

THE LIBER CHAOS AND RAMON LLULL'S DOCTRINE FROM CREATION TO THE GENERATION OF MATERIAL SUBSTANCE IN THE SUBLUNAR WORLD¹

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Abstract

In this study we propose to contextualize certain themes developed in the *Lectura super figuras artis demonstrativae seu Liber chaos* of Ramon Llull. Penetrating the content of the work, we realize the need to locate them within the framework of the major philosophical and scientific questions that characterized intellectual debate between the 13th and 14th centuries in the field of the natural philosophy. Here we will set aside the traditional, albeit obligatory, features of the construction of the *ars lulliana*, and the motif of apologetic and missionary inspiration, to focus on the way in which natural philosophy features as a vital aspect within the philosophical thinking of Ramon Llull, a characteristic already illuminatingly highlighted by Frances Amelia Yates in her well known study «The Art of Ramon Lull. An approach to it through Lull's theory of the elements» (1954).

Key words: chaos, materia and forma, fluxus, communicatio, mixtio, semina causalia, individuatio, forma mixti, intensio et remissio formarum.

1. Introduction

The *Lectura super figuras artis demonstrativae seu Liber chaos* (1285-1287) is related to the *Ars demonstrativa* (1283), the contents and the figures of which it interprets.² The *Lectura* contains the *Liber chaos*, which is located in the work where the author

¹ This study is part of the research project «*Kritische Ausgabe und Kommentar der Lectura super figuras Artis demonstrativae et Liber chaos des Raimundus Lullus*», supported by the German Research Foundation (DFG) and directed by the author.

² To place the *Ars demonstrativa* in the context of the development of Llull's oeuvre, see LOLA BADIA and ANTHONY BONNER, *Vida, pensamiento y obra literaria*. Barcelona: Quaderns Crema-Sirmio, 1993, 241 pp. For an introduction to Llull's thought, see also *Raimundus Lullus. An Introduction to his Life, Works and Thought*, ed. ALEXANDER FIDORA and JOSEP E. RUBIO; transl. ROBERT D. HUGHES, ANNA A. AKASOY and MAGNUS RYAN, *Corpus Christianorum Continuatio Mediaevalis 214. Raimundi Lulli Opera Latina, Supplementum Lullianum*, II. Turnhout: Brepols, 2008, xiv + 564 pp.; in particular JOSEP E. RUBIO, «The Natural Realm», in *Ibidem*, pp. 311-362.

discusses the figure of the four elements. Ivo Salzinger (1669-1728) published the *Liber chaos*³ after the *Lectura super figuras Artis demonstrativae*⁴ as an independent work. Although this treatise also enjoyed a separate textual tradition of its own, nevertheless in surviving manuscripts that contain the whole *Lectura*, it is always treated as an integral part of the book, and not as a compendium.⁵ From the point of view of content, the *Liber chaos* investigates the structure of the sublunar cosmos, and the generation of substances from prime matter.⁶ The study of the relationship between matter and form in compound substance reveals an awareness and an ease on the part of Llull in touching on certain philosophical problems, such as the problem of the form of the *mixtum*, or of the *intensio et remissio formarum* that was much in vogue at the time.⁷ The fundamentally emanationist structure of Llull's sublunar cosmos also cultivates a language that has not been much explored up until this time, namely the doctrine of the *fluxus*, that emerged during our work of interpreting the text.

2. The theory of flow

In many passages in Llull that will be cited, within the work of exegesis of the *Liber chaos* developed in the following paragraphs, the reader will not fail to notice the use of a lexicon referring to the emanative theories of the *fluxus*. The desire here is to acknowledge this linguistic register in order to convey an idea of its considerable role within Llull's speculations. The construction of a foundation for a specific investigation regarding the doctrine of flow in Ramon Llull is thus the end goal, and the limit, of the analysis conducted here.

³ RAIMUNDUS LULLUS, *Liber chaos*, *MOG* III, pp. 249-292 = Int. v, pp. 1-44. Hereinafter *Liber chaos* will be referred to by the abbreviation *LC* and the internal page of the relevant passages.

⁴ RAIMUNDUS LULLUS, *Lectura super figuras Artis demonstrativae*, *MOG* III, pp. 205-247 = Int. IV, pp. 1-51. Hereinafter the work will be referred to by the abbreviation *Lectura* and the internal page of the relevant passages.

⁵ For a list of the codices that preserve the work, see the *Base de Dades Ramon Llull* by the *Centre de Documentació Ramon Llull* of the University of Barcelona (<http://orbita.bib.ub.edu/llull/index.asp>).

⁶ The most significant studies on the *Liber chaos* were undertaken by Charles Lohr, in particular in «The Arabic Background to Ramon Lull's *Liber chaos* (ca. 1285)», *Traditio* [Cambridge], 55, 2000, pp. 159-170, and in «Chaos Theory According to Ramon Lull», *Religion, Text, and Society in Medieval Spain and Northern Europe. Essays in honor of J.N. Hillgarth*, ed. T. E. BURMAN, M. D. MEYERSON and L. SHOPKOW, *Papers in Mediaeval Studies* 16. Toronto: Pontifical Institute of Mediaeval Studies, 2002, pp. 158-165. An important contribution is F. A. YATES, «Ramon Lull and John Scotus Erigena», *Journal of the Warburg and Courtauld Institutes* [London], 23, 1960, pp. 1-44 reprinted and translated in *EL* 6; see also J. GAYÀ, *La teoria luliana de los correlativos. Historia de su formación conceptual*. Palma de Mallorca, 1979. See also J. M. RUIZ SIMÓN, «De la naturalesa com a mescla a l'art de mesclar (sobre la fonamentació cosmològica de les arts lulianes)», *Randa* [Barcelona], 19, 1986, pp. 69-99, especially pp. 81-83, and J. SIDERÀ, *La metafísica de la creació en Ramon Llull*. Bellaterra: Universitat Autònoma de Barcelona. Doctoral thesis, 2003. A translation of the *Liber chaos* by Yanis Damberg is available at <http://lullianarts.narpan.net/index.html>.

⁷ A. MAIER, «Die Struktur der materiellen Substanz», *An der Grenze von Scholastik und Naturwissenschaft*. Roma: Storia e letteratura, 1952, 2nd edition, pp. 3-140.

It must be stated at the outset that, in the *Lectura*, Llull does not discuss the issue of *fluxus* systematically, in other words he does not go into the issue in order to deal with its theoretical principles; instead, he seems to adopt its language directly. He thus places himself within a fairly ancient tradition, which enters the Latin world mainly via Avicenna⁸ and which sees attentive consideration in the Middle Age with Albertus Magnus.⁹ The latter, as is well known, read and commented on the *Liber de causis*¹⁰ developing in the final part of his *Liber de causis et processu universitatis a prima causa*¹¹ a careful discussion of *fluxus*.

In the course of the *Lectura super figuras artis demonstrativae seu Liber chaos*, the language of flow is used by Llull in several contexts, primarily when he discusses the relationship between God and the created world in terms of *flowing in (influere)*.

«sed ad imitandum illam gloriosissimam Dei operationem intrinsecam, quae naturalis est et intellectualis, **influxit Deus et influit propter** magnam suam largitatem bonitatis et sapientiae, operationem naturalem et intellectualem creaturis suis scilicet Angelis, hominibus, orbi, elementis et omnibus, quae ab eis generantur».¹²

God bestows by infusing an *operatio naturalis et intellectualis* upon his creatures, so that they may imitate him, and thus turn to him in some way. This bestowal involves all of God's creatures, from angels to elemented substances, and it is due to divine Goodness and Wisdom: accordingly, one may say that it is a generous and wise bestowal.

Chaos also has an action of *influere* that takes place in the succession of the three cosmic degrees. Indeed, the first degree of *chaos* influences the third by means of the second, in the phenomenon of the generation of the elemented things. *Chaos* makes its essence flow into all substances that can be generated, making use of the four elemental

⁸ O. LIZZINI, *Fluxus (fay')*. *Indagine sui fondamenti della metafisica e della fisica di Avicenna*. Bari: Edizioni di pagina, 2011.

⁹ A. DE LIBERA, *Albert le Grand et la philosophie*. Paris: Vrin, 1996; and IDEM, *Métaphysique et noétique. Albert le Grand*. Paris: Vrin, 2005. On the *fluxus* in Albertus, see E. J. MCCOLLOUGH, «St. Albert on Motion as Forma Fluens and Fluxus Formae», *Albertus Magnus and the Sciences, Commemorative Essays*, ed. J. A. WEISHEIPL. Toronto: Pontifical Inst. of Mediaeval Studies, 1980, pp. 129-153. On Albertus Magnus and Avicenna, see also J. MCGINNIS, «A medieval Arabic analysis of motion at an instant: the Avicennan sources to the forma fluens/fluxus formae debate», *British Journal for the History of Science* [London], 39(2), June 2006, pp. 189-205.

¹⁰ A. PATTIN, *Le Liber de causis. Édition établie à l'aide de 90 manuscrits avec introduction et notes*, *Tijdschrift voor Filosofie* [Leuven], 28, 1996, pp. 90-203.

¹¹ ALBERTUS MAGNUS, *Buch über die Ursachen und den Hervorgang von allem aus der ersten Ursache*, Nach dem Text de Editio Coloniensis übersetzt und herausgegeben von H. ANZULEWICZ, M. BURGER, S. DONATI, R. MEYER and H. MÖHLE, Lateinisch — Deutsch. Hamburg: Meiner, 2006. ALBERTUS MAGNUS, *De causis et processu universitatis a causa prima*, ed. W. FAUSE, in ALBERTI MAGNI *Opera Omnia*, XVII,2, Münster: Aschendorff Verlag, 1993.

¹² *Lectura*, p. 14.

potentialities that proceed from it. The ways in which it makes its essence flow follow the dictates of the divine project, namely God's *regula et linea influendi*, in which we are thus to locate the origin of the *influere*. Moreover, *chaos* undergoes the influences of the celestial bodies, which, produced by the divine *lux*, instil their virtue upon the elemented bodies.¹³ These receive the celestial influences by means of the mixture of the simple elemental essences from which they derive, and of which they are composed.¹⁴ Indeed, if every simple element were one body unto itself, there would not be receptiveness because, one may state, they would already be perfect in themselves, without any need to receive anything at all.¹⁵

The semantics of flowing also recur in the investigation of forms. Llull makes explicit mention in his work to a *virtus* that is not only *generativa* but also *influxiva* thanks to which forms manage to flow into the various degrees of *chaos* within the phenomena of the generation and corruption of substances.¹⁶ The same vocabulary also dominates the description of the phenomenon of the generation of specific forms in specific matters due to the action of the natural agent, that, for this purpose, makes use of the *semina causalia*:

«Sicut sagitta propter impetum ab arcu impulsa tendit artificialiter ad terminum, sequens imaginationem et appetitum sagittarii, sic et multò meliùs semina causalia ex primo gradu Chaos per rectam lineam influuntur ab agente naturali formam generante specificam in materia specifica, quae scilicet forma et materia specificae de seminibus causalibus producuntur per organum, quod est ipsius agentis instrumentum in tertio gradu, recipiens à primo gradu influentiam in se ipsum, ut in quarto gradu multiplicet speciem suam, et deinde de gradu in gradum successivè corrumpendo alium gradum in generatione alterius subsequenti».¹⁷

The causal seeds, as we shall see also in the following paragraphs, are reverberated or introduced (*influuntur*) by the natural agent from the first degree of *chaos* into the subsequent degrees, so that the specific form and the specific matter are produced from

¹³ *Ibidem*, p. 47.

