



From “Manifying” to “Pegasizing”: Ramon Llull’s Theory of Definition Between Arabic and Modern Logic*

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Abstract: The Catalan philosopher and theologian Ramon Llull (Raimundus Lullus, *ca.* 1232-1316) is well known for his *Arx*: a philosophico-theological system which takes the basic concepts of the three monotheistic religions of its time (such as God’s attributes, the virtues and vices, etc.) and combines them in mechanical figures (i.e. rotating circles) in order to convince Muslims (and Jews) of the (logical) superiority of Christianity and, so, to convert them to the Christian faith. One of the peculiarities of Llull’s *Arx* is its very innovative use of logical devices, the most famous being the quasi-algebraic notation of its principles (each principle being represented by a letter, so that they can easily be combined). Among these innovative achievements stands Llull’s curious theory of definition, which will be presented and discussed in this paper. Our first consideration shall be to give a brief account of the Aristotelian setting and the Arabic reception of Aristotle’s concept of definition (I.); from here we shall proceed to show how Llull’s theory of definition originates from within the context of the Aristotelian ὄρος διααιρετικός and its Arabic interpretation (II.); finally we shall draw some connecting lines between Llull’s definitions, modern theories of definition themselves and Russell’s and Quine’s theory of descriptions (III.).

Keywords: Ramon Llull; Bertrand Russell; Willard van Orman Quine; Theory of definition; Descriptions.

The Catalan philosopher and theologian Ramon Llull (Raimundus Lullus, *ca.* 1232-1316) is well known for his *Arx*: a philosophico-theological system which takes the basic concepts of the three monotheistic religions of its time (such as God’s attributes, the virtues and vices, etc.) and combines them in mechanical figures (i.e. rotating circles) in order to convince Muslims (and Jews) of the (logical) superiority of Christianity and, so, to convert them to the Christian faith.

One of the peculiarities of Llull’s *Arx* is its very innovative use of logical devices, the most famous being the quasi-algebraic notation of its principles (each principle being represented by a letter, so that they can easily be combined). Among these innovative achievements stands Llull’s curious

theory of definition, which will be presented and discussed in this paper. Thus, in his late *Ars brevis*, from 1308, Lull gave the enigmatic definition of man as an *animal homificans* or an *animal cui proprie competit homificare*, i.e. an animal that manifies or an animal whose proper characteristic is to manify.

Over recent years, this definition of man has received a good deal of attention with respect to its anthropological content and scope. In this context, one is bound to mention the studies by Charles Lohr and Theodor W. Köhler.¹ This paper is not intended to set forth matters of anthropological discussion regarding Lull's concept of man; rather it aims to examine Lull's theory of definition as a whole, by tracing its historical roots and revealing its systematic relevance, as well as to indicate some striking similarities in the development of modern logic and philosophy in general.

Our first consideration, therefore, shall be to give a brief account of the Aristotelian setting and the Arabic reception of Aristotle's concept of definition (I.); from here we shall proceed to show how Lull's theory of definition originates from within the context of the Aristotelian ὄρος διαίρετικός and its Arabic interpretation as *rasm*, and how Lull confers a new significance upon it (II.); finally we shall draw some connecting lines between Lull's definitions, modern theories of definition themselves and Russell's and Quine's theory of descriptions (III.).

I. The Aristotelian Setting and its Arabic Reception

Aristotle himself did not give one, single account of definition; instead, we come across various attempts, on his part, to lay down a theory of definition within different works of his, principally the *Posterior Analytics* and the *Topics*.

In the *Posterior Analytics* II, 10, for example, Aristotle distinguishes two types of definitions: the first he calls λόγος ὀνοματώδης which offers purely nominal definitions, and the second he calls λόγος διὰ τί ἔστιν which can be

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¹ See Charles Lohr, "Ramon Lull (1232-1316): Aktivität Gottes und Hominisierung der Welt", in: Paul R. Blum (ed.), *Philosophen der Renaissance*, Darmstadt 1999, pp. 11-21; Theodor W. Köhler, "Aufbrüche in Fragen des Menschen nach sich selbst als Menschen. Die Definitionsantwort des Raimund Lull und ihre systematische Bedeutung", in: *Salzburger Jahrbuch für Philosophie* 40 (1995), pp. 79-96; *id.*, *Grundlagen des philosophisch-anthropologischen Diskurses im dreizehnten Jahrhundert. Die Erkenntnisbemühungen um den Menschen im zeitgenössischen Verständnis*, Leiden/Boston 2000, esp. pp. 78-81 and 239-244; Alexander Fidora, "El *Ars brevis* de Ramon Lull – Hombre de ciencia y ciencia del Hombre", in: Alexander Fidora and José Higuera (eds.), *Ramon Lull – Caballero de la fe. El Arte luliana y su proyección*, Pamplona 2001, pp. 60-81.

described as causal or genetic definitions. This second type of definition takes up Aristotle's analysis of epistemic knowledge in the *Posterior Analytics* as knowledge of causes: defining, in this sense, means to state the causes of a phenomenon; e.g., when asked: What is thunder?, its definition will be: It is the noise produced in the clouds by the extinction of fire.

