Leibniz's Possible Worlds

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Abstract

The concept of 'possible world', which originated from Leibniz's modal metaphysics, has stirred up fierce debates among contemporary philosophers. This paper aims at explaining three basic theses which constitute Leibniz' s doctrine of possible worlds, that is 'striving possibles', 'compossibility' and 'the principle of the best'. In each of these theses, we also explain some debates among scholars and argue that the focus of all the debates about Leibniz's doctrine of possible worlds lies in whether Leibniz's ontology has reasonably established the foundation of ultimate reality, that is, whether monads have been fully described by the complete concepts, or are just a metaphysical hypothesis.

1 Leibniz's Motivation

It has been said that one of the main motivations for Leibniz to establish the doctrine of possible worlds is to avoid the mistakes which had been committed by Spinoza who thought that everything is determined and nothing happens contingently.

Leibniz's theory of complete concept together with his principle of 'praedicatum inest subjecto' has already invoked fierce debates, among his contemporaries, over whether, for example, the predicate 'being the conqueror of Darius and Porus' is already contained in the subject 'Alexander the Great'. In the *Discourse On Metaphysics,* he said 'the nature of an individual substance or of a complete being is to have a notion so complete that it is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which this notion is attributed.' Moreover, though 'being a king' is not determinate enough to constitute an individual, God 'sees in it at the same time the basis and reason for all the predicates which can be said truly

of him'.[1] As a result, in the Leibniz-Anauld correspondence, Anauld heavily criticized Leibniz for his falling into Spinozistic necessitarianism or fatalism, the doctrine that everything is controlled by an absolute being and everything will turn out in a pre-determined way.

2   Complete Concepts and Possible Individuals

These criticisms forced Leibniz to reinterpret or even reconsider his theory of complete concepts. It is the possible worlds to which Leibniz appealed in order to save his theory from falling into fatalism. And there are close connections between possible worlds and complete concepts. If the complete concept is so complete that everything that can happen to an individual substance or is true of the subject that represents that individual substance nominally is already contained in the concept, then possibility has to be added to that concept. Otherwise, we must have a clear and distinct idea of that individual substance and be able to decide whether certain predicate or property is contained in the concept of that individual substance. But it is impossible for our limited beings to have such an idea. On the one hand, predicates, like being the first man, being put in a pleasure garden, and leaving the garden through sin, might be contained respectively in the subjects of several different Adams. On the other hand, that Caesar might have crossed the Robicon does not contradict with that Caesar might not have crossed the Robicon, but that Caesar crossed the Robicon contradicts with that Caesar not crossed the Robicon when they are both actualized at the same time, so the contradictory predicates partition the complete concept into different sub-concepts, which are disjoint with each other. Then there are many Caesars to satisfy the conditions of these sub-concepts. So the effort to establish the complete concept and to close the domain of that concept to specify a unique individual substance unfortunately leads to the negative result: many possible individuals have been introduced in the domain.

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[1] Leibniz, Gottfried Wilhelm, 1646-1716. Discourse on metaphysics and other essays/G.W. Leibniz; edited and translated by Daniel Garber and Roger Ariew. [monograph] Indianapolis: Hackett, c1991. p8.

In a word, in the actual world there are properties that can not be attributed definitely to a certain individual, and the complete concept of that individual can not be established to contain all the predicates—the state of affairs that happened, are happening and will happen to that individual. However, in the possible worlds, the complete concept is closed such that it contains everything that would have happened, would happen and were to happen to that individual. In other words, the unique actual world has been stretch out into possible worlds, and accordingly the domain in which we talk about the complete concept has also been expanded, or we can only talk about complete concept in the domain of possible worlds.

In a broader sense, Leibniz's appeal to possible worlds also shows the interconnections between logic and ontology in his philosophy. When he brought forward complete concepts, he was talking about the problems of logic, that is, how to give an individual substance ('ουσια' in the Aristotelian sense) a definition ('ιδεα' in the platonic sense). In addition, that is also an ontological problem, for the definition is given to nothing but an individual substance.[2] When talking about definitions, the *genus* and *differentia*, we are talking about the containing-relations between concepts, but there are two ways to interpret the containing-relation: one is intensive, and the other is extensive. As we all know from Leibniz, the larger the intension of a concept, the smaller the extension of the concept. In addition, there is still a contradiction between extension and intension, which lies in that there may be some definitions having different intension but given to the same group of individuals (extension). For example, as Quine has said, predicates like creature with a heart and creature with a kidney have different intention but are given to the same extension, namely, animals. It is at this point that Leibniz using his possible worlds to explain the difference, and he thought that the predicates by which a substance can be defined contain not only the individuals in the actual world, but also the individuals in the possible worlds. Therefore, while it is coincident that in the actual world creature with a heart are the same as creature with a kidney, there are difference between creature with a heart and

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[2] To refrain him from the contradiction between individual and universal—the persisting problem of universals over which controversies has been stirred up in the medieval philosophy, Leibniz has to find a new method, which leads to the argument for possible individuals.

creature with a kidney in the possible worlds, that is, in a certain possible world, there is creature with a heart yet having no kidney.

3   Striving Possibles

Whereas necessitarianism can be overcome by possible worlds in which possible individuals live, the question whether possible individuals really exist can still be raised. To solve this problem, let us come to the doctrine of striving possibles in the philosophy of Leibniz.

It is a very difficult question about what 'striving possibles' on earth mean, for there are debates between interpreting it literally and figuratively.[3] The central point of the dispute is whether the best possible world exists as a result of its own internal striving to existence or God as an external force creating it. This point can also be translated, by other terms, into the question that whether existence is contained in the essence of individuals or existence is added to individuals from outside, that is to say, whether the essence includes the reason of individuals' existence or external factors cause individuals to exist. In my opinion, this question is not raised properly, for it does not follow the logical sequence by which Leibniz illustrated his possible worlds. The urgent question brought forward here is not how to choose among possible worlds to make the best of them actualized but whether possible individuals really exist when Leibniz proposed the doctrine of striving possibles. According to Leibniz's view, we can argue that God do not choose among possible individuals but among possible worlds.

Here, it seems that we are trapping into a dilemma: possible individuals can not really exist, because if the striving possibles itself includes the cause of its existence, and its existence will be determined by itself, then the actual world will become a necessary one; they must exist, because their existence is required to explain the completeness of complete concepts. But we can flee from such dilemma by making a

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[3] David Blumenfeld, 'Leibniz's Theory of Striving Possibles', Christopher Shield, 'Leibniz's Doctrine of the Striving Possibles', in Gottfried Wilhelm Leibniz: critical assessments.[monograph] London: Routledge, 1994, vol 2, pp1-28.

distinction between the two different senses of containment-relation: 'belonging' and 'inclusion'. In terms of set theory, belonging is the relation between set and elements, and inclusion is the relation between set and subsets. This distinction is of great significance for the ontological role that possible individuals play in Leibniz's philosophy: whereas the predicates have partitioned the complete concept into different sub-concepts, each sub-concept can also be partitioned further. Because of these infinite regress, each sub-concept can not correspond to a unique individual, there are forever several possible individuals fitting the corresponding sub-concept. As a result, there is no ultimate reality for possible individuals to inhabit. From the above argument, we can arrive at a conclusion that possible individuals do not really exist.

In other words, when we expanded our actual world to get the completeness of concepts, the reality is not extended but expanded by our ideas, that is, we attribute different modal predicates to the same individual substance. As a result, we add many possible individuals to the complete concepts to make the boundaries of these concepts closed. And the extension of the individual concept changes from an element to a unit set, and then to a set including many possible individuals. This analysis reveals two competitive factors: one is the completeness of a concept, and the other is the vagueness of the concept. And the more complete a concept we get, the vaguer the concept we understand.

This can be further explained in two ways with respect to Leibniz's monadology. First, from the epistemological view, monads are mirrors of the universe and have different degrees of perception: 'each simple substance has relations that express all the others, and is consequence a perpetual living mirror of the whole universe.'[4] And monads 'all reach confusedly to the infinite, to the whole; but they are limited and differentiated by the degrees of their distinct perception.'[5] So when we want to have a complete perception of an individual substance which is interconnected with other substances and closely related to the whole world, we have to at first have a picture of

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[4] Rescher, Nicholas. G.W. Leibniz's monadology: an edition for students. [monograph] London: Routledge, 1991. p198

[5] Ibid. p210.

the whole universe, which could only be understand to certain extend. Second, from ontological view, monads are real substances and can not be divided further into small parts: 'where there are no parts at all, no extension or figure or divisibility is possible. And these monads are true atoms of nature, and, in a word, the elements of things.'[6] So the individual substance in our commonsense can be divided further into many (or infinite) possible individuals in the sense of thought experiment. The question—how these possible individuals play a role of ultimate reality, like monads—will be discussed in the following.

4   Compossibility

While we have illustrated that possible individuals do not really exist and have no ontological role in Leibniz's philosophy, there is still a question of how to form a possible world by possible individuals. Then we are led to the doctrine of compossibility in Leibniz's philosophy. There are also debates over compossibility among scholars, that is, on the one hand, whether compossibility should be interpreted analytically or synthetically, and on the other hand, whether the relationship of compossibility is transitive or not.

First, some scholars think that two possible things are incompossible if the actualization of both leads to a logical contradiction. Others think that compossibility means the orderliness and lawfulness of relations among substances. Although the difference may be derived from a more complicated and difficult question—whether relations can be reduced to non-relations[7], there is a significant change in Leibniz's thought, which can explain the difference. As it is hard to explain the ultimate reality of possible individuals, Leibniz's interest changed from complete concepts to the spontaneous principle of action (εντελεχη), that is, a shift from the traditional logic and metaphysics to the modern dynamics. Because the static analysis of possible

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[6] Ibid. p51.
[7] We leave out the complicated problem, that is, how relations can be reduced to non-relations. That reduction is also close related to another thesis that all extrinsic denominations reduce to intrinsic ones. In my view, there should be an adequate argument for that each binary relation or n-ary relation can be extended to an infinite-ary relation according to Leibniz' doctrine of universal connection. And each infinite-ary relation can be reduced to an unary predicate which can be explained by the monads' mirroring of the whole world.

individuals does not reveal the ultimate elements that constitute the complete concepts, Leibniz resorted to active force. In *On the Correction of Metaphysics And the Concept of Substance*, he said: 'the concept of forces or powers, which the Germans call Kraft and the French la force, and for whose explanation I have set up a distinct science of dynamics, brings the strongest light to bear upon our understanding of the true concept of substance. Active force differs from the mere power familiar to the Schools, for the active or faculty of the Scholastics is nothing but a close possibility of acting, which needs an external excitation or a stimulus, as it were, to be transferred into action. Active force, in contrast, contains a certain act or entelechy and is thus midway between the faculty of acting and the act itself and involves a conatus.'[8] From the logical perspective, a complete concept only gives a criterion of what are possibly contained in the concept, but can neither specifies the unique individual substance, nor includes all and only the predicates necessarily true of that individual's subject. The exaggerated possible individuals cause the difficulty of how to identify the unique individual substance to which the complete concept attempts to refer. On the other hand, from the dynamical perspective, the striving possible individuals are not absolutely independent from each other, but have an internal and combinatorial structure by which they try to realize or fulfill themselves. So the above difference between the logical compossibility and orderly compossibility can be bridged by the development of Leibniz's thought.

a complete concept includes all and only the properties (predicates) by which a unique individual can be specified, but shows nothing about the interrelations between one individual concept and another (let us assume that all the predicates contained in the complete concept are monadic predicates).

Second, Benson Mates has argued that the relation of compossibility between individual concepts is an equivalence relation, because it is reflective, symmetric and transitive. As a result, 'the totality of complete individual concepts is partitioned by

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[8] Leibniz, Gottfried Wilhelm, 1646-1716. Philosophical papers and letters/a selection translated and edited, with an introd, by Leroy E. Loemker. [monograph] D. Reidel publishing company/Dordrecht-Holland, 1969. p433.

the equivalence relation of compossibility into mutually exclusive, jointly exhaustive sets of concepts; these, in fact, are Leibniz's possible worlds.'[9] However, Fitch criticized Mates' view and said that 'it is surely possible that all the members of a given class be pair-wise compossible but the class itself not be compossible.'[10] Fitch also reduced the controversy to how to translate Leibniz's Latin words 'constantia subjecti', that is, whether they are translated as 'existent subject' or 'consistent subject'. In my view, if 'constantia subjecti' is translated as 'existent subject', then it has been supposed that the possible individuals has been realized into existence, and the ultimate reality of these individuals guaranteed the transitivity of the relation of compossibility, for the loose federation of predicates contained in the complete concept have been integrated into a unity. If 'constantia subjecti' is translated as 'consistent subject', then the relation of compossibility is not transitive. For example, suppose that P_1, P_2, and P_3 are independent and simple predicates, and A, B, C are sub-concepts of possible individual, A contains -P_1 and P_3, B contains P_2 and P_4, and C contains P_1 and P_5, so A is compossible with B, and B is compossible with C, but A is not compossible with C. In other words, if the concepts of possible individuals are not elements but subsets, the relation of compossibility is not transitive, but if the possible individuals are the realized ultimate reality, then the relation of compossibility is transitive. Because of Leibniz's 'active force', the concepts of these possible individuals do not include several independent predicates but are integrated units, and possible worlds as the classes of these integrated units are partitioned by the equivalence relation of compossibility, and God chooses to realize the best of them.

5   The Principle of the Best

Finally, we come to the principle of the best. In Leibniz's view, there are two criteria by which God choose among all the possible worlds, that is, simplicity and variety. 'It follows from the supreme perfection of God that he has chosen the best

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[9] Mates, Benson, 1919-2009, the philosophy of Leibniz: metaphysics and language. [monograph] New York, N.Y.: Oxford Univ. Pr., 1986. p44.
[10] Fitch, Gregory, 'Analyticity and Necessity in Leibniz', in Gottfried Wilhelm Leibniz: critical assessments. [monograph] London: Routledge, 1994, vol 1, p291.

possible plan in producing the universe, a plan which combines the greatest variety together with the greatest order; with situation, place, and time arranged in the best way possible; with the greatest effect produced by the simplest means; with the most power, the most knowledge, the greatest happiness and goodness in created things which the universe could allow.'[11] However, like other topics we have discussed above, there are also debates about Leibniz's doctrine of the best possible world. On the one hand, Rescher has said: 'Leibniz's conception of the deity's way of proceeding in the selection of one of the possible worlds for actualization can be represented and illustrated by the sort of infinite-comparison process familiar from the calculus and calculus of variations. …… Determining the maximum or minimum of that surface-defining equation which represents a function of two real variables specifically requires those problem-solving devices for which the mechanisms of the differential calculus were specifically devised.'[12] The two real variables are simplicity and variety, and their relation is not cooperative but competitive: 'too simple laws produce monotony; too varied phenomenon produce chaos.'[13] One the other hand, Blumenfeld thought that simpler does not mean fewer, 'since exceptions make a law more complex, a necessary condition for maximum simplicity, is that the law be strictly universal, or exception-free.' Therefore, 'the mutual accommodation of the infinite multiplicity of simple substance is the means of obtaining the greatest variety possible, but with the greatest possible order. The harmony above rests on the harmony below.'[14]

In my view, what is of great significance in this debate is also whether possible individuals arrived at the termination of the division of the complete concepts. If the ultimate reality has been achieved as a metaphysical hypothesis, then lawfulness and orderliness have been set up in the internal structure of possible individuals, and laws

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[11] Leibniz, Gottfried Wilhelm, 1646-1716. Philosophical papers and letters / a selection translated and edited, with an introd, by Leroy E. Loemker. [monograph] D. Reidel publishing company/Dordrecht-Holland, 1969. p639.

[12] Rescher, Nicholas, Leibniz's Metaphysics of Nature: a Group of essays, [monograph] D. Reidel publishing company, 1981. p12.

[13] Ibid. p11.

[14] Blumenfeld, David, 'Perfection and Happiness in the Best Possible World', in The Cambridge companion to Leibniz / edited by Nicholas Jolley. [monograph] Cambridge; New York: Cambridge University Press, 1995. pp390-393

will also hold the possible individuals together as they are compossible with each other. So the true simples lay foundations for the worlds' lawfulness and orderliness, and the 'well founded phenomena' are thus founded on these simples. Therefore, the simplicity is the means to achieve the variety. On the other hand, if the ultimate reality can not be achieved, then any simple can be divided further into more simple ones, and we can not reach the bottom of the bottomless chasm of the most simples. Therefore, the further we go along the abyss, the more confused we become, and we should keep the balance between the simplicity and variety.

6   Conclusion

Leibniz's doctrine of possible worlds begins with complete concepts—the question of how to give a sufficient definition to an individual substance—and ends up with God—the supreme and original monad giving the sufficient reason why the unique actual world is the best of all possible worlds: (1) in order to close the complete concept which contains all the predicates that are true of the subject, possible individuals have been introduced; (2) the difficulty of the existence of possible individuals leads to the infinite division of complete concepts, the process of which has been terminated by the internal and combinatorial structure of striving possibles; (3) the compossibility of the ultimate reality—monads—leads to the construction of infinite possible worlds—the classes of the 'true atoms'; (4) according to the criteria of simplicity and variety, God choose the best of all the possible worlds. In each step, we have also explained some debates among scholars. In my view, the focus of all the debates about Leibniz's doctrine of possible worlds lies in whether Leibniz's ontology has reasonably established the foundation of actuality from which any predicates of counterfactual situation have been extracted, that is, whether monads—the true atoms, the souls, and the active force—have been fully described by the complete concepts, or the one-one correspondence between complete concepts and monads has been set up.

In summary, there are three stages in our analysis: (1) it is the individual substance in our common sense that we attempt to give a complete concept; (2) possible individuals have been added, as we talk about what might have happened to that individual substance in our common sense; (3) at the end of the division, which causes infinite possible individuals, we arrived at the true atoms (monads), and these monads are the true substance in the philosophical sense.

However, we must admit, due to Leibniz's scattered remarks and the inconsistency between his esoteric and exoteric doctrines, there may be three ways to interpret the ultimate reality as the result of infinite division of complete concepts: (1) the division can not be terminated, and we can not get to the true elements except subsets, because the logical possibility of division is different from the metaphysical one, and nothing can prevent us from conceiving; (2) the division can be terminated, and we can get to the ultimate reality as individual substances, whether that is guaranteed by metaphysical hypothesis or laws in dynamics; (3) the division can be terminated but the terminated possible individuals do not really exist—they are only exist in the God's mind or human's minds.

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