¹⁴ *LC, De Corporeitate*, p. 4.

¹⁵ Emphasis was already placed by F. A. YATES (*The Art of Ramon Llull*, cit.) on the centrality of Llull's astrological theory. See also R. D. F. PRING-MILL, *El microcosmos lul·lià*. Palma de Mallorca: Editorial Moll, 1961 translated into several languages by various publishers; and L. BADIA, «La ciència a l'obra de Ramon Llull», *La Ciència en la Història dels Països Catalans*, ed. J. Vernet i R. Parés, I. Dels àrabs al renaixement (Barcelona-València: Institut d'Estudis Catalans, Universitat de València, 2004), pp. 403-442.

¹⁶ *Lectura, De camera ignis aeris*, p. 33: «et inde sequitur aliud scilicet formam vel aëris vel aquae vel caeterorum, quae prius corrupta fuerat, restaurari in aliam novam materiam in parte existentem in primo chaos et in parte in tertio, forma, quae est in potentia, se movente, ut per virtutem generativam et influxivam veniat in actum, indeque sequitur totam formam corruptam esse quandoque in primo chaos tantum».

¹⁷ *LC, De Generatione*, p. 9.

them. In this connection, the author uses the similitude of an arrow shot by a bow, which, in reaching its target, follows the imagination and desire of the archer. The action of the natural agent, that works by means of the *semina causalia*, is to specify, namely to act within the generation of individuals, interfering in the flow of the universal essence which, from the first degree of *chaos*, reverberates in the subsequent degrees:

«Chaos materiam universalem influit in arborem, agens verò naturale illam materiam influxam recipit in arborem distinguendo, scilicet in ramos, in folia et fructus et specificando isto modo illud universale, scilicet materia praedicta fit particulare in tertio gradu Chaos». ¹⁸

At the moment when the third degree of *chaos* is somehow not disposed to receive the influence of the first degree, corruption of the substance occurs:

«Ex isto autem continuo actu procedunt particulares substantiae tertii gradus, cessante verò ipso actu primi gradus Chaos, eò quòd tertius gradus Chaos non est dispositus ad recipiendum influentiam ejus, corrumpuntur substantiae, et corrumpendo ad ipsam substantiam, unde processerunt, revertuntur, quae semper ingenerabilis et incorruptibilis est, illae verò semper generantur et corrumpuntur». ¹⁹

The expression ‘*semina causalia*’ is something of a fusion of the two Augustinian expressions *rationes seminales* and *rationes causales*, concentrating on the aspect of the process of causality in the phenomena of generation. The motif of receptiveness of matter as a condition for receiving the flow certainly echoes Avicenna’s theory on the subject.

In his *Lectura*, Llull never uses the word *fluxus* or the verb *fluere*, but always the noun *influentia* and the verb *influere*. A more variegated terminology appears in Llull’s writings after the first half of the 1290s, revealing his familiarity with university philosophical works. In his *Ars inventiva veritatis* (1290) and the *Arbor scientiae* (1295-1296), the author makes frequent use of the verbs *fluere* and *refluere*, as well as the term *fluxus*.

In the *Ars inventiva veritatis*, the words *fluere* and *refluere*, as well as in the discussion of celestial influences, are also used in a gnoseological context to describe the processes of knowledge both of the human intellect and of the senses. ²⁰ In his *Arbor scientiae*, Llull goes further, including in the chapter *De centum formis* the paragraphs *De influ-*

¹⁸ *Ibidem*, *De Universali et Particulari Chaos*, p. 18.

¹⁹ *Ibidem*, *de Genere Chaos*, p. 19.

²⁰ RAIMUNDUS LULLUS, *Ars inuentiua ueritatis*, ed. J. USCATESCU BARRÓN, *ROL* XXXVII, for example p. 195 and p. 307.

entia and *De refluentia*. Specifically, in Lullian doctrine, *refluentia* describes the dynamic within the correlative structure: the active term initially flows into the passive term; the latter flows back into the active term, which then produces the action from both.²¹ In the same work, the dynamics whereby the four elements become mixed are also described in terms of an *influentia* ('flowing in') and a *refluentia* ('flowing back'). In this instance, the semantics of flow overlap with the semantics of *devictio*, namely the process that regulates the dominance of one element over another when they become mixed together.²²

In the *Liber chaos*, also interlinked with the semantics of *fluere/influere* is the vocabulary of the *processus*,²³ clearly inspired by neo-Platonism, and the vocabulary of *communicabilitas*, already present in Albertus Magnus.²⁴ When Llull speaks of the influence that the first degree of *chaos* exerts in the subsequent degrees, he understands this influence also as a *communicatio*.²⁵ The manner of this 'communication', and the way it is bound up with that of *influere*, involves both the sublunar world and the higher spheres. In the *Tractatus novus de astronomia*²⁶ the influence exerted by the celestial bodies on sublunar bodies is sometimes expressed in terms of the communicability of the celestial virtue.²⁷ These influences that the celestial bodies exert on the world are called by Llull *impressiones*; he uses the well-known example of the seal that impresses the letters it bears onto wax.²⁸ The example of the seal and the wax also occurs

²¹ IDEM, *Arbor scientiae*, p. 85: «In Arbore elementalī bonificatiuum influit bonificabili semetipsum, et bonificabile refluit bonificatio semetipsum, in quantum est dispositum, quod ex ipso bonificatio producat bonificare, quod exit de influentia et refluentia amorum. Et ex hac refluentia, quae generalis est in Arbore elementalī, sunt refluentiae inferius. Sicut in pipere, in quo ignis influit calorem aeri cum siccitate, et aer refluit illum calorem igni cum siccitate, quam recipere non appetit [...]». On Llull's correlatives, see J. GAYÀ ESTELRICH, *La teoria luliana*, cit.

²² The *Liber de regionibus sanitatis et infirmitatis* (ed. J. GAYÀ ESTELRICH, *ROL XX* (1995), pp. 63-118), is wholly based on the processes of *devictio* of the elements in relation to the health and illness of the human body and to the motion of the stars; The editor's introduction, pp. XVIII-XXXVII, goes into the question in detail. On the subject, see also C. COMPAGNO, «La combinatoria degli elementi nelle opere mediche di Raimondo Lullo», *Universality of Reason — Plurality of Philosophies in the Middle Ages*, SIEPM 16.-22.09.2007. Palermo: Ed. Officina di Studi Medievali, Il VOL, pp. 1089-1098.

²³ For example LC, *De Universalī*, p. 18: «Primus gradus Chaos est universalis, unde per creationem processit secundus gradus, in quo creatae fuerunt omnes species [...]».

²⁴ For example ALBERTUS MAGNUS, *Buch über die Ursachen*, cit., pp. 208-210.

²⁵ LC, *de Substantia Chaos*, p. 26: «Primo gradu Chaos se communicante tertio est ipse tertius substantiabilis in diversas species [...]»; *Ibidem*, *De Relatione Chaos*, p. 29: «Primum Chaos potentiam habuit se communicandi in species, priusquam secundum Chaos esset [...]»; *Ibidem*, *De Situ Chaos*, p. 39: «tertio Chaos movente ad se primum recipiendo ab illo influentiam et è converso, primo se communicante tertio [...]».

²⁶ RAIMUNDUS LULLUS, *Tractatus novus de astronomia*, ed. M. PEREIRA, *ROL XVII* (1989), pp. 63-218. For a critical historical study of the treatise, see M. PEREIRA, «Ricerche intorno al 'Tractatus novus de astronomia' di Raimondo Lullo», *Medioevo. Rivista di Storia della Filosofia Medievale* [Padova], 2, 1976, pp. 169-226.

²⁷ *Ibidem*, p. 100: «Aries praedictas habet conditiones per se simpliciter, cum quibus suam uirtutem dat et suam naturam communicat corporibus inferioribus [...]».

²⁸ *Ibidem*, p. 125 and p. 128.

when the author speaks of the three degrees of *chaos*, stating that the third degree is like the wax that receives the forms of the letters on the seal.

An investigation of Lullian doctrine with regard to the *fluxus*, exploring not only the sources but also reception, seems worthwhile. Only after a careful analysis of the boundaries and the content of the theory of *fluxus* within Ramon Llull's thought could one identify features inspired on the one hand by the world of Latin translations of Arab works and, on the other hand, by the world of writings and university commentaries that were circulating during the philosopher from Majorca's lifetime. Regarding its reception, it seems to us very interesting, and not inappropriate, to remind readers that it was none other than Heymericus de Campo²⁹ who, more than 100 years later, systematically drew up a vocabulary in support of the theory of flow, distinguishing between *fluxus*, *influxus* and *refluxus*. While the presence of the influence of the Albertist school is vital in the works of Heymericus, it should nevertheless be stressed that he, friend of Nicolaus Cusanus, certainly knew Llull's writings.

Below we put forward an exegesis of the work under the magnifying glass of natural philosophy. The relationship between matter and form, the generation of material substance and the form of the *mixtum*, the remission of qualities, are all issues that Llull addresses with a depth of analysis and an awareness of his discourse.

3. Creation

Before the opening section of the *Liber chaos*, Llull refers right from the start of the *Lectura* to the creation of the world. Collating the information on this theme found in various parts of the work, one derives the following representation.

God creates the creatures from nothingness (*de nihilo*) outside of himself.³⁰ The act of creation as extrinsic to God is an artificial operation, not in the sense of an operation that is 'not natural' or 'manipulated', but rather in the sense of an operation in compliance with the project of the *artifex*, namely God; and thus an operation in compliance with the divine intelligence and power that expresses itself outside of itself. Prior to the act of creation, God already has within him an intellectual and natural intrinsic activity. Thus, he is not an immobile God who becomes active with creation, he is already an active, thinking God unto himself.³¹ In the course of

²⁹ M. MELIADÒ, «Scientia peripateticorum. Heymericus de Campo, the Book of Causes, and the debate over Universals in the fifteenth century», *Recherches de Théologie et Philosophie médiévales* [Köln], LXXXIX,1, 2012, pp. 195-230.

