Leibniz's Inductive Challenge

First Experiences and the Metaphysics of Monads

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Abstract

Leibniz's metaphysics is often interpreted as being based solely on reason, so that experience would not provide a true foundation but only an analogy to it. Against this reading, this article first recalls that, according to Leibniz, experiences are necessarily implied by the demonstrative nature of metaphysics, for they take the place of an infinite chain of demonstrative steps that we cannot explain. It then argues that what he calls the two “first experiences” – namely, that “I think” and “a variety of things are always thought by me” – play a decisive role in justifying the Monadology’s key propositions that “there are substances” and “there are composites”. Although Leibniz never uses the term induction in this context, this – often neglected – role of singular first-person experiences in the grasping of universal propositions constitutes a real inductive moment in his metaphysics.

Keywords


Little attention has been paid to the role of experience in Leibniz's metaphysics. This is undoubtedly due to his well-known criticism of Locke's empirical conception. According to Leibniz, indeed, not a single idea is derived, strictly speaking, from sense experience (New Essays 11, i, 2: A v i, 6, 110; Leibniz 1996, 110), and all the content of what is called sense experience is already enveloped, in a confused way, in my mind. However, this does not mean that experience – and in particular the experience of having thoughts – does not have a decisive role to play in the justification of metaphysical propositions.
In what follows, I would like to shed some light on this inductive move in Leibniz’s late metaphysics.

The article is divided into four sections. First, it recalls that Leibniz associates induction with two challenges: that of inferring universal propositions from singular statements – which he rejects – and that of grasping the first principles of any demonstrated doctrine – which he considers carefully. It examines then how the two first-person experiences that he calls “first experiences” – the experience of the Ego (E1) and the experience of a variety of changing things (E2) – are necessarily implied by the demonstration of contingent truths. In the last two sections, it turns to the Monadology (1714), which is considered the most complete account of Leibniz’s late metaphysics, to show successively how each of the two experiences grounds one of the two core statements of the metaphysics of monads: “there are composites” and “there are substances”. In line with the second sense of induction, it thus defends the proper inductive nature of the metaphysics of monads.

1 Leibniz and the Two Challenges of Induction

The term induction has always been polysemic since its invention by Aristotle. It is often reduced to the following general characterization: “Induction (ἐπαγωγή) is accessing universals from particulars” (Topics, i.12, 105a13). But Aristotle uses the term to refer at the same time to a rhetorical induction (or argument from examples: ibid.), to an inductive syllogism which “concludes the major term of the middle term by means of the minor” (Prior Analytics, ii.23, 68b15), or to the grasping of the first indemonstrable principles of a demonstration, by means of which an infinite regress in the premises is thus avoided (Posterior Analytics, ii.19, 99b17sq.) Later on, the Middle Platonist Alcinous understands by induction “any logical procedure which passes from like to like [scil. as in the Platonist reminiscence, A.P.] or from the particular to the general [scil. in a more Aristotelian vein, A.P.]” (Alcinous 1996, 10). And still in the seventeenth century, among Leibniz’s masters, the term induction refers not only to an argument “a singularibus ad universalia” but also, in a broad sense, to any argument composed of different parts (See Scherzer 1654, 109).

Leibniz, for his part, associates induction with two problems. The first is that of inferring universal propositions from singular statements related to particular experiences and observations. The second is that of grasping the first principles of any demonstrated doctrine, or at least some of them. Let us call epistemic induction the one linked to the problem of generalization, and
metaphysical induction the one linked to the problem of grasping the foundations. They are not at all equally relevant to Leibniz.

Indeed, Leibniz thoroughly challenges the validity of epistemic induction. He denounces “the uncertainty of inductions”,¹ and generalization not only as faulty but also as misleading. This rejection is manifest in two prefaces written thirty years apart: the preface to Nizolius’ De veris principiis, published in 1670; and the preface to the New Essays, written in 1703–1705. These texts definitively rule out epistemic induction as logically and scientifically invalid.

In the first preface, Leibniz reacts to Nizolius’ radical nominalism. Nizolius acknowledged only the sensible experience of particulars as the basis of all knowledge and admitted universal propositions only by induction from them, by which he actually meant the mere complete enumeration of cases (Nizolius 1956, i, 77). Leibniz (A vi, 2, 431; Leibniz 1969, 129) objects that such an induction from particular cases does not yield a real universality – “because you are never certain in induction that all individuals have been considered” – and points out that

[the moral certainty of general propositions] is not based on induction alone and cannot be wrested from it by main force but only by the addition or support of the following universal propositions, which do not depend on induction but on a universal idea or definitions of terms: (1) if the cause is the same or similar in all cases, the effect will be the same or similar in all; (2) the existence of a thing which is not sensed is not assumed; and finally, (3) whatever is not assumed, is to be disregarded in practice until it is proved.

