⁷

The second major change in the ternary Art appeared with the Rules and Questions, which are a sort of extension of the definitions.⁸ Despite having similar names and purposes, their first formulations in the *AIV* and the *AA* from 1290 are in fact quite distinct from the subsequent definitive version of the *TG*. In both these works, the relevant section begins by explaining what a rule is:

A Rule is a useful and organized summary of principles, constituted so that with it one can find and achieve the things one wishes to know and to love.⁹

However, the two lists differ in their number and contents: the one in the *AIV* has nine rules (shown below) whereas the one in the *AA* has eighteen, which begin with B “Simplicity and composition”, C “Intention and goal” and D “Definition”.¹⁰ Be that as it may, three years later, the *TG* contributed a radical innovation by introducing a list that would remain unchanged from that moment on throughout the rest of Llull’s production. The respective lists in the *AIV* and the *TG* are the following:

	<i>AIV</i>	<i>TG</i>	
B	<i>De suppositione</i>	Whether? (<i>Utrum</i>)	- Possibility
C	<i>De modo essendi et intelligendi</i>	What? (<i>Quid?</i>)	- Quiddity
D	<i>De investigatione</i>	Of what? (<i>De quo?</i>)	- Materiality
E	<i>De specificatione generalis</i>	Why? (<i>Quare?</i>)	- Formality
F	<i>De contradictione</i>	How much? (<i>Quantum?</i>)	- Quantity
G	<i>De necessario et contingenti</i>	Which? (<i>Quale?</i>)	- Quality
H	<i>De demonstratione</i>	When? (<i>Quando?</i>)	- Time
I	<i>De punctis transcendentibus</i>	Where? (<i>Ubi?</i>)	- Place
K ¹	<i>De maioritate finis</i>	How? (<i>Quo modo?</i>)	- Modality
K ²		With what? (<i>Cum quo?</i>)	- Instrumentality ¹¹

Clearly there has been a radical change of procedure between these two lists. The first is made up of concepts that are fundamental tools for study, and can be adapted to the

⁷ This section only covers questions that were not addressed in *Art&Logic*, 137-142.

⁸ Le Myésier noted that the Rules have an antecedent in the *Regulae introductoriae in practicam Artis demonstrativae* when he included them in the *Electorium*, as part of his presentation of the various Rules of the ternary Art. However, it is an antecedent more in terms of its name than of its contents. It is telling that in the margin he added the Alphabet of the *AD*—a work that does not even appear in the *Electorium*—, without which a reader could never have understood this very different set of Rules.

⁹ *ORL* XVII, 23; *ROL* XXIX, 133. The version of the *AIV* (*ROL* XXXVII, 96) is substantially similar.

¹⁰ *Ibid.* See *Art&Logic*, 119, for the differences between the two lists—which only have one Rule in common, “Transcendent points”, one aimed for the service of “science” and the other of *amància*. The *AA*’s entry on “definition” contains a long discussion of the matter that is interesting both in terms of its date—the beginning of the ternary phase—and of its contents (pp. 32-36 and 140-4 of the respective editions), and which unfortunately was overlooked in Bonner and Ripoll 2002.

¹¹ Each Rule and Question has its “species”, which are listed on *Art&Logic*, 138-141. Here all we have to remember is that C (“What?”) has four; Llull places his definitions in the first and the correlatives in the second.

subject being studied.¹² The second, on the other hand, is a list that will remain invariable from the *TG* onward, and which contains questions formulated according to ten general questions: they are tools for investigating any subject, and, therefore, are questions as instrumental as the Art itself.¹³ The first looks back to, and has a clear forerunner in, the Rules of the *Compendium seu commentum Artis demonstrativae*;¹⁴ the second would eventually constitute one of the six columns of the Alphabet that presents the indispensable components for the functioning of the ternary Art.¹⁵

Llull even uses the Questions and Rules as a synecdoche for the entire Art, for example in the *Liber de homine* (1300), when he introduces the section on the rational soul:

The rational soul is a very difficult thing to understand and to explain because it is not a body, a color or a figure, nor can it be seen or touched; and because it is hard to understand, we want to investigate and explain it according to the functioning and investigation of the *Ars generalis* the better to investigate and discover it; that is, we will investigate what the rational soul is, of what it is, for what, how much, which, when, where, how, and with what it is.¹⁶

Curiously, a few years earlier he had put together an entire work, the *Liber novus de anima rationalis* (c. 1296), on the same subject. In the introduction, he states that he will pursue “an investigation according to the rules of the *Tabula generalis*” and then proceeds to describe how he intends to do so:

This book is divided into ten parts, that is, into the ten kinds of questions. The first kind is that of *whether*, that is, in which one asks whether it exists. In this first part there are three species...¹⁷

¹² For example, this happens between the list given in the *AIV* and the one in the *AA*, as we just mentioned, because one focuses on science and the other on *amància*.

¹³ It is interesting to note that in the quaternary Art, this function of exploring all the aspects of a subject of study was presented in an exchange of exemplary stories between characters; the paradigmatic example of this procedure is probably *Felix or the Book of Wonders*. As is known, the use of literary resources clearly diminishes in the ternary phase.

¹⁴ *MOG* III, vi, 74ff.: 364ff.

¹⁵ We must point out that only the Questions are used in the Art. The Rules are only for their classification. When Llull, for example, wants to give a general explanation of how the first Question (*utrum*) works in the *Logica nova*, he says: “This is a rule of possibility, as *utrum* has to do with two things, that is affirmative and negative, so that the intellect will not be hindered but have the freedom to investigate, because when the intellect supposes something to be impossible...” (*ROL* XXII, 32; *NEORL* IV, 15). However, in the course of an investigation, only the Questions appear.

¹⁶ *ORL* XXI, 12; *ROL* XXI, 166. This work omits the first Question, “Whether?”, as usually happens when a subject of investigation is considered an established fact. Note the insistence on “investigation”. Llull is not trying to clear up points of academic debate but trying to help the reader or student work out what the rational soul really is.

¹⁷ *ORL* XXI, 163. I have used the Catalan text because the Latin version as yet has no critical edition. On the *Liber novus de anima rationalis*, see also the chapter on “Closing Thoughts” at the end of this *Supplement*.

and he continues to list each one of the Questions and their species, a list that provides the backbone for the entire book.

A New Art

This procedure is part of a dramatic reorientation of the Art. The quaternary Art offered a broad range of resources that could be used to solve any question (as in the last distinction of the *AD*), guided and ruled according to the map provided by the Figures.¹⁸ It was a system that operated from top to bottom. Now, with the Questions and Rules, together with the definitions and the reformulation of the eighteen principles of the Art as explained in *Art&Logic*, 125ff.,¹⁹ the new ternary Art was capable of providing the foundations for a philosophical or theological argument: in other words, basically it operated from the bottom up. This is the novelty announced in the titles of eight works:

- III.25 - *Liber novus de anima rationalis*
- III.29 - *Tractatus novus de astronomia*
- III.39 - *Liber de geometria nova et compendiosa*
- III.50 - *Rhetorica nova*
- III.56 - *Logica nova*
- IV.1 - *Liber de novis fallaciis*
- IV.21 - *Metaphysica nova et compendiosa*
- IV.22 - *Liber novus physicorum et compendiosus*²⁰

It is applied to a broad variety of subjects, ranging from a detailed description of the rational soul—as we saw above—to a rethinking of medieval logic, rhetoric, and metaphysics. But this rethinking does not only apply to the works in this list: it affects all sorts of texts from the ternary phase, from the art of prayer for contemplating God which we find in the last part of *Medicina de peccat*,²¹ to the *Liber de praedicatione* in

¹⁸ The quaternary Art functioned in a pointillist way, for example in the *AD*, in which the enormous section on questions is devoted to solving individual questions drawn as if from large baskets with labels such as “theology”, “philosophy”, etc., without saying anything else about what these terms mean or how they are used. It is as if he wanted to show the vast range of problems the Art could solve. And even here, the solution consisted of an algebraic expression that required interpretation.

¹⁹ The two other groups of concepts from the Alphabet of the ternary Art—with a less important role—were the Subjects and the Virtues and Vices (see *Art&Logic*, 123).

²⁰ There is a ninth work that is also described as “new” in its title, IV.57 - *Liber de novo modo demonstrandi*, but its novelty in this case is not related to the foundations of the Art, but to a technique for demonstration. It is a very late work—dated in 1312—from the end of what is referred to as the post-Art phase, in which Lull focused on specific aspects of logic.

²¹ In the fifth part of the work, titled “D’oració”, Lull uses the Questions to structure his argument. He begins by stating: “I will divide prayer [*oració*] in nine manners, as follows”, and then he enumerates how he applies the Questions to the theme under discussion (see *NEORL XVI*, 319). As observed by Fernández Clot (2018, 395), in this text “the application of these rules and questions constitutes a method for contemplative prayer”.

which the first distinction provides a thorough explanation of the Art, one spanning 252 pages of the *ROL* edition.²²

This made sense for the readership Llull wanted to reach. The quaternary version was the work of a layman addressing a lay public that was hungry for religious and moral instruction. After the dramatic setback of his first journey to Paris, and probably having been warned by disciples such as Peter of Limoges and especially Thomas Le Myésier that his system was incapable of persuading Parisian scholastic circles, and therefore of gaining approval from the higher echelons of the Church, thus hindering the propagation required by his *donum divinum*, he decided to change his tactics. This led him to remodel the Art into a version aimed primarily at university circles, with foundations capable of explaining and, above all, reorienting a series of academic subjects, as we can see from the previous list. It even allowed him to suggest that the Art made it easier to address the *Sententiarum Magistri Petri Lombardi*, a key work in scholastic studies.²³

The New Figures of the Ternary Art

Le Myésier's complaints about the amount of figures in the quaternary Art and the complexity of their alphabet, which undoubtedly indicated the negative reaction of Parisian academic circles during Llull's first visit, led him—as is well known—to reduce the figures from twelve to the four in the following illustration:²⁴

²² *ROL* III, 143-394.

²³ See a forthcoming article of mine on Llull's use of the *Disputatio eremite et Raimundi super aliquibus dubiis quaestionibus Sententiarum Magistri Petri Lombardi*.

²⁴ As explained in the dialogue between the two in the miniature reproduced in *Art&Logic*, 20, with the disciple's complaint and Llull's answer that he has given up this quantity of figures, and now "I have produced an *Artem inventivam veritatis* anew with four figures displayed in the Art" (Lohr 1990, 45).

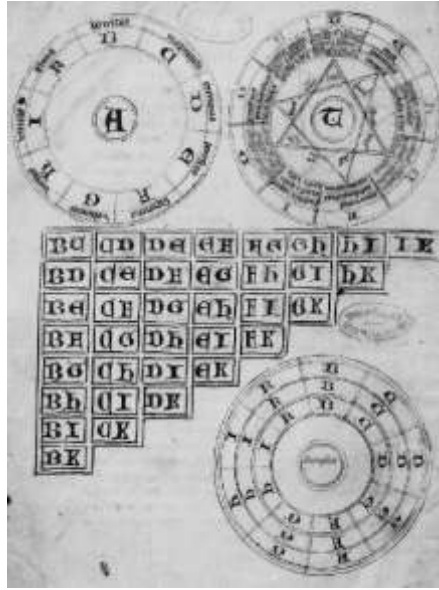


Illustration 6: *AIV*, Arras, Bibliothèque Municipale, Ms. 100, f. 1v.

The role of these four figures is so residual that the Art could have done without them, or they could have been replaced with simple lists of the Alphabet he presents, as he does in later works.²⁵ That may be why Llull gives another warning about the role of the figures, the first since those he had given in the *BC*, although not quite as emphatically here:

The reason why we put figures in this Art is so that with them we can consider the principles of this Art: because through sensual examination the intellect is uplifted to examine spiritual things, and this uplifting uplifts the will to love those things.²⁶

The second distinctions in the *AD* and in the *AIV* address the same subject (“On figures”) and both are almost the same length. However, while in the *AD* these pages provide detailed—in other words, ekphrastic—²⁷ descriptions of the first (graphic) figures and proceed with a systematic display of the half-matrices for the second figures, those in the *AIV* provide in-depth definitions of each one of the eighteen principles presented in the first two figures. This is an evolution from a particular catalogue of objects (in the *AD*) to a series of philosophical expositions (in the *AIV*).

Llull explains the other difference—the most noteworthy—with his characteristic precision at the beginning of the *AIV*:

²⁵ See *Art&Logic*, 123.

²⁶ *AA*, *ORL* XVII, 9. There is a similar reminder in the *AIV* (*ROL* XXXVII, 9), where instead of “spiritual things” and a “will to love”, Llull speaks of helping the reader to “achieve the discursive and investigative mode” [*modum discursivum et investigativum attingat*]. He does not repeat this warning in later works from this period.

²⁷ For the descriptions of Llull’s figures as an ekphrastic discourse, see Bonner and Soler 2016.

{N} The present Art is derived from the *Ars demonstrativa*, and although the essence²⁸ of one and the other is the same, their way of proceeding is different. While the former uses terms represented by letters, this one is contained within its own terms or principles. Nor is there any need for the use of other letters, so that the readers who shun the alphabet of the *Ars demonstrativa* can have access to the terms or principles of this Art through their own meanings. Nevertheless, in the figures of this present Art, but not in its text [*in processu*], we must use letters for terms, because otherwise we could not proceed with any investigation or invention in the last two figures of this Art. (*ROL XXXVII*, 7)

The use of letters has thus disappeared from the text of the Art, which is now based directly on the concepts that Llull wishes to discuss, and does so *sub suis propriis significatis*, in other words, according to their own definitions. As stated at the end, the letters are only used for the combinatorial mechanisms in the last two figures, as in example {O} quoted below.

We will look at an example from the Table to see how this works. As explained in *Art&Logic*, 144-6, the Table represents the unfolding of the Fourth Figure, similar to that of the Third Figure; however, since a half-matrix cannot be set up with more than two components, as would be the case with the Third Figure, Llull had to find a system for representing ternary “compartments”. The result was the Table, a “compartment” that looks like this:

{O} D T C D If the world is eternal, concordance exists so that contrariety can exist, [yet] contrariety does not exist so that concordance can exist; because if the world is eternal... (*TG, ORL XVI*, 431; *ROL XXVII*, 150)

In Llull’s ingenious combinatorial mechanism, the letters before the T are from the First Figure and the ones after it are from the Second, so that D T C D means “eternity” and “concordance·contrariety”. Thus we only find the letters in the initial rubric to signal the compartment in question, but not in the development of the text, which is what was meant in {N}: “in the figures, not in the text” (“in figuris, non autem in processu”). In the quaternary Art, in addition to the strictly alphabetic notation that would have been provided for it, the passage would have been presented in a considerably more tedious way:

If the world is D, C exists so that D can exist, [yet] D does not exist so that C can exist, because if the world is D....

²⁸ Two of the four first-generation manuscripts that preserve their incipit, the one from Arras and the *Electorium*, have *essentia* (a variation not recorded in *ROL XXXVII*, 7); the other testimonies have *existentia*, which is the lesson edited in *ROL*. We have chosen the first lesson, which seems clearly preferable.

Mixing as the Continuation of the Game of Confronting “Labels”

We have written extensively about mixing (*mixtio*), one of the most important concepts in the ternary Art, in *Art&Logic*, 155-9.²⁹ In fact, it is a reorientation of what we described as a board game with the juxtaposition of markers in the quaternary Art, one based on a change in the foundations of demonstration. We will look at how it functions in a work derived from the ternary Art, the *Tree of Science*, and compare it with passage {J} quoted above, which, in turn, is from a work derived from the quaternary Art, the *Book of the Gentile*, which also lacks alphabetic substitutions. In the “Tree of Jesus Christ”, as in the *Book of the Gentile*, “flowers” are used to articulate demonstrations—in this case, of Incarnation.

{P} 19. On **greatness power** and **Incarnation**

Power is the reason by which **greatness can** be and have **great** works, and **greatness** is the reason by which **power can** be **great** in terms of existence and agency. And these reasons which are convertible, are better signified in the relationship of conversion and of creation if **Incarnation** exists; and if **Incarnation** does not exist, the signification of conversion is less signified, and one reason and the other fail in creation and relation. But this failure is impossible, by which impossibility the provability of **Incarnation** is maintained.³⁰

The difference from the example in the *Book of the Gentile* is that this one does not propose to simply confront the labels and examine the result—their concordance or contrariety—but instead proceeds by mixing definitions. Llull himself explains it at the beginning of the relevant section in the *Tree of Science*:

And because the roots, according to their definitions and natures, have flowers on their twigs, we want to mix the roots one with another, according to the nature of their definitions.³¹

²⁹ Note that a similar process to *mixtio* was not entirely absent in the quaternary Art. One can find sporadic examples when what is combined are not simple but complex concepts, such as those in Figure S, in which, for example: “E stands for the act of B C D” (see *SW* I, 317); or like the herbs with varying qualities of the letters E, F, G, H, etc. (see *SW* II, facing p. 1121).

³⁰ *Tree of Science*, “Part Thirteen”, VI, “De les flors de l’arbre de Jesucrist”; *ORL* XII, 227; *OE* I, 754; *ROL* XXV, 600. Note that “power” (in Catalan and Latin, *poder* and *potestas*), has the same root as “can” (*pusca* and *possit*). Also, the reader must have noticed that the initial formulation (the equivalent of a compartment) is ternary instead of binary because it includes the term to be demonstrated (“Incarnation”). With the system developed in the *Book of the Gentile*, in {J} a flower could not be formulated as “Goodness, Power, Creation” because the term “Creation” was not present in the trees; however, from the point of view of the proof, this change is irrelevant. See *Art&Logic*, 105.

³¹ *ORL* XII, 221; *OE* I, 751; *ROL* XXV, 594. These are standard definitions in the ternary phase: see “Granea” and “Poder” in the *DDL*.

A consequence of this difference is that, although the result no longer depends on evaluations of simple combinations of concepts, but rather of definitions, the instrumental function of Figure T is no longer necessary, whereas it was absolutely essential for developing the argumentation in the quaternary Art. However, instead of disappearing, what happens is that it has risen to a higher category, no longer being a mere tool for evaluation, but becoming a figure that contains nine basic *principia* (principles) of the Art, that is, the Second Figure. In turn, Figure A, in a sense, now lowers in rank from representing the dignities of God to representing simply another nine general principles, different from but in the same category as those in the Second Figure.³² This makes it possible to write texts such as {O}, where “concordance” and “contrariety” are entities to be investigated rather than mere tools for evaluation.

This shows us that, in the transition from one phase to the next, there are aspects of the system that barely change along with others that do; all of them confirm the quotation of {N}: “The present Art is derived from the *Ars demonstrativa*, and although the essence of one and the other is the same...”. Indeed, despite the huge reorientation in the ternary Art, we see that we have not really moved that far from an *essentia* in Llull’s system: its being based on individual concepts. Therefore, the definition “Goodness is that by reason of which good does good” is not a definition that places what is being defined in relation to other entities, such as the classic “Man is a rational animal” but explains what the actual entity of “goodness” does. We are back in the realm of conceptual atomism, in which “goodness” continues to be a primitive concept, in the sense of being independent of other concepts as is the case with the classic “Man is a rational animal”.³³ What has changed is the way of proceeding with these concepts: instead of evaluating combinations of entities presented as simple “labels”, now what is being evaluated are definitions—that is, propositions. With changes such as these, it is as if Llull had found a way of realizing the famous aphorism of Giuseppe Tomasi di Lampedusa: “Se vogliamo che tutto rimanga com’è, bisogna che tutto cambi”.

³² For the implications of this change for the designations of the components in the two figures, see *Art&Logic*, 130-4.

³³ See the section on “Conceptual atomism” in Ch. 10 below.

CHAPTER TEN

INTERPRETIVE MODELS FOR THE FOUNDATIONS OF THE ART

A Textual Community centered on a New Language

Harvey Hames has suggested that the Art sought to offer a new, universal language, capable of breaking barriers between Christians, Jews, and Muslims, a vehicle for conversion, “to make the unwilling willing”¹ (and, at the same time, incline Christians towards the true Christian life). Llull wanted to create a new “textual community” in which religious disputation (and Christian persuasion) was held in a common language that allowed all participants to begin from a neutral point and use the same conceptual tools.² That the central text for this community was the Art, during Llull’s lifetime and over the two following centuries, is an obvious fact if we bear in mind the dominant position it has in the manuscript tradition. The statistics show that, among the surprisingly high number of manuscripts copied before 1500, four of the six works in the most broadly disseminated group—with thirty manuscripts or more—are works belonging to the Art: the *AB*, the *TG*, the *AGU*, and the *Compendium seu commentum Artis demonstrativae*. In the second most-copied group—comprising twenty manuscripts or more—there are three: the *AD*, the *ACIV* and the *Liber propositionum secundum Artem demonstrativam*.³ Therefore, we can say that the texts on which that community was based were the most important works of the Art.

¹ Hames 2003, 43.

² Hames 2003, 46-47. The term “textual community” was coined by Brian Stock (see Stock 1990, quoted in Bonner 1993, 29). See also Soler 2017, 331ff.

³ See Bonner 2003b, 91. We say “surprisingly” given that Llull did not belong to any institution, such as religious order or a university, that could have taken charge of disseminating his texts. It was also a unique textual community insofar as it was made up of individuals who ordered copies of works or made copies themselves (and we must bear in mind that, with few exceptions, the most difficult and expensive to copy were those of the Art).

Let us consider what this new language was like. I believe we ought to highlight three aspects that are intertwined and allow us to define it: it is a mental language, based on conceptual atomism, and manipulated in a computational, non-discursive manner.

A Mental Language

In the section entitled “The Point of Arrival: The Intellectual Sphere” of Ch. 7, we saw that Llull qualified the figures in the *BC* as “intellectual”, in the sense that the letter notation forced the reader to operate in a mental sphere. In the last paragraph of the first section of Ch. 8, we explained that in the quaternary phase of the Art, Llull stopped his reflections on the mental nature of the new system, given that he had moved beyond natural language thanks to a constellation of graphic figures which constituted a mental map in and of themselves. The subject of mental language has been discussed at length ever since Plato, with numerous medieval formulations (*verbum cordis*, interior speech or *oratio mentalis*, among many other terms)⁴ and much debated modern proposals.⁵ Instead of overwhelming the reader with an attempt to summarize the different proposals, we will go directly to the source of most of these formulations—that of Aristotle in his *On Interpretation*. The second sentence in this work states:

Words spoken are symbols or signs of affections or impressions of the soul; written words are the signs of words spoken. As writing, so also is speech not the same for all races of men. But the mental affections themselves, of which these words are primarily signs, are the same for the whole of mankind, as are also the objects of which those affections are representations or likenesses, images, copies.⁶

Llull inherited this tripartition between mental/written/spoken language from the Aristotelian tradition, as well as the notion of the independence of the former from the other two, whose specific realization varies according to the origin of the writer or the speaker.⁷ Aside from this aspect, the main debate was—and continues to be—about the nature of mental language. Llull goes beyond this discussion by simply inventing a new, artificial one, based on graphic figures, with letters that symbolize concepts, and which operates by building arguments based on the joining or mixing (*mixtio*) of these concepts. In addition, his proposal is innovative in two ways: the idea that mental

⁴ See Panaccio 1999 for an excellent overview (with a long list of the different terms on pp. 306-7), and Hughes 2017 for several ways in which the subject applies to Ramon Llull.

⁵ See Fodor 1975, and Panaccio 1999, 17-19, for a critique of the formulations set forth by the former, who, as often occurs, appears to assume that nothing intellectually significant could have happened “in the dark ages”.

⁶ Aristotle, *On Interpretation*, 16a3-8.

⁷ See n. 12 below. As noted by Hughes 2017, 24, they also vary because, according to Ockham, “a spoken or written term can change its meaning by convention (*ad placitum*), whereas a concept cannot”.

language is composed of individual concepts—what is now referred to as “conceptual atomism”, and the possibility of this language being fundamentally computational. In the two following sections we will address these two aspects.⁸

However, first we ought to clarify a point: what we have said here applies directly to the *BC* and the quaternary phase. With the discursive argumentation of the ternary phase, the alternative nature of Lull’s proposal is less evident, but does not disappear. Once again, a quote from Aristotle can help us understand what is happening:

For demonstration is not addressed to external argument [τὸν ἔξω λόγον], but to argument in the soul [τὸν ἐν τῇ ψυχῇ], as is the case with the syllogism. For one can always object to external argument but not always to internal argument.⁹

The quote has a clear correspondence in the two passages from the *BC* quoted at the end of the section on “The Point of Departure” in Chapter 7, in which Lull explains the same thing. We find a similar formulation in key works from the ternary Art, which often have a last section on assimilation, which he refers to as “On Becoming Habituated to this Art”. For example, in *The Desired Philosophy Tree*, Lull says:

In this brief process, son, you can get to know concisely the entire organization of this *Tree*; and learn it by heart, because with it you will be able to find places in which you will be able to discover new things, and answer questions that you will be asked, and have knowledge of the mysteries of nature. (*ORL XVII*, 507)

And in the *Tree of the Philosophy of Love*:

This *Tree of the Philosophy of Love* can be easily habituated considering and remembering the various natures of love, according to what we said in the roots, trunk, branches, twigs, leaves, flowers, and fruit, since, in this examination of the parts of the tree by the intellect and memory, habituation can easily be carried out. (*ORL XVIII*, 225)

In the *AB* he says that this section

is itself divided into thirteen parts corresponding to the thirteen divisions of the *Art*. And the artist of this *Art* should become familiar (*habituare*) with them, so that he may know how to apply a question to that place or those places which are related to the question, in accordance with how analogous they are to the matter of the question. (*SW I*, 644)

⁸ See Fodor 1998, 121ff., and Fodor 1975, 65-66. Regarding the first aspect, which Fodor calls “conceptual atomism”, see a Neoplatonic precedent in Panaccio 1999, 128-135.

⁹ *Posterior Analytics*, 76b24-26, quoted in Panaccio 1999, 38.

These aims can only exist in the artist's mental sphere, for which they constitute a sort of organizational chart that serves as a reminder. Inside this space, memory guides the reader to venture down the paths of the other two powers of the rational soul: the intellect leading to science and the will leading to *amància*. Therefore, the "internal discourse" of the reader of the Art assimilates them without undesirable interferences and, once assimilated (when he has become "habituated" with them), the three powers of the soul function according to their respective parameters.¹⁰

Conceptual Atomism

Ultimately, Llull's Art is in line with a proposal in modern philosophy known as conceptual atomism,¹¹ which refers to concepts considered "primitive" in the sense that they are independent from other concepts, particularly from those contained in their definition. For example, the image of a "pigeon" exists in people's minds and everyday conversations without necessarily being related to other concepts such as "animal", "flying" or "feathered". When you say that your grandmother likes to go to the park to feed the pigeons, or, under its synonym, the dove is a symbol of peace, the word is like a mental label that you apply immediately to the statement. It is also an independent concept from the language in which it is used: "pigeon", "dove", "paloma" or "Taube" are simply different labels for the same thing.¹²

However, there are major differences between Llull's proposal and the modern view. The latter is presented as a theory of the mind and its functioning, which is assumed to have a linguistic basis. That is why conceptual atomism is forced to enter the mine-field of semantics to explain the relationship between a concept and what it represents.¹³ Llull avoids this problem in two ways: first, by inventing an artificial

¹⁰ See Soler 2017, 333-4.

¹¹ Known primarily from the works of Jerry Fodor. See Fodor 1975 and 1998. The connection with Llull's Art was suggested in Koetsier 2016.

¹² Llull explained this in a theological context: "The name of God can be understood in two ways, that is, the spoken name and the real name. The spoken name is when we say 'Deus', as the Latins do, or as the Greeks say, 'o Theos'; and He is called 'Adonai' by the Jews and 'Allah' by the Sarracens. These spoken words are given by convention, as imagined or invented. Whereas the real name of God is: 'Necessary being'" (*Liber de praedicatione*, *ROL* IV, 409, quoted in Rubio 2014, 101). He does not give a synonym, but rather a definition that does not introduce any exterior concept, so that the real name does not break Fodor's rule. For another example, see Rubio 2017, 22.

¹³ This subject occupies close to a hundred pages in Fodor 1975, with long explanations about the term "primitive" applied to objects.

language that permits him to choose a vocabulary that refers to nothing but itself; second, by basing that language on concepts that are ontological realities.¹⁴

However, like so many things in Lull's intellectual path, this atomism went through two phases: the quaternary—with its previous formulation in the *BC*—and then the ternary phase.

The first formulation is deliberately simpler. We saw how in the *BC* it is presented as a procedure that involves putting one label or concept beside another in order to examine their combination (*mixtio*). This way of proceeding is similar to what we find in the truth tables of modern logic, but in this case, instead of truth values we have evaluations of real entities that are easily identified as positive or negative. Hence, for example, in quote {H}, the concepts “perfection” and “being” are clearly positive, whereas “imperfection” and “privation” are clearly negative.¹⁵ The movement of labels like pieces in a board game {H} is based on the similarly evident fact that the components of a compartment are concordant with one another, whereas they are contrary to those in the other compartment.¹⁶ Furthermore, they are evaluations that require little more than common sense from the reader. That is why Lull was able to state—in a phrase that he repeats time and time again in the *Book of the Gentile*, only varying the principles he refers to—that “it is evident to the human intellect that goodness and greatness accord with being”, in other words, that it is obvious enough to require no justification. The idea is not to formulate propositions built to refute possible counter-arguments or clarify questions about points of interpretation or definition, as in scholastic texts, but to apply real relations that are immediately intelligible by the “human intellect” to attain indisputable truths or reasonable solutions. Semantic problems are nowhere to be seen! If the proposition had to do with a pigeon, it would be just the same: “It is evident to the human intellect”, or that such and such differences or concordances are “evident”, because everyone knows whether a pigeon is or is not a seagull.

¹⁴ See the section on “The Point of Arrival: The Intellectual Sphere” of Ch. 7. A similar formulation can already be found in Plato's dialectic, of which Cornford 1935, 266, says: “We must realize that Dialectic is not Formal Logic, but the study of the structure of reality—in fact Ontology, for the Forms *are* the realities” (the emphasis is mine).

¹⁵ “Privation” is synonymous with “non-being”.

¹⁶ See *Art&Logic*, 82-83, for these techniques of demonstration.

As far as the ternary Art is concerned, we find formulations that are not only more explicit, but also carefully explained. For example, in his *Liber de experientia realitatis Artis ipsius generalis*, Llull says of the eighteen principles of the Art:¹⁷

These principles are primitive, true, real, necessary, and substantial.

Primitive, because there is nothing underlying any one of them within their genus. In fact, all other beings are beneath these, as they are good by reason of goodness, great by reason of greatness; and similarly for every other one in its mode.

True, because they can be predicated in a true way of all other entities: as of God, who truly is good by reason of His goodness, and the angel, who truly is good by reason of goodness; and so forth for the other principles with their subjects. Because, otherwise, the truth of beings would be fictitious.

Real, because their entity exists naturally exterior to the soul (*extra animam*).

They are also necessary because no being can exist nor act naturally without them.

They are substantial for the reason that they exist for themselves; like divine goodness, etc., which exists for itself; as does the natural goodness of the angel, etc.

This explanation for Figure A is followed by another, almost identical one for Figure T. The former ends by stating:

By what we have said about these things, it is proved that the general Art is primitive, true, necessary, and real, because it is built upon these principles.

And for the second series, Llull adds:

And therefore, according to these principles, in the general Art, demonstrative syllogisms and their conclusions are primitive, true, and necessary.

The reader will probably have noticed that the first qualification of the principles of the Art is identical to Fodor's for conceptual atoms: "primitive". The difference is in the justification. While Fodor, in the context of language, claims that a concept is independent from other concepts that are involved in its definition, Llull states that in his concepts—formulated according to Platonic realism, as he shows in the third qualification, which says that they are real—there is no other principle underlying them. It is the same primitive quality seen from two different perspectives.

¹⁷ See *ROL* XI, 179-182. He does so in two series: one for Figure A and the other for Figure T. I found these explanations studying the *Electorium*, where, in combination with the *Liber correlativorum innatorum*, they act as a postscript of sorts for the definitions of the eighteen principles of the ternary Art. It is a web of texts that begins on f. 151r of the manuscript and shows how important Le Myésier considered these approaches.

This shift in direction between the two phases of the Art had considerable implications in the field of logic. In the quaternary phase, which operated by judging a confrontation of “labels” simply on common sense, we see that Llull did not always seek a conclusive demonstration. The result was that the famous necessary reasons often had a looser interpretation. In his *Advertència «Ne secundum»* (c. 1289)¹⁸ he specifies that his proof was not based on “demonstrative, but on persuasive reasons”, in other words, they could step out of the realm of logic to enter that of dialectic—that of the Topics.¹⁹ This opened up the realm to analogy and exemplarism, and, therefore, more clearly, to literary expression.

In the ternary phase, we venture down other paths, as inferred from the quote we just gave on the Principles of the Art, on the Art itself, and on syllogisms—a formulation that would have been inconceivable in the quaternary phase. In *Art&Logic*, 212ff., we showed how Llull uses a similar formulation to replace the requirements for validating the premises in Aristotle’s *Posterior analytics*, the theoretical foundations of scholastic logic in Llull’s time. At the same time he shows that the principles of the Art (that is, individual concepts) are the premises for his logic.

One could object that the premise is not the concept alone, but the proposition containing its definition. Llull’s reply would be:

Nevertheless, one can say that each correlative is the entire essence of goodness, and that goodness is each correlative, in such a way that it is an undivided and uncompound essence that remains primitive, true, and necessary.²⁰

That is, there is no difference in species between the principle and the expression of its correlatives: both are part of its primitiveness, its truth, and its necessity. Or, in other words, in a normal definitional proposition, such as the one we suggested for a pigeon, predicates such as “animal”, “flying” or “feathered” are applicable to other creatures as well. In one of Llull’s propositions, however, terms such as “bonifier”, “bonifiable”, or “bonifying” can only be predicated of “goodness”: they are part of its “undivided essence”, of its “primitiveness”.

¹⁸ The date is important because it appears in the famous manuscript that Llull sent to the Doge of Venice (Biblioteca Marciana, VI, 200). This manuscript only contains works from the quaternary phase, to which, therefore, the *Advertència* refers. In it, he also mentions the title of the *Ars demonstrativa* as having caused a scandal.

¹⁹ Which produced solutions that were probable, worthy of approval or preferable, as described by Kneale 1962, 43, 47-49. For Llull, see the long section about this subject in Ruiz Simon, 1999, 184-238.

²⁰ *Liber correlativorum innatorum*, ROL VI, 132.

Given all these considerations, I believe there can no longer be any doubt that Llull's Art offers a clear medieval example of conceptual atomism.

The Art as a Computational Tool

As we saw before, mental language and conceptual atomism are often linked to the computational theory of mind (CTM).²¹ And, as we also explained in the previous section, with Llull they are not intended as a theory of mind, but as an instrument to help the mind navigate the ontotheological apparatus of the Art. We could explain this by going back to the texts we analyzed earlier.

First of all, it must be abundantly clear that the passage quoted in {H} is unlike any known language; reading it does not tell us anything, and, in fact, we wouldn't even know how to articulate it. Its exposition—of which {I} forms part—does not tell us *what* the text means, but *how* to manipulate and interpret it in order to reach the desired conclusion. A modern reader more attuned to computer science than to medieval philosophy may find that text {H} looks like a computer program, and text {I} looks like a programmer's notes of how to make it run properly. In addition, since the text functions by manipulating entities or "things", some readers could assume that the program is written in an object-oriented programming language such as Java, C++, or Python. These languages were designed to allow a computer to simulate the real world and work with the objects in that world, ranging from mathematical structures (geometric figures, vectors, matrices, etc.) and heavenly bodies in astronomy, to the machines and raw materials in a factory.²² For example, a computer program for a factory has no interest in what the machines are like or what the raw materials are for. All it aims to do is work with them, plan the sequence of operations to be followed, offer solutions to the problems that may arise, organize the final packaging and shipping process, etc. What the programmer does is create these objects—in the sense of defining them and making them visible to the user—and develop the necessary procedures for manipulating them. That is exactly what Llull does in his quaternary Art: having created a series of objects at the beginning of the book, for each "Question" he selects the objects he needs, and, in the "Solution", combines them in a series of "compartments"

²¹ One of the sources for the first aspect is *The Language of Thought* (Fodor 1975), and one that links the two is *Conceptual Atomism and the Computational Theory of Mind* (Kuczynski 2007).

²² See the entry for "Object-oriented programming" in Downing, Covington and Covington 1998, as well as the Wikipedia article on the subject.

(usually binary),²³ as he does in {H}. Next, at the beginning of “Distinction IV”, “Which treats of questions”, in the *AD*, he gives examples such as that of {I},²⁴ in which he explains how to interpret {H} in order to achieve a correct “Solution”.

With the *repraesentatio mundi* of the quaternary Art we find an organized display of all the objects that are going to be used. In object-oriented programming terminology, Illustration 5 would be what is called a “class diagram”.²⁵ This is important because in a language of this sort, all the objects in one class share the same attributes and can be submitted to the same operations, so the programmer doesn’t have to start anew for each object. Similarly, Lullists no longer have to rethink the operations in each chapter, as they had to do in the *BC*.

The positive and negative evaluations addressed in the previous section are easily adapted to computer language if we give them the values “1” and “0”, for example. Therefore, if we take text {H} with its corresponding explanation {I}, the positives “being” and “perfection” could be symbolized with a “1”, and the negatives “privation” and “imperfection” with a “0”. Then, arbitrarily assigning the symbol \simeq to concordance and \neq to contrariety, we could express the first two relations of {H} as they are presented in {I} as follows: “Imperfection accords with all beings” could be expressed as “ $(0 \simeq 1) = 0$ ”, that is, the attempt to accord “imperfection” with “being” gives a negative result, thus showing that it is impossible; likewise, the expression of “all perfection accords with privation” as “ $(1 \simeq 0) = 0$ ” shows that it is equally impossible, which suggests that both relations are logically untenable.²⁶ Programming such expressions would be a fairly straightforward process.

On another front, the ontological dynamism of the ternary Art could be programmed by creating a mechanism analogous to a mathematical function. For example, a function of x , which mathematicians would write as $f(x)$, could be its square, written as $f(x) = x^2$, or its sine $f(x) = \sin(x)$. But here the “x’s” refer to variables, normally numerical, so that if the first $x=3$, we would have $f(x) = 9$. The Lullian Art, however, asks to perform an analogous operation of transformation, but instead of being on variables it is performed on concepts, and the transformation itself is not quantitative

²³ The operation of *mixtio*, of “putting” an object x in y , which we have pointed out as being key to the language of the Art, is also fundamental in object-oriented languages, though expressed differently: a programmer would say that when object x wants to interact with object y , x “calls the procedure” of y .

²⁴ See *Art&Logic*, 80.

²⁵ See the article on “Class diagram” in Wikipedia.

²⁶ See *Art&Logic*, for a tabular exposition of this text, without the formulations given here. On *ibid.*, p. 80, we can see that the phrase preceding {I} is—referring to the compartments in {H}—“the second compartment and the third are contrary”, therefore, or “ $((1\ 1) \neq (0\ 0)) = 1$ ”.

but qualitative. If we take the alphabet of the ternary Art, in which B = goodness, C = greatness, D = eternity, and we say that x = an individual entity, we could express the act of making a thing be good as “B(x)”, or of eternity being great as “C(D)”. The first, for “B(x)”, is precisely what the definition of “goodness” quoted in text {L} does. If we add E = power, the first phrase of {P} could be represented as “E(C(existence, agency))” and “C(E(existence, agency))”.²⁷

This door opened out onto the Art’s programmability is more than a mere curiosity or new evidence of Llull being a forerunner of modern computer science. Defining Llull’s Art as a programmable system reveals its nature as an artificial language and, especially, as a computational mental language. In addition, we are convinced that if a program were written implementing this computerization, we would be able to gain a considerably more precise understanding of the structures and the functioning of the Art.

²⁷ Evidently, this last formulation is even further removed from the analogy with a function, since here the transformation is a declaration of fusion or equivalence between objects of the same semantic level, which would pose a very interesting challenge for finding an appropriate formalization or computerization.

CHAPTER ELEVEN

CLOSING THOUGHTS

Years ago, Jordi Rubió i Balaguer said that Ramon Llull could not be split into “two figures with independent lives, that of the writer and that of the philosopher and missionary”.¹ It is a basic methodological principle that is now generally adopted in Lullian studies. However, it seems to me that the moment has come to add a third element to Rubió’s advice, and not separate Llull’s Art from the other two areas. Although the centrality of the Art in Ramon Llull’s output appears to be taken for granted among most Lullists, it seems to me that this idea is accepted without discussion, but also without taking into account its consequences and implications.

Basically, many scholars continue to feel daunted about approaching Llull’s Art. Needless to say, it is considered an interesting contrivance, worthy of further research, but we ought to go beyond such general presuppositions and focus specifically on how it functions in order to understand the consequences of its application in a given work. To do so, we have to overcome a deep-seated prejudice about the Art’s oddity and a firm conviction that a philosophic discourse cannot be built as Llull proposes—that its procedure is unfeasible. Consequently, in practice, the Art is often reduced to an ingenious notion with a marginal effect on the more substantial areas of his thought.

As an example, let us consider the *Liber novus de anima rationalis*. First of all, anyone familiar with the Art knows that in the quaternary phase the rational soul was represented by Figure S, which was an interpretive tool; however, in the work in question, from about 1296—that is, in the ternary phase, the soul itself has become an object of interpretation. This is not likely to be a minor shift in Llull’s thought. Secondly, as we explained earlier, the entire work is organized in ten parts, strictly

¹ Rubió i Balaguer 1985, 249.

following the ten Rules or Questions, each of which, in turn, is divided into its “species”.² We have to consider whether this procedure is anecdotal or really influences the contents of the work. Last of all, the title could be taken as an indication that the work was a treatise on psychology or anthropology,³ and the adjective *novus* could suggest that we are dealing with a reformulation of Aristototele’s *De anima*, which was extensively studied and commented on in Paris in the Middle Ages. Yet, if Llull addresses Aristotelian questions, he only does so tangentially to the central subject of the work—and to Llull’s entire quest, as he clearly explains in the Prologue:

Because the rational soul is an invisible substance, there are many who have no knowledge of it, and because they do not know it, they do not know how to use it, nor do they know how to direct it toward the purpose for which it was created, which is to remember God, to know and to love Him. That is why we wish to briefly give knowledge of the rational soul, of its natural principles, and of its natural and moral works, and we will investigate it according to the rules of the *Tabula generalis*.⁴

This aim is repeated in the first Question, when Llull states that the rational soul was created “in the image of the Holy Divine Trinity” in order to “remember, understand, and love God”.⁵ To the second species of the second Question, “What does the soul contain within itself?”, Llull answers that it contains the eighteen principles of the ternary Art with their entire correlative structure.⁶ It is important to remember, as we have already explained, that this compartment of the Rules and Questions is precisely the one Llull reserved for displaying the correlatives.⁷ And it is curious to see that he uses this same compartment to explain the Aristotelian doctrine of the active and passive intellect.⁸ Next, he uses the second species of the third Question, “Of what?”, to explain why “the soul is not derived from another soul” and that “this is why Alvar Ruy [Averroes] was wrong when he said that all souls were one”.⁹ The book finishes with a

² See the text referenced in Ch. 9, n. 17, above. He also explains each species with ten “reasons” followed by ten subsidiary questions.

³ For example, Longpré 1926, 1093, who says that it is “un interessant traité de psychologie”.

⁴ *ORL XXI*, 163. I have used the Catalan text because the Latin version as yet has no critical edition.

⁵ *Ibid.*, 166. See Pring-Mill 1961, 129.

⁶ *Ibid.*, 191f.

⁷ See *Art&Logic*, 139. For a treatment of this work, see the important analysis in Gayà 1979, 118-121.

⁸ *ORL XXI*, 193 (Raó VI).

⁹ *Ibid.*, 218 (Raó IX). This seems to be the only mention of the Muslim thinker’s name before Llull’s famous anti-Averroes campaign roughly fifteen years later, but the two things are entirely unrelated. The first refers to him as the authoritative commentator of Aristotle’s works—in this case, of *De anima*—and the second to a group of members of the Faculty of Arts in the University of Paris who wanted to separate the study of philosophy from that of theology, and who had been identified with the Muslim thinker, whose name, in some circles, had become a symbol of dangerous secularization.

postscript that repeats what he stated at the beginning: “This is a book by which one can know God, since the rational soul is the image and likeness of God”.¹⁰

I believe these considerations explain what Llull means when he qualifies the book as *novus*: it is not just a renewed version of Aristotle, but rather a radically different construction, based on the Art, like others with this same adjective in their titles.¹¹ In fact, it is the first of nine works claiming to be “new”, despite the fact that nobody seems to have given much thought to the reasons for this qualification or studied the specific mechanisms that made them “new”. At the same time, we must not forget that it is also new because, as Llull says, it is directed towards the correct contemplation of God.

Ultimately, we must acknowledge the preeminence of the Art in Llull’s thought and in the entire body of his work. It prevails as a system (and, therefore, in its foundations and in its procedures, mechanisms, and functioning) over its implementations and applications. I believe that the immense, painstaking, long-term effort of developing and transforming the system which we have followed in this book more than justifies this statement. Only too often Lullian studies overlook this fact and focus on the contents without taking into account that we can distinguish contents and procedures but cannot always separate them. In fact, it is of the utmost importance—and, in our view, the main challenge for the future—to study the relationship between contents and procedures in Ramon Llull’s vast output.

¹⁰ Ibid., 304.

¹¹ See the list at the beginning of the section “A New Art” in Ch. 9 above.

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¹² Supplementary to that of *Art&Logic*, 311ff.

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