Yue Dan

Leibniz's Logical Construct of Individuals and Worlds

Toward the Concept of the Pre-established Curve

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Yue Dan, in January 2026, Berlin

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Introduction
Theodicy and the Infinite Possible Worlds Hypothesis

The problem of God's justice, including the problem of evil, free will-fatal necessity-God's foreknowledge, and damnation-salvation, haunted Leibniz for a lifetime. In 1673, he wrote *Confessio Philosophi*[1], and in 1710, he published *Essais de Théodicée sur la bonté de Dieu, la liberté de l'homme et l'origine du mal* along with many essays[2], all dealing with these important problems. These issues are not newly emergent but are inherent to human thinking within the framework of belief in a perfect God; even the Bible itself contains numerous passages addressing these dilemmas. However, why did this problem seem to intensify in Leibniz's time?

The answer lies in the rapid improvement of natural science, especially mechanics, which began to explain the workings of the world in purely rational and causal terms, seemingly without the need to appeal to God. Science has gradually rendered teleology and God redundant as explanatory principles. What role could God still play in such an intelligible world?[3]

1 A VI, 3, 117: "Si Deus omnium felicitate delectatur, cur non omnes fecit felices; si amat omnes, quomodo tam multos damnat; si justus est, quomodo tam se inaequalem praebet, ut ex materia per omnia pari, ex eodem luto alia vasa ad honorem, alia ad dedecus effingat. Et quomodo non fautor peccati est, si sciens (cum eliminare mundo potuerit) admisit aut toleravit. Imo quomodo non autor , si omnia ita creavit, ut inde peccatum sequeretur. Et quod liberum arbitrium posita necessitate peccandi, quae justitia poenae libero arbitrio sublato. Quae praemii, si gratia sola factum est, ut alii ab aliis distinguerentur. Denique si ultima ratio rerum Deus est, quid hominibus, quid diabolis imputamus?"
A = Leibniz, Gottfried Wilhelm: *Sämtliche Schriften und Briefe*. Edited by the Deutsche Akademie der Wissenschaften zu Berlin. Darmstadt, 1923 ff., Leipzig, 1938 ff., Berlin, 1950 ff. Cited by Series (Reihe), Volume (Band) and Page (Seite).

2 Leibniz tirelessly attempted to facilitate a translation of his *Théodicée* into English with the help of the Princess of Wales, so that his philosophy could be understood there. See Brown, Gregory: "The Theodicy translation project and the Leibniz-Clarke correspondence", in: Li, Wenchao (ed.): *Leibniz, Caroline und die Folgen der englischen Sukzession*, Stuttgart: Franz Steiner Verlag (2016), pp. 51–67. Also see *The Leibniz-Caroline-Clarke correspondence*, ed. and transl. by Gregory Brown, New York: Oxford University Press (2023), pp. lx–lxvii.

3 God could be the ground of all existence, explaining why there is something rather than nothing, and why the universe has this specific configuration, this is God's role in Leibniz's principle of sufficient reason. God could be the necessary condition of objective goodness and morality, as in

Leibniz's contemporaries proposed various solutions to reconcile belief in God with an intelligible world, such as Descartes and Hobbes' voluntarism[4], Malebranche's occasionalism, Spinoza's so-called determinism, Bayle's skepticism[5], and Locke's empiricism[6]. Yet Leibniz was unsatisfied with any of them because he believed they were all unworthy of the concept of God and could not do justice to His attributes. Opposing all these approaches, Leibniz offered his own solution: the hypothesis of infinitely many possible worlds and the "New System" of pre-established harmony[7].

The key distinction between Leibniz's metaphysics and others lies in his unique understanding of God and his effort to develop a system that truly embodies God's infinite wisdom and goodness. His assumption of "infinitely many possible worlds"[8] and

Kant's critique of practical reason. God can serve as the guarantee of reason's reliability, as Descartes regards God as the grounding of *cogito ergo sum*, or accounting for why our minds can comprehend the universe's structure, as in Leibniz's belief in the commensurability between divine and human mind.

4 On his critique of the voluntarism of Descartes and Hobbes, see Leibniz: "Sur la nature de la bonté et de la justice" (1703), A IV, 10, 11–15; G. W. Leibniz: *Political Writings*, edited by Patrick Riley, Cambridge: Cambridge University Press (1988), pp. 45–53; G. W. Leibniz: *Gedanken über den Begriff der Gerechtigkeit*, Wenchao Li (ed.), Hannover: Wehrhahn Verlag (2017), pp. 31–50; cf. Goldenbaum, Ursula: "Grounding jurisprudence in theology: Leibniz's rebuff of protestant voluntarism", in: *Rechts- und Staatsphilosophie bei G. W. Leibniz*, Tilmann Altwicker, Francis Cheneval and Matthias Mahlmann (eds.), Tübingen: Mohr Siebeck (2020), pp. 3–22; Idem: "It's love!: Leibniz's foundation of natural law as the outcome of his struggle with Hobbes' and Spinoza's Naturalism", in: *The philosophy of the young Leibniz*, Mark Kulstad (ed), Stuttgart: Franz Steiner Verlag (2009), pp. 189–201. *Leibniz lecteur critique de Hobbes*, ed. by Paul Rateau and Éric Marquer, Paris: Vrin (2017).

5 Cf. *Leibniz et Bayle: Confrontation et dialogue*, ed. by Christian Leduc, Paul Rateau and Jean-Luc Solère, Stuttgart, Franz Steiner Verlag (2015).

6 Cf. Goldenbaum, Ursula: "Rationalismus und Empirismus über die natürliche Gleichheit der Menschen", in: *Scintillae Leibnitianae: Wenchao Li zum 65. Geburtstag*, ed. by Friedrich Beiderbeck, Nora Gädeke and Stephan Waldhoff, Stuttgart: Franz Steiner Verlag (2022), pp. 77–118.

7 Leibniz: "Addition à l'explication du système nouveau", GP IV 572–590, p. 587: "[…] que toute autre hypothèse est au dessous de Dieu". GP = *Die Philosophischen Schriften von Gottfried Wilhelm Leibniz*. Edited by C. I. Gerhardt. Berlin: Weidman, 1875–1890. Cited by volume and page. I would like to note that, many of Leibniz's French writings may conflate *é* with *e*, or *è* with *e*, which is a common phenomenon in the pre-standardized orthography of his time. My quotations throughout this work follow exactly both the Gerhardt and the Academy editions.
A VI, 4, 1647: "Posita etiam diversitate animae et corporis, hinc explicari potest unio eorum sine Hypothesi vulgari influxus, quae intelligi non potest, et sine Hypothesi causae occasionalis, quae Deum ex machine advocate". ("Principia logico-metaphysica", 1689)
A II, 2, 81–82: "Cependant l'Hypothèse des causes occasionnelles ne satisfait pas […] à un philosoph. Car elle introduit une manière de miracle continuel", while his own hypothesis "explique tout d'une maniere concevable, et digne de Dieu". (Leibniz to Arnauld, 14. July 1686)

8 A II, 2, 73: "[…] qu'il y avoit une infinité de manieres possibles de créer le Monde, selon les differents desseins que Dieu pouvoit former; et que chaque monde possible depend de quelques desseins principaux ou fins de Dieu." (Leibniz to Arnauld, 14. July 1686.) Cf. Hecht, Hartmut. "Leibniz' Concept of Possible Worlds and the Analysis of Motion in Eighteenth-Century Physics", in: *Between Leibniz, Newton, and Kant: Philosophy and Science in the Eighteenth Century*, ed. by Wolfgang Lefèvre, 2nd ed., Dordrecht: Springer Netherlands (2001), pp. 29–52.

"the best possible world" was designed to justify God's perfection and to address the problem of evil.[9] Simon Foucher's comment – that Leibniz's systems and thoughts are crafted primarily to save certain principles and ultimately the concept of God – is not entirely unfounded.[10] I will briefly address this problem at the end of this dissertation.

The presuppositions of his systems are very rich. First of all is his definition of God as the ultimate foundation of all concepts and beings[11], who structures the world and all creatures in a rational way and acts according to the principle of sufficient reason: His omniscience is demonstrated by His perfect knowledge of all possibilities and their compossibilities; His omnipotence is embodied by His capacity to actualize any internally coherent combinations of possibilities in concrete reality; His benevolence is revealed in His choice[12] of the best possible world, the one that possesses the greatest possible perfection as a totality.

9 Schepers, Heinrich. "Zum Problem der Kontingenz bei Leibniz: Die beste der möglichen Welten", in Idem: *Leibniz: Wege zu seiner reifen Metaphysik*, Berlin: Akademie Verlag (2014), pp 18–41. P. 32: "Es scheint […] der Mühe wert, zu untersuchen, wann Leibniz sein Prinzip einer unendlichen Vielheit möglicher Welten zuerst formuliert hat, auf welchem Wege er zu diesem, seinem eigentlichen Schlüsselgedanken zur Lösung des Théodicée-Problems gelangt ist." First publication in: *Collegium Philosophicum: Joachim Ritter zum 60. Geburtstag*, ed. Böckenförde, Ernst-Wolfgang, Basel and Stuttgart: Schwabe (1965), pp. 326–350.

10 Leibniz: "Eclaircissement du nouveau systeme de la communication des substance, pour servir de reponse à ce qui en est dit dans la Journal du 12 Septembre 1695", GP IV, 493–500, here p. 496, § 15: "En verité, Monsieur, ne voit on pas que ces opinions sont faites exprès, et que ces systemes venant après coup n'ont esté fabriqués que pour sauver de certains principes?"

11 "Aphorismi de felicitate, sapientia, caritate, justitia" (1678/79?), A VI, 4, 2806: "Die Welt wird von einem allwißenden und allmächtigen Herrn regieret, den wir Gott nennen"; 2804: "Mundus a sapientissimo et potentissimo Monarcha gubernatur, quem vocamus Deum". Also see Leibniz: *Textes inédits d'après les manuscrits de la Bibliothèque provinciale de Hanovre publié et annotés par Gaston Grua*, Paris 1948, vol. II, p. 585: „Denn wenn alles regiert wird von einem höchstvollkommenen, mithin allweisen und allmaechtigen Wesen […]". GP VI 590: "[…] de l'Existence de Dieu, c'est-à-dire d'un Esprit infiniment puissant et sage."

12 See Leibniz: *Essais de Théodicée*, § 7; GP VI 106–107: "[C]ar ce monde qui existe, étant contingent, et une infinité d'autres mondes étant egalement possibles et egalement pretendans à l'existence, pour ainsi dire, aussi bien que luy, il faut que la cause du monde ait eu egard ou relation à tous ces mondes possibles, pour en determiner un. Et cet egard ou rapport d'une substance existante à de simples possibilités, ne peut être autre chose que l'entendement qui en a les idées: et en determiner une, ne peut être autre chose que l'acte de la volonté qui choisit. Et c'est la puissance de cette substance, qui en rend la volonté efficace. La puissance va à l'être, la sagesse ou l'entendement au vray, et la volonté au bien. Et cette cause intelligente doit être infinie de toutes les manieres, et absolument parfaite en puissance, en sagesse et en bonté, puisqu'elle va à tout ce qui est possible. Et comme tout est lié, il n'y a pas lieu d'en admettre plus d'une. Son entendement est la source des essences, et sa volonté est l'origine des existences." ("Premiere Partie")
§ 8; GP VI, 107: "[O]u quand cela ne se peut, il ne se fait rien du tout: on peut dire de même en matiere de parfaite sagesse, qui n'est pas moins reglée que les Mathematiques, que s'il n'y avoit pas le meilleur (optimum) parmy tous les mondes possibles, Dieu n'en auroit produit aucun." "[E]t

> *Possibile*[13] quod non implicat contradictionem.
> *Existens* compossibile perfectissimo.
> *Compossibile* quod cum alio non implicat contradictionem.
> *Perfectius* est quod plus habet realitatis vel Entitatis positivae.[14]
> *Necessarium*, cujus oppositum est impossibile.
> *Contingens* est non necessarium. ("Definitiones: Ens, Possibile, Existens", 1687–1696? A VI, 4, 867)

In these statements, Leibniz outlines a conceptual trajectory from mere possibility to actuality. He begins with the principle of non-contradiction, according to which possibility is defined only by logical consistency. Then, the principle of compossibility establishes the ground for combinations of possibilities, where only those that can be conceived or asserted together without contradiction can form a coherent whole. Finally, the principle of perfection provides a criterion for evaluating and ranking these combinations of compossibles according to their degree of reality or perfection. It bridges compossibility (possible worlds) with actual existence, suggesting that what exists is compossible with the highest degree of perfection. Leibniz suggests a "mechanism" through which concepts must pass in order to become actual: logical consistency (in themselves), mutual compossibility (with others), and maximal perfection (the world as a whole). It also explains why some possibilities are realised while others are not.

In a 1679 essay "Dialogue entre Théophile et Polidore"[15], Leibniz fully illustrates how God operates within this mechanism from non-being to being.

qu'il y a une infinité de Mondes possibles, dont il faut que Dieu ait choisi le meilleur, puisqu'il ne fait rien sans agir suivant la supreme raison."
§ 165; GP VI 208: "Que peut on vouloir de plus, quand on possede une sagesse immense, et quand on est aussi puissant que sage; quand on peut tout, et quand on a le meilleur?"
§ 336; GP VI 314: "[…] que c'est par le choix libre de Dieu que quelques uns des possibles existent".

13 Throughout this dissertation, emphasis in the original texts is in italics, and my own emphasis in quotes is underlined.

14 *Monadology*, § 41, GP VI, 613: "[L]a perfection n'étant autre chose que la grandeur de la realité positive prise precisément, en mettant à part les limites ou bornes dans les choses qui en ont."

15 A VI, 4, 2230–2233. The position of Théophile in this text closely resembles that of al-Ghazālī, while the views of Polidore are more akin to those of Ibn Sīnā (Avicenna) and Ibn Rushd (Averroes). In *Tahafut al-Falasifa (The Incoherence of the Philosophers)*, al-Ghazālī argues against Ibn Sīnā, particularly in the first discussion, asserting that the universe is contingent. Conversely, Ibn Rushd, in *Tahafut al-Tahafut (The Incoherence of the Incoherence)*, refutes al-Ghazâlī's perspective. Their arguments can be found in the following texts: Al-Ghazālī, *The Incoherence of the Philosophers (Tahafut al-Falasifa)*, transl. Marmura, Michael E., Provo: Brigham Young University Press (2000), pp. 12–46. Ibn Rushd: *Averroes' Tahafut Al-Tahafut*, transl. Van den Bergh, Simon, Cambridge: The E J W Gibb Memorial Trust (1987), pp. 1–37.

Leibniz addresses the problem of the necessity and contingency of the universe's structure. Even if we accept that the universe is a mechanistic system composed of ether, the sun, and planets, why does it exhibit such a specific configuration? Could it be otherwise? ("le monde ne pouvoit il pas estre fait d'une tout autre façon."[16]) Besides, from where do the mechanistic laws governing every movement originate? A possible answer is that a world-soul (or God) animates and sustains everything.

If the present configuration and laws of the world were necessary, then nothing could be changed. In that case, there would be no need to appeal to a world-soul to explain its order. However, the configuration of this world is contingent[17]; we can imagine a world in which the sun is located in a different position and moves in the opposite direction, and this does not imply a contradiction. Since alternative configurations are equally conceivable and logically consistent, the actualization of this particular structure requires an explanation, that is, an external agent. An agent without free will cannot account for the selection of a specific outcome among equally possible alternatives. Therefore, the existence of God becomes necessitated in this context: only a being of perfect wisdom and free will could have selected a specific structure of the world with sufficient reason.

Nevertheless, the existing structure of this God-created world may still be necessary. Nature always chooses the shortest path; there is only one straight line between two points, which is the most direct and simplest path; the best possible world could be the simplest of all possible structures, so it arises out of necessity.[18]

Leibniz refutes this by saying that the principle of simplicity applies only to a rational agent who chooses by deliberate will rather than by necessity. Rational choice always seeks the optimal option, but mere "simplicity" does not imply perfection. The simplest form of reality could be that God creates nothing and exists alone. Instead, the principle of perfection also involves the richness of essences and perspectives, and the diversity of phenomena. The best possible world should balance the simplicity and diversity, which means a rational agent should strive to unify as many realities as possible under the simplest possible principle. The underlying principle also indicates the teleological unity, where every part of this world is directed towards the ultimate purpose of the whole.

If nothing prevented it, all possibilities would be produced; but it is impossible to actualize all possibilities in a coherent reality, because many possibilities are incom-

16 A VI, 4, 2230.

17 A II, 4, 703: "Car tout l'univers pouvoit estre fait autrement; le temps, l'espace et la matiere estant absolument indifferens aux mouvemens et aux figures; et Dieu a choisi parmy une infinité de possibles, ce qu'il jugeoit le plus convenable." (Leibniz to Pierre Coste, 19. December 1707.)

18 A VI, 4, 2231: "Polidore: Je demeure d'accord que le monde pouvoit estre fait de mille autres façons, mais cellecy estoit apparemment la plus simple, et la nature agit par les voyes les plus courtes; donc il luy estoit necessaire d'agir ainsi."

patible[19] – their coexistence would imply contradiction. So the world that comes into existence should be the one that maximizes compossibility.

A reductionist version of the perfection might suggest that the best world is embodied by the most compatible varieties in the smallest volume ("qui pour ainsi dire renferme beaucoup d'essence ou de varieté en peu de volume."[20])

Leibniz holds that the beauty and value of the universe is represented by the most harmonious configuration, rather than the simplest form or smallest volume. For Leibniz, harmony is the "multiplicity in unity"[21], which embodies the true essence of perfection, and it is grounded in the principle of compossibility. Leibniz explains the concept of compossibility by considering several equally perfect possibilities, A, B, C, D, E, F, G, some of which are exclusive (A-B, B-D, C-F, C-G, D-G). Thus, not all of these possibilities can be realized simultaneously. The set ACDE is distinguished from all compossible combinations, as it encompasses the maximal realities within the bounds of compossibility.

The next problem is whether possibilities have the active power to actualize themselves. If they do, then the set ACDE would necessarily actualize by itself, since it possesses the greatest collective power; then God is unnecessary. However, possibilities are mere concepts within the divine mind, lacking independent power ("Mais les choses possibles n'ayant point d'existence n'ont point de puissance pour se faire exister"[22]), and therefore incapable of spontaneously bringing themselves into existence; they are contingent upon an external agent. Thus, there must be a necessary and self-sufficient being whose essence entails existence and serves as the ultimate source of all essences and existences; otherwise, nothing would exist.

> [P]ar consequent il faut chercher le choix et la cause de leur existence; dans un estre dont l'existence est déjà fixe et par consequent necessaire d'elle même cet estre doit contenir en luy les idées des perfections des choses possibles, pour choisir et pour les produire. Et il choisira sans doute suivant les degrés de perfection qui se trouvent dans ces idées ou suivant la pretension qu'elles peuvent avoir à l'existence de la maniere susdite c'est à dire de la plus simple ou de la plus belle façon de faire l'univers [...] ou par laquelle on obtient le plus d'essence et le plus de perfection qu'il est possible d'obtenir ensemble. Car le plus beau et le plus simple est ce qui donne le plus avec le moins d'embarras [...] il est donc manifeste

19 A VI, 4, 2231: "Car une cause agit tousjours tout autant qu'elle peut et autant qu'elle n'est pas empechée, donc il faut que toutes les choses possibles en elles mêmes se produisent, ce qui ne se peut puisqu'il y en a beaucoup d'incompatibles; ou bien il ne se produise rien."

20 Packing theory interprets Leibniz's concept of compossibility in this way. See McDonough, Jeffrey K.: "Leibniz and the puzzle of incompossibility: The packing strategy", in: *Philosophical Review* 119.2 (2010): pp. 135–163.

21 A II, 1 (2nd ed), 280: "Harmoniam diversitatem identitate compensatam. Utique enim delectat nos varietas, sed reducta in unitatem." (Leibniz to Arnauld, November 1671)

22 A VI, 4, 2232.

> que l'auteur des choses agira avec raison, puisqu'il agit suivant les perfections des idées de chaque chose et puisqu'il faut bien qu'il comprenne et considere tout à la fois pour accorder toutes les choses ensemble le mieux qu'il se peut il aura la souveraine sagesse, et la premiere puissance. ("Dialogue entre Théophile et Polidore", 1679?, A VI, 4, 2232–2233)

All possibilities are contained within the Necessary Being, who comprehends and harmonizes them, and then evaluates all compossible combinations. Through free will, the Necessary Being creates the best possible world, one that comprises the maximal set of compossible essences and achieves the greatest harmony. This Necessary Being must possess limitless wisdom and power, as well as free will and benevolence, thus representing God. Divine understanding constructs the configuration of every possible world according to the principle of compossibility, while divine will guided by the principle of perfection, creates that specific world with sufficient reason. All possibilities arise from God's conception, and all existences depend on God's will and creation.

As the most perfect being, God bridges logical concepts (possibility, non-contradiction) with ontological reality (existence, perfection). Divine understanding constructs all possible worlds, the divine will prefers and inclines towards the best, while divine power actualizes the concepts that form the best possible world in concrete reality.

Leibniz's metaphysics seamlessly integrates logic and ontology through three interconnected stages: the conception of possibilities, the combination of compossibles, and the actualization of best possible world:

1. The first stage, 'Simple Possibility' is grounded in the Principle of Contradiction. The divine intellect conceives all logically consistent concepts, independent of their actual existence or manifestation in the world.
2. The second stage, 'Complete Individual Concepts and Possible Worlds', is governed by the Principle of Compossibility. The divine intellect combines simple possibilities into logically coherent propositions, which are not necessarily true. Propositions that can be true together are compossible. In divine understanding, each individual is represented by a complete individual concept, consisting of a maximal set of compossible predications that fully constitutes its series of states throughout existence. A possible world is a maximal set of compossible propositions that collectively depict a complete and coherent reality: a *tota rerum series* encompassing every aspect of existence.
3. The final stage, 'The Best of All Possible Worlds', embodies the Principle of Perfection. Among all possible worlds, the divine will inclines to the best and actualizes all the individuals that constitute it. Leibniz asserts that the perfection of this world is reflected in the balance between the simplest unifying principles and the richest phenomena. It highlights both the intelligibility of the world's structure and the richness of its diversity.

Leibniz's metaphysical framework of reality is built upon two fundamental principles: the Principle of Non-Contradiction (along with Compossibility), the Principle of Sufficient Reason (together with Perfection).

The principle of non-contradiction[23] governs the realm of possibility. Possibility signifies internal coherence of an individual, while compossibility implies mutual consistency among individuals. The principle of non-contradiction establishes the limits of possibility, while compossibility forms the foundation of co-existence. Within divine understanding, compossible propositions serve as the logical building blocks for the conception of individual substances and possible worlds.

Divine intellect organizes compossible propositions into a coherent "series rerum" according to the principle of sufficient reason[24]; it links the conditioned propositions to the conditioning propositions in a chain of reasoning to form the rational structure of reality. The world is an ordered totality of interconnected things without unexplained discontinuity.

The principle of perfection provides the ultimate sufficient reason for God's creative will and action.[25] After considering all possible worlds, God chooses the best one, in which the simplest principle unifies the greatest diversity. The sufficient reason for any existing thing is that it contributes to the optimal *tota rerum series*: it is an integral part of the continuous sequence of events that embodies the highest degree of perfection. Without any single link, the logical chain would be broken, and consequently, the best world could neither exist nor be conceived.

My thesis is structured into three sections: 1) possibility and conatus; 2) compossibility and the *series rerum*; 3) the pre-established curve and the best possible world, and finally will be completed with some critical reflections on Leibniz's concept of God.

> Res multae non sunt aeternae, et tamen earum possibilitates sunt aeternae. Intelligo possibilitates metaphysicas.

23 *La Monadologie*, § 31, GP VI 612: "Nos raisonnements sont fondés sur deux grands principes, celuy de la Contradiction, en vertu duquel nous jugeons faux ce qui en enveloppe, et vray ce qui est opposé ou contradictoire au faux."

24 *La Monadologie*, § 32, GP VI 612: "Et celuy de la Raison suffisante, en vertu duquel nous considerons qu'aucun fait ne sauroit se trouver vray ou existant, aucune Enonciation veritable, sans qu'il y ait une raison suffisante, pourquoi il en soit ainsi et non pas autrement, quoyque ces raisons le plus souvent ne puissent point nous être connues."
§ 33: "Il y a aussi deux sortes de Verités, celles de Raisonnement et celle de Fait. Les Verités de Raisonnement sont necessaires et leur opposé est impossible, et celles de Fait sont contingentes et leur opposé est possible. Quand une verité est necessaire, on en peut trouver la Raison par l'Analyse, la resolvant en idées et en verités plus simples, jusqu'à ce qu'on vienne aux primitives."

25 *La Monadologie*, § 53, GP VI 615–616: "Or, comme il y a une infinité des Univers possibles dans les Idées de Dieu et qu'il n'en peut exister qu'un seul, il faut qu'il y ait une raison suffisante du choix de Dieu, qui le determine à l'un plustôt qu'à l'autre."

Etiam aeternis priores natura vel origine sunt causae coaeternae, ut essentiae proprietatibus.

Intelligo conceptuum possibilitatem objectivam, v. g. numerorum.

Contra potius res mutabiles legem existendi ab essentiis aeternis accipiunt, ut phaenomena naturae leges geometricas et mechanicas sequuntur. Hoc ipsum est indicium Essentias esse priores existentiis. Nam veritates aeternae seu necessariae, quales sunt Metaphysicae et Geometriae non ostenduntur ex observatione rerum seu experimentis, alioqui inductione non demonstratione probarentur; sed pendent ex solis ideis, nempe ex definitionibus et axiomatibus identicis. Et tamen res existentes ubique has leges sequuntur. Status rerum continue mutatur, sed leges mutandi sunt aeternae: pendentque a re immutabili.

Connexio conceptuum oritur ex connexione objectorum possibilium, seu idearum.

Possibilitas metaphysica seu essentiarum foret figmentum si non fundaretur in aliquo realiter existente nempe in substantia seu Monade primaria nempe Deo.

potuisset esse possibilitate vera metaphysica, ad quam sufficit ut aliquid fingi possit sine absurditate. Existentia talis rei est figmentum, sed possibilitas ejus non est figmentum. Cum Imperator Maximilianus I. viduus deliberabat de obtinendo Papatu, certe de re possibili deliberabat. Non quicquid possibile est, succedit.

Essentia non est conceptus, nec semper de rebus existentibus: Est autem semper existentia origine prior, quia ex ea ratio existentiae reddi potest.

absolute loquendo dicendum est alium quidem statum esse posse, sed praesentem tamen existere quia ex natura Dei sequitur ut perfectissimum praeferat.

Imo haerent in mente divina, quae est prior rerum natura. (A II, 3, 687–688[26])

Leibniz claims that the existence of created things is temporal, while their essences or possibilities are eternal, depending on God's conception of them, where all that is internally coherent would exist forever in the divine mind.[27] Thus this eternity is derived from the eternity of God and the logical necessity, that what is non-contradictory would never be contradictory. This logical grounding makes the possibility independent of divine will or human mind, being objective as numbers.

The existence of a thing is governed by the laws inherent in its possibility. The relations between things arise from the connection between their concepts, which means that universal harmony is based on the logical consistency between concepts. Therefore, logical principles are the most fundamental. Geometrical laws, based on the definitions and axioms of pure reason, structure the world in a rational way, while

26 This quote (December 1697) is Leibniz's refutation of Wagner's assertions of possibility.

27 also see A II, 1², 654: "Car comment l'ame pourroit elle comprendre d'une maniere intelligible tous les estres que Dieu peut faire, et qu'elle peut voir. L'ame, dis je, dont les perfections sont si finies, qui certainement ne renferme pas toutes choses, peut elle en se considerant voir toutes choses[?] Il s'ensuit de cela, qu'il n'y a que Dieu qui renferme le monde intelligible, et que nous voyons en Dieu, tout ce que nous voyons." (Leibniz for Herzog Johann Friedrich von Hannover? November 1678)

phenomena manifest according to mechanical laws, which are derived from the logical-geometrical structure of the world.[28]

Leibniz distinguishes possibility from actual existence, as possibility is defined solely by the principle of non-contradiction; it possesses a reality grounded in the divine mind, yet possibility is entirely independent of its actualization. There are possibilities that will never be actualized, for their actualization is contingent upon divine will, which is guided by the divine intellect and inclines towards the most perfect totality. Unactualized possibilities remain mere concepts, because they are imcompossible with the best of all possible worlds.

> Deus est Monas, seu indivisibile quiddam nec tantum actualia ex ipso, sed et possibilitates promanant. Mundus vero est aggregatum plurium substantiarum, nec nisi unam ex tot possibilibus rerum seriem exhibet. Possibiles autem semper voco, quibus nihil inest repugnans. (A II, 3, 705[29])

All possibilities emanate from God's perpetual conception, thus God not only brings possibilities into reality, but also creates and sustains all possibilities in His mind.

The actual world is an aggregate composed of an infinite number of individual substances or monads, and it is only one of infinitely many possible *series rerum*. Divine will actualizes this specific *tota rerum series*, indicating God's freedom and the contingency of the world.

The first section explores Leibniz's theory of possibility and its distinction from the ontological potentiality. I begin with Leibniz's argument about the possibility of the concept of God. Leibniz claims that a real definition of a thing should include all its assertations in order to ensure its internal coherence. In the divine understanding, an individual is defined by its complete individual concepts, which include all its predicates; they must be compossible, otherwise they cannot constitute a coherent unity. Leibniz suggests that no predicate exists independently; all are intrinsically connected to subjects, yielding true propositions about those subjects. Propositions serve as the bearers of truth value and thus become the logical building blocks of individuals and possible worlds.

As the imperfect expressions of divine perfection, possibilities incline towards perfection rather than non-being, so they are not indifferent to being and non-being. Every possibility has a conatus striving for the existence.

28 A II, 3, 681: "Nam essentia seu possibilitas est origo existentiae, et existentiae seu veritates physicae, sive temporales sequuntur leges essentiae seu veritates metaphysicas et geometricas; uno verbo, aeternas." (Leibniz to Wagner, December 1697)

29 The quote is from Leibniz and Wagner's discussion of Thesis 4 ("An mundi status necessarius") in March 1698. It is important to note that in his later works, Leibniz seems to have rarely stated directly that "Deus" is a "Monas". In § 47 of the *Monadology* he says: "Deus seul est l'Unité primitive, ou la substance simple originaire, dont toutes les Monades creées ou derivatives sont des productions."

Aristotle grounds possibilities in the potentialities inherent in actual beings, arguing that what is possible in the actual world is limited by the essence of things. Potentiality is a self-actualizing power.

However, if things could actualize themselves by their own power, there would be no need to appeal to divine creation. Thus, Leibniz grounds possibility in the conception of God, and its actuality depends on God's will. Leibniz insists that, possibilities lack the inherent power to actualize themselves in reality. Their conatus (striving) is merely a disposition awaiting and demanding God's creative will. At the same time, Leibniz reintroduces the "potentiality" into his concept of monads. Each monad contains all its states – past, present and future – so that its actual existence represents the unfolding of its intrinsic potentiality. In this way, Leibniz preserves God's role as the creator *ex nihilo* while attributing to creatures a derivative power to unfold their own essences within the pre-established harmony.

In 1668, Leibniz first used the term "incompossible" (incompossibiles) in his refutation of Thomas Aquina's solution to the problem of Christ's real presence in the Eucharist, where Christ's glorified body remains its integrity and immutability while an additional part of His body is consumed by creatures. Leibniz argues that since Aquinas assumes that the "additional part" is a numerically distinct but substantially inseparable part, a disposition that is incompossible with the glorified body, such as suffering and change, would also be incompossible with the Eucharist body.[30] Here, "incompossibility" refers to the situation where different attributes cannot co-exist within the same substance.

Compossibility (compossibiles[31]) appears in his *Confessio philosophi* (1672)[32]:

> Perinde est ac si diceret Deum non esse causam sufficientem rerum. Possibiles sunt aliarum rerum series in se, sed non sunt compossibiles sapientiae divinae. (A VI, 3, 121 f.)
> Harmonia rerum est ideale quidam seu iam in possibilibus spectatur. (A VI, 3, 146)

In discussing whether God is the author of sin, Leibniz argues that God's will in creating this *series rerum* (this world) is grounded in sufficient reason.

30 "Refutatio Hypotheseos Thomae Angli" (1668), A VI, 1; 506 f.: "Hoc vult, quod uni parti corporis Christi sit incompossibile, non continuo alteri esse incompossibile; etsi igitur parti in caelo existenti seu glorioso sit incompossibilis alteratio, esse tamen compossibilem parti in terris existenti seu hostiae. Id autem non esse indecorum personas Christi, quia hostia seu pars in terris sit supernumeraria et decisa quantitative, licet non substantialiter (quae verba obscura sic interpretor: quod etsi constituat cum altera unum per se, tamen sit discontinua) et unio sit insensibilis, ideo dedecus partis unius neque laesuram neque irreverentiam conciliaret parti alteri. Haec sunt quae aperte efferre veritus est, quia ex iis multa dura sequuntur: Nimirum nos tantum parte corporis Christi frui et parte non gloriosa sed alia, ergo nec ilia, quae pro nobis in cruce pependit. Haec etiam in Thoma Bonarte sunt damnata."

31 In German, "Mit-möglich" means "co-possible" or "mutually possible," suggesting that several entities or states can be conceived together without contradiction.

32 A VI, 3, 116–159, Paris, Autumn 1672–Winter 1672/1673.

Leibniz emphasizes that divine will is guided by His wisdom (*sapientia*[33]) rather than being an arbitrary *voluntas*. God's wisdom involves both His perfect knowledge of all possibilities and His ability to discern and evaluate all of them. It informs the divine will which is the optimal world.

God chooses this series because it represents the best possible whole, with maximal overall perfection, among infinitely many alternatives. While other *series rerum* are also inherently coherent – composed of compossible things – they are incompossible with the principle of perfection.

Leibniz argues that the harmony of all things in this world is not imposed after creation but is inherently embedded within its possibilities. That is to say, this universal harmony is based on the logical structure of the possible world. Leibniz suggests that the structure of the *series rerum* arises from logical necessity: it is constituted by all compossible things, such that God cannot substitute any element within the series without creating a contradiction. Therefore, the existence of evil is necessitated by the nature of best possible world, as God cannot actualize this world without it. Thus God is not the author of sin. The pre-established harmony of the world is fundamentally grounded in the principle of compossibility.

> Immortalitas mentis mea methodo statim probata habetur, quia possibilis in se, et aliis omnibus compossibilis, sive rerum cursum non imminuit [...] Principium meum est: quicquid existere potest, et aliis compatible est, id existere. ("Principium meum est: quicquid existere potest, et aliis compatible est, id existere", 2 December 1676, A VI, 3, 581)

Leibniz's principle is that "everything that can exist and is compossible with all other existing things exists." The concept of the mind's immortality is inherently coherent and compossible with all other things in the universe, meaning that it neither introduces any contradiction into reality nor interferes with or disrupts the natural order of things. Therefore, immortal minds must exist.

With this principle, Leibniz asserts that reality consists of all compossible things, or a maximal set of compossible things, and that anything that does not exist is incompossible with the existing order[34] or impossible in itself.

> Et Qualitates simul sumta, seu imaginabilitas, constituunt Essentiam; sensibilitas Existentiam. Ex cogitatione autem plurium Entium simul oriuntur Relati o n e s, seu affectiones

33 The Latin word "sapientia" means "wisdom" and is related to the verb "sapere", meaning "to taste" or "to discern."

34 "Sed quia alia aliis incompatibilia sunt, sequitur quaedam possibilia non pervenire ad existendum." ("Ratio est in natura", 1698, A VI, 5, N. 2680, advance edition) cf. Sakai, Kiyoshi: "Leibniz' Übernahme und Innovation der metaphysischen Grundbegriffe: possibilitas, realitas, ratio", in *"Le présent est plein de l'avenir et chargé du passé." Vorträge des XI. Internationalen Leibniz-Kongresses*, ed. by Li, Wenchao / Wahl, Charlotte et al., vol. IV, Hannover: Wehrhahn Verlag (2024), pp. 495–509.

> Entis. Nam ex coimaginabilitate seu coexistentia oritur comparatio: hue idem, diversum; simile, dissimile, contrarium; genus, species; universale, singulare. Ex consensibilitate seu coexistentia oritur connexio: hue totum, pars; ordo, unum, plura; necessarium, contingens, connexum, causa, etc. Hinc fluit Metaphysica universa.[35] ("Nova Methodus Discendae Docendaeque Jurisprudentiae", 1667, A VI, 1, 285)

Leibniz distinguishes between essence and existence by grounding them in the concepts of "co-imaginability" and "consensibility," respectively.

Leibniz identifies essence with the combination of qualities that can be conceived together without contradiction, that all these qualities are co-imaginable as all being true of one subject.[36] This "co-imaginability" ensures the inherent consistency of a concept. The essence of a substance is its complete individual concept that consists of all compossible (or co-imaginable) predicates of it. The relations arise from the co-imaginability are logical and conceptual, allowing essences to be combined into a coherent world.

"Sensibility constitutes existence." In Leibniz's metaphysics, "co-sensibility" refers to the correspondence of monad's independent perceptions. Nothing exists in isolation; all existents are interconnected through a universal harmony. There is no causal interactions between monads; rather, their coherence and interconnection are realized through mutual mirroring[37] and correspondence. Each substance is not merely a part of its world but is a living mirror of the whole, expressing the entire reality from its own unique perspective.[38] Monads can coexist because their perceptions exhibit coherence. By considering multiple existences together, we reveal the harmonious rela-

35 For English translation see Leibniz: *Philosophical Papers and Letters.* Edited and translated by Loemker, Leroy E., Dordrecht: Springer (1989), p. 89. Hereafter, this book will be referenced as L followed by the page number.

36 Co-imaginability (the simultaneous conception of qualities) refers to the unique combination of properties that constitute an individual's essence which contains all the predicates that are true of the being.

37 *La Monadologie*, § 56, GP VI 616: "Or cette Liaison ou cet accommodement de toutes les choses creées à chacune et de chacune à toutes les autres, fait que chaque substance simple a des rapports qui expriment toutes les autres, et qu'elle est par consequent un miroir vivant perpetuel de l'univers."

38 *La Monadologie*, § 61, GP VI 617: "Et les composés symbolisent en cela avec les simples. Car comme tout est plein, ce qui rend toute la matiere liée et comme dans le plein tout mouvement fait quelque effet sur les corps distans à mesure de la distance, de sorte que chaque corps est affecté non seulement par ceux qui le touchent, et se ressent en quelque façon de tout ce qui leur arrive, mais aussi par leur moyen se ressent encore de ceux qui touchent les premiers dont il est touché immediatement: il s'ensuit, que cette communication va à quelque distance que ce soit. Et par consequent tout corps se ressent de tout ce qui se fait dans l'univers; tellement que celuy, qui voit tout, pourrait lire dans chacun ce qui se fait partout et même ce qui s'est fait ou se fera; en remarquant dans le présent ce qui est éloigné, tant selon les temps que selon les lieux: συμπνοία πάντα, disoit Hippocrate. Mais une Ame ne peut lire en elle-même que ce qui y est representé distinctement, elle ne saurait developper tout d'un coup tous ses replis, car ils vont à l'infini."

tionships that grounds "being qua being". In Leibniz, individuals do not exist because of their inherent essence, but because they contribute to the pre-established harmony that constitutes the best possible world. This co-sensibility indicates the harmony between monad's independent perceptions, which is grounded in the compossibility among their complete series of perceptions within divine understanding.

The co-imaginability of qualities makes up an essence, while the co-sensibility of monads constitutes the pre-established harmony of a coherent world. Both are grounded in the compossibility within divine understanding.

> Contingentium existentia non ex earum essentia sive possibilitate sed ex Dei voluntate, vel quod eodem redit, harmonia rerum universali sequitur. (Leibniz to Veit Ludwig von Seckendorf, May 1685, A II, 1, 870)

The existence of contingent beings does not arise from their independent essence or possibility, but rather from the world they belong to and the compossibility. In Leibniz's metaphysics, possible worlds, rather than individual substances, are the qualified candidates for creation, because God aims to create the optimal harmonious system[39], where all individuals are interconnected. Each individual contributes to the overall harmony and perfection of the whole system. The harmony between their expressions unifies them into a cohesive whole, further enhancing the total perfection and making the whole transcend the mere aggregate of individuals. As a result, the goodness of the world as a whole is not the sum of the goodness of its parts but depends on its overall structure and harmony. Due to the inherent limitations of created beings, this world is not absolutely perfect, but it is the best among all possible worlds, optimally harmonizing the richest diversity with the simplest unifying order.

Thus, possible worlds serve both as conceptual constructs and as potential candidates for creation, each representing a unique and complete configuration of reality. There are infinitely many possible worlds that God could have chosen to create, indicating His freedom in creation. Compossibility, then, serves as the principle that organizes possibilities into distinct possible worlds and grounds the coexistence of diverse entities within reality.

In the second part, I will explore Leibniz's concept of compossibility, which involves both logical independency and logical entailment. While Aristotelians and the Falasifa grounds the causal power in the logical entailment, al-Ghazālī asserts that all creatures are logically and ontologically independent from each other, with everything contin-

39 See Schepers, Heinrich: "Zum Problem der Kontingenz bei Leibniz: Die beste der möglichen Welten" in Idem: *Leibniz: Wege zu seiner reifen Metaphysik*. Berlin: de Gruyter (2014), pp. 18–41. According to Schepers, this harmony is not merely a logical or mathematical calculation but involves a metaphysical and aesthetic evaluation of the compossibility and perfection of different possible worlds.

gent upon divine will, making God the only true agent. Leibniz redirect the logical entailment within the series rerum, proposing that every event entails all its preconditions, thereby the cause does not determine the effect. In different possible worlds, the same cause can lead to exclusive effects. It is God's selection from infinitely many worlds that determines which effect will follow. Leibniz's possible world as a maximal set of compossible propositions is organized into a coherent *tota rerum series* that unfold continuously; while the complete individual concept is organized into the series of states inherent to each individual. The independent unfolding of monads collectively bring about the unfolding of reality. Time, in Leibniz's view, emerges from the sequential unfolding of events, thus is grounded in logical entailment. Space arises from the simultaneous presence of things, thus is grounded in their logical independence.

Mathematics and geometry served as fundamental metaphysical principles for the Pythagoreans and Plato, influencing later philosophers. The rise of early modern science, which heavily depended on the development of mathematics[40], shaped both natural philosophy and metaphysics. Within this context, Leibniz argues that metaphysics should be reduced to a purely Euclidean demonstration[41], reflecting his commitment to a rational ordered cosmos and the role of mathematical rigor in reasoning. Michel Serres[42] speaks of "ses modèles mathématiques" of Leibniz's system, Herbert Breger describes "mathematics as the substructure of Leibniz's metaphysics."[43] Indeed, Leibniz frequently invokes mathematical and geometrical figures as explanatory tools in his metaphysical system.

In 1695, for the first time, Leibniz published an important philosophical work, "Système Nouveau de la Nature et de la Communication des Substances, ainsi que de l'Union qu'il y a Entre l'Âme et le Corps", in the *Journal des Sçavans*[44].

40 Cf. Knobloch, Eberhard: "Über die allgemeine Bedeutung der Mathematik für die frühaufklärerischen Wissenssysteme und die spezielle Bedeutung bei Leibniz". *Wissenskulturen in der Leibniz-Zeit: Konzepte – Praktiken – Vermittlung*, edited by Beiderbeck, Friedrich and Gantet, Claire, Berlin, Boston: De Gruyter Oldenbourg, 2021, pp. 23–44.

41 A II,1[2]; 721: Leibniz to Nicolas Malebranche, 22. June (2. July) 1679: "Pour moy je me trouve forcé d'estimer également toutes les verités à proportion des consequences qu'on en peut tirer; et comme il n'y a rien de si fécond ni de si important que les verités generales de metaphysique, je les aime au delá de ce qu'on saurait croire. Mais je souhaiterais de les voir établies avec cette rigueur dont euclide s'est servi en Geometrie."

42 Serres, Michel: *Le système de Leibniz et ses modèles mathématiques: étoiles, schémas, points.* Paris: Presses universitaires de France, 1982. p. 70.

43 Breger, Herbert: "Mathematics as the Substructure of Leibniz's Metaphysics", in Idem: *Kontinuum, Analysis, Informales. Beiträge zur Mathematik und Philosophie von Leibniz*, ed. Li, Wenchao, Berlin: Springer Spektrum (2016), pp. 91–103. See also Rutherford, Donald: "Demonstration and Reconciliation: the eclipse of the geometrical method in Leibniz's Philosophy", in: *Leibniz's 'New System' (1695)*, ed. R. Woolhouse, Leo S. Olschki (1996), 181–201.

44 Leibniz's "New System" appeared in two parts, on June 27 (pp. 294–300) and July 4 (pp. 301–306). Notably, this was the first time Leibniz publicly presented his metaphysical system, as earlier works like the "Confessio Philosophi" (1673) and "Discours de Metaphysique" (1686) were only published posthumously, in 1846 and 1915, respectively. This publication is cataloged in Emile Ravier's

The work provoked debates within the intellectual community, drawing criticism from thinkers like Simon Foucher and Pierre Bayle. During this period, through ensuing controversies and his correspondence with other thinkers, some fundamental concepts of Leibniz's metaphysics crystallized. For example, in his letter to L'Hospital, "monas" becomes the building blocks of reality for the first time: "La clef de ma doctrine [...] consiste dans cette consideration que ce qui est proprement une unite reele, Monas."[45] In letters to Henri Basnage de Bauval[46], Leibniz refers his new system to "harmonie [...] bien établie" and "l'harmonie preétablie."[47]

While the title of the Système Nouveau includes "Communication des Substances", the text itself discusses "Correspondance." In his April 1696 response to Simon Foucher, also published in the *Journal des Sçavans*, Leibniz switched between terms like "concomitance", "lois de l'Harmonie", and "Harmonie preétablie", adding the qualification: "s'il m'est permis d'employer ce mot"[48].

Leibniz struggled to make his system of pre-established harmony comprehensible, particularly to Bayle. In his final reply to Bayle's "Rorarius article" in the second edition of the *Dictionnaire* (1702), Leibniz, as usual, used a geometric metaphor, comparing the pre-established harmony to a "ligne" and a "courbe preétablie." He described all events in the world as predetermined within the divine intellect, unfolding as part of a "pre-established curve" where each state follows in sequence. This curve reflects God's organization of the structure of world. Every possible world constitutes a *tota rerum series* in divine understanding, and creation is the act by which God selects and actual-

Bibliographie des Oeuvres de Leibniz, Paris (1937), reprint Hildesheim: George Olms Verlag (1997), pp. 69–70, No. 141.

45 July 22, 1695. A III, 6, 451.

46 Leibniz to Henri Basnage de Bauval, second half of September 1695, A II, 3, 85: "Mais c'est avec une harmonie si exacte et si bien établie d'abord entre les substances differentes par la sagesse infinie de l'auteur des choses [...]. Mais je crois, [...] que le changement [...] ne se fait qu'en consequence de l'harmonie preétablie." January 3rd/13th 1696, A II, 3, 120: "Mettés maintenant l'ame et le corps à la place de ces deux montres; leur accord ou sympathie arrivera aussi par une de ces trois façons. La voye de l'influence est celle de la Philosophie volgaire; [...] La voye de l'assistance est celle du systeme des causes occasionelles. [...] Ainsi il ne reste que mon hypothese, c'est à dire que la voye de l'harmonie pré-établie, par un artifice divin prevenant [...]". See also the introduction to A II, 3, p. XXXVI.

47 See the detailed study by Roger S. Woolhouse and Richard Francks: "Leibniz, Lamy, and 'the way of pre-established harmonie'", *Studia Leibnitiana* 26 (1/1994): pp. 76–90. The authors demonstrate, among other things, that Bayle's claim – that Lamy was the first to introduce the term "prästabilierte Harmonie" (cf. GP IV, 534)–is untenable.

48 "Eclaircissement du nouveau système de la communication des substances, pour servir de réponse à ce qui en est dit dans le Journal du 12 septembre 1695." GP IV, 494–496. See Fichant, Michel: "Le 'Système de l'Harmonie Préétablie' et la critique de l'Occasionalisme", in: *Neuzeitliches Denken. Festschrift für Hans Poser zum 65. Geburtstag*, ed. by Günter Abel, Hans-Jürgen Engfer, Christoph Hubig, Berlin: de Gruyter (2002), pp. 145–161. Michel Fichant demonstrates how the concept of "prästabilierte Harmonie" emerged in Leibniz's writings in a convincing way.

izes the best possible *series rerum*. Providence ensures that reality proceeds according to this divinely preordained order.

> Ainsi j'avoue que la spontaneité n'est pas proprement dans la masse (à moins que de prendre l'univers tout entier, à qui rien ne resiste); car si ce point pouvait commencer d'estre seul, il continuerait non pas dans la *ligne preétablie*, mais dans la droite tangente. C'est donc proprement dans l'Entelechie (dont ce point est le point de vue) que la spontaneité se trouve; et au lieu que le point ne peut avoir de soi que la tendance dans la droite qui touche cette ligne, parce qu'il n'a point de memoire, pour ainsi dire, ni de pressentiment, l'Entelechie exprime la courbe preétablie même, les corps environnants ne pouvant point avoir d'influence sur cette Ame ou Entelechie, de sorte qu'en ce sens rien n'est violent à son egard [...]. ("Reponse aux reflexions contenues dans la seconde Edition du Dictionnaire Critique de M. Bayle, article Rorarius, sur le systeme de l'Harmonie preétablie", May 1702. GP IV 558.)[49]

In addition to this, Leibniz frequently used the "curve" as a metaphor for the idea of "unified infinity". Most commentators, however, pay no attention to this.[50] In my view, the coined term "pre-established curve" represents the continuous and self-driven evolution of monads, as well as the consistency and agreement between independent monads. Leibniz stated that, "each of these substances contains in its nature the law of the continuation of the series of its operations".[51] The "curve" symbolises the unity and internal dynamism (the conatus or appetition) of a monad, reflecting its unified progression through a continuous series of states. The monad is a unity *per se*, since its complete individual concept contains all its states, thus distinct states are not externally imposed into a succession or sequence, but are intrinsically connected into a continuity by its own entelechy, and it transitions from one state to the next are propelled by its own nature. Furthermore, the pre-established curve also represents the principle of compossibility, illustrating how independent monads can unfold their own series without conflict with each other.

In the third part, I will explore Leibniz's concept of the "pre-established curve". Its geometric properties explain both the structure of reality and the relationship between monads and the universe, which are intrinsically logical but can be represented by ge-

49 Published in *Histoire critique de la republique des lettres*, volume 11, 1716, Amsterdam, article 4, pp. 78–115. "La courbe préétablie" can be found in p. 88. Cf. Woolhouse, R. S.: "John Toland and 'Remarques critiques sur le Systême de Monsr. Leibnitz de l'Harmonie préétablie'", in: *The Leibniz Review* 8 (1998), pp. 80–87.

50 Brown, Gregory: "Is there a Pre-established Harmony of Aggregates in the leibnizian Dynamics, or Do non-substantial Bodies interact?", in: *Journal of the History of Philosophy* 30.1 (1992), pp. 53–75. To my knowledge, only Gregory has mentioned this term of "pre-established curve." I extend this concept further to include Leibniz's every geometric metaphor during that time.

51 Leibniz to Arnauld, March 23 1690, A II, 2, 312: "Chacune de ces substances contient dans sa nature *legem continuationis serici suarum operationum*."

ometric principles. God conceives of each possible world as a logically coherent *tota rerum series*, represented by a continuous curve, in which divergent choices or encounters lead to divergent trajectories. This "curve" reveals the relationship of the universal harmony between monads and the inherent consistency of the states within monads; it also explains the coherence of the phenomena that arise from harmony, all of which are grounded in compossibility. According to Leibniz, monads can be compared to the centres of curvature along this metaphysical curve, each expressing the entire world from its unique perspective. The underlying reality is structured by logic, not by geometry or mathematics, which are expressions of logic.

Leibniz reveals the whole world as an interconnected system of logical relations and truths that can be represented by a single curve or function. This reflects his belief in the principle of sufficient reason and the logical necessity as the structuring principle of reality. He contends that the divine intellect constructs the world through the principle of compossibility, that even the divine will cannot add or subtract any component of the world. All things within this world are organized by the principle of sufficient reason, ensuring the continuity and intelligibility of the entire world. Logical necessity and principle of sufficient reason bridge the divine, reality, and created minds, rendering them commensurable.

Leibniz's infinitesimal calculus made continuous reality accessible to reason, since it captures infinity through finite analysis. In this geometric analogy, the derivative or tangent line of this curve signifies incompossibility with this world, which means ignoring all others and the pre-established harmony, disrupting the coherent reality. Conversely, the phenomena that arise from the pre-established harmony are represented by the integral of this world curve. They are governed by the fundamental law without constituting the law. Then, I will argue that the best possible world is embodied by the simplest underlying function that yields the greatest integral of harmony.

Nevertheless, Leibniz's concept of the "pre-established curve" does not reduce metaphysics to mere mathematics; rather, he uses the precision and rigour of mathematics to illustrate the rational structure in his metaphysical system. For God, the infinitely complex calculus and all contingent truths are penetrated by a single intuition[52], as it includes the logical relations of all possibilities and the structure of all possible *series rerum*. Mathematics serves as a tool for representing these logical constructs and thus bridging the human mind and the divine mind.

To resonate with the beginning, I conclude with reflections on Leibniz's understanding of God, as well as the challenges posed by the non-self-evident hypotheses upon which he builds his metaphysical system. Leibniz's main distinction from his contemporaries lies in his concept of God as the source of all concepts and existence,

52 GP VI 426: God "connoist tous les degrés, tous les effets, tous les rapports des choses, et […] penetre tout d'un coup toutes leur liaisons possibles". ("Remarques sur le Livre de l'origine du mal", § 23, *Essais de Théodicée.*)

acting according to the principle of sufficient reason and the principle of perfection. His central argument for the existence of God and the problem of evil rest on the claim that "this world is the best of all possible worlds, because it is created by God, whose infinite wisdom and goodness lead Him to choose the best over all alternatives." If God were to create a less perfect world, He would cease to be the God who possesses all perfections. The hypothesis of "multiple possible worlds" and the "actualization of the best world" become logical preconditions of God's existence. The ontological argument[53] for God's existence and the justification of existing evil form circular argument. On the other hand, Leibniz views human-being as little gods[54], which means that the best possible world depends on our own striving for the best[55].

"Leibniz is not easy to study."[56] How true that is! Although researchers often speak of a young and a later Leibniz, his thinking remains consistent and continuous throughout his intellectual life. This is evident in my work: in every problem, I have quoted Leibniz's original works, from his very "primary" thoughts to the most sophisticated ones, and they exhibit conformity and coherence. Two examples are his wrestling with the problem of "Theodicy" and his adherence of "Characteristica Universalis". Just as a drop of water reflects the whole lake, the monad mirrors the whole universe, all his thoughts, across time and disciplines, are interconnected – like his ambition to reduce all truths to the calculus of logic.

Thanks to the "Leibniz Edition", we now have access to a more complete Leibniz's thought, including his essays, notes, and correspondences. The project of the "Leibniz Edition" has been ongoing for over 100 years, yet it is still unfinished. The rich legacy of Leibniz's thought is extremely difficult to grasp, but the editors' efforts have made it more probable. Although I have tried to involve as much Leibniz's own thinking on relevant topics as possible in my work, I must admit that I may have missed some aspects. Besides, there are many excellent studies on Leibniz's philosophy written in German, French, Italian, and Spanish. However, limited by my capacity and strength, my work cannot cover all of them.

53 *La Monadologie*, § 36–42, GP VI 612–3; "Entretien de Philarete et d'Ariste, suite du premier entretien d'Ariste et de Theodore", GP VI 590.

54 GP IV 479: "Comme des petits Dieux." In "Système nouveau de la nature et de la communication des substances, aussi bien que de l'union qu'il y a entre l'âme et le corps".

55 See Li, Wenchao: "Leibniz und die Unverfügbarkeit der Zukunft", in: *"Le présent est plein de l'avenir et chargé du passé." Vorträge des XI. Internationalen Leibniz-Kongresses*, ed. by Li, Wenchao / Wahl, Charlotte et al., vol. IV, Hannover: Wehrhahn Verlag (2024), pp. 217–231.

56 Garber, Daniel: "Thinking in the Age of the Learned Journal: Leibniz's Modular Philosophy", in: *"Für uns Glück oder das Glück anderer". Vorträge des X. internationalen Leibniz-Kongresses*, ed. by Li, Wenchao, et al., vol. VI, Hildesheim: George Olms Verlag (2017), pp. 195–204, here p. 195. See also Holz, Hans Heinz: *Gottfried Wilhelm Leibniz*, Frankfurt: Campus Verlag (1992), pp. 9–11.

As for my methodology, I developed my interpretation of Leibniz according to the analysis of his own works. I presented the individual quotations and key terms from his writings before constructing my own arguments based on them.

Furthermore, since philosophy is never an isolated endeavor, any consideration of Leibniz's thought must be placed within the context of the history of philosophy and the intellectual discussions of his time. I have therefore related his arguments to those of the broader philosophical tradition. Aristotle's philosophy, as the main theme of medieval philosophy and the object of critique in later scholasticism and modern philosophy, plays an important role in this context. Additionally, Islamic philosophy, although not frequently mentioned by Leibniz, addresses similar problems, revolving around God's role in creation and sustenance, the problem of evil, the necessity and contingency of the world's structure, and even the idea of possible worlds. I have drawn on these similar or contrary arguments as references to clarify Leibniz's own thinking.

I.
Possible Concepts and Conatus

I.1 Divine Unity and the Origin of Possibilities

I.1.1 Real Definition of God

> Sed sciendum est, non posse pro arbitrio conjungi notiones, sed debere ex iis conceptum formari possibilem, ut habeatur definitio realis; unde patet omnem realem definitionem continere affirmationem aliquam saltem possibilitatis. ("De Synthesi et Analysi Universali seu Arte Inveniendi et Judicandi", Summer 1683 to early 1685? A VI, 4, 542)

Leibniz defines possibility as a non-contradictory concept in the divine mind. Even for God, forming a concept does not mean arbitrarily combining ideas; only if the components are mutually compossible can they constitute an internally coherent concept. Consequently, to define something is to demonstrate its possibility.

A nominal definition only assigns a name[1]; by contrast, a real definition must, by its very nature, be self-sufficient in establishing its own inherent coherence. This means that a real definition must contain all the assertions about the subject in order to ensure the absence of any internal contradiction.

> Deus est omnium perfectionum possibilium aggregatum. Deus omnia habet et dat seu facit. ("Aus und zu Caramuel de Lobkowitz, Leptotatos", Sommer 1689? A VI, 4, 1341)

> Argumentum est a Scholasticis apud Thomam jam allatum et a Cartesio renovatum, quod scilicet Existentia sit de conceptu Entis perfectissimi sive quo majus concipi non potest; alioqui enim deesset ipsi aliqua perfectio, sive aliquis realitatis gradus, contra hypothesin. Quod si jam existentia ex conceptu seu definitione Entis perfectissimi sive Dei sequitur, utique de eo poterit existentia vere praedicari, ac proinde Deus existit. Hoc argumentum imperfectum est, assumit enim aliquem Entis perfectissimi conceptum esse, sive Ens perfectis-

1 Here Leibniz discusses how Hobbes' nominal definition makes truths also nominal and arbitrary.

> simum esse possibile. Sed qui contradicere volent, respondere poterunt, Ens perfectissimum fortasse implicare contradictionem, quemadmodum Motus Celerrimus, Circulus Maximus, aliaque id genus. Illud tamen praeclari continet haec argumentatio, quod ostendit ex sola possibilitate Dei sequi ejus existentiam, quod in aliis rebus locum non habet. ("De Probanda Divina Existentia", 1678 to 1679? A VI, 4, 1390)

For Leibniz, the real definition of God is that He possesses all possible perfections.

The ontological argument for God's existence is that since His concept encompasses all perfections, it must also include existence; otherwise, it would lack some perfection, which contradicts its very definition. Thus, the definition of God entails His existence.

However, Leibniz identifies a crucial defect in this argument: this definition itself could be self-contradictory, just like the impossibility of the largest circle or the fastest motion. Leibniz admits the logic of the ontological argument, but he emphasises that the internal coherence of God's definition must first be ensured, then God's existence would follow.

To demonstrate the possibility of God's concept is to establish that no contradiction exists among all possible perfections. This contrasts with cases like the "fastest motion" or the "largest circle", where the quantity is a potential infinity and thus contradicts a boundary or limit. Perfections are all purely affirmative[2] and logically independent attributes. Contradiction is formally represented by $P \wedge \neg P$, meaning that a proposition and its negation, or what entails its negation, cannot both be true simultaneously. But all perfections are purely positive and independent of each other, so they are mutually compossible. Therefore, the concept of God as the unity of all possible perfections is internally coherent, without any contradiction. Consequently, God necessarily exists by His nature.

However, how could incompossible concepts arise within the divine mind?

I.1.2 From Divine Mind to Diverse Possibilities

God possesses infinite and perfect attributes, which are not distinct parts or modes of His essence but are harmoniously unified within His absolute simplicity and perfection. Through God's self-reflection, all possibilities arise as the necessary content

2 A VI 3, 572–574: "Quod ens perfectissimum sit possibile" (November, 1676?). "[Q]uod Ens perfectissimum, seu quod omnem Essentiam contineat, seu quod omnes habeat Qualitates, seu omnia attributa affermativa, sit possibile, seu non implicet contradictionem." "[A]deoque duae quaelibet qualitates affirmativae sunt compatibles, adeoque omnes omnibus; possibile est ergo Ens quod omnia habeat attributa." In this essay, Leibniz argues that the most perfect being that contains all "affirmative attributes" is possible because these affirmative attributes do not contradict each other.

of the divine understanding[3], eternally existing within God's mind. Grounded in the divine nature, these possibilities serve as the limited expressions of divine perfection. Therefore, they are independent of divine will and actuality but remain reflections of the divine attributes, even if they may never be instantiated in reality. However, while all divine attributes are compossible, not all possibilities derived from them are compossible. This is because their inherent "limitations" would imply contradictions.

The Binary System and the Multitude

A. Je ne voy pas bien comment le neant, qui est rien, puisse entrer dans la composition des choses.

B. Vous sçavés pourtant comment dans l'Arithmetique les zero joints aux unités, font des nombres differens comme 10, 100, 1000. Et un homme d'esprit ayant mis plusieurs zero de suite mit au dessus: Unum autem necessarium. Mais sans aller si loin, vous m'avouerés que toutes les creatures sont limitées, et que leur limites, ou si vous voulés leur non plus ultra, est quelque chose de Negativ. Par exemple un Cercle est limité, à cause que l'ouverture du compas dont on se sert pour le decrire n'a pas esté prise plus grande; ainsi les bornes, ou le non plus ultra de cette ouverture determine le cercle; et il en est de même de toutes les autres choses, car elles sont bornées, ou imparfaites par le principe de la Negation ou du Neant, qu'elles renferment, par le defaut d'une infinité de perfections qui ne sont pas en elles, et ne sont qu'un Neant à leur egard. (Leibniz for Friedrich Boguslav Dobrzensky, 25 January (4 February) 1695. A II, 3, 12–13)

[T]amen ubi Arithmeticam meam binariam excogitavi, antequam Fohiniorum characterum in mentem veniret, pulcherrimam in ea latere judicavi imaginem creationis seu originis rerum ex nihilo per potentiam summae Unitatis seu Dei. Et considerandum est, Numerorum expressiones in Binario calculo oriri ex unitate et nihilo, non per conflationem, velut cum dicimus 1 + 1 esse 2. et 1 + 1 + 1 esse 3. et ita porro (quo modo utique, comparando cum Deo unitatem, et creaturas cum numeris; Deus materia creaturarum fieret) sed per influxum quendam, ut sic dicam perfectionum majorem minoremve, prout determinatur situs unitatis respectivus, qui non nisi umbra est unitatis absolutae omnes situs transcendentis, adeoque infinitum potestate complexae. (Leibniz for Louis Bourguet, 15 December 1707. A II, 4, 692–693)

3 Cf. Brown, Gregory: "Compossibility, Harmony, and Perfection in Leibniz." *Philosophical Review* 96 (1987): 173–203. This argument see pp. 180–195. Brown explains how monadic complete individual concepts are constructed from primitive concepts of divine perfections.