³⁰ On creation *ex nihilo* in Llull, and his anti-Averroist position see W. W. ARTUS, «Ramon Llull's Concept of Creation», *EL*, 26, 1986, pp. 23-68.

³¹ *Lectura*, p. 13: «unde creatio est artificialis operatio ipsius A., producentis creaturas extra se de nihilo, ut recolatur, intelligatur et diligatur illa gloriosa operatio intrinseca, quam Deus de se habet in se intellectualem et naturalem, quam nisi haberet, esset otiosus in se ipso, quod est impossibile».

the *Liber chaos* the author refers several times also to the ideas of God, who thus thinks and plans ‘cuncta’.³²

The created beings will have the goal of loving, understanding and meditating on/remembering God. Any type of corporeal nature measurable in time and in quantity in God is excluded.³³ God is thus pure activity, and immensely, eternally great goodness. The activity of God is expressed by his correlatives (*Deificativum*, *Deificabile*, *Deificare*) that signify the active form, the passive form, and the connection between the two forms within his intrinsic dynamism. The correlative structure also relates to the Dignities of God, namely his attributes, and the Trinity, so that being at all levels of existence always presents a dynamic nature. One may certainly say that, within Llull’s philosophy, there is no being without activity. God creates the angels, outside of himself, as pure intellectual entities, and men, who possess intellect, the five senses, and an animal part, which could be called instinct.³⁴ The creation of all living beings in the sublunar world, and thus including man, takes place in the dynamism of the *chaos* that is developed structurally in three degrees. The purpose of every creature is to tend towards God, who has created the world in his likeness, bestowing upon every living being a natural and/or intellectual activity that imitates the divine operation.

God introduced (*influxit*), in the moment of creation, within created beings a natural and intellectual activity or *operatio*, and he still continues to instil this (*influit*), since He is vastly good and wise. The creation is thus a divine act of great goodness and wisdom that, according to Llull’s writings, is not limited to the initial act of creation, but maintains its dynamic state also subsequently, with the continual bestowing of this *operatio naturalis et intellectualis* to his creatures.

4. Chaos

In the *Liber chaos*, Llull sets out to explore the theme of creation from the point of view of the philosophy of nature, although he does not omit certain considerations of a theological nature that have to do above all with the motif of resurrection, in relation to the question of the *humidum radicale*.³⁵

³² *LC*, *De Differentia Chaos*, pp. 21-23. In other works, too, there are references to ideas of God, see W. W. ARTUS, «Ramon Llull’s Concept», cit., p. 49ff.

³³ *Lectura*, *De camera Deus Deus*, pp. 13-14.

³⁴ *Ibidem*, *De Camera Creatura Creatura*, p. 14.

³⁵ For a detailed examination of the *humidum radicale* in medieval writings, see C. CRISCIANI and G. FERRARI, *Estudi introductorii/Introduzione*, in ARNALDUS DE VILLANOVA, *Tractatus de humido radicali*, ed. M. R. McVAUGH et praef. et comm. instruxerunt C. CRISCIANI and G. FERRARI, *Arnaldi de Villanova Opera Medica Omnia*, V. 2. Barcelona: Publicacions de la Universitat de Barcelona, 2010, pp. 11-269, 319-571.

Llull begins his discussion on *chaos*³⁶ by first defining its *essentia* and then its *esse*. The *essentia* of *chaos* is understood intellectually (*intelligimus esse*) as the combined *essentiae* of the four primordial elements, the *igneitas* of fire, the *areitas* of air, the *aqueitas* of water, and the *terreitas* of earth. These four *essentiae* are moved (*moventur*)³⁷ in every moment or instant, throughout one another (*altera per alteram*), *subtiliter* such that they are found mixed together, but confusedly, in every smallest point of the *chaos*.

The four elemental essences contain within themselves an active form, semantically defined by the suffix *-ivum* (*ignificativum*), a matter of their own, or *proprium passivum* defined by the suffix *-ibile* (*ignificabile*), and an act of their own, defined by the form of the infinitive of the verb taken from the name of each of the elements (*ignificare*, *aereificare*, *aqueificare* and *terreificare*). The act stands for the action of the active form of the essence in its own matter. The *suppositum complexum* is the result of this internal activity, within each of the four elemental essences, of the form and of the matter in their act, and defines the nature of each elemental essence. The *ignificatum* is thus the complex supposite of fire, and it defines its nature, and so on. The elemental essence thus appears, of and by itself, already as the union of its own matter and form, characterized by an internal activity.

Chaos, as an entity,³⁸ comprises the *forma communis vel universalis*, which is multiplied (*multiplicatur*) by the four elemental active forms, and by the *materia communis vel prima materia*, which results (*unitur vel multiplicatur*) from the four proper elemental matters. As well as the four elemental essences, *chaos* also contains within it the five universals or predicables,³⁹ the ten predicaments⁴⁰ and the *semina causalia*. These last were created by God in the same instant as the creation of *chaos* and, in fact, within it. From *chaos* are generated all the natural sublunar entities, by means of various transmutations.

³⁶ On cosmology in Llull, see J. GAYÀ ESTELRICH, «La cosmología en el 'Ars' de Ramon Llull», *Cosmogonie e cosmologie nel Medioevo*, hrsg. von C. MARTELLO, C. MILITELLO, A. VELLA. Louvain-la-Neuve: Fédération Internationale des Instituts d'Etudes Médiévales, 2008, pp. 141-168. For a comparison with the metaphysics of Pseudo-Dionysius, see A. BORDOY, «Notes sur récupération du Psd.-Denys dans la cosmologie lullienne: questions sur la création du monde». *Universalità della Ragione. Pluralità delle filosofie nel Medioevo. XII Congresso Internazionale di Filosofia Medievale della Società Internazionale per l'Étude de la Philosophie Médiévale (Palermo, 17-22 settembre 2007)* II.2. Palermo: Officina degli Studi Medievali, 2012, pp. 1049-1058. See also MARC EGEA I GER, «La cosmología de Ramón Llull», *Llull: boletín de la Sociedad Española de Historia de las Ciencias* [Zaragoza], 23, 2000, pp. 295-313, which focuses on astronomy by Llull. Finally, see also J. SIDERA CASAS, «La cosmología evasiva de Ramon Llull», *Enrahonar Quaderns de Filosofia* [Barcelona], 56, 2016, pp. 65-83.

³⁷ *LC, De Essentia Chaos*, p. 1.

³⁸ Alongside the expression *unum ens*, Llull also uses *unum esse* and *unum suppositum*.

³⁹ According to Porphyrian tradition: genus, species, difference, property and accident.

⁴⁰ According to Aristotelian tradition: substance, quantity, quality, relation, when, where, action, passion, habitus, situs.

After having provided the definition of *chaos*, Llull does not immediately discuss the question of the universals, the predicaments and the *semina causalia*, and instead moves straight on to a discussion of the four elements. It is immediately stated that the four elements are the four powers with which *chaos* introduces (*influit*) into the *elementata*⁴¹ its essence.⁴² Thus, each element appears as an instrument of the flow of *chaos*.

«Elementa sunt quatuor videlicet ignis, aër, aqua et terra, quae sunt quatuor potentiae, cum quibus Chaos in elementata suam influit essentiam; haec autem quatuor elementa influuntur, secundum quod Chaos ex quatuor essentiis suis, scilicet igneitate etc. influitur, ideoque ignis habet suam propriam lineam sive punctum procedentem à Chaos in omnes species, quae in ipso Chaos sunt ex natura igneitatis, hoc idem similiter sequitur secundum se de aliis elementis».⁴³

The simple elements proceed from *chaos* and have their own *punctus procedens* or *linea propria* in it, in order to enter the species that share their nature. They are not simple bodies, but they tend towards being simple; they find themselves in the *chaos* in a state of confused *mixtio*, giving rise to processes of generation and corruption. The aggregation and mixture of the four elemental potentialities occur in accordance with relations of concordance and contrariety, and constitute the phenomenon that we could call cosmic, which sets in motion the generation of things.

Chaos is defined by Llull as a round entity that is full and extended throughout of the four spheres of the elements. The four elemental spheres are each contained in the next, from the top downwards, in the following order: the sphere of fire, the sphere of air, the sphere of water, and the sphere of earth. Earth, which is in the lowest place, can be called the centre (*centrum appellatur*). The elements, that are mixed together in *chaos*, tend towards their natural place, however, namely towards their own sphere; as, for example, the soul in the human body tends towards some parts of the body rather than to others. Thus fire will tend upwards, towards its own sphere in which it has more virtue and essence, while earth will tend downwards, and so on for the other elements. Each element has a tension of movement towards its own sphere, in other

⁴¹ The *elementata* are the compound substances, living beings. On this concept see M. PEREIRA, «Le opere mediche di Lullo in rapporto con la sua filosofia naturale e con la medicina del XIII secolo», *EL*, 23, 1979, pp. 5—35, especially p. 25.

⁴² Here we cannot discuss Llull's place in the 13th century philosophical debate on the distinction, or identical relationship, between the essence and potentiality of matter. We shall only note that, in this primary context of the *Liber chaos*, potentiality in relation to the elemental prime matter seems to coincide with it, and not with the whole of chaos, namely to prime matter and the substantial and accidental forms and the *semina causalia* taken as a whole. These latter are guided by the action of the *agens naturale*, within the flow of the vital essence from chaos to the substances in the process of generation, and are characterized by a potential aspect in relation to the specific forms.

⁴³ *LC*, *De Quatuor Elementis*, p. 2.

words a quality of moving towards its own specific place. Furthermore, each element aims to reach its own state of simplicity or purity, seeking to detach itself from the state of confused admixture in which all elements find themselves in the cosmos. However, if the elements could achieve their state of simplicity, there would not be generation and corruption, in other words mixture between the elements, because each would already be perfect in and of itself. There would not even be a natural operation within *chaos*, and there would be no movement;⁴⁴ everything would be immobile, being already perfect.

Here an observation is necessary: the cosmos is characterized by a continual dynamism that is an expression of the tension which its parts, the four elements, have towards their own state of perfection. However, the dynamism in God is not the expression of a state of imperfection. God is perfect in his intrinsic dynamism, and expresses his utmost goodness and wisdom in the extrinsic act of creation, but without his essence being diminished or undermined in any way.

Llull goes on to describe the properties of the four elements, their lightness and their heaviness, their speed and slowness, which are actually found to be relative qualities, not absolute qualities. Indeed, the lightness and heaviness of an element are defined in relation to the lightness and heaviness of another element; thus, for example, air is heavier and slower than fire, but lighter and faster than water. On the basis of their lightness and heaviness, or slowness and speed, Llull assigns each of the four elements a number of characteristics present in them at the primordial level:

ignis: dispersivus et dispersibilis
aqua: restrictiva et restringibilis
aer: impletivus, ideo repletivus
terra: evacuabilis

The ability of fire to spread, the ability of water to be compressed, the ability of air to fill, and the ability of earth to be emptied out seem fairly vital for ensuring that the process of mixture can take place at the level of simple elements, within the discourse of the rising or descending movement of the spheres.

The four essences of *chaos*, namely the four simple elements, in their primordial state, are complex supposites (*supposita complexa*) because they are made up of their form and their matter, which are substantial and active, but they are not bodies.⁴⁵ However, they are of a *bodily nature* (*natura corporea*) such that, when they are mixed

⁴⁴ LC, *De Corporeitate et Corpore Chaos*, p. 4.

⁴⁵ If they were such in chaos, there would be mixed bodies, one inside another, in the same place and in the same essence (*numerus*), and this is impossible.

together, they prove to be a single body, namely *chaos*, the round body mentioned above. By contrast, when mixed and digested (*mixtae et digestae*), they make up a body within the *elementata*, namely actual, physical creatures (man, a donkey, a tree etc). In these, the four elements certainly preserve their essence (their -ivus, -bile, -are, and -atum), and are mixed together among themselves. However, the four elements that are present in the elemented substance do not seem to be the four simple cosmic elements that make up *chaos*:

«et quoniam ille ignis, qui in esse Chaos est ignificativus ignificabilis etc. diversus et distinctus est ab illo igne, qui de Chaos in elementata influxus est, ideo non potest influxus nec influens permanere corpus simplex, et quod de igne intelligimus, hoc idem sequitur de caeteris elementis».⁴⁶

Present in the elemented substance, which is generated from the mixing together of the four simple elements, are the four concrete elements that somehow are the bearers of the presence of the simple elements, namely the four elemental potentialities. We shall analyse this “somehow” in the paragraphs below.

In the *elementata*, the four elements exist in different quantities of substance, such that the *elementatum* itself may exist. If in stone, for example, fire had the same quantity of matter as the other elements, it would transform the latter into fire and burn everything, including the adjacent bodies.⁴⁷ Clearly, Llull is talking here about the four concrete elements. Indeed, the right quantitative proportion of the elemental mixture allows the existence of concrete substance. In the *Liber exponens figuram elementalem*, written in the same years as the *Lectura super figuras artis demonstrativae seu Liber chaos*, Llull specifies that the four elements always become mixed in accordance with a *quantitas debita et proportionata*, and thus according to a ratio of proportionality that ensures the continual *circulatio* of the elements, and their continual operational activity.⁴⁸

Llull insists a great deal on the impossibility of the existence of the elements in their state of simple perfection. The elements, while tending towards their simplicity, nevertheless only exist in a mixed state, both in *chaos* and in the *elementata*; as stated above, there would not otherwise be such things as generation or corruption, in other words the cycle of life, and thus there would not be *mixtio*, *digestio* and *compositio*. Moreover, the elements would not be receptive to the influences of the celestial bodies, because each would be perfect in its own sphere.

⁴⁶ *LC, De Corporeitate et Corpore Chaos*, p. 3.

⁴⁷ *Ibidem*, pp. 3-4.

⁴⁸ RAIMUNDUS LULLUS, *Liber exponens figuram elementalem*, *MOG IV*, pp. 1—10 = Int. 1., p. 3. About the elemental figure and its meaning, see Y. DAMBERGS, «Elemental Figure Symmetry», *SL*, 40, 2000, pp. 81-110.

4.1 The three degrees of chaos

After defining *chaos* in its essence and in its existence, Llull analytically describes the three degrees of *chaos*. These fundamentally structure the formation of the creatures from prime matter and prime form, and thus the formation of concrete substances, from *chaos*.

The first degree of *chaos* is a certain being (*quoddam esse*) as an aggregate of the four elemental essences (*igneitas, aereitas, aqueitas, terreitas*). In this state of being, there are also the *semina causalia*, the five predicables, universal form, and prime matter. There are the substantial and accidental natural forms, and also majority, equality and minority, beginning, middle and end. These last six are the first two of the three triads of the relative principles of Lullian figure T. Llull does not name the triad consisting in difference, concordance and contrariety. Indeed, difference is named among the five predicables. Concordance and contrariety regulate relations between the four elements in the processes of *mixtio*; in actual fact, the author has already spoken of these when he explains the state of elemental mixture. Llull states that, in this first degree of *chaos*, God has created everything that is natural in the physical body in a potential way (*per modum potentialem*). He also adds three other ways: *modum habituaalem, dispositivum, appetibilem*; all adjectives that refer to the characteristic of the first degree of *chaos* that is predisposed to, and prepares itself for, the process of generation towards the two other degrees. Thus, in its first degree, *chaos* has within it everything that is sufficient for the generation and corruption of the species; the natural agent acts from the first degree of *chaos* without needing anything else existing outside of it.⁴⁹ The natural agent, using everything that is present in the first degree of *chaos*, thus operates within the flow from the first degree to the third, via the second degree for the generation of substances, concerning itself with their specifications.⁵⁰

In the second degree of *chaos* there occurs the generation of the first individuals of the species that acquire a specific being (*esse specificum*); this creation is called production in the specific being (*productio in esse specificum*). The first degree of *chaos* infuses (*influit*) in the second degree everything that it has in a potential state, namely everything that Llull earlier described as natural in the physical body, such that the potential forms proceed into act in the second degree (*formae potentiales productae essent in actu*).

The third degree of *chaos* is the first succession from the first creatures of every species of the second degree; thus, the third degree sees the second man, the second lion, the second tree, and so on. Subsequently, the fourth degree will arise from the third,

⁴⁹ LC, *De tribus Gradibus Chaos*, p. 4.

⁵⁰ *Ibidem*, *De Universali et Particulari Chaos*, p. 18: «Chaos materiam universalem influit in arborem, agens verò naturale illam materiam influxam recipit in arborem distinguendo, scilicet in ramos, in folia et fructus et specificando isto modo illud universale, scilicet materia praedicta fit particulare in tertio gradu Chaos».

and then the fifth degree, namely the succession that generates the individuals of every species. The virtue of the first degree of *chaos* arrives to the third degree not in a direct way, but via the second degree, called by the author *medium per quod primus se in tertium influit*. Indeed, the second degree transmits to the third degree its substantial resemblance, namely its impressions; the third degree is like wax that receives the forms of the letters of a seal.⁵¹ Thus, the first degree makes use of the second in order to infuse its influence in the third. Following Llull's argument, one may state that the potential forms of the first degree of *chaos* go into action in the second degree, and transmit their substantial resemblance to the third degree; it is as if between the second and the third degree of *chaos* there were a greater distance than between the first and the second, as if the flow suffered a weakening. Finally, while the first degree is composed of universal form and matter, the particular forms and substances descend (*descendant*) from them, and are transmitted to all the other subsequent degrees.

Before addressing and exploring some other aspects of the generation of concrete substance, Llull discusses **motion in chaos**. First, it is said that motion is successive, as are the degrees of *chaos* one after the other, or as individuals are in their generation. The generation of substance does not take place instantaneously, but successively, in other words, to use Llull's own vocabulary, in a gradual way. What seems to be instantaneous is the creation of *chaos* in the first degree, and thus of prime matter with substantial forms, accidental forms and the *semina causalia*. The process that generates specific substance begins from a stage of absolute confused simplicity of formal and material potentialities, and develops into the concretization of each specific material substance of every kind, by means of a gradual succession of natural phenomena. This formulation seems to echo **Bacon's theory of generation**, devised by the Franciscan intellectual as a succession of intermediate moments, in which the arrangement of matter plays a fundamental role.⁵²

The first **motion is the motion of the elemental essences that produce chaos; initially** it was stated, indeed, that the four simple elements possess in themselves a *qualitas movendi ad suum locum specificum*. The second motion, which follows the first, involves the infusion of the primordial elements in the first animated beings. It is God himself who dictates the rule and direction of this infusion.⁵³ The third motion, the

⁵¹ *Ibidem*, p. 5: «Secundus gradus fuit medium, per quod primus se in tertium influit [...]; in hunc siquidem gradum tertium transit virtus primi multiplicante secundo similitudinem suam substantialem in gradus successivos, sicut cera in se formas litterarum sigilli recipit, ita tertius gradus secundi recipit impressiones per influentiam primi».

⁵² A. MAIER, «Die Struktur», cit., here pp. 46-51. On the *materia naturalis* in Bacon, see also M. PEREIRA, «Remarks on *materia naturalis*», *Roger Bacon's Communia Naturalium. A 13th Century Philosopher's Workshop*, P. BERNARDINI, A. RODOLFI (eds.). Firenze: Sismel, 2014, pp. 103-38. Applying Bacon's scheme to Llull's doctrine, one could state that the *prima materia* of Llull's chaos corresponds, in Bacon's creation model, to the *materia naturalis*.

⁵³ *LC, De Motu Chaos*, p. 5: «et sicut ipse Deus influxit de Chaos elementa in prima animantia, ita dedit regulam et lineam influendi ipsa elementa de ipso Chaos in secunda et tertia etc.».

fourth, the fifth etc. proceed in step with the various degrees of *chaos* in which the generations of the individuals of the various species come one after the other. One deduces from Lull's discussion that there are three types of motion: an intense motion, an extended motion, and a local motion. The intense motion is the one which each element has within it in the declension of the correlatives. From this intense motion is generated extended motion in the natural *mixtum*; the extended motion is extrinsic to the elemental essences. Finally, local motion is generated from extended motion, and clearly relates to the concrete body that moves throughout all the dimensions.

As we saw above, the simple elements continually tend towards their state of simplicity within their state of mixture; they are thus in continual movement. In the elemental *mixtio* everything is in movement, both the forms of the elements and their matter, so that the processes of mixture, digestion and composition may occur. In this substantial natural motion of the initial *mixtio*, that produces substance, also moving are the accidental forms such as quantity and quality; thus also present within it is an accidental motion, namely the motion of the accidental forms that exist passively within this dynamic.

Every elemental essence, as well as containing within it its simple matter and its simple form (or substantial form), namely its correlatives — which, from the second degree of *chaos* onwards are given to substance — also has within it also the active and passive accidental forms. These are 1) the *forma quantificativa* and *quantificabilis*, 2) the *forma qualificativa* and *qualificabilis*, 3) the *forma relativa* and *relativabilis*, 4) the *forma activa* and *passificabilis*, 5) the *forma temporativa* and *temporificabilis*, 6) the *forma locativa* and *locificabilis*, 7) the *forma situativa* and *situificabilis* and 8) the *forma habitiativa* and *habitificabilis*. Excluding the category of substance, here Lull seems to be listing eight of the nine Aristotelian predicaments; in actual fact, he refers to the category of the *passio* within the pairing of *forma activa* and *passificabilis*. In this way, Aristotle's predicaments find a fundamental place within Lull's cosmological system, via a linguistic adaptation that reflects the philosophical thinking of the author, who always remains concentrated on the dynamic nature of being in its correlative structure.

These accidental forms are located within the *chaos* not separate from the four primordial elements, but within the elemental essences themselves, from which, in fact, they proceed (*procedunt*) as and when they are produced by the substantial forms themselves, namely by the four *-ivi*. Thus, for example, the ignificative, acting on the ignificable produces in itself the quantificative form and the motive form, etc. Accordingly, they are inherent in the primordial simple essences that will go on to produce the concrete elemental *mixtum*.

When the elemental essences become mixed among themselves, they create, within aggregate matter, a new form, that already existed potentially in matter (which, as we shall see later on, was sown by God in the first degree), and that is brought into act in

the second degree of *chaos*.⁵⁴ Here Llull is clearly referring to the *forma mixti* not just of the four concrete elements but also of each individual in every species. The author explores a question that was much-debated within Scholasticism, namely the constitution of the *mixtum*, and the ways in which the substantial and accidental forms become present and are generated in it.⁵⁵

The substance that is generated —Llull states— will have a different common form and a different common matter, and will be of a completely different species (*in specie totaliter aliena*) from that of the primordial elements, which, however, are present in it with their substantial form and matter. For Llull, substantial forms are present in the *mixtum* and the *suppositum*, that is generated, is found to be an aggregate body made up of the mixture of the four primordial elements, but not a mere union of four bodies. The substance that is generated will moreover have an active form and a passive matter that are present in it contemporaneously, and linked by a relationship of proportional equality (*proportionata aequalitas*). Compared to matter, form has a supremacy in substance, however by itself it cannot subsist within the *suppositum*, as in man, in whom the soul is greater than the body, whereas the two cannot subsist separately.

Thus, in the *suppositum* more than one form is present; there is the form of the four concrete elements, which make up the primary material substrate, so to speak, and the form of the *suppositum* as a *mixtum* of the elemental essences. Further on, where Llull discusses the action and passion of *chaos*, he voices this consideration:

«Duplex est passio scilicet universalis et particularis, universalis est, quando granum, quod corrumpitur, patitur sub forma propria et sub formis elementorum, quae ipsum corrumpunt. Particularis autem passio est, quando materia elementorum est patiens sub propria forma sua, quam appetit et e converso».⁵⁶

The author refers here to the concrete elements; indeed, it is due to the imbalance in their mixture that —as we shall see later on— the corruption of substance begins.

4.2 The mixture

On the one hand, *chaos* is found to be simple in its parts, on the other hand it is a *compositum* produced by the aggregation of the four primordial elements. Universal

⁵⁴ LC, *De forma et materia Chaos*, p. 6: «producit ignis in suam materiam unà cum aliis essentiis suam novam formam et materiam aggregatam, quae forma prius existens potentialiter in ipsa materia ad actum reducitur, prout tempus et numerus illius formae assuitati sunt et habitati in Chaos per modum generationis et corruptionis».

⁵⁵ A. MAIER, *Die Struktur*, cit.

⁵⁶ LC, *De Passione Chaos*, pp. 32-33.

form and matter, of which the *ens chaos* is composed, are in turn composed of countless simple forms and matters — namely the four -ivi, the four -bili, and the substantial and accidental natural forms discussed above. The form of the *mixtum* arises from the *mixtio* itself; it becomes actual by means of the process of mixture of the four primordial elements, whose essences remain somehow present within the concrete *suppositum*. However, the concrete *suppositum* has a new form and a new matter, evidently subjected to the processes of generation and corruption.

The composition in the first degree is different from the composition that will take place in the third degree of *chaos*. In the paragraph *De situ chaos*, Llull uses the image of rawness and indigestion of the mixture in its first degree:

«Hoc tamen differt, quia compositio primi gradus Chaos cruda est et indigesta, compositio verò tertii Chaos digesta propter frequentem introitum aliarum partium in alias, itaque elementa simplicia assuata sunt in primo et tertio Chaos, ut praedictum est, quia sunt in confusione in primo, sed dum influuntur in tertium, depurantur à confusione et simplicia ingrediuntur compositionem tertii, nam in unoquoque supposito est simplex forma et simplex materia cuiuslibet elementi, unde resultat una forma composita et una materia composita sub illa forma in esse alicujus suppositi».⁵⁷

Llull finds himself clarifying the question of the simple and the compound by delving into an explanation of the processes of mixture at the level of simple substances —the four primordial elements— and at the level of compounds, namely the *elementata*. He has to address the question of the mixture and/or composition of the accidental forms, and formulates his doctrine as follows: when the ignificative and the ignifiable in the simple element of fire enter into substantial composition (*substantialiter componuntur*), also enter in composition the accidental forms which it is the bearer of, and which find themselves in it in an intense way. Deriving from this composition are the accidental and compound forms that are extended in substances. In substance, which derives from the elemental *mixtio*, we find the four simple elements in their essence and correlative declension, and as bearers of the forms, not just substantial but also accidental. Also present in substance are the four compound elements —the perceivable fire, water, air and earth— that spring from the *mixtio* of the simple elements⁵⁸ and from their process of digestion. Thus, it seems that they come into being as the primary existing substance. The production of the *elementatum* takes place also thanks to the composition of the *semina causalia*, although Llull still does not make his doctrine clear on these, restricting himself to stating:

⁵⁷ *Ibidem*, *De Situ Chaos*, p. 38

⁵⁸ *Ibidem*, *De Simplicitate et Compositione Chaos*, p. 8. Llull defines in this passage the four simple elements as *partes integrales*.

«In primo gradu Chaos sunt semina causalia in simplicitate sua existentia, sicut genus, species etc., sed in secundo et tertio gradu componuntur, nam sine eorum compositione impossibile esset aliquod suppositum elementatum in esse produci».⁵⁹

What is added immediately afterward is that these *semina causalia* are of a cold constitution. If, in *chaos*, the elements were to find themselves in their state of simplicity, each in their own sphere, then fire would be capable of destroying these *semina causalia*, as well as the fact that a meeting between the elemental essences would be impossible, given that everything would be immobile.

The generation of the first degree of *chaos* is an incorruptible generation. Here Llull is referring to that stage of *chaos* in which the primordial elements find themselves in their state of simplicity together with the predicables, the predicaments, and the *semina causalia*. The state of simplicity is thus an incorruptible state. When the *mixtio* of the simple elements begins, which will produce the concrete *compositum*, it happens that in the hottest region of *chaos* the active form of fire, *ignificativum*, as well as having an activity within the simple element, generates within the other three elements its passive form, *ignificabile*. It thus has an external activity; as do the other elements in the regions of *chaos* that are suited to them. Water will produce *aqueificabile* within the other three elements in the cold region of *chaos*; air will produce *aerificabile* in the damp region, and earth will produce *terreificabile* in the dry region. In this process the elements, which take in the passive form of the other three elements, are corrupted internally, giving rise to a process of elemental mixture that leads to the generation of new forms. These new forms are transmitted and multiplied in all the degrees of *chaos* successively. It is the natural agent that makes the *semina causalia* flow from the first degree to the subsequent degrees, generating, via an instrument (*organum*), a specific form in the specific matter. By specific matter and specific form, what is clearly meant are the matter and form of the concrete substances, and thus the form and matter of the *mixta*. The *semina causalia* are present in the process of elemental *mixtio* — as are, come to that, the accidental and substantial forms; but, whereas the four simple elements take shape within this process as active and dynamic powers, the *semina causalia* do not seem to act independently, but require a natural agent that introduces them, or rather that makes them flow through all the degrees of *chaos* for the generation of the new forms in substance.

Llull's theory of the *semina causalia* harks back to the doctrine of the *rationes seminales* or *rationes causales*, that has its roots in Augustinian philosophy, and which saw subsequent developments with Bonaventura da Bagnoregio.⁶⁰ According to Llull, the

⁵⁹ *Ibidem*.

⁶⁰ See S. VANNI ROVIGHI, *San Bonaventura*. Milano, 1974, especially pp. 58-67.

degrees of *chaos* develop successively; what is instantaneous for Lull is the creation of the first degree of *chaos*, namely of prime matter, of the substantial and accidental forms, and of the *semina causalia*. Indeed, the predisposition of prime matter to take on forms, which Lull calls *propinquitias*, also comes close to the *habitudo* of matter of Albertus Magnus, within his doctrine of the *inchoatio formae*, the source for which is certainly, as stressed by Rodolfi, Augustine's doctrine of the *rationes seminales*.⁶¹

However, it does not seem out of place to underline that both Albertus Magnus and Bonaventura reject all theories of *chaos*, with the difference that Bonaventura argues in favour of the existence of a formless matter where Albertus claims, in his *Summa de creaturis*: «Prima enim forma substantialis quam recipit materia, forma elementi est».⁶² Indeed, Lull never refers to *informitas* in the case of matter, despite stressing its confused state in the first degree of *chaos*. For Lull, prime matter is the matter of elemental essences, and thus already with a determination of its own that in some way identifies it.⁶³

The generation of the accidental forms extended into substance occurs from the intense accidental forms already present in the four simple elements, and without corruption of substance (*haec autem generatio fit absque omni corruptione substantiae*). The specific common form and the specific common matter of the elemented substance constitute its essence. Although this derives from the form and from the matter of the elements, it is of a different number, and thus of a different essence from the essence of each element. The *forma mixti* in Lull is thus different from the substantial forms of the four elements which it derives from; it is a new form that existed nevertheless potentially in the first degree of *chaos*; it is also of a different species, although common to the four elements from which it derives.⁶⁴ The adjective 'common' does not refer to any participation between it and the four elements, but rather it seems that it is to be interpreted in the sense that it has something in common with each of the four forms and four matters from which it derives. The adjective 'specific' refers to the individual number of the *elementatum*.

⁶¹ A. RODOLFI, *Il concetto di materia nell'opera di Alberto Magno*, Corpus Philosophorum Medii Aevi. Testi e Studi, 18. Firenze, 2004, here especially p. 23. The term is found for the first time in Roberto Grossatesta; see also B. NARDI, *La dottrina d'Alberto Magno sull'«inchoatio formae»*, *Studi di filosofia medievale*, Roma 1960, pp. 69-101. Henricus Bate also refers to *propinquitias materiae* in *pars IV* of his *Speculum* (HENRICUS BATE, *Speculum divinatorum et quorundam naturalium. Pars IV-V: On the nature of Matter on the intellect as form of man*, edited by C. STEEL. Leuven, 1993), see A. MAIER, *Die Struktur*, cit., pp. 51-58. Roger Bacon also refers in his works to the *ratio seminalis* as an *appetitus* of matter, which contains within itself a principle of activity that is realized through the action of the natural agent: see M. PEREIRA, *Remarks*, cit. p. 133.

⁶² A. RODOLFI, *Il concetto*, cit., p. 164.

⁶³ On the subject of the *inchoatio* and the *rationes seminales*, see A. RODOLFI, «Forme incoate o potenza della materia? Olivi e le rationes seminales», *Vedere nell'ombra. Studi su natura, spiritualità e scienze operative offerti a Michela Pereira*, curated by C. PANTI AND N. POLLONI. Firenze: Sismel, 2018, pp. 193-205.

⁶⁴ LC, *De Generatione et Corruptione Chaos*, p. 9.

To go back to the *semina causalia*, they seem to be the potential seeds of the concrete seeds in action in all living species. When Llull talks about the succession of acts in generation, he writes: «Praeterea granum frumenti est primus actus, spica verò, quae de illo producitur, est secundus, et sic de aliis istis similibus in substantialibus rebus». ⁶⁵ For Llull, therefore, first comes the seed as the first act of every species, and then comes the shoot, as the single substance of that same species.

In the first degree of *chaos*, all forms find themselves created by God in a potential state, as, for example, the form of a vase in a mass of gold is potential. They are actualized as of the second degree of *chaos* in which they are brought into act, and specified. In the second degree, the forms are subsequently found, in a potential state, that become actualized in the third, according to the manner of generation and corruption, and so on, successively, for all the degrees of *chaos*. The form and matter of the first degree exist always actually and are the universal principles for everything that exists in the third. The third degree of chaos receives (*recipit*) the influences of the first degree that infuses in substances the new forms, and infuses them into their matter, such that they find themselves in a potential state in them. Thus the ear of wheat, in the third degree of *chaos*, will contain potential forms of subsequent ears in all the degrees of *chaos*. When the grain of wheat generates other grains, it corrupts its singular essence, namely its matter and its form. What remains, on the other hand, before producing another grain, is the specific essence of wheat with its accidental constitutive forms, and the matter and form of wheat, which, by the influence of the first degree of *chaos*, are able to grow and to generate many other grains. The *chaos* gives its substantial resemblance (*similitudo substantialis*) to the essence of wheat. Thus, in the generation of individuals of the same species, the essence of the species is not destroyed, what becomes corrupted is only the individual number. When, however, a substance moves from its specific state to another, then what becomes corrupted is also its specific essence. Like bread and oil, once ingested they turn into the species of flesh, and blood, thanks to their nutritive virtue. Llull distinguishes two types of generation; one that takes place within the same species, and in this the specific essence is preserved, and the other that is described as a full-scale transformation, in which the specific essence of the entity that changes is also corrupted.

Generation within one and the same species is called by Llull *trasmutatio*; a phenomenon that cannot take place at all in the first degree of *chaos*, but only in the third. When a grain of wheat generates another grain, it becomes corrupted, and its essence returns to the first degree, namely to the simple state of confusion of *chaos*. In order to generate another grain, this essence must bestow upon the grain that can be generated, and thus on the passive matter that has to receive the form, the resemblance of its form.

⁶⁵ *Ibidem*, *De Primo actu et Secundo Chaos*, p. 10.

This is possible thanks to the proximity of the forms to the parts of matter suited to that form; the form of the essence of wheat is «*propinquissima*» to the matter that has to become a grain of wheat, in other words to the wheat that is capable of being generated. Thus it will not be a different matter that is informed, but the one that is similar to the nature of its form. The same process also takes place in the generation of a man. The father does not give to his son the same identical number as himself, and thus his individuality, instead he gives his resemblance and species. Were this not the case, resurrection would not be possible; for each individual would not have an individuality of their own, they would have an individuality derived from that-which-generates. In the first degree of *chaos*, to which bodies will return after resurrection, the essence of the species already somehow identifies the matter suited to that specific individuation that, via the process of generation, takes concrete shape in the third degree of *chaos*.⁶⁶

In the coming together of two species, a third species may be born, in which the two essences become mixed and compounded, in order to give rise to a new essence; as in the case of the mule, that derives from a cross between a horse and a donkey. By contrast, in an artificial work no transmutation takes place from one form to another, and there is no corruption of the quantity of the matter. When someone makes a pot from another pot that got broken, there is the bestowal of a new artificial form, and thus a *trasmutatio*, but there is no transformation in the essence or in the quantity of matter (*numerus*).

The degrees of Chaos do not continue to come one after the other ad infinitum, instead there will certainly be an end.⁶⁷

To sum up a number of points put together thus far, Lull's doctrine distinguishes between a common or universal form and a common or universal matter, both belonging to the first degree of *chaos* and that constitute the existence of *chaos* itself, namely *chaos* as an entity. They can be ascribed to the four simple elements. Also, there is a common compound form and a common compound matter that make up compound substance (*suppositum compositum*) generated by the *mixtio* of the four elements with their four forms and their four matters. The compound substance will be of a species and of an essence that are different from those of the four elements, despite containing them somehow within themselves. When Lull says that the *chaos* is universal, he

⁶⁶ *LC, De universali Trasmutatione formae et materiae Chaos*, p 12: «Et sic manifestum est patrem non generare genitum de illa essentia, per quam ipse pater est homo, sed de illa essentia, quae de primo gradu Chaos influxa convertitur in essentiam humani corporis, induens similitudinem et speciem ejus, itaque pater generans dat mediante primo gradu suam similitudinem et speciem suo filio non autem illum numerum identicum, per quem ipse pater est homo, scilicet suam individuum et specificam formam et materiam, aliter nullus propriam essentiam specificam haberet, resurrectio etiam nihil esset, nec primus gradus Chaos individuas essentias influeret in tertium, neque illas formas et materias individuas conservaret, quas resurgentes in die novissimo resumere debent».

⁶⁷ *Ibidem, De Operatione intrinseca et extrinseca Chaos*, p. 13.

means in the sense of ‘common’ to all the beings that derive from it and are of an elemental nature:

«De igneitate, aëreitate, aqueitate, terreitate productum est Chaos in universalitate, quod est ens universale seu commune, unde nominando universale intendimus commune nominare omnibus, quaecumque sunt in elementalī natura. [...] patet ergo manifestè universale esse per se principium praeter particularia existens, non tamen intendimus dicere, quòd universale sit aliquid, quod in se non sit particulare, sed dicimus esse universale, hoc est commune respectu eorum, quae ex eo fiunt seu possunt fieri, quòd, si in rerum natura non esset principium, nisi solùm in particularibus tertii gradus Chaos totus primus gradus Chaos in tertium converteretur, quod est impossibile».⁶⁸

‘Universal’ is meant, in the physical world, compared to something else, as the four concrete elements are universal compared to the natures that approximate to them; namely as water is universal to every liquid element, and the earth to every solid element etc.⁶⁹

The accidents are generated and produced within the same substance by the intense accidental forms of the matter and the form of which it is composed; they are a founding part of the substance which, without them, cannot have a beginning. Llull himself admits that knowledge of the accidents is difficult («*Et ideo difficilis est notitia ipsorum accidentium*»), given that the real operation of the visible characteristics of the accidents, which takes place within the substance, operates secretly. Indeed, man’s powers of sense are not able to perfectly perceive this operation, whose dynamics derive from events outside the substance itself.⁷⁰

Later on he distinguishes between the intrinsic and extrinsic accidents. The intrinsic accidents are the ones closest to the essence of the substance, and for this reason they are more hidden to knowledge by the intellect, while the extrinsic ones are further away from the essence of the substance, and acquired by the subject for external actions, and thus more visible *ad extra*.⁷¹

We have already stated that when a grain of wheat generates another grain, the first is destroyed together with its specific number. What remains is the form of the wheat which, returning to a primordial state —namely the first degree of *chaos*— acts on the passive primordial matter that is closest, to inform it and give origin to a new grain, which will have its own specific number that is different from the first. The question

⁶⁸ *Ibidem*, *De Universali*, p. 18.

⁶⁹ *Ibidem*.

⁷⁰ *LC*, *De Operatione*, cit., p. 13.

⁷¹ *Ibidem*, *De Accidente Chaos*, p. 25: «Quantò plus est accidens intrinsecum, tantò plus est propinquum essentiae substantiae, et quantò plus est extrinsecum, tantò magis est distans ab essentia substantiae, idcirco accidentia interioritatis substantiae valde sunt secreta nobis et invisibilia, sunt autem apparentia nobis extra substantiam [...]».

is: How does the form of wheat appear in the first degree of *chaos*? A partial answer that may be put forward for now is that the forms of the species are those very *semina causalia* that the natural agent can influence in the second degree of *chaos*, but within the dynamism of the simple elemental *mixtio* without which there cannot be activity, and thus generation and corruption. Lull talks about precisely the individuation of the substance which, thanks to the operation of the natural agent, which, as stated above, deals with specifications, takes place as of the second degree of *chaos*:

«Chaos in primo suo gradu est una substantia confusa, quae in principio creata fuit, in secundo autem gradu per creationem specificata fuit et individuata essentia ipsius universalis substantiae in plures substantias, ut per generationem in tertio specificaretur et individuaretur in substantias infinitas, simili modo intelligendum est de individuatione accidentium».⁷²

The individuation appears as the specification of the substance, in other words its concrete realization in the acquisition of a form that becomes joined with the matter closest to it. The individuation takes place thanks to the action of the natural agent that operates by means of the *semina causalia* within the physical world, without the need for external forces, but operating according to the divine plan already present, at the metaphysical level, in the ideas of God.

4.3 The *mixtio* and the *semina causalia*

There are four kinds of *mixtio*. The first two species are to be ascribed to the first and second degrees of *chaos*. Indeed, the first *mixtio* relates to the elemental essences that are found in the *chaos* still in a confused way. The second relates to the same the simple elements that start to become mixed, giving origin to the four concrete elements. By contrast, the third *mixtio* relates to the four primordial concrete elements, fire, air, water and earth, that we perceive. The fourth *mixtio* relates to the mixture of the concrete elements in compound substances: plants, animals, metals, and man. All the processes of *mixtio* derive from the first, or rather are influenced by it (and thus by the first degree of *chaos*). Indeed, from the first mixture all the others receive being and virtue (*esse et virtus*); the four levels of *mixtio* are configured as a whole, in which the last three *mixtiones* are the parts that constitute the whole, and the first species as the whole that is found in all its parts.⁷³ The first two *mixtiones* are invisible and intangible,

⁷² *Ibidem*, *De decem Praedicamentis et primò de Substantia Chaos*, p. 27.

⁷³ *LC*, *De mixtione et virtute Chaos*, p. 14: «De prima siquidem mixtionis specie influuntur caeterae tres species, et in ipsa sunt et ex ipsa esse recipiunt et virtutem, omnes quidem in ipsa sunt, sicut partes in suo toto, et ipsa in omnibus, sicut totum in partibus suis».

but only the first attains its maximum virtue by which all the essences are found in the others equally (and thus without remissio. Indeed, Llull earlier defined the simple elements in the simple *mixtio* as *partes integrales*, namely whole, that do not undergo any kind of quantitative change). In this stage, *chaos* is a confused body which contains *quicquid elementatum est*. Indeed, from the second species of *mixtio* on, the elements come together according to a criterion that could be called one of quantity—indeed Llull says *secundum magis et minus*—whereby the various entities start to be distinguished, until they get to the third and the fourth species, in which sea, for example, is distinguished, which, despite being a compound, contains more water than the other elements. Evidently the first two degrees of *chaos* correspond to the first two species of mixture; while the two other species both occur already in the third degree.

The Lullian theory of the *mixtio* of the four concrete elements is well-known;⁷⁴ what we want to underline here, and what Llull himself highlights, is that in the *mixtio* the four elements are not the only things that are mixed together; also mixed together are their forms and their matters, namely those that, in compound substance, constitute the common form and the common matter. Thus they are continually mixed together (*commiscentur*), along with the accidents too, such that substance is configured both as an elemental *mixtum* and a *compositum* of form and matter. Also found in it are the accidental forms, that in substance are found in extended form: this leads to the *suppositum elementatum*.⁷⁵ In the *suppositum elementatum* the *mixtio* is continuous, indeed the nature of form is to act, the nature of matter is to undergo; both are in substance in continuous movement, and the elemental parts are in continuous mixture producing their virtue in compounds. Every part of the *elementatum* produces in it its own virtue; however, each of these is mixed with the other, giving rise to just one virtue of substance, whose characteristics (*quanta* and *qualis*) derive from the quantity of parts and from their digestion. The same holds true for all the other accidents.

The digestion of the parts in their quantitative and qualitative relationships does not take place randomly, but according to a plan preordained by God. Indeed, God has sown (*seminavit*) all the species in the first degree of *chaos*, arranging the forms and matters of species in a potential state. The first degree of chaos is arranged and preordained by the Creator himself, and will follow the divine plan in all its subsequent developments. The second degree will, in turn, undergo the influence of the first and, in its accidental specifications as in the quantitative and qualitative specifications, will follow this divine order, too.⁷⁶ By using the verb *seminare*, Llull certainly means the presence of the *semina causalia*; about their nature he speaks in a special paragraph.

⁷⁴ J. GAYÀ ESTELRICH, «Introducción general», *ROL* XX, pp. 1-62.

⁷⁵ *LC*, *De mixtione*, p. 14.

⁷⁶ *Ibidem*, p. 15.

The *semina causalia* —it is stated at the start of the treatise— constitute, together with the four simple elements, the five predicables and the ten predicaments, *chaos* itself. We have seen that the accidental forms, namely the nine predicaments, are contained within the universal form and matter. The *semina causalia* are also present in the first degree of *chaos* in a confused manner, sown by God at the beginning of creation, but managed by the natural agent in their function as a link between matter and form. These *semina* are the means whereby the four simple elements in the *mixtio* get ready to generate one species rather than another; they are thus the means whereby the elements tend towards generation and corruption.

«Omne creatum majorem habet naturaliter appetitum ad Deum, quàm ad aliud. Licèt autem elementa intellectu careant, tamen Deum appetunt, appetendo illam regulam, quam Deus dedit eis influendo sémet ipsum per secundum gradum et tertium Chaos, idcirco habent in se ipsis semina specierum, ex quibus oritur appetitus elementorum, priusquam intrent compositionem in speciebus, aliter elementa non haberent magis appetitum ad finem, quàm ad principium, nec finalis intentio priùs esset in natura, quàm in principio secundario, quod est impossibile». ⁷⁷

They constitute the inclinations of the form and matter of the species; they are the seeds of the species present in *chaos* before the simple elements enter composition between themselves. To make the concept clear, Lull uses the image of a field that is sown with wheat. That piece of land already has, in itself, the ability or inclination to assume that particular specific form of wheat that is sown on it. The ground is predisposed, and predisposes itself, to those forms in that process of generation. *Chaos* is like a field that is still confused; in it there are the *semina causalia*, thanks to which the grains of wheat, namely the seeds of the species, can multiply their form and their matter to generate the individual. The ear that is born from the single grain of wheat, and which potentially exists in every part of it, contains more form and matter than that grain from which it is generated; that potential existence must somehow be brought into act, and be capable of increasing in its form and in its matter. The first degree of *chaos*, the field, must then infuse its matter and its form so that the seed of the species, the grain of wheat, may multiply, and generate substance, the ear of wheat.

«In grano frumenti est spica in potentia, ipsa potentia in qualibet parte ipsius grani seminata, et quoniam spicam oportet habere plus in se de forma et materia, quàm illud granum, in quo est in potentia, oportet, quòd Chaos habeat in se semen causale, in quo sit appetitus multiplicationis speciei mediante grano frumenti ipso Chaos influente de sua forma et materia tantum de forma et tantum de materia per granum frumenti, donec spica formaliter et materialiter habeat suam perfectionem, et istud idem similiter sequitur

⁷⁷ LC, *De Appetitu et seminibus Causalibus Chaos*, p. 16.

de omnibus animantibus generatis. In agro, ubi frumentum seminatum est, sunt semina causalia apta intrare sub plures formas specificas sicut sub forma frumenti, hordei, avenae, lolii etc si in agro illo seminarentur. Vnde videtur apertissimè semina causalia esse confusè in agro illo, quae appetunt esse distincta producentia grana frumenti et caetera grana, ut Chaos per illa grana influat partes, quas habet sub materia confusa».⁷⁸

The image is clear: interpreting it, and going a little further, one may say that as earth influences the plant that grows in it, so *chaos* in the first degree influences the processes of generation of substance as far as the third degree, and beyond. Llull concludes the metaphor with a consideration: fruits and leaves proceed from the buds of the plant that have gathered within themselves the essence that earlier on was confused in the lower part of the tree. The essence reaches the leaves and fruit via a process of transmutation whereby it takes on specific forms. Finally, the upper part of the tree cannot take in and realize everything that exists potentially in the confused essence of seeds, and the same occurs at the cosmic level: the universal potentials sown in the first degree of *chaos* are reduced into act in the other degrees of *chaos*, but not all of them.⁷⁹

In the *Liber chaos*, Llull never refers explicitly to the *inchoatio formae*. The expression *semina causalia* certainly harks back to a something that is the embryonic cause of something else. A cause which, following the discussion in the essay, lies halfway between a material cause and a formal cause, it is a specific aptitude ready to take concrete shape thanks to the action of the natural agent. In the *Declaratio Raimundi* (1298), Llull would later explicitly use the term *inchoatio* in the dialogue between Socrates and Ramon regarding the relationship between matter and form,⁸⁰ referring back to his work *Arbor scientiae* (1295-1296),⁸¹ in which the author discusses several issues of natural philosophy in depth.

4.4 The elemental mixtio and the intensio and remissio of the substantial forms

We have seen that, for Llull, material substance springs from the four simple elements. From the primary simple elemental *mixtio* the four concrete compound ele-

⁷⁸ *Ibidem*.

⁷⁹ *LC, De appetitu*, cit., p. 16.

⁸⁰ RAIMUNDUS LULLUS, *Declaratio Raimundi, per modum dialogi edita contra aliquorum philosophorum et eorum sequacium opiniones*, ed. T. PINDL-BÜCHEL, *ROL* XVII (1989), p. 387: «Ait Socrates, quod intelligentia, cum sit plena formis, imprimit illas formas in materia per corpora caelestia tamquam per instrumenta. Ait Raimundus: Quia tu, Socrates, credis, quod prima materia sit pura potentia ad omnes formas, quae non sunt de essentia primae materiae, cum magna distantia sit inter formam et materiam secundum genus, consideras positionem praedictam, quam facis, ut intelligere possis, ex quo formae ueniunt. Sed si tu scires hoc, quod dico in Arbore scientiae de arbore elementalī, praedictam positionem non faceres, et de inchoatione formarum ueram certitudinem haberes. [...]».

⁸¹ IDEM, *Arbor scientiae*, ed. P. VILLALBA, *ROL* XXIV-XXVI (2000), 188* + 1434 pp.

ments are generated, namely fire, air, water and earth, which constitute, so to speak, the material substrate of every living being, from metals to animate beings. The author necessarily dwells on the workings of the mixture of the concrete elements within the *elementatum*, namely the fourth type of *mixtio* already listed above.⁸²

In previous works, too, such as the *Liber principiorum medicinae* (1274-1283)⁸³ and the *Liber principiorum philosophiae* (1274-1283),⁸⁴ Llull had already stated that the degrees of elements are four in number; in the *Liber chaos* he specifies that this gradation was established by God himself.⁸⁵

In general, the *mixtio elementorum* occurs in line with the principles of concordance and contrariety, according to which the essential or proper qualities and the appropriated qualities, namely those acquired by accident, of the four elements are contrary and concordant: the heat of fire is contrary to the coldness of water, the dampness of the air is contrary to the dryness of the earth; whereas fire is dry *per accidens*, air is hot, water damp and the earth dry. In the mixture, fire will tend to join with earth, earth with water, water with air, and air with fire; this is the circular motion of the four elements. Llull uses the example of a plant called hot in the fourth degree of heat: a plant at the fourth degree of heat contains dryness in the third degree, dampness in the second degree, and coldness in the first degree. Thus the degree expresses the intensity of the quality in which each of the elements is present in the substance.

In order to express the quantity of the four elemental degrees present in the substance, Llull uses the concept of 'point', such that the degree appears to be the unit of measurement of the intensity, while the point is the corporeal and incorporeal corresponding term⁸⁶ with which the degree is quantified.⁸⁷ The author explains that, at the fourth degree of heat, a plant contains twelve points, of which six are of fire, three of earth, two of air and one of water. These are the compound points of concrete elements. Simple elements, namely the four elemental potentialities of *chaos*, are present in the substance in the form of simple points. For, in a plant at the fourth degree of heat, fire possesses a seventh simple point, earth has a fourth simple point, air a third simple point and water a second simple point. A simple point is the one that guides and governs (*regens*) compound points, such that the seventh point of heat dominates the six hot compound points, and so on for the other elements.

⁸² I have already discussed this question elsewhere, C. COMPAGNO, «Einleitung», *ROL* XXXIV, pp. 153-182. Here a synthesis of the main issues is necessary to formulate a number of philosophical considerations.

⁸³ RAIMUNDUS LULLUS, *Liber principiorum medicinae*, ed. M. A. SÁNCHEZ MANZANO, *ROL* XXXI, pp. 413-560.

⁸⁴ IDEM, *Liber principiorum philosophiae*, ed. M. A. SÁNCHEZ MANZANO, *ROL* XXXI, pp. 155-322.

⁸⁵ *LC, De Quatuor gradibus Elementorum Chaos*, p. 17.

⁸⁶ The concept of point in Llull, the difference between simple points and compound points and the corporeal and incorporeal nature of points, are questions already discussed in C. COMPAGNO, *Einleitung*, cit.

⁸⁷ *LC, De Quatuor*, cit., p. 17.

Every elemental essence within a substance is present with a single simple point independently of the quantity of the compound points; one could say that they are present in the substance intangibly, and as integral, or indivisible, parts. Llull himself had defined the simple elements in the compound as integral parts (*partes integrales*).⁸⁸

What may be quantified and proportioned relates to the concrete and compound material substrate, namely the four concrete elements. Llull does not quantify the potentiality of the elemental essences because they are equal and proportionate right from the first degree of *chaos*. What is corruptible is concrete bodily substance. The simple elements are in the subject in accordance with both potentiality (*virtualiter*) and essence (*essentialiter*).⁸⁹ As potentialities, they thus remain unchanged within the subject. In a plant at the third degree of heat, which contains dryness in the second degree, dampness in the first and cold at less than one degree of intensity (namely $\frac{3}{4}$ of a point), the simple element of water is nevertheless present with a whole simple point.

Llull seems to come close here to Avicenna's theory of elemental substantial forms present in the *mixtum*. Indeed, according to Maier, Avicenna interprets the presence of elemental substantial forms in the *mixtum* as unidentifiable potentialities with their primary qualities (understood, in Lullian fashion, as the proper and appropriated qualities) but with their essential nature. In Avicenna the variation of the intensity of the qualities, in other words their *remissio* or *intensio*, does not have consequences on the elemental substantial forms; and it is precisely this that appears in Llull's doctrine, although only at this degree of *chaos*, namely from the third onwards. By contrast, according to Thomas d'Aquinas, the elemental forms remain in the mixture only *virtualiter* and not *essentialiter*; Thomist theories in this regard are thus certainly a long way away from the Majorcan thinker.

Llull's doctrine of elemental gradation raises questions of a certain philosophical importance. Indeed, if the primordial elemental essences are not corruptible, what relationship do they have with the other incorruptible essences? They were created out of nothing by God, and so they are creatures, but they do not undergo the processes of generation and corruption. Llull says that the simple elements exist in the subject *virtualiter* and *essentialiter*; in all natural compound substances there thus remains *essentialiter* something incorruptible which is that which starts the vital activity of a substance, influencing it continually (*influere*). As God exerts a continual influence over the creatures, at the physical level substances undergo the influence of the incorruptible nature of the first degree of *chaos*.

⁸⁸ *Ibidem*, *De Simplicitate et Compositione Chaos*, p. 8.

⁸⁹ *Ibidem*, *De Quatuor*, cit., pp. 2-3.

Charles Lohr⁹⁰ analyses the theory of qualities drawn up by Llull in his *Logica nova*⁹¹ (1303), showing that it is clearly connected to the Scholastic debate over the *latitudo formarum* or intensity of the qualities. Lohr explains that it was Duns Scotus (1265/66-1308) who introduced explicitly the concept of increase or decrease of the degree of intensity of a quality or a virtue, as for example heat or charity,⁹² and thus of the accidental forms. Later, Nicola Oresme (1323-1382) placed the question in its context, and defined it in detail, in specific treatises. We have found the topic of the ‘quantification’ of charity in Llull too, in particular in the paragraph *Utrum Charitas augeatur per Additione Novae Charitatis?* which is developed in the *Disputatio eremitaie et Raimundi*.

Lohr himself highlights that the difference in Llull between proper quality and appropriated quality comes close to Scotus’ difference between *quantitas virtutis* and *quantitas extensa*. Proper quality is a quality that has a movement within its subject, in other words its action is proper and necessary to the subject itself, and possesses an *actio propria*. By contrast, appropriated quality has a movement that is external to the subject, and contingent. Appropriated quality remains subordinate to the proper quality of the subject in which it arises, and has an *actio appropriata*. Proper quality is the quality that is inseparable from the entity, while appropriated quality is separable (such as heat from water). Proper quality (the heat of fire), in Llull, is continuous and instantaneous (ie intense) in its subject, while appropriated quality (the dryness of fire) is diffused by *discretas quantitates* in the subject which it enters. This is clearly stated in the *Logica nova*.⁹³ In this work, Llull also goes into detail in defining quantity. Quantity, which is an accident, has two kinds, one continuous and one discrete. Continuous quantity applies to the action of a quality within the same kind as the subject. By contrast, discrete quantity applies to appropriated quality that enters some subjects, and remains subordinate to a different species from that of its own subject. Lohr concludes by explaining that it is proper qualities that have a continuous quantity, while appropriated qualities have, within the subject, a discrete quantity. He sees in continuous quantity the «quantity whose intensitas the fourteenth century Scholastics sought to measure».⁹⁴

Here we will add that the theory of points, which serves the purposes of the theory of the elemental *mixtio*, had already been formulated by Llull, apparently in the same way,

⁹⁰ C. LOHR, «Ramon Lull’s Theory of the Quantification of Qualities», *Constantes y fragmentos del pensamiento luliano, Actas del simposio sobre Ramon Llull en Trujillo, 17-20 septiembre 1994*, Ed. F. DOMÍNGUEZ and J. DE SALAS, Sonderdruck aus Beiheft zur Iberoromania N° 12. Tübingen, 1996, pp. 9-17.

⁹¹ RAIMUNDUS LULLUS, *Logica noua*, ed. W. EULER, *ROL* XXIII (1998), pp. 1-179.

⁹² IDEM, *Disputatio eremitaie et Raimundi super aliquibus dubiis quaestionibus Sententiarum Magistri Petri Lombardi*, *MOG* IV, Int. iv (225-346), pp. 20-21.

⁹³ C. LOHR, «Ramon Lull’s Theory», cit., p. 16.

⁹⁴ *Ibidem*.

actually, with far more surprising repercussions, in the *Liber principiorum medicinae*. The author speaks of the generation of a plant in the fourth degree of heat not from another substance of the same species, but as the ‘first’ plant in the fourth degree of heat.

«In principio enim generationis ipsius E gradus quartus ipsius A generat unum simplex punctum, quod namque punctum descendit ad terram causa recipiendi punctum unum ex B; propter quam receptionem partitur punctum generatum in sex partes, quarum tres ipsi B existunt subiectae, propter quod B in tres gradus partitur. Duas uero partes puncti generati dat quartus gradus ipsius A materiae ipsius C; et ideo C est ibi in gradu secundo. Sextam uero partem dat A existens in gradu quarto materiae subiectae ipsi D; et ideo D non est in ipso E, nisi in gradu primo».⁹⁵

In this passage, Lull seems indeed to formulate a *remissio* of the elemental substantial forms that give rise to the generation, as of the second degree of *chaos*. For in the first cosmic degree, as the author repeats several times, the elemental essences exist in a state of simple confusion *aequaliter*, without distinctions of any kind, except for the distinction of their essential nature. In the second degree, on the other hand, they begin to form relationships *secundum magis et minus*, as already seen in the paragraph on the various kinds of *mixtio* in the *Liber chaos*, and as described in the passage quoted above. However, from the third degree of *chaos* the elemental forms are present in the *mixtio* with their *puncti simplices*. These, as stated earlier, do not increase and do not diminish despite the variation of quantity (or intensity) of the compound points of the corresponding elemental essence. An incorruptible principle is potentially retained in the substance, the principle of the first degree of *chaos*, to which all living beings will return after the resurrection. Lull admits a *remissio* of the elemental substantial forms, as formulated by the exponents of the Averroist position on the question, but only at the second level of *chaos*, in the generation of the first material substance of every species, or, as one might say, of the first individuals. At the cosmic level, in God’s first act of creation, the four elements, in potential form, exist in their simplest and most incorruptible state although they are already mixed together, and have their own internal activity structured by the correlative declension of the essence in both its formal and material aspect.

5. Conclusions

The observation and contemplation of nature are seen to be fundamental to Lull’s speculation. Accordingly, a detailed critical interpretation of some of the passages in *Lectura super figuras artis demonstrativae sive Liber chaos* was “urgently” needed, also in

⁹⁵ RAIMUNDUS LULLUS, *Liber principiorum medicinae*, cit., p. 516. The letters stand for the four elements: A = fire, B = earth, C = air, D = water.

response to the suggestion by Jordi Sidera i Casas that certain themes should be placed in the context of 13th century philosophical debates.⁹⁶ Alongside the question of the *intensio et remissio formarum*, already traced by Charles Lohr, and developed here from a number of viewpoints, there emerge from the analysis the themes of *individuatio* and *forma mixti* as points of profound reflection by Lull. The attention placed on the language of flow shows, furthermore, a Lull who is not just attentive to issues of natural philosophy, but who is also the user of a language that comes from one of the most commonly-found texts that were commented on in his day, namely the *Liber de causis*. Neoplatonism, to which Frances A. Yates has drawn attention on several occasions, thus appears as one of the vital contexts framing Lull's philosophy which — as it is always worthwhile to stress — is addressed both to a Christian public and to an Islamic and Jewish public. The language of flow, in particular, certainly evolves during the course of Lull's works, as does the doctrine of the *semina causalia*. In the works that came after the *Lectura*, Lull shows that he fully understands the difference between the *inductio* of Avicenna and the *eductio* of Albertus Magnus,⁹⁷ explicitly and consciously emphasizing certain lexical differences that have repercussions in philosophy: namely the difference between *transmittere* and *imprimere* the essence.⁹⁸ In a certain sense, Lull's *agens naturale* is thus positioned between the two models: it does not merely prepare matter to receive form, it also allows the *semina causalia* to flow into chaos, and not as a higher intelligence, like Avicenna's *dator formarum*, but as a natural *causa efficiens* that operates within the flow of sublunar chaos, a flow of matter and form.

Finally, the repetition of some concepts, in the course of the critical exegesis presented here, is also a consequence of Lull's philosophical style, which often refers to the same concepts again and again, in order, actually, to discuss them from differing but complementary points of view.

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⁹⁶ JORDI SIDERA I CASAS, «Origen i evolució del concepte de caos en Ramon Llull», *Actes de les Jornades Internacionals Lul·lianes. Ramon Llull al s. XXI. Palma, 1, 2 i 3 d'abril de 2004*, ed. M. I. RIPOLL PERELLÓ, Col·lecció Blaquerna 5. Palma / Barcelona: Universitat de les Illes Balears / Universitat de Barcelona, 2005, pp. 339-345, especially p. 345.

⁹⁷ For an introduction about these concepts (*inductio* and *eductio*) see *A companion to Albert the Great: theology, philosophy, and the sciences*, ed. by IRVEN M. RESNICK. Leiden: Brill, 2013, in particular pp. 713-715.

⁹⁸ RAIMUNDUS LULLUS, *Tractatus nouus de astronomia*, cit., p. 125.