The most famous of Aristotle's attempts at a 'definition of definition', however, is given in the *Topics* I, 8, 103b 15-16, where the Stagirite propounds what can be referred to as an essential definition. Here, Aristotle describes definition as: ὁ ὀρισμὸς ἐκ γένους καὶ διαφορῶν ἐστίν i.e. the definition is made up of genus and differences. This became the *locus classicus* also for medieval theories of definition, both in the Arabic and the Latin worlds. The scholastics adopted it as: "Definitio fit per genus proximum et differentiam specificam." The standard example as used for this kind of definition throughout the Middle Ages is that of man, which Aristotle himself provides in the *Politics* I, 2, 1253a 9-10, defining man as the only animate being capable of reason (or speech): λόγον δὲ μόνον ἄνθρωπος ἕξει τῶν ζώων. Later, the scholastics would add 'mortality' to this definition, saying that man was an "animal rationale et mortale" to preserve the difference between man and angels.²

In addition to these three types of definitions, i.e. merely nominal, causal or genetic and essential, there is a further, fourth candidate for definition in Aristotle. It is the ὄρος διαιρετικός. An example of this can be found in the *Posterior Analytics* II, 5, 91b 39 – 92a 1, where Aristotle asks: "What is man?", and replies to it: "A mortal animate being, with feet, two, without wings." So far we have been discussing the Aristotelian setting.

In the Late Ancient tradition Aristotle's complex account of definition led to a distinction between definitions in the strict sense and descriptive definitions or, simply, descriptions. While Aristotle did not enlarge upon what he meant by the last type of definition, the ὄρος διαιρετικός Late Ancient philosophers, such as Porphyry, devoted more attention to this particular type of definition, which they called ὑπογραφή, i.e. description.³ Even though it is true that this Late Ancient interpretation found some echoes among early medieval Greek authors, such as John of Damascus,⁴ it was within the Arabic tradition, however, that descriptive definitions became most prominent during the

² Cf. for the preceding outline of Aristotle's position, Jean-Marie Le Blond, "La définition chez Aristote", in: *Gregorianum* 20 (1939), pp. 351-380.

³ Cf. on the concept of ὑπογραφή, in Late Antiquity, Jonathan Barnes in the commentary to his translation of Porphyry, *Introduction* (= *Isagogé*), Oxford 2003, pp. 57-62.

⁴ John of Damascus, *Peri geneōs*, cf. PG 94, col. 522-678, esp. col. 554-555.

Middle Ages. In fact, already in al-Kindi and al-Farabi⁵ can we observe a strong interest in the concept of descriptive definitions or, as it is called in Arabic, *rasm* which means ‘sign’ (as opposed to *hadd*, which is definition proper).

The most complete account of *rasm*, however, can be found in Ibn Sina or Avicenna. Thus, in his *Isarat*, apparently drawing on Late Ancient material, Ibn Sina characterizes *rasm* as “a discourse explaining its objects by its accidents and its properties, [...] the best *rasm* has to include the genus which determines the nature of the object in question, as for instance: Man is an animal with flat nails, walking on two feet and who can laugh spontaneously”.⁶

Compared to Aristotle’s brief remarks on the ὄρος διαίρετικός from the *Posterior Analytics*, the concept of descriptive definitions, which Ibn Sina expounds in this passage, has to be judged a rather sophisticated elaboration of the original Aristotelian notion, even though one may have one’s doubts as to whether it can be considered a faithful interpretation of what the Greek philosopher had in mind.

According to the interpretation suggested by Ibn Sina, Aristotle’s example of man as a “mortal animate being, with feet, two, without wings” has to be understood with reference to the fact that this type of definition proceeds on the basis of accidents and properties describing the object. The main components of this concept of definition are, therefore, neither genus nor specific difference, nor causes even, as in the case of essential and genetic definitions; instead, it is the accidents and properties of objects that give us an idea of what they are.

Ibn Sina’s account of *rasm* as definition by means of accidents and properties became standard in Arabic treatises on logic and can be found in the works of Ibn Sab’in, al-Gazzali and many others who have been proposed, rightly or wrongly, as Lull’s immediate sources.⁷

⁵ There is a tract attributed to al-Kindi *On the definitions and descriptions of things*; concerning al-Farabi cf. Shukri B. Abed, *Aristotelian Logic and the Arabic Language in Alfarabi*, New York 1991, chap. 2: “Definitions and Descriptions in Alfarabi’s System”, pp. 35-57.

⁶ Quoted from Ibrahim Madkour, *L’Organon d’Aristote dans le monde arabe*, Paris 2^e 1969, p. 120. Note that we find the same change from “wings” (Aristotle) to “nails” (Ibn Sina) in the account of description given by John of Damascus, *Peri geneséōs*, *op. cit.*, col. 554.

⁷ For a reappraisal of the alleged relation between Lull and Ibn Sab’in see Anna A. Akasoy and Alexander Fidora, “Ibn Sab’in and Raimundus Lullus – The Question of the Arabic Sources of Lullus’ Logic Revisited” (forthcoming in a Festschrift).

II. The Development of Llull's Theory of Definition

If we now move to Ramon Llull, it is evident from even his earliest works that the Catalan philosopher shows a remarkable interest in logical questions. Thus, his very first work, written between 1271-1272 in Montpellier, is a *Compendium Logicae Algazelis* – composed originally in Arabic, as Llull states, and then translated into Latin (and adapted into a Catalan verse-translation).

In order fully to understand the development of Llull's theory of definition, we will 1) present his early attempts at such a theory in the aforesaid *Compendium*, 2) contrast these attempts with his mature account of definition as offered by the *Logica nova* (Genoa 1303), 3) adduce some passages from the *Art amativa* (Montpellier 1290) which will explain the progress made between his first, early and second, mature accounts and finally 4) sum up the results.

1) The theory of definition presented in the *Compendium*, which – as its title suggests – draws strongly on al-Gazzali's *Maqasid al-falasifa* for its source material, is complex, since Llull combines different accounts of definition, namely those pertaining to causal, essential and descriptive definitions.

At the very beginning of the *Compendium* we find expressed the idea of causal or genetic definitions, an idea which does not feature in the corresponding passages from al-Gazzali's *Maqasid*, though does, of course, form part of the Aristotelian tradition, as mentioned above. Interestingly enough, Llull explains this idea in terms of the doctrine of the four Aristotelian causes, which amounts to saying that definitions proceed by indicating either the efficient, material, formal or final causes of the thing to be defined.⁸

Now, only a few paragraphs later, under the title “De cognitione quod quid est”, Llull provides another division among definitions. This division classifies them into definitions we have called ‘essential’, on the one hand, and others we have called ‘descriptive’. It reads as follows:

There are three ways by which one knows what a thing is. (1) According to the first way, it is known by its genus. As is the case when one asks: What is man?,

⁸ Charles Lohr (ed.), *Raimundus Lullus' 'Compendium Logicae Algazelis': Quellen, Lehre und Stellung in der Geschichte der Logik*, Freiburg i. Br. 1967, p. 96: “Definitio generalis fit quattuor modis. (1) Fit enim prima definitio de causa efficiente. Ut si quaeratur: Quid est anima?, convenienter respondetur: Anima est perfectio corporis. (2) Secundo de causa materiali. Ut quaerenti: Quid est materia?, convenienter respondetur: Materia sunt elementa, corpus constituentia. (3) Tertio fit definitio de causa formali. Ut si quaeratur: Quid est forma?, convenienter respondetur: Forma est, quae demonstrat materiam. (4) Quarta de causa finali. Ut quaerenti: Quid est cultellus?, vel: Quid est poena?, convenienter respondetur: Cultellus est res facta ad serviendum homini, et: Poena est punitio peccati.”

to which the adequate answer is: Man is a rational animal. (2) According to the second way, [it is known] by its species. As is the case when replying: Man is rational and mortal. (3) According to the third way, it is known by a sign (*signum*), which is called a description (*descriptio*). As is the case when one asks: What is man?, to which one may reply: Man is tall in stature and, by nature, has flat nails.⁹

In this passage Llull opposes the essential type of definition – whether in its imperfect form (giving only some of its differences, as in case 1) or in its perfect form (including all of them, as in case 2) – to the descriptive type, which latter he calls a *signum* or *descriptio*. This last kind of definition, of course, picks up the particular Aristotelian manner of defining which, as we have just shown, the Arabs, and among them al-Gazzali, knew by the name of *rasm*, i.e. ‘sign’, and which played a major role in the development of Arabic logic.¹⁰

As a matter of fact, Ramon Llull, in the passage quoted, is actually rearranging material from al-Gazzali’s *Maqasid*, although he introduces certain changes. However, we are not going to expand upon such changes here.

Suffice it to say, with regard to the *Compendium*, that this text offers a range of different aspects and elements concerning the concept of definition, among which features the idea of *rasm* or description. However, these aspects and elements do not yet make up a coherent theory of definition; instead, they look somewhat uncoordinated, and fail to give a clear view of the point Llull wishes to reach.

2) Llull’s aspirations may become more evident if we contrast the very first account he gives of definition with the picture he presents some 30 years later, in his *Logica nova* (Genova 1303). To begin with, it may strike us as unusual to find in this mature work, displaying all the innovations of his *Arx*, precisely the same kind of remarks with regard to definitions as we did in the *Compendium*.

⁹ *Ibid.*, p. 97: “Tribus modis cognoscitur quod quid est. (1) Primo enim cognoscitur per genus. Ut quaerenti: Quid est homo?, convenienter respondetur: Homo est animal rationale. (2) Secundo modo per speciem. Ut: Homo est rationale et mortale. (3) Tertio modo cognoscitur per signum, quod dicitur descriptio. Ut si quaeratur: Quid est homo?, potest responderi: Homo est alta statura, habens naturaliter ungues amplos.”

¹⁰ Llull himself does not speak of *rasm*, but uses the word “signum” to refer to it. The word *rasm* should not be confounded with another Arab term Llull employs, which comes from the exegetical tradition of the *Quran*, namely *rams*. Cf. on this notion Miquel Colom, “El *Llibre de contemplació* i la llengua aràbiga”, in: *Studia lullistica. Miscellanea in honorem Sebstitiani Garcias Palou*, Palma de Mallorca 1989, pp. 15-18.

On definition.

Definitions can be given in various ways, namely four, as is shown by rule C. Now, definition proceeds by means of the four causes, i.e. efficient, formal, material and final. [...]

Definition also proceeds by means of the proper and necessary act (*actus proprius et necessarius*) of the faculty (*potentia*) or the subject (*subiectus*), which is coessential (*coessentialis*) to it [i.e. to the faculty or subject]. As is the case when one asks: What is divine intellect (*intellectus*)? To which one has to reply, that it is a being to which it belongs to understand (*intelligere*). And so with heat (*caliditas*), which is a being to which it belongs to heat (*calefacere*). And man is a being to which it belongs to laugh (*ridere*). And essence (*essentia*) is a being to which it belongs to be (*esse*). And so on for similar cases.¹¹

In this passage, one can easily see how Lull offers a condensed version of his views on definition as these were expressed in the *Compendium*: he first explains the definitions by the four Aristotelian causes, just as he did in the *Compendium*, and then proceeds to present definitions by properties which are in fact *rusum* (plural of *rasm*) or descriptive definitions. However, these definitions (except that of man) no longer follow the traditional examples given for *rusum* or descriptive definitions, since they are formulated not just in terms of properties, but rather in those of proper actions (*actus proprii*) and powers or faculties (*potentiae*), which are said to be coessential (*coessentialiales*).

This dynamic reception and transformation of descriptive definitions also leads to Lull's enigmatic definition of man, which we mentioned at the beginning of this paper, i.e. that of man as an *animal homificans*. For just as the proper and coessential act *par excellence* of the "intellectus" is "intelligere", that of "caliditas" "calefacere" and that of "essentia" "esse", so, in the very same way, the proper act *par excellence* of man is actually not "ridere", as in the last quotation, but "homificare". Thus, in another passage of the *Logica nova*, when Lull comes to define man, he writes:

Man is a manifesting animal. And this definition is more specific and converts better with the thing defined, than does the following: Man is a rational and mortal animal; for angels belong to the genus of rationality also, and lions and

¹¹ Raimundus Lullus, *Logica nova*, ROL XXIII, pp. 100-101: "De definitione: Definitio modis pluribus fieri potest, videlicet quattuor modis, ut per regulam de C significatum est. Adhuc, definitio per quattuor causas fit, scilicet efficientem, formalem, materialem et finalem. [...] Definitio etiam est per actum proprium et necessarium potentiae sive subiecti sibi coessentialis. Sicut quaerere: Intellectus divinus quid est? Et respondendum est, quod intellectus divinus est ens, habens intelligere. Et sic de caliditate, quae est ens habens calefacere. Et homo est ens, habens ridere. Et essentia est ens habens esse. Et sic de consimilibus."

horses to that of mortality, and so on. This [definition] can also be said of God, and of other beings as well.

For just as God is Godizing, his eternity eternizing, his infinity infinitizing, so too fire is firing, lions lionizing, plants plantifying, and *homo faber* fabricating. And therefore this definition is more proper, since it refers to something more proper, and indicates its subject in a more direct way.¹²

Here we see the general application of Llull's innovative theory of definitions (or rather, dynamic and coessential descriptions) to reality in its entirety, including not only the created realm as well as abstract concepts such as eternity, but also God who, for the medieval Aristotelian tradition, was otherwise indefinable, since he is subordinate to no genus at all.¹³

This is, indeed, the point Llull wishes to reach; but it remains to show how he actually arrives there.

3) To fully account for what happened between Llull's first treatment of definition in the *Compendium* and his mature view in the *Logica nova*, it may be helpful to adduce another couple of texts, from the *Art amativa* (Montpellier 1290).

Here Llull tells us that definitions by properties, and this is nothing other than the descriptions we have been dealing with so far, can be divided in turn in two ways:

[...] these definitions should be made in two ways, namely according to essential properties on the one hand and accidental properties on the other [...] An essential definition of fire is given when it is defined by its proper ignitivity and ignibility, for ignifying belongs to nothing else than fire. An accidental definition is given, instead, when fire is only defined by its proper quality,

¹² *Ibid.*, p. 31: "Homo est animal homificans. Et ista definitio est magis specifica, et magis convertitur cum definito, quam ista: Homo est animal rationale et mortale; quia de genere rationalitatis est angelus, et de genere mortalitatis est leo et equus, etc. Hoc quidem de Deo dici potest, et de ceteris entibus. Sicut Deus est ens deitans, et sua aeternitas aeternans, sua infinitas infinitans; ignis est igniens, leo leonans, planta plantificans, faber homo fabricans. Et ideo definitio magis propria est, cum sit maioris proprietatis immediate subiecti." – For the first appearance of the definition of man as an *animal homificans* cf. *Arbor scientiae*, ROL XXVI, p. 915.

¹³ Already al-Farabi was aware of the possibilities that *rasm* offers for defining those things which are not contained under any genus, even though he did, of course, not believe that such a descriptive definition, let's say of God, could point to its very essence Cf. Abed, *Aristotelian Logic and the Arabic Language in Alfarabi*, *op. cit.*, p. 52, quoting from al-Farabi's *Kitab al-alfaz*: "Since the supreme genera have no genera above them, it follows that they have no definitions. However, in the case of things that lack genera or essential differentiae it is not impossible for them to have accidents, and consequently it is not impossible for them to have descriptions."

insofar as [the quality of] proper heat does not belong to any other element, but to fire only.¹⁴

This distinction of accidental and essential properties is most important to our issue, for it explains the possibility of a coessential description (as Llull says in the *Logica nova*), which is neither in Aristotle nor in the Arabic tradition, where the descriptions, in contrast to the essential definitions, remain always accidental.

The background to this distinction is Llull's discovery of the doctrine of correlatives: According to this doctrine, every entity consists of a threefold structure, i.e. an agent, a patient and an act, as, for instance, "ignitivity", "ignibility" and "to ignify".¹⁵ It is these correlatives that allow us to conceive of (co-)essential properties.¹⁶

Applying this insight to different examples, Llull proceeds in the *Art amativa* to distinguish two descriptions of man, one (co-)essential, the other accidental:

Man is defined by means of essential property through animality and manifying; for no animal begets a man, but only man, and no animal possesses reason, but only men. On the other hand, man is defined by means of accidental property, as for instance, through his capacity of laughing, or through buying, writing and others.¹⁷

Thus, with the *Art amativa* it becomes clear that Llull actually goes beyond the traditional *rasm* or description as offered by al-Gazzali and others, which is undoubtedly the starting point of his reflections about definition. The

¹⁴ Ramon Llull, *Art amativa*, ORL XVII, pp. 32-33: "[...] les quals diffinicions covenen esser feytes en dues maneres, ço es a saber, segons propietats essencials e propietats accidentals [...] Diffinició essencial de foch es com es diffinit per propria ignitivitat e ignibilitat, car a negú dels altres no s pertany ignir, mas al foch. Diffinició accidental es com lo foch tan solament es diffinit per propria qualitat, com a negú dels altres elements a qui no s pertany propria calor, mas al foch tan solament."

¹⁵ For the theory of the correlatives, see Jordi Gayà, *La teoría luliana de los correlativos. Historia de su formación conceptual*, Palma de Mallorca 1979. For possible Arabic influences in the formulation of this theory see Hans Daiber, "Raimundus Lullus in der Auseinandersetzung mit dem Islam. Eine philosophieggeschichtliche Analyse des *Liber disputationis Raimundi Christiani et Homeri Saraceni*", in: Matthias Lutz-Bachmann and Alexander Fidora (eds.), *Juden, Christen und Muslime*, Darmstadt 2004, pp. 136-172, here pp. 161-162.

¹⁶ Llull himself sometimes calls the correlatives "proprietates essentiales". Cf., for instance, Raimundus Lullus, *Liber Tartari et Christiana*, MOG IV, p. 358: "Ignitivum, ignibile et ignitum sunt diversae proprietates essentialiter." For the paradigmatic role of Llull's theory of elements for his doctrine of correlatives see Gayà, *La teoría luliana de los correlativos, op. cit.*, pp. 57-70.

¹⁷ Ramon Llull, *Art amativa*, ORL XVII, p. 34: "Està home diffinit en animalitat per essencial propietat, axí com d'omificar; car negun animal no enjenra home, mas home tan solament, ni negun animal non ha rahó, mas home tan solament. Es home diffinit per propietat accidental, axí com per risibilitat, e encara per comprar e scriure, e les altres."

description of man in terms of his abilities to laugh, to write and so on, as we find it in the Arab Aristotelian tradition, is merely accidental. In contrast, the new *rasm* or description in terms of correlatives that Lull advocates pretends to be (co-)essential. This difference is crucial!¹⁸

4) If this reconstruction is correct, one can sum up the development of Lull's theory of definition as follows: starting with al-Gazzali, Lull perceives the hidden potential of *rasm* or descriptive definitions to be dynamic and (co-)essential descriptions; but only on the basis of his doctrine of the correlatives can he fully develop this potential and show how there is also, quite apart from the traditional concept of *rasm* or description by means of accidents, a second type of *rasm* or description, namely, a dynamic and (co-)essential form of definition which arrives – via the correlatives, understood as essential properties – at the very essence of the *definiendum*. It is this logical and also metaphysical insight that leads to such a striking definition as that of man as an *animal homificans*.

According to this interpretation, Lull's definitions are the result of a revision and reinterpretation of the notion of *rasm* or descriptive definition. This represents a radical and innovative reinterpretation, based on the doctrine of the correlatives, which we also find at the very heart of the important 'definition of definition' that Lull repeatedly gives in his later works: "Definition is a sign for to the defined, by which sign the latter is known."¹⁹

According to our reading, the term 'sign', which made its first appearance in the *Compendium*, here means nothing other than *rasm* (Latin *signum*) or

¹⁸ We have to acknowledge that it may well be that Lull's development of *rasm* or description received an additional inspiration from Latin sources. Thus, in Marius Victorinus' *De definitionibus liber*, which was reproduced verbatim by Isidore of Seville in his *Etymologiae*, we find among the different types of definitions one which is called ἐννοηματικη, – a term which we can already find in Porphyry and which, as Barnes (Porphyry, *Introduction, op. cit.*, pp. 59-60) argues, is equivalent to ὑπογραφή, Marius Victorinus and Isidore explain this type as follows: "Haec isto modo semper efficitur: 'Homo est, quod rationali conceptione et exercitio praeest animalibus cunctis.' Non enim dixit quid est homo, sed quid agat, quasi quodam signo in notitiam devocato." (*Isidori Hispalensis episcopi etymologiarum sive originum libri XX*, ed. Wallace M. Lindsay, 2 vols., Oxford 1911, lib. II, 29, vol. I). Here come together some of the key elements, which we also find in Lull: Marius Victorinus and Isidore speak of a *signum* (!), i.e. a descriptive definition or *rasm*, which proceeds not by what man is (*quid est*), but what he does (*quid agat*). The dynamic aspect is of course very present here; however, the action is not further qualified as coessential.

¹⁹ Raimundus Lullus, *Ars mystica*, ROL V, p. 291: "Definitio est signum definiti, cum quo signo est cognitum." Cf. also *Liber de novis fallaciis*, ROL XI, pp. 15/16: "definito, quae est signum" / "[...] cum definitio sit signum definiti." And *Liber de experientia realitatis Artis ipsius generalis*, ROL XI, p. 183: "Nam definitio est signum definiti, cum quo intellectus intelligit definitum, de ipso scientiam faciendo."

description, but is now referred to the second type of *rasm*, namely, the type discovered by Llull, i.e. a dynamic and (co-)essential form of description.²⁰

Llull was convinced that these “signs” or *signa* were much more precise and meaningful than the traditional essential definitions (not to speak of the causal ones). Yet, one has to emphasize that Llull never intended completely to abandon traditional manners of definition; on the contrary, in his eyes, his own descriptions and traditional definitions were fully compatible, even complementary. Throughout his works, though depending on the particular context, Llull himself would very frequently use traditional definitions as the starting points for his arguments. And, without doubt, the former can be extremely useful within the argumentative framework of scientific enquiry.²¹

Nevertheless, these definitions will never allow their user to reach the very essence of a thing in the same way as Llull’s descriptions do. This is why he defended his new approach energetically, and openly contrasted it with the classical theory of definition. In the *Ars brevis* (Pisa 1308), for instance, he writes:

Question: Whether a definition such as, Man is a manifesting animal, or, Man is that being whose function is to manifest, is more ostensive than the following one: Man is a rational, mortal animal. And one must reply that it is. The reason for this is that manifestation is something only proper to man, whereas rationality and mortality are proper to many things.²²

It is worth remarking that in this passage the criterion that Llull cites in favor of his descriptions is their unequivocalness, for his dynamic and (co-)essential descriptions genuinely allow one to convert the *definiens* and the *definiendum*, without any of the logical problems which might arise from the fact that, in traditional definitions, specific differences constitute the species through their conjunction alone.

²⁰ For the interrelatedness of definitions, signs and signification in Llull, see the important article by Jordi Gayà, “Els principis de l’Art lul·liana i les seves definicions”, in: *Taula, quaderns de pensament* 37 (2002), pp. 53-71.

²¹ Cf. for the compatibility of Llull’s descriptions and traditional definitions, Anthony Bonner and Maria Isabel Ripoll Perelló, *Diccionari de definicions lul·lianes / Dictionary of Lullian Definitions*, Barcelona/Palma de Mallorca, pp. 34-35. That this compatibility, in fact, takes the form of complementarity becomes clear in Llull’s *Ars generalis ultima*, among other of his works, during his investigation of the subject ‘man’. Llull starts his inquiry here with the traditional definition of man as an *animal rationale*, and it is only at the end of his examination that he arrives at a definition of man as an *ens homificans* (cf. ROL XIV, pp. 235-237).

²² English translation from Anthony Bonner (ed.), *Selected Works of Ramon Llull*, Princeton (NJ) 1985, 2 vols., here vol. I, p. 628. Latin text in Raimundus Lullus, *Ars brevis*, ROL VIII, p. 239: “Quaeritur: Utrum ista definitio sit magis ostensiva, dicendo sic: Homo est animal homificans; vel: Homo est ens, cui proprie competit homificare, quam ista: Homo est animal rationale mortale? Et respondendum est, quod sic. Ratio huius est, quia homificatio soli homini competit, rationabilitas autem et mortalitas multis.”

Despite his enthusiastic defense of this “most easy and useful manner of defining”, as Llull calls it,²³ he was well aware of its novelty and the criticisms to which it would be exposed by his colleagues, who, as he tells us, “despised [his] definitions with the teeth of dogs and the tongues of snakes”.²⁴

III. Some Modern Perspectives: Peirce and Russell/Quine

In whatever degree of esteem Llull’s contemporaries may have held his seemingly trivial definitions, it seems that they were promised a future in modern logic.²⁵

It must be stated, of course, that the following remarks are not intended to provide an exhaustive study of the development of modern theories of definition. They are designed to indicate, rather, certain interesting parallels between Llull and modern logic.

The first author we should mention in this *tour d’horizon* is Charles S. Peirce, who was certainly one of the most “acute logicians” of the 19th Century. This, in passing, is precisely the manner in which Peirce himself referred to Llull...²⁶ However, we are not going to discuss here the historical influence of Llull on Peirce – a subject we have dealt with elsewhere –,²⁷ but shall address directly the systematic issue in question. In his most famous article “How to Make our Ideas Clear” (1878),²⁸ which may be considered the foundational document of pragmatism, Peirce formulates the pragmatist maxim in terms of actions and effects.

Thus, he explains that different beliefs are only “distinguished by the different modes of action to which they give rise. If beliefs do not differ in this respect, if they appease the same doubt by producing the same rule of action, then no mere differences in the manner of consciousness of them can make them different beliefs.”²⁹ And he adds, with even greater concision: “Consider what

²³ Raimundus Lullus, *Ars generalis ultima*, ROL XIV, p. 23: “modus definiendi valde facilis et utilis”.

²⁴ *Ibid.*: “Aliquis forte habens dentium caninum et linguam serpentinam principia mea et eorum defintiones spernet et calumniabit.”

²⁵ An excellent preliminary exploration of the connection between Llull and modern logic can be found in Anthony Bonner, “Ramon Llull: Relació, acció, combinatòria i lògica moderna”, in: *Studia Lulliana* 34 (1994), pp. 51-74.

²⁶ Cf. CP 3.465: “Avicenna defined logic as the science of second intentions, and was followed in this view by some of the most acute logicians, such as Raymund Lully, Duns Scotus, Walter Burleigh [...]”

²⁷ Peirce possessed a copy of several of Llull’s works in his library. See Alexander Fidora, “Peirce’s Account of the Categories and Ramon Llull”, forthcoming in *Studia Lulliana* 47 (2007), where the historical question is discussed in detail.

²⁸ The article first appeared in the *Popular Science Monthly*. In Peirce’s *Collected Papers* it takes the numbers 5.388-5.410.

²⁹ CP 5.398

effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the whole of our conception of the object.”³⁰

In other words, to have a “conception of an object” or its meaning – and this is also, of course, that with which Lull’s definitions are concerned – does not depend on knowing its genus, its species and so on, but it is first and foremost the “effects” and “modes of action” of this object, or as Lull put it, its “actus proprius”, which give us a full insight into what it is.

These functional definitions, which echo the dynamic aspect of Lull’s own, are central to Peirce’s pragmatism. In fact, in a draft from 1902, Peirce stated that he wished to enlarge upon the subject of definition, which, to use his own words, he outlined in a “sketchy manner” in his earlier article, in order to “give the whole theory of definition and discuss its principal forms”. Unfortunately, this project was never to be completed.³¹

In addition to Peirce we should mention two other eminent logicians of our time, namely, Bertrand Russell and Willard van Orman Quine. In his very influential paper “On Denoting” (1905) Russell tackled the question of how we are to speak about non-existent ‘entities’ without implying their existence. Of course the problem was not new, but it goes back to the quarrel concerning universals and even before; it is, in fact, a central issue of logic and of philosophy in general that is at stake here.

Russell states the problem as follows: Take a proposition which implies complex descriptive names such as “The present king of France is bald”, where the complex descriptive name “The present king of France” does not denote anything, for there is no such king; or even “The round square copula

³⁰ CP 5.402.

³¹ Charles S. Peirce, “Draft D – MS L75.287-288” (1902), transcribed by Joseph Ransdell, <http://www.cspeirce.com/menu/library/bycsp/175/ver1/175v1-09.htm>: “In 1877 I published a paper on this subject in which I set forth a doctrine called ‘pragmatism’ which has since been talked of [actually referring to ‘How to Make our Ideas Clear’, 1878]. But I know more about the clearness of ideas than I did a quarter of a century ago. I there described three grades of clearness: 1st, that which results from familiar use of the conception; 2nd, that which results from logical analysis, and is expressed by a formal definition; and 3rd, that which results from understanding the practical implication of the conception. I propose in this memoir to develop these three grades with fullness and not in the sketchy manner of a magazine article. I shall give the whole theory of definition and discuss its principal forms. I shall show, I hope quite convincingly, the great harm done by that definition by abstraction of which the Germans are so fond. For instance, to define coryza, you direct a person to think of a man with a bad cold. Now take away his pocket-handkerchief. Then take away his watch, knife, pocket-book, loose change, keys, shirt-buttons, boots, gloves, and hat. Then successively take away his clothes, body, and soul; and what you have left is a beautifully clear notion of coryza. I shall explain the doctrine of pragmatism more fully, and guard against extravagant applications. Finally, I shall develop a fourth, and higher, grade of clearness, resulting from an appreciation of the intellectual relations of the definitum.”