Propositions formed by induction are thus mere presumptions that lack absolute certainty and meet only moral certainty. They nevertheless may play a heuristic role as probable arguments. The central point, however, is that even such inductive inferences already presuppose fully universal rational propositions in order to be implemented. It is necessary to presuppose some order and regularity to induce conclusions that go beyond what we have experienced. Leibniz often uses the same image: a certain regularity can be observed in the sequence of square numbers, but the proposition only becomes scientific

¹ A i, 21, 343; Leibniz 2011, 243; Leibniz to Sophie Charlotte (June 1702). All abbreviations are given at the end. References are given to both the original text and the translation. The date indicated, when not certain, is the latest date according to the Academy edition (A). If not otherwise stated, translations are mine.
when it can be demonstrated \textit{a priori} that the difference of two consecutive square numbers is the sequence of odd numbers (see Couturat 1901, 261–265). Now, depending on the principles set out at the basis of such inductions, it can be said that they do not meet full universality, but \textit{degrees of universality}\textsuperscript{2} and that their conclusions have different degrees of probability.\textsuperscript{3} In this sense, it has been said that the calculation of probabilities – which he develops under the name of the “estimation of appearances” – pertains to an inductive logic (Hacking 1971). But one must keep in mind that the conclusions of inductive inferences never reach the universality of the principles laid down at the very foundation of epistemic induction. Let us consider now the second preface.

In the preface to the \textit{New Essays}, Leibniz distinguishes between the “thought sequences […] of simple empirics who maintain that what has happened once will happen again in a case which is similar in the respects that they are impressed by, although that does not enable them to judge whether the same reasons are at work” and, on the other hand, rational consecutions: the former are based solely on “the sensible links between images, as beasts must experience”; the latter on “the inner sources of necessary truths” (A vi, 6, 50–51; Leibniz 1996, 404).

Our past experience does not guarantee anything. A truly rational consecution thus implies that the connection between truths must be perfectly distinct and be itself a necessary and universal truth, devoid of any empirical element, and thus \textit{a priori} (\textit{New Essays} iv, xvii, 3: A vi, 6, 475–476; Leibniz 1996, 475–476). Even though epistemic induction presupposes universal propositions, it can never prove in an \textit{a priori} manner new universal propositions out of singular, historical or particular observations.\textsuperscript{4}

Epistemic induction is ruled out as a valid scientific process. But what about metaphysical induction? Does the knowledge of particular cases (e.g. given in experience) make it possible to gain universal propositions without going through generalization? The issue of experience – and particularly of the empirical warrants of metaphysical enquiry – has recently been debated. On the one hand, Donald Rutherford argues that Leibnizian metaphysics is an \textit{a priori}

\textsuperscript{2} See A vi, 4, 1984: \textit{Veritates physicae} (1678–1681): “Inductiones habent suos gradus universalitatis suntque aliae aliiis certiores.”

\textsuperscript{3} Leibniz thus distinguishes the certitudo logica from the certitudo physica and the probabilitas physica (Leibniz 1903, 232).

\textsuperscript{4} In this sense, Westphal claims that Leibniz’s challenge against epistemic induction, at least in its initial mistrust, corresponds to Hume’s sceptical position, and that all that was missing to reach “Hume’s problem” was a denial of the possibility of a universal reason. See Westphal 1989, 177: “From this all that was needed to create Hume’s problem was the denial of ‘universal reason.’” On epistemic induction, see also Hacking 1975 (chap. 14 and 19); Milton 1987; Rescher 2013, 170–179.
demonstrative science, that is, a merely rational mode of thinking that starts from true propositions, independently from their modes of acquisition; on the other hand, Paul Lodge considers that there are empirical grounds for Leibniz’s so-called “real metaphysics” and that the correspondence with things that really exist is part of Leibniz’s metaphysical constraints. It is true that Leibniz claims his metaphysics to be potentially fully demonstrative. And it is also true that he claims that all his philosophy lines up with our experience to such an extent that it can be called ‘popular’ (Leibniz to Sophie Charlotte, May 8, 1704: A I, 23, 348; Leibniz 2011, 316–317, transl. slightly modified):

For [we experience] that all things tend to change, the body by the motive force and the soul by the appetite which leads it to distinct or confused perceptions, depending on whether it is more perfect or less perfect. […] Here, in a few words, is all my philosophy; quite popular without a doubt, since it does not contain anything which does not correspond with what we experience.

It could be pointed out that the formulation “we experience that all things tend to change” is precisely an inadequate epistemic induction for we do not experience all things. The main question, however, is the following: does experience only offer an illustration, a warrant, a metaphorical access or an analogical understanding of metaphysical theses that are otherwise established independently of it? Or, on the contrary, does experience have a truly constitutive role in metaphysics, enabling us to grasp universal propositions without going through generalization? In this respect, it is worth looking closely at the role of experience in Leibniz’s late metaphysics. And the first thing to notice is that experience plays a role in the theory of demonstration.

2 The Big Picture: On Demonstration, *Prima Principia* and First Experiences

Leibniz constantly asserts that metaphysics, just like any science, should be demonstrative. He considers his whole life the project of “making philosophy
demonstrative” or “to give at a good part of it the certainty of Euclid’s Elements by demonstrations in due form” (Leibniz 1768, 111, 499; Leibniz to Dangicourt, September 11, 1716). Let us briefly recall a few elements supporting this claim.

Leibniz characterizes a demonstration as a chain of definitions (catena definitionum) that makes the inclusion of (the notion of) a predicate P in (the notion of) a subject S explicit and thus shows that the proposition “S is P” is true (see the early formulation of the catena definitionum in A VI, 2, 479: Demonstratio propositionum primarum, 1672). In this analytic conception, the very “nature of truth, which is always an explicit or implicit identity”, necessarily entails that any true proposition can be, de jure, demonstrated a priori, that is to say by a “proof independent of experience” (see Principia logico-metaphysica, 1689: A VI, 4, 1644–1645; Leibniz 1989, 31). This, however, does not imply that we, finite understandings, are able to provide for such demonstrations of all propositions (nor that we need them).

Indeed, Leibniz famously distinguishes further between two kinds of truths to which he gives various names before calling them ‘truths of reason’ and ‘truths of fact’. The former concern essences: they are absolutely necessary truths, they can be demonstrated through a finite decomposition of the concept and they may be accessible to our human rational capacities. The latter concern existences, i.e. the existences that have been decided by God’s will: they are contingent truths whose analysis is infinite and cannot be achieved by a human understanding. We cannot demonstrate contingent truths in an a priori manner– and the task of making philosophy fully demonstrative is thus necessarily limited – although God can demonstrate them a priori (A VI, 4, 1650; Leibniz 1989, 28: De contingentia, 1689):

In contingent propositions one continues the analysis to infinity through reasons for reasons, so that one never has a complete demonstration [...] for the reason is understood completely only by God, who alone traverses the infinite series in one stroke of mind.9

7 On implicit/explicit – or virtualis/expressis – identities, see for instance the Generales Inquisitiones (A VI, 4, 746; 760; 776).
8 See A VI, 4, 1516; A XI, 2, 56.
9 For the purpose of this article, I stick to the well-documented proposition that contingent truths have an a priori demonstration implying an infinite number of steps. I leave here aside the question whether God’s intuitive grasp of an infinite series’ reason does correspond to an a priori proof. Commentators have also addressed the so-called “lucky proof problem” regarding the possibility of a finite proof of contingent truths (for an introduction, see McDonough 2018, 93–98).
Apart from identical propositions – the only ones whose truth is absolutely indemonstrable, as Leibniz states in a famous letter to Conring dated 18 September 1677 (A ii, 1, 580) – there is a set of contingent propositions that we cannot demonstrate. Thus, and as early as the De Arte Combinatoria of 1666, Leibniz distinguishes between the demonstratio in the strict sense, and the inductio of contingent propositions. He takes up here the well-known Aristotelian distinction between two modes of knowledge through demonstration and induction, the latter being the grasping by the noûs of the indemonstrable first principles of demonstration (Posterior Analytics, II.19, 100b1–5).

But Leibniz adds two considerations. First, that any demonstration can be brought back to identical propositions, at least for an infinite understanding. Second, that, for us, the first indemonstrable principles of a demonstration are either first a priori truths (or axioms) or first a posteriori truths, which he also calls first experiences (New Essays IV, ix, 2: A vi, 6, 434; Leibniz 1996, 434):

And I add that the immediate awareness of our existence and of our thoughts provides us with the first a posteriori truths or truths of fact, i.e. the first experiences; while identical propositions embody the first a priori truths or truths of reason, i.e. the first illuminations. Neither kind admits of proof, and each can be called ‘immediate’ – the former because nothing comes between the understanding and its object, the latter because nothing comes between the subject and the predicate.

First experiences are for us the primitive foundation of all our experiences. And since the demonstration of a contingent truth is infinite, experiences thus take for us (quoad nos) the place of an infinite chain of demonstrative steps that we cannot explain. Couturat summarizes this nicely: “Experience is still reason: a reason latent and confused, but infinite” (Couturat 1901, 256).

Experiences, thus, do not have to be reconciled with the demonstrative nature of metaphysics, for they are necessarily implied by it. The view that experiences in general are, just like identical propositions, indemonstrable goes back to the correspondence with Conring at the end of the 1670s; but the idea that experiences themselves have principles (called first experiences) that may serve as indemonstrable principles in a demonstration is formulated in the 1680s.

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10 See De Arte Combinatoria, 1666; A vi, 1, 199: “All singular propositions are either historical [...] or observations, that is, universal propositions whose truth is founded not on essence but on existence. There is no demonstration, but only induction, of such propositions”.

11 See the letter to Conring, 18 September 1677; A ii, 1, 582.
What are those first experiences, or first *a posteriori* truths? In many texts, Leibniz mentions the *prima experimenta*, the *immediata experientia*, the *prima veritates quoad nos* or the primitive truths, which are captured in a particular way that he calls either *simplex perceptio sive experientia*, “immediacy of feeling”, inner sentiment or intuition.12 Those first experiences are, first, that I *think* (*E1*) and, second, that *various things are thought by me* (*E2*). Before turning to their actual implementation in what I have called a metaphysical – and not epistemic – induction, one must insist first on their status: they are first principles (*prima principia*) of all that can be experienced, just as there are also first principles of all that can be conceived *a priori*. This issue is addressed in several texts from the 1680s, in which Leibniz seeks to give a list of first principles.

In a first draft, he distinguishes, among different principles, only two kinds of *first* principles: the first intellectual principles of the essence of things (*prima principia intellectualia de rerum essentia*) and the “first sensitive principles or first perceptions: 1. I am the one who perceives. 2. I perceive various things” (*Prima principia sensualia seu primae perceptiones* 1. Ego sum qui percipio. ii. Varia sunt quae percipio: *Definitiones cogitationesque metaphysicae*, 1680 A vi, 4, 1395). In another draft, he distinguishes between the “first a priori principles” and the “first principles of a posteriori knowledge” (*Introductio ad encyclopaediam arcanam*, 1685 A vi, 4, 530, ). Following these statements, Leibniz does not fail to criticize Descartes for neglecting to consider the diversity of thoughts. However, this criticism will not retain our attention here. Instead, the question that concerns us now is in what sense do all these principles – a *priori* or *a posteriori* – qualify as *first*? In the sense that they are always presupposed by any proposition, even if they have not been explicitly and previously stated, as a contemporary draft makes clear (*De principiis*, 1685 A vi, 4, 124):

> These two first principles, one of reason – identical [propositions] are true and those which imply contradiction are false – and the other of experience – that various things are perceived by me – are such that, first, it can be demonstrated that their demonstration is impossible, and, second, that all other propositions depend on them, that is to say that if

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12 See the letter to Gerhard Meier, January, 1691; A 11, 2, 375-377 (“Prima experimenta nostra constat esse ipisas internas perceptiones, nemp non tantum me esse qui cogitem, sed et varietatem esse in meis cogitationibus”; “Immediata experientia est primum principium veritatum facti”); *De Synthesi et Analysi*, 1685; A vi, 4, 543 (“Primae veritates quoad nos sunt quaecunque immediate intra nos percipimus seu quorum nobis de nobis consciis sumus, haec enim per alia experimenta nobis proprias magisque intrinsecas probari impossibile est”); *New Essays*, iv, vii, 7; A vi, 6, 41 (“Les vérités primitives de fait sont les expériences immédiates internes d’une immédiation de sentiment”).
these two principles were not true, there would be absolutely no truth or knowledge. This is why one must either admit them without difficulty or abandon any search for truth. It should be added that any doubt that can be raised against these principles can also be raised against any proposition.

One understands, therefore, that the first principles are not those from whose content the truth of all the other propositions would be directly deduced; but they are those without which any demonstration in general (and not the content of this or that particular proposition) would be impossible. Leibniz calls them reflexive and not direct principles (A vi, 4, 125: De principiis, 1685). The content of any principle (at the foundation of a doctrine) can be disputed, but the first principles – and in particular the first experiences – cannot be disputed without impeding any demonstration. Leibniz will later call this argument in favour of the first principles the argument ad vertiginem. As it stands, Leibniz does not himself call induction the actual immediate grasping of these first experiences, but he does acknowledge that they play a fundamental role in demