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Pisa



Ramon Llull in 1308:  
Prison, Shipwreck, Art, and Logic

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For Ramon Llull 1308 was a very special year<sup>1</sup>. Not only did it follow a dramatic year in which he was stoned while proselytizing in North Africa, imprisoned, and then shipwrecked on his return to Europe, but in its own way it was a kind of *annus mirabilis*, and this in two ways. In the first place, it was probably the most productive year of an extraordinarily productive career – one in which he finished thirteen works (see Appendix I). And secondly, it was a pivotal year in his presentation of three different approaches to the task which for him was fundamental: the development of techniques capable of converting non-Christians.

The dramatic events of the year before occurred on his second voyage to North Africa, strikingly different from the first he had undertaken in 1293, fourteen years previously. Then he had gone to Tunis, where he had engaged the local doctors of the law in rational and pacific discussions on the merits of their various religions. When it became clear that his arguments were not completely unconvincing, he was simply asked to leave. All this was in striking contrast to his voyage of 1307, to the town of Bougie (or Bejaya) in present-day Algeria. There, as the *Vita coetania*, an account of his life he dictated to Parisian monks near the end of his life, says, „In the main square of the city, Ramon, standing up and shouting in a loud voice, burst out with the following words: ‚The Christian religion is true, holy, and acceptable to God; the Saracen religion, however, is false and full of error, and this I am prepared to prove‘.“<sup>2</sup> This was the only time in his life he used such provocative tactics. Why he did it, we don't know; it might have been an attempt to try the Franciscan model of gaining adherence by showing a willingness to face martyrdom. In any case, the reaction could scarcely have been more violent. He was stoned, brought

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<sup>1</sup> Abbreviations used in this article are: DI = A. Bonner/E. Bonner (eds.), *Doctor Illuminatus. A Ramon Llull Reader*, Princeton 1993; MOG = *Raymundi Lulli Opera omnia*, ed. I. Salzinger, 8 voll., Mainz 1721–42; NEORL = *Nova Edició de les Obres de Ramon Llull*, Palma 1990 sqq.; ROL = *Raimundi Lulli Opera Latina*, Palma–Turnhout 1959 sqq.; SW = *Selected Works of Ramon Llull (1232–1316)*, ed. A. Bonner, 2 voll., Princeton 1985. This article is a distillation of chapters 4 and 5 of A. Bonner, *The Art and Logic of Ramon Llull. A User's Guide (Studien und Texte zur Geistesgeschichte des Mittelalters 95)*, Leiden 2007.

<sup>2</sup> ROL, vol. 8, 297; SW, vol. 1, 41; DI 35.

before the *cadi* of the city, who, after a brief discussion, had him jailed, at first „in the latrine of the thieves’ jail“ and then in an ordinary cell. While he was there, Muslim clergymen and emissaries from the *cadi* came to dispute with him, and finally it was agreed that each would write a book giving the best arguments for their own religion. Llull was hard at work on his version, when orders came that he be expelled immediately from the country.

But this wasn’t the end of his troubles. As recounted in the *‚Vita coetania‘*:

„On the journey to Genoa, when the ship was near the Port of Pisa, about ten miles offshore, a great storm arose, and the ship suffered the violent blows of the tempest on all sides, until at last it sank. Some were drowned, while others, with the help of God, escaped; among the latter were Ramon and a companion of his, who, even though they lost all their books and clothing, and were almost naked, managed to make it to shore in a rowboat.“<sup>3</sup>

We must keep in mind that this chain of misfortunes, trying enough for anybody, happened to a man of seventy-five, an extraordinarily advanced age for the time. Instead of discouraging him, however, it seemed to give him renewed vigor. Not only, beginning in January of 1308, did he write the works on the list of Appendix I, but during the course of the year he preached in Pisa and Genoa in favor of a new crusading order, as well as traveling back and forth several times to Montpellier.

More curious, perhaps, was the sort of works he wrote. Where one might expect outpourings of anger, despair, or spiritual torment at the troubles and frustrations he had just suffered, we find instead works of a remarkably technical nature. There is a curious parallel here with the previous trip we just mentioned. On returning from Tunis to Naples, in January of 1294 he completed the *‚Tabula generalis‘*, the first fully characteristic work of the new phase of Llull’s system. Now in Pisa at the beginning of 1308 he completes the *‚Ars generalis ultima‘*, and writes its companion work, the *‚Ars brevis‘*. In addition, during the course of the year he writes two substantial logical works, the *‚Liber de venatione substantiae, accidentis et compositi‘* and the *‚Liber de novis fallaciis‘*, his perhaps most significant theological work, the *‚Ars compendiosa Dei‘*, as well as an important work on jurisprudence, the *‚Ars brevis de inventione juris‘*. All this in addition to rewriting the work begun in the prison of Bougie, the *‚Disputatio Raimundi christiani et Homeri saraceni‘*, and to composing the other works on our list.

What is most interesting about the year 1308, however, is its pivotal nature in the development of his system and its methods of demonstration. Since the beginning of his career when he had decided to dedicate his life to the task of converting Muslims and Jews to Christianity, he had realized that such a task required demonstrating the Articles of Faith with techniques that were both convincing to Muslims and Jews, and at the same time acceptable to the Catholic

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<sup>3</sup> ROL, vol. 8, 300 sq.; SW, vol. 1, 44; DI 37.

ecclesiastical authorities. Previous attempts, in the best of cases, had involved disputations based on authoritative texts which had quickly become bogged down in questions of interpretation. Llull saw that this was a no-win situation, and decided to base his arguments not on books, but on people and what they believed. This meant that on his part he would have to try to prove the Christian Articles of Faith. But such an endeavor could easily earn the displeasure of a church that taught that matters of faith could not be demonstrated, since that would take away any *meritum fidei*. So, the attempt to work out an autonomous method of demonstration removed from any textual foundation, one capable of convincing non-Christians and at the same time acceptable to the Church, was the chief motivation for the kind of system he developed, which he called his „Art.“

The first part of this program involved basing his arguments on a series of principles to which neither of the other two religions could take exception: a God who was good, great, eternal, etc., the *Weltanschauung* inherited from the Greco-Latin world, lists of virtues and vices, and so on. The second part of the program involved proving an article of faith not by a traditional Aristotelian method, but by taking it as a hypothesis and studying what its consequences implied as to its truth or falsehood.

The earlier version of Llull's system was based on an extraordinary display of twelve (or sometimes even sixteen) figures. This system worked by taking pairs of concepts from certain of these figures, and judging the results of their combination on the basis of a series of understood Neoplatonic values, which, on the one hand, allied goodness, perfection, merit, etc. with being, and, on the other hand, evil, imperfection, blame, etc. with non-being or privation. A very simple proof of the non-eternity of the world from a more popularizing work of this period, the ‚Book of the Gentile and the Three Wise Men‘, will show how this works. (Note that „eternity“ and „pride“ appear as D in the first column and E in the last column of the Alphabet of the later Art presented below. Moreover, to „be in accord with“ is equivalent to „concordance“, and to „be in disaccord with“ to „contrariety“, respectively C and D of the second column of the Alphabet.)

„Eternity Pride. If eternity and pride were in accord with one another, it would follow that eternity would be in accord with pride against humility, which is in accord with goodness, greatness, power, wisdom, love, perfection, and this is impossible; by which impossibility it is shown that eternity and pride are in disaccord; by which disaccord it is signified that the nature which is subject to pride, that is the nature of man, is in disaccord with eternity; by which disaccord it is made manifest that the world was created.“<sup>4</sup>

Here it is clear how the premise of God's being „naught“, by a series of comparisons between individual concepts, leads us to an impossibility, which by *modus tollens* proves that he must exist.

<sup>4</sup> NEORL, vol. 2, 57; SW, vol. 1, 161.

But this comparative technique involved so many lists of concepts<sup>5</sup>, that even his best disciple, Thomas Le Myésier complained about „the confusion caused by the meanings of the alphabet of the ‚Ars demonstrativa‘ and its sixteen figures, which confound the mind.“<sup>6</sup> As a result, Lull decided to reformulate his system, and in 1290 he embarked on what we now call the „ternary phase“ (with concepts regrouped in multiples of three). From now on there would only be four figures, those given in Appendix III<sup>7</sup>. You should be warned, however, that these complaints about the original number of figures and the subsequent simplification to four, is in itself a simplification of what happened, perhaps not to alarm followers and patrons with the idea of having to jettison what they had already learned and embark on an entirely new project. The fact of the matter, however, is that the changes went much deeper.

Perhaps the most important change was the replacement of understood Neoplatonic values by explicit definitions. Since the main object of Lull’s endeavor was theological, however, this created a problem. Neither of the two usual Aristotelian techniques could be valid with God: a definition by genus and species was out of the question since God belonged to no superior species or genus; a causal definition was equally inappropriate since God had no cause.

Lull’s solution was unusual. It involved his much-commented dynamic ontology, one in which being and activity were inseparable. It was systematized in a kind of verbal pyrotechnics which he called his „Arabic manner of speaking“ („*modus loquendi arabicus*“), in which „goodness“ (*bonitas*) was divided into an active component (*bonificativus*), a passive one (*bonificabilis*), and the verb joining them (*bonificare*). But more important for our purposes, it permitted him to formulate a new species of definition: „goodness is that by reason of which good does good“ (which is simply a reworking of the old Neoplatonic maxim of „*bonum est diffusivum sui*“)<sup>8</sup>. It was a type of definition that could be applied to every level of being, from the elements up to God. In the middle of the ladder of being, we find „*homo est ens bonificans*“, a definition which he knew perfectly well ran the risk of appearing ridiculously tautological, but which he defended tooth and nail as being essential to his ontology and to his system.

This new approach was at the heart of the three techniques found at the crossroads of 1308. In the first place, he continued with the testing of hypotheses, but instead of doing it with the Neoplatonic „truth values“ of simple concepts, they were tested against his newly found propositional definitions, which

<sup>5</sup> Here three groups of concepts are involved: the basic ones, „goodness“, „greatness“, etc.; those used to compare, „concordance“, „contrariety“, etc.; and those against which the comparisons could be judged („being“, „non-being“, etc.), but there were many other lists which could be used.

<sup>6</sup> J. N. Hillgarth, *Ramon Lull and Lullism in Fourteenth-Century France* (Oxford–Warburg Studies), Oxford 1971, 179.

<sup>7</sup> These figures are from the ‚Ars inventiva veritatis‘, but they are identical to those used in the ‚Ars generalis ultima‘.

<sup>8</sup> See Appendix IV below for this definition.

could now be presented as the foundations of his system. In the second place, with the ‚Ars generalis ultima‘, he presented a novel system in which he „mixed“ – as he puts it – one definition with another to build up the structure which he now put at the very heart of his Art and in which the solution to practically any sort of question was implicit. Finally, since Llull was no longer dealing with isolated concepts but with propositions, he could enter the realm of Aristotelian syllogistics, an area he had conspicuously avoided before the ‚Logica nova‘ of 1303, and which he now perfected in 1308.

It is these three techniques which I would like to explain here, and since all three are treated in the ‚Ars generalis ultima‘, which was the center around which the other works of this *annus mirabilis* revolved like so many satellites, I will try to show how they fit into this work, which was the culmination of more than thirty years of development of the Art, as Llull explains in the prologue.

„Since we have composed many general arts, we would now like to explain them more clearly with this one, which we call the last [*ultimam*], because we do not intend to write any other. We have compiled this one from the others, while explicitly adding some new material.“<sup>9</sup>

Before going any further, two things should be made clear about this work. The first is that it was finished in 1308, but was in fact begun three years before. How much of the work from 1305 he conserved, how much he reworked, or how much he added to it, are things we don’t know. To this should be added the curious fact that we know of no works written between those two dates, that is between September of 1305 and the beginning of the outburst of activity in January of 1308.

The second thing that should be explained is that in January of 1308 he wrote the ‚Ars brevis‘, which is a résumé or outline of the ‚Ars generalis ultima‘. It follows the longer work chapter by chapter, continually telling the reader, „for a fuller explanation, see the ‚Ars magna‘,“ as he there refers to the ‚Ars generalis ultima‘. The ‚Ars brevis‘ reduces the 522 pages of the longer work to 63 (the comparison is between similar critical editions), and was probably written as a kind of *aide-mémoire* for the longer work, a text much less expensive to copy and more easily usable as a reference for lectures on the Art.

If you look now at Appendix II with the table of contents of the ‚Ars generalis ultima‘ (which is identical with that of the ‚Ars brevis‘), you will see that it is divided into thirteen sections, or „parts“ as Llull calls them in these two works. Part I presents the all-important Alphabet of the Art<sup>10</sup>.

We will discuss the various columns of concepts as they come up in the corresponding sections of the ‚Ars generalis ultima‘. Part II presents the four figures of the Art, in a manner that would recur without change throughout the ternary period (see Appendix III below). The First Figure has the concepts of

<sup>9</sup> ROL, vol. 14, 5.

<sup>10</sup> Cf. ROL, vol. 14, 8 sq.

	<b>Prima Figura</b>	<b>Secunda Figura</b>	<b>Quaestiones et Regulae</b>	<b>Subjecta</b>	<b>Virtutes</b>	<b>Vitia sive Peccata</b>
B	bonitas	differentia	utrum? – possibilitas	Deus	justitia	avaritia
C	magnitudo	concordantia	quid? – quidditas	angelus	prudentia	gula
D	aeternitas sive duratio	contrarietas	de quo? – materialitas	caelum	fortitudo	luxuria
E	potestas	principium	quare? – formalitas	anima rationalis sive homo	temperantia	superbia
F	sapientia	medium	quantum? – quantitas	imaginatio	fides	accidia
G	voluntas	finis	quale? – qualitas	sensitiva	spes	invidia
H	virtus	maioritas	quando? – tempus	vegetativa	caritas	ira
I	veritas	aequalitas	ubi? – locus	elementativa	patientia	mendacium
K	gloria	minoritas	quo modo? – modalitas cum quo? – instrumentalitas	artificium	pietas	inconstantia

the first column of the Alphabet, each concept with its corresponding letter. The Second Figure, which corresponds to the second column of the Alphabet, presents triads of concepts inscribed in the corners of the three triangles (for example, one triangle has the first three concepts of our list: *differentia*, *concordantia*, *contrarietas*, and so on). These triangles are surrounded by three circles with the secondary sets of concepts to which their concepts can be applied<sup>11</sup>.

The Third Figure is the triangular one in the middle, it is made up of 36 compartments displaying all the possible binary combinations (without repetition) of the nine letters of the Alphabet we saw before. Since one cannot do an equivalent sort of chart with ternary combinations, Llull had to resort to the revolving disks of the Fourth Figure. In some works Llull even gives instruction on how the outer circle should be drawn on the parchment, while the two inner

<sup>11</sup> The circular sections corresponding to *differentia*, for instance, have „*sensualis et sensualis*“, „*sensualis et intellectualis*“, and „*intellectualis et intellectualis*.“ Llull’s explanation (*Compendium seu commentum Artis demonstrativae*, in: MOG, vol. 3, vi, 7, 299) is that „any difference must be between something sensual and something sensual, as between a horse and a lion, and so on; or between something sensual and something intellectual, as between body and soul, or between a pupil and what is taught, and so on; or between something intellectual and something intellectual, as between the intellect and the will, or between the soul and knowledge, and so on.“



ones should be drawn on separate pieces of parchment (or metal) held in place by a string made fast by a small piece of parchment on top<sup>12</sup>.

Part III of the ‚Ars generalis ultima‘ gives the definitions of the eighteen principles, that is the nine of the First Figure plus the nine of the Second Figure. They are listed in Appendix IV, and as we have just explained, they define a thing not by what it is or by its taxonomic place in a hierarchy of being, but rather by its activity, by what it does: good produces good, difference differentiates, etc.

Part IV gives the Rules and Questions listed in the third column of the Alphabet of the Art. I will just comment on two of them, enough to give the reader an idea of how the mechanism works. The first one, *utrum*, is, of course, the standard way of formulating questions in contemporary scholastic treatises (Whether sacred doctrine is a science? Whether God exists?, etc.). The second one, *quid*, Llull divides into four „species:“ 1. definitional, which is the pigeon-hole for the above-mentioned definitions; 2. what a thing has in itself essentially and naturally (the answer is its correlatives, which, in the example he gives of the intellect, are *intellectivum, intelligibile, et intelligere*); 3. what one thing is in another (the intellect, for instance, is good when understanding in goodness, grammatical in grammar, etc.); and 4. what one thing has in another (in knowledge the intellect has understanding, and in faith belief). And so on for the rest of the concepts of that column of the Alphabet<sup>13</sup>.

With these four first parts of the ‚Ars generalis ultima‘ we have the foundations of the Art in the ternary phase. The first two, of the Alphabet and the Four Figures, give us the fundamental components along with their interrelations. The third with its definitions gives us the propositions on which the Art is based, what very loosely could be called the axioms on which new propositions or combinations of propositions can be built, and the fourth the rules for investigating any subject or answering any question.

Of the next three parts, which work out the possibilities of binary and ternary combinations, we will only discuss Part V, which presents the Tabula, whose method for systematizing ternary relations is used, curiously enough, to present the older type of proof which works out the implication of hypotheses. The Tabula given in Appendix V is the shorter version of the ‚Ars brevis‘ (that is with 7 columns instead of the 84 of the ‚Ars generalis ultima‘). It is an ingenious way of presenting ternary combinations of two sets of nine concepts – those of the first two columns of the Alphabet. It is done by taking the Fourth Figure

<sup>12</sup> This is the only revolving figure in this later version of the Art (just as the more complicated Demonstrative Figure was the only revolving figure in the earlier version of the Art). I say this, because one still comes across authors who assume that all of Llull’s circular figures revolve, and/or that the essence of Llull’s combinatory system lies in revolving figures, when in fact he only uses them to deal with combinations higher than binary, and usually only once in each work.

<sup>13</sup> In case the reader is wondering why under E, *quare* is coupled with *formalitas*, it is because „why“ inquires about formal or final cause.

and turning the two inner circles until B C D line up, and then, keeping that setting, reading off the other combinations and putting each at the head of a column. Then, using the letter T (from Figure T, another name for the Second Figure) as a place-holder, to signal, as he puts it, „that the letters which come before it belong to the First Figure, and those after it to the Second Figure“, he can take the three-letter combination at the head of a column and expand it to the twenty different combinations derived from the first two columns of the Alphabet<sup>14</sup>.

He then exemplifies the use of the Tabula by producing twenty answers to the question „Whether the world is eternal.“ We give the first of these demonstrations from the ‚Ars generalis ultima‘, adding, for their first appearances at least, superscript letters to show the place of the concepts in the Alphabet.

„The compartment of B C D. In answer to the question ‚Whether<sup>B</sup> the world is eternal<sup>D</sup>?’ we say by B C D that it is not, because if it were eternal<sup>D</sup>, its foundation [*ratio*] would be eternal<sup>D</sup> and it would produce eternal<sup>D</sup> good<sup>B</sup> throughout eternity<sup>D</sup> while greatness<sup>C</sup>, by its definition, would magnify<sup>C</sup> this good<sup>B</sup> foundation from eternity and in eternity; and eternity would make this production last from eternity and in eternity, so that there could be no evil in the world, because good and evil are contrary<sup>D</sup>. But there is evil in the world, as we know by experience. We therefore conclude that the world is not eternal.“<sup>15</sup>

Notice that this technique is basically the same as the earlier one from the ‚Book of the Gentile and the Three Wise Men‘, but with some notable differences. In the first place we are now starting with a ternary instead of a binary combination of concepts; and secondly, with the definitions (eternal good producing good through eternity) supplanting concordance or contrariety of qualities which were never defined, but whose Neoplatonic ‚truth values‘ were assumed to be understood by the reader<sup>16</sup>.

<sup>14</sup> ROL, vol. 14, 43; ROL, vol. 12, 218; SW, vol. 1, 596; DI 316.

<sup>15</sup> ROL, vol. 14, 63 sq.

<sup>16</sup> Several other points should be made about this use of the Tabula. The fact that he uses all twenty ternary combinations of the first column to prove the same thing, is merely done to exemplify the use of the Tabula (you could, says Lull, even use other columns to produce the same results). If this is the case, it is clear that any other subject could be similarly demonstrated by these same mechanisms, as Lull shows at great length in other works in which he proves the Trinity, the Incarnation, etc. Secondly some critics have complained that he was using the Art to prove something which all his contemporaries knew was the case. This is to present a remarkably ironed-out picture of the period. In the first place there were the so-called „Parisian Averroists“ who said that the world was eternal according to the principles of philosophy (or science), but its creation in time had to be accepted as a simple truth of faith. But this represented a separation between philosophy and theology Lull was unwilling to accept. For him a truth was a truth, and the Art was his instrument for proving it. In the second place there was much debate as to whether one could prove it at all. Schoolmen in the Augustinian tradition said you could, but Aquinas, for instance, said you could not, that it was a matter of faith, and this was a subject he discussed almost obsessively (not only did he write a ‚De aeternitate mundi‘, but also he wrote at length on the topic in six other works). See the discussions in the introductions to the various works in Thomas Aquinas/Siger of Brabant/St. Bonaventure, On

With Part VIII of the ‚Ars generalis ultima‘, ‚Which treats of the Mixture of Principles and Rules‘ we come to a process which Llull flatly states ‚is the center and subject of this Art.‘ This concept of ‚mixture‘ began its career in Llull’s thought as a cosmological concept, applied first to the four elements, and then to the semblances of the divine attributes in the constitution of the world. Now it has been generalized to become the very foundation of the epistemology of the Art, thereby completing his fusion of epistemology with ontology. This part starts by ‚mixing‘ each principle with the other seventeen, either individually or in groups. For instance for the trio of B C D, he says:

‚Goodness by duration is durable, and thus by duration it is the reason why good produces durable good. And since it is great by greatness, as we have just said, it is a triple reason for good to do great, durable good.‘<sup>17</sup>

In the next step Llull ‚mixes‘ the Principles with the Rules and Questions. For instance, taking the Principle of ‚truth‘ (letter I) and Rule C of ‚quid‘ (remembering that its third and fourth species are what a thing is and what it has in another thing), Llull says that:

‚By the third species we ask: what is truth in another thing? And we answer that it is the cause whereby things are verifiable. By the fourth species of rule C we ask: what does truth have in another thing? And we answer that it has a habit for verifying the subject in which it exists.‘<sup>18</sup>

This is still, you will say, very endogamous. Llull looks as if he is still just stirring the same soup in the same pot, but actually he is laying the foundations for an outward-moving discourse, one in which he will add all sorts of new ingredients to his soup. These new ingredients begin in Part IX with the application of these foundations to the Nine Subjects, which form the fourth column of the Alphabet of the Art. For instance under Subject D of ‚heaven‘ ‚mixed‘ with the last species of Question C, ‚quid‘, we are told:

‚With the fourth species we ask: what does heaven have in another thing? And we answer that heaven has natural dominion over the elements and elemented things, with which it causes natural mobilities in the regions below: the four seasons, days and hours, thunder, lightning, wind, rain, snow, monstrosities, diseases and so on. And it does this because things below receive its mobilities and influences through which it works its effects.‘<sup>19</sup>

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the eternity of the world (*De aeternitate mundi*), trans. C. Vollert/L. H. Kendzierski/P. M. Byrne, Milwaukee 1984. By the time Llull wrote the ‚Ars generalis ultima‘, there was no way he could not have been aware of these controversies. So not only was he using the topic of the creation of the world to illustrate the use of his combinatorial mechanisms, but he was also doing it to show how his Art could serve to break down any barrier between faith and reason, and in the process offer solutions to contemporary academic controversies.

<sup>17</sup> ROL, vol. 14, 120.

<sup>18</sup> Ibid., 166.

<sup>19</sup> Ibid., 230.

In somewhat the same vein, with the Subject of „*elementativa*“ and the Principle of „truth“, both under the letter I, we have a passage which the hordes of followers who wanted to make Lull into an alchemist were careful not to quote:

„The elementative power has true conditions whereby one species cannot transmute itself into another species. And this is how we know that alchemists have reason to weep.“<sup>20</sup>

Finally, this addition of new ingredients to his soup ends with the Hundred Forms, found in Appendix VI below. As can be seen from a brief glance, the list contains an extraordinarily varied assortment of material: philosophy (numbers 14–24, for instance, give the Aristotelian categories), natural science, geometry, etc., and towards the end Lull veers off into more general topics such as chivalry (*militia*), commerce (*mercatura*), and navigation (with a mini-treatise, with chart and all, of how to find your way at sea).

It should be pointed out that much of this material is more explanatory than demonstrative. This is because the Art does both, and, at this stage at least, tends to limit its demonstrations to the Question B, „*utrum*“, as we saw before, with the question „Whether the world is eternal“.

Finally, as with all works of the Art, the ‚*Ars generalis ultima*‘ ends with a long section of questions, but now with a major difference with respect to all earlier presentations of the Art. In those the solution usually involved explaining what chain of letters one had to apply to solve each question. Here, however, Lull has created in the body of the work a structure in which the answer to every possible question is explicitly or implicitly contained. This is why he can now answer any question by simply referring you back to the place in the main text where you will find the answer. As one recent author has pointed out, if the ‚inventive‘ side of the Art refers back to Aristotle’s ‚*Topics*‘, where until now the ‚finding‘ of the solution had replaced the Aristotelian maxims with a search among the bric-à-brac of the Art, now suddenly Lull is telling us that the *locus* of the answer can be found in the text itself<sup>21</sup>.

As for the third aspect of this pivotal year, Aristotelian logic, and principally syllogistics, this was a subject which, previous to the ‚*Logica nova*‘ of 1303, Lull had, as we said before, conspicuously avoided<sup>22</sup>. Since his main interest in any demonstrative technique was to prove the Articles of the Faith, he undoubtedly far preferred his Art, whose methods had been developed precisely to avoid

<sup>20</sup> Ibid., 257. The „*aliqui mystae*“ of the ROL text is a mysterious error; the early manuscripts have „*alquimiste*“ or „*alguimiste*“.

<sup>21</sup> For a seminal discussion of Lull’s system as both an *ars demonstrandi* and an *ars inveniendi*, and hence its relation to Aristotle’s ‚*Posterior Analytics*‘ and ‚*Topics*‘, cf. J. M. Ruiz Simon, *L’Art de Ramon Llull i la teoria escolàstica de la ciència*, Barcelona 1999.

<sup>22</sup> I am not counting his translation of al-Ghazali’s logic done at the very beginning of his career, which one critic has described as a kind of student essay, and five pages on the subject in the ‚*Aplicació de l’Art general*‘ of 1301 which have more to do with the relation between logic and the Art.

whatever accusations of rationalism standard Aristotelian techniques might have entailed. But now, after discussing the syllogism in the ‚Logica nova‘, he begins to use it in a series of works written shortly thereafter. Of course, his new definitions not only give him the propositional bases to do so, but their very un-Aristotelian nature can help him defuse possible objections to what he is doing.

What makes this year of 1308 pivotal in this matter is first of all the introduction of the syllogism in actual works of the Art, in the ‚Ars generalis ultima‘ and the ‚Ars brevis‘, the first and only time he does this<sup>23</sup>. Secondly, it was when he presented specific logical techniques which were to take on prime importance in his subsequent writings. Of these, the most important, and the only we have space to discuss here, is that of the finding of the logical „middle“, that is the phrase or word which connects (or explains the necessary connection between) subject and predicate. This he introduces for the first time in four works finished in the first half of the year: the ‚Ars generalis ultima‘, the ‚Ars brevis‘, the ‚Liber de venatione substantiae accidentis et compositi‘, and the ‚Ars compendiosa Dei‘. Not only is it introduced in these works, but with equal suddenness it is given an importance such that in the ‚Ars generalis ultima‘ he even defines logic as the art of finding „the natural conjunction between subject and predicate.“<sup>24</sup>

This importance accorded to the middle was not an invention of Lull’s, but began with Aristotle himself, who made abundantly clear in the ‚Posterior Analytics‘ that the middle was essential for any scientific demonstration. The problem was, however, that Aristotle’s formulation – for reasons we will see in a moment – was unacceptable for Lull’s purposes, and it was not till this year of 1308 that he found a way to adapt it to his needs. And this he did in two ways.

The first was to provide a method of searching for (*inveniendi*) the middle, something foreign to scholastic science, which normally separated the dialectical invention of the ‚Topics‘ from the demonstrative science of the ‚Analytics‘. Suddenly now with the ‚Ars generalis ultima‘ and the ‚Ars brevis‘, the Third Figure and the Fourth Figure with its corresponding Tabula become instruments for ‚finding‘ the middle. And this to the point that in the first of those two works, three pages of the chapter on „The Multiplication of the Fourth Figure“ are taken up with the „finding of many middles“ (*De inventione plurium mediorum*).

<sup>23</sup> In the ‚Ars generalis ultima‘ Lull discusses it in two places: the first, as already explained, is under the application of ternary combinations in Part VII, and the second is under Form 87 of the Hundred Forms. In the ‚Ars brevis‘ there is no explicit discussion of logic, but he there discusses Figure A using predication, something he had never done before; „goodness is great“, „greatness is good“, etc., and then in explaining how the Figure will help the user find the „middle“, cf. ROL, vol. 12, 197 sq.; SW, vol. 1, 582; DI 301.

<sup>24</sup> ROL, vol. 14, 365 sq. The same definition appears in the ‚Ars brevis‘, cf. ROL, vol. 12, 236; SW, vol. 1, 623; DI 342.

Llull's second mode of adaptation had to do with Aristotle's flat statement that „the middle is the cause, and this is what we are trying to find in every case.“<sup>25</sup> As with his definitions, for a syllogistic method applicable to God it was imperative to discover a way to set up a non-causal middle. The only way to do this was to apply to the problem of the middle a formulation that had accompanied Llull from the beginning of his career. To the two classic Aristotelian demonstrations, the causal one of *propter quid*, and that by effect, or *quia*, he had proposed a new one, „*per aequiparantiam*“, an example of which from an earlier work, the ‚Ars demonstrativa‘, will show how it works. There he says that, of the three:

„The first is by equivalence [*per aequiparantiam*], that is to say, when a demonstration is made by means of things equal to one another, as for instance when one demonstrates that God cannot sin, because his power is of the same essence as his will, which in no way desires to sin, and this will is of the same essence as [his] justice, which is completely opposed to sin.“<sup>26</sup>

The equivalent syllogistic demonstration had to be similarly based on the equality of premises. To give a simple example:

„Wherever there is infinite goodness and infinite intellect there is infinite equality; but in God there is infinite goodness and infinite intellect; therefore in God there is infinite equality.“<sup>27</sup>

Here the middle of infinite goodness and infinite intellect is on a plane of equality with the major and minor premises. When this is not naturally the case, however, Llull set up an elaborate mechanism to bring about an equality. This is probably best exemplified in the ‚Ars compendiosa‘, in which he contrasts his new equalizing technique to the traditional one in which terms are ‚superior‘ or ‚inferior‘ to one another, a hierarchy symbolized by the Tree of Porphyry in which, for instance, ‚being‘ (*ens*) is superior to ‚substance‘, and ‚animal‘ is inferior to ‚substance‘.

„The middle which we wish to investigate is made evident by means of this syllogism: Every animal is a felt substance [*substantia sensata*]; but every feeling being [*sentiens*] is an animal; therefore every feeling being is a felt substance. In this syllogism there is no superior or inferior, since all the terms are equal. By reason of this equality the syllogism can be converted, making the major [premise] into the minor and vice versa, and making the predicate into the subject and vice versa, with the middle remaining as it was. Thus we can say: Every animal is a feeling being; but every felt substance is an animal; therefore every felt substance is a feeling being. So, just as in such syllogisms ‚animal‘ is the middle for syllogistic reasons, in the same way this act of ‚feeling‘ is the middle existing between the things designated by the syllogism for reasons of reality, naturality, primacy, internality, truth and necessity. And the reason

<sup>25</sup> Aristotle, Posterior Analytics, II, 2, 90a6 sq.

<sup>26</sup> SW, vol. 1, 317 sq.

<sup>27</sup> Logica nova, in: ROL, vol. 23, 102.

is that without it neither animal, felt substance, nor feeling being could exist. Thus by this investigation we have arrived at the real and natural middle which we intend to use here. And the reason we found such a middle was so that we may conclude necessarily by equality [*per aequiparantiam*], and not by superior or inferior.<sup>28</sup>

Notice how by adding various adjectival derivatives of the verb *sentire*, he has leveled the two premises and conclusion, so that not only do they, as Llull puts it, „necessarily conclude by equality“, but their subjects and predicates can be interchanged, thereby converting the major premise into the minor, and vice versa. For Llull, this business of convertibility is of prime importance, since for him one of the essential characteristics of the Divinity is the convertibility of His attributes with each other and with God himself, something that does not happen naturally in any other realm. In discussing the First Figure in the ‚Ars generalis ultima‘, he explains that its circular motion shows „which things convert and which do not, as for instance God and good, which can convert, but not God and angel, goodness and angel, not the latter’s goodness and greatness.“<sup>29</sup> For Llull this even becomes one of the prime definitions of God: „God is the being whose reasons [i. e., dignities] convert [with one another]; indeed, the being whose reasons convert is God.“<sup>30</sup> Note how the very definition itself is convertible, the second half being an inversion of the first, as with all the other definitions of God in this part of the ‚Ars generalis ultima‘. So what Llull has managed to do is to find a syllogistic structure with its accompanying middle which is applicable to the entire ladder of being, including God, and one that fits in closely with the other formulations of his system.

As we said before, this was by no means the only logical device he formulated in the year of 1308. In the ‚Ars compendiosa Dei‘, in addition to the new-found middle, Llull also introduces the technique of contradictory syllogisms and his systematic use of the (very Anselmian) superlative degree. In the ‚Liber de novis fallaciis‘ we get the first full presentation of the fallacy of contradiction, as well as of his system of *demonstratio per hypothesim*, which is also discussed in the last two works on our list.

So, as we pointed out at the beginning of this article, far from convalescing from the disasters of the previous year, Llull used 1308, and principally the ‚Ars generalis ultima‘, both to summarize his previous demonstrative techniques in the way he employs the Tabula, and to arrive at a new synthesis based on the ‚mixing‘ of its foundations. With the latter technique he had gone from what has been called an „upside-down method“, which starts with the thing to be proven as a hypothesis, to a „right-side-up“ system, which begins with axiom-like foundations and ends up with the thing to be proven. If to this we add the

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<sup>28</sup> ROL, vol. 13, 17 sq.

<sup>29</sup> ROL, vol. 14, 10 sq.

<sup>30</sup> Ibid., 209.

new syllogistic techniques developed in the logical works written in the same year, we can see how 1308 is pivotal in looking both backwards and forwards in Llull's system<sup>31</sup>.

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<sup>31</sup> In addition, these developments were among those for which Llull was most remembered in succeeding generations. One has only to look at the website given in Appendix I, to see that the ‚Ars generalis ultima‘ is preserved in 37 mss. and was printed ten times before the 19<sup>th</sup> century, while the ‚Ars brevis‘ is preserved in the astounding number of 73 mss. (including a Hebrew translation done in Italy in the 15<sup>th</sup> century) and was printed 25 times before the 19<sup>th</sup> century. Both of these works, along with the ‚De venatione medii inter subjectum et praedicatum‘, appeared in the anthology printed by Lazarus Zetzner in Strasbourg in 1598, which also contained a much consulted commentary on the ‚Ars brevis‘ by Agrippa von Nettesheim, and three commentaries by Giordano Bruno. This anthology became a kind of best-seller, being reprinted in 1607, 1617, and 1651, and appearing in a partial French translation in 1634. It was here that Leibniz, as a young man, studied Llull's *ars combinatoria*. Of the other works we have mentioned, the ‚Ars compendiosa Dei‘ is preserved in fifteen mss., the ‚Liber de novis fallaciis‘ in fourteen, and the ‚Liber de experientia realitatis Artis‘ in eighteen. And the work recounting his debates in his prison of Bougie, the ‚Disputatio Raimundi christiani et Homeri saraceni‘ is preserved in seventeen mss. (and was printed once in 1510). I give these figures because they are part of the extraordinary aspect of Ramon Llull's posterity: here was a figure who belonged to no religious order or any academic institution, and yet whose works have been preserved in some thousand manuscripts. And clearly his writings of 1308, with the place they found in the Zetzner anthology, occupied a central place in the history of Lullism in the centuries after its founder's death.



## Appendix I

Works finished in 1308:

1. III.77 – *Ars brevis* [January, Pisa]
2. III.78 – *Ars brevis de inventione juris* [January, Montpellier]
3. III.79 – *Liber de venatione substantiae, accidentis et compositi* [February, Montpellier] (part of which is a work often printed separately from 1516 on, and then until 1972 thought to be spurious, III.79a – *De venatione medii inter subjectum et praedicatum*)
4. III.80 – *Ars generalis ultima* [begun November 1305, Lyon; finished March 1308, Pisa]
5. III.81 – *Disputatio Raimundi christiani et Homeri saraceni* [April, Pisa]
6. III.82 – *Liber de centum signis Dei* [May, Pisa]
7. III.83 – *Liber clericorum* [May, Pisa]
8. III.84 – *Ars compendiosa Dei* [May, Montpellier]
9. IV.1 – *Liber de novis fallaciis* [October, Montpellier]
10. IV.2 – *Liber de aequalitate potentiarum animae in beatitudine* [November, Montpellier]
11. IV.3 – *Liber de investigatione vestigiorum productionis divinarum personarum* [November, Montpellier]
12. IV.4 – *Liber de experientia realitatis Artis ipsius generalis* [November, Montpellier]
13. IV.5 – *Liber de refugio intellectus* [December, Montpellier] (which contains IV.5a – *Liber de conversione syllogismi opinativi in demonstrativum cum vicesima fallacia*)

For further lists of works, bibliography, etc., see the website <http://orbita.bib.ub.es/llull/>.

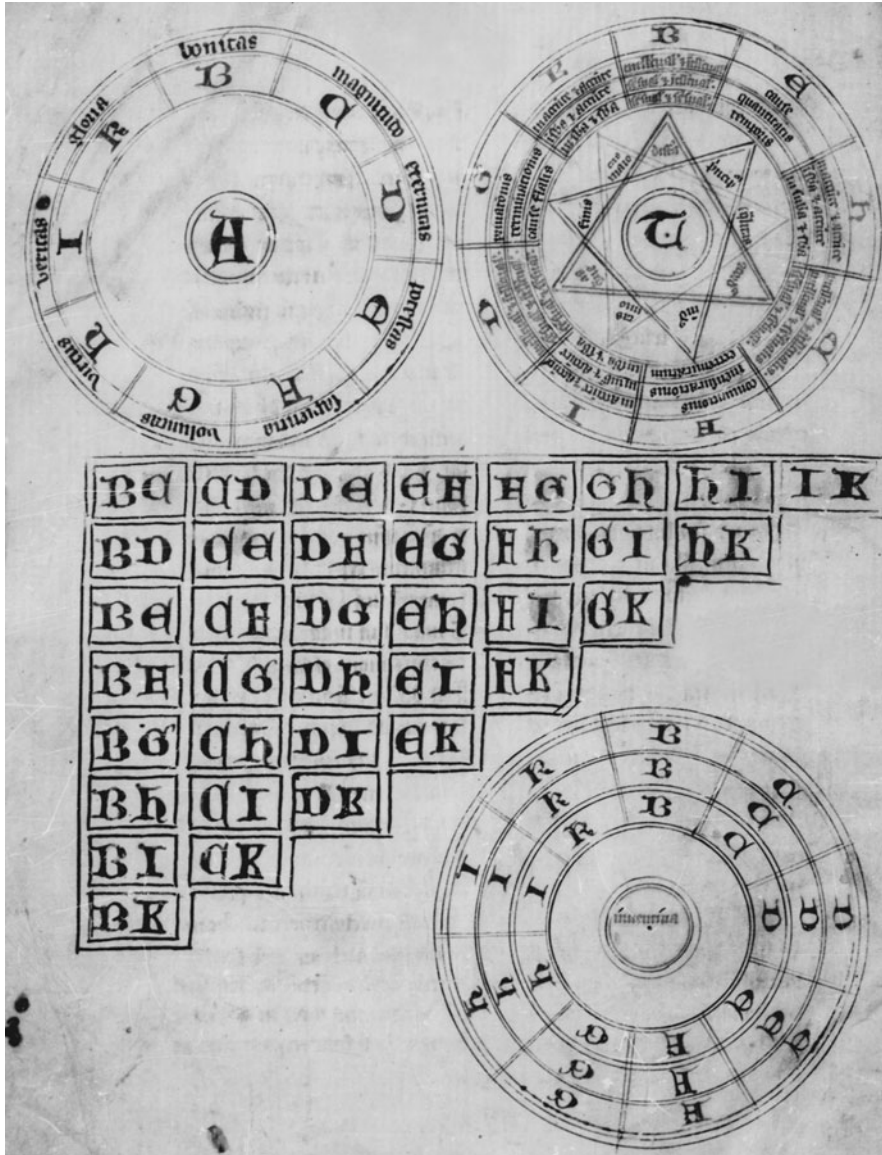
## Appendix II

Contents of the ‚Ars generalis ultima‘ (and of the ‚Ars brevis‘):

- Prologue
- I. Alphabet
- II. Four Figures
- III. Definitions of Principles
- IV. Questions and Rules
- V. Table
- VI. Evacuation of the Third Figure
- VII. Multiplication of the Fourth Figure
- VIII. Mixture of Principles and Rules
- IX. Nine Subjects
- X. Application (Hundred Forms)
- XI. Questions
- XII. Habituation
- XIII. Methods of Teaching the Art

Appendix III

The four figures of the 'Ars generalis ultima':



Arras, Bibliothèque Municipale, Ms. 78, fol. 1<sup>v</sup>.

## Appendix IV

Definitions of the eighteen principles of the Art<sup>32</sup>:

1. Goodness is that thing by reason of which good does good<sup>33</sup>.
2. Greatness is that by reason of which goodness, duration, etc., are great.
3. Eternity or duration is that by reason of which goodness, etc., endure.
4. Power is that by reason of which goodness, etc., can exist and act.
5. Wisdom is that by reason of which the wise man understands.
6. Will is that by reason of which goodness, greatness, etc., are lovable or desirable.
7. Virtue is the origin of the union of goodness, greatness, and the other principles.
8. Truth is that which is true concerning goodness, greatness, etc.
9. Glory is that bliss in which goodness, greatness, etc., come to rest.
10. Difference is that by reason of which goodness, etc., are clearly distinguishable from one another.
11. Concordance is that by reason of which goodness, etc., accord in one or in several things.
12. Contrariety is the mutual opposition of certain things as a result of different goals.
13. Beginning<sup>34</sup> is that which is found in everything where there is any question of priority.
14. Middle is the subject through which end influences beginning, and beginning reinfluences end, and thus it participates in the nature of both.
15. End is that in which beginning comes to rest.
16. Majority is the image of the immensity of goodness, greatness, etc.
17. Equality is the subject in which the end of concordance, goodness, etc., comes to rest.
18. Minority is the thing close to nothingness.

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<sup>32</sup> *Ars generalis ultima* (ROL, vol. 14, 21 sq.), and *Ars brevis* (ROL, vol. 12, 212 sq.; SW, vol. 1, 589 sq.; DI 309 sq.).

<sup>33</sup> To this definition Llull frequently adds the clearly Neoplatonic trope „and thus good is being and evil is nonbeing“.

<sup>34</sup> *Principium* could also be translated as „principle“ or „origin.“

## Appendix V

The Tabula:

BCD CDE	DEF	EFG	FGH	GHI	HIK
BCTBCDTC	DETD	EFTE	FGTF	GHTG	HITH
BCTCCDTD	DETE	EFTF	FGTG	GHTH	HITI
BCTDCDTE	DETF	EFTG	FGTH	GHTI	HITK
BDTBCETC	DFTD	EGTE	FHTF	GITG	HKTH
BDTCCETD	DFTE	EGTF	FHTG	GITH	HKTI
BDTDCETE	DFTF	EGTG	FHTH	GITI	HKTK
BTBCCTCD	DTDE	ETEF	FTFG	GTGH	HTHI
BTBDCTCE	DTDF	ETEG	FTFH	GTGI	HTHK
BTCDCCTDE	DTEF	ETFG	FTGH	GTHI	HTIK
CDTBDETC	EFTD	FGTE	GHTF	HITG	IKTH
CDTCDETD	EFTE	FGTF	GHTG	HITH	IKTI
CDTDDETE	EFTF	FGTG	GHTH	HITI	IKTK
BCDTCDETE	ETDE	FTEF	GTFG	HTGH	ITHI
CTBDDTCE	ETDF	FTEG	GTFH	HTGI	ITHK
CTCDDTDE	ETEF	FTFG	GTGH	HTHI	ITIK
DTBCETCD	FTDE	GTEF	HTFG	ITGH	KTHI
DTBDETCE	FTDF	GTEG	HTFH	ITGI	KTHK
DTCDECTDE	FTEF	GTFG	HTGH	ITHI	KTIK
TBCDTCDE	TDEF	TEFG	TFGH	TGHI	THIK

## Appendix VI

## Centum Formae:

1. entitas	26. immobilitas	51. derivatio	76. similitudo
2. essentia	27. instinctus	52. umbra	77. antecedens et consequens
3. unitas	28. appetitus	53. speculum	78. potentia, objectum et actus
4. pluralitas	29. attractio	54. color	79. generatio, corruptio et privatio
5. natura	30. receptio	55. proportio	80. theologia
6. genus	31. phantasma	56. dispositio	81. philosophia
7. species	32. plenitudo	57. creatio	82. geometria
8. individuitas	33. diffusio	58. praedestinatio	83. astronomia
9. proprietates	34. digestio	59. misericordia	84. arithmetica
10. simplicitas	35. expulsio	60. necessitas	85. musica
11. compositio	36. significatio	61. fortuna	86. rhetorica
12. forma	37. pulchritudo	62. ordinatio	87. logica
13. materia	38. novitas	63. consilium	88. grammatica
14. substantia	39. idea	64. gratia	89. moralitas
15. accidens	40. mathematica	65. perfectio	90. politica
16. quantitas	41. ens in potentia existens	66. declaratio	91. jus
17. qualitas	42. punctuitas	67. transsubstantiatio	92. medicina
18. relatio	43. linea	68. alteratio	93. regimen principis
19. actio	44. triangulus	69. infinitas	94. militia
20. passio	45. quadrangulus	70. deceptio	95. mercatura
21. habitus	46. circulus	71. honor	96. navigatio
22. situs	47. corpus	72. capacitas et incapacitas	97. conscientia
23. tempus	48. figura	73. existentia et agentia	98. praedicatio
24. locus	49. rectitudines generales	74. comprehensio et apprehensio	99. oratio
25. motus	50. monstrositas	75. inventio	100. memoria

Numbers 54–71 and 75 sq. above all have double headings in the ‚Ars generalis ultima‘: ‚De colore et colorato‘, ‚De proportione et proportionato‘, etc. In addition, in the ‚Ars generalis ultima‘, 80, ‚Theology‘, is preceded by an explanatory note saying that he is now going to show how his ‚general Art‘ is applied to ‚particular arts‘ (ROL, vol. 14, 356), thereby demonstrating not only its generality but how it can help in learning those ‚particular arts‘ which constitute numbers 80–100.