on Berkeley College is pink”, where the complex descriptive name “The round square copula on Berkeley College” does not denote anything either, for, by definition, such a thing cannot exist.

Now the question is how to deny these propositions without, at the very same moment, conceding the objective reference of their complex descriptive terms. For if we state that it is not the case that the present king of France is bald, or that it is not the case that the round square copula on Berkeley College is pink, it seems that we are granting their existence before the fact. Russell’s solution to this apparent dilemma is “a reduction of all propositions in which denoting phrases occur to forms in which no such phrases occur”.³²

Thus our examples would have to be paraphrased as follows: “Someone is presently king of France and is bald, and nobody else is presently king of France”, and: “Something is round and square and is a copula on Berkeley College and is pink, and nothing else is round and square and a copula on Berkeley College and pink.”

Put in this way, denying these propositions does not entail one’s presupposing the existence of “a present king of France” or a “round square”, since the negations of these propositions simply state that it is not the case that there is someone who is presently the king of France and is bald, etc., and that it is not the case that there is something which is a round square copula on Berkeley College and is pink, etc. This, in brief, is the essence of Russell’s so-called theory of descriptions, which consists of substituting what Russell calls “contextual definitions” of these descriptions for the descriptions themselves.³³

This theory of descriptions was further developed by Quine in his fundamental article “On What There Is” (1948), which extended Russell’s theory to one-words names. His example is the winged horse, Pegasus, from Greek mythology. Whatever we are to say about Pegasus, even if we deny his existence, it seems that any proposition which includes the name Pegasus presupposes at least some kind of existence for its subject. The solution to this problem concerning one-word names is just the same as in the case of Russell’s complex descriptive names.

³² Bertrand Russell, “On Denoting”, in: *Mind* 14 (1905), pp. 479-493, here p. 482.

³³ For a comprehensive study of Russell’s theory of descriptions see David Kaplan, “What is Russell’s Theory of Descriptions?”, in: Wolfgang Yourgrau and Allen D. Breck (eds.), *Physics, Logic, and History*, New York 1970, pp. 277-288.

However, the reduction of propositions including one-word names to contextual definitions requires an additional step, namely the transformation of the one-word name into a description. Now, in the case of Pegasus, Quine says, such a description would be the predicate “pegasize”. Thus, Quine concludes: “If in terms of ‘pegasizing’ we can interpret the noun ‘Pegasus’ as a description subject to Russell’s theory of descriptions, then we have disposed of the old notion that Pegasus cannot be said not to be without presupposing that in some sense Pegasus is.”³⁴ For now one can form a proposition like: “Something pegasizes and is black, and nothing else pegasizes and is black”, without implying that the negation of this proposition would presuppose any kind of existence for Pegasus.

The theory of descriptions thus arrives at a very original solution to the problem of how our concepts relate to reality – a solution which is phrased in terms very similar to Llull’s dynamic and (co-)essential definitions: that Pegasus is something that pegasizes is analogous to Llull’s definition of “lion” as something that “lionizes”, “man” as something that “manifies”, and so on.

Of course, Russell/Quine, on the one hand, and Llull, on the other, had different philosophical agendas when formulating their theories. And we have no evidence for a direct historical influence (even though, later in his life, Quine spent some time at the University of Girona from where his book *From Stimulus to Science* originated).

Nonetheless, all three philosophers shared the concern to establish the conditions for meaningful speech. It might be more than mere coincidence that, granted their common concern, they arrived at very similar and innovative conclusions which pushed language to its outermost limits. Peirce and Russell/Quine have provided only a few examples of the systematic relevance which Llull’s theory of dynamic and (co-)essential descriptions still holds for contemporary debate.

Further research is necessary in order fully to appreciate how Llull is situated between Arabic and modern logic; but it seems that one of his contributions to the field of logic lies precisely in his dynamization of logical predicates, that is to say, his conceiving them as actions rather than static properties – an insight which is, without doubt, fundamental to the entirety of the modern logic of relations as well as to mathematical logic in general (including graph theory).³⁵

³⁴ Willard V. Quine, “On What There Is”, in: *The Review of Metaphysics* 2 (1948), pp. 21-38, here p. 27.

³⁵ Thus, in the Preface to his *Begriffsschrift* Gottlob Frege insists on the importance of his transformation of logical predicates into functions. Gottlob Frege, *Begriffsschrift*, Berlin 1879, p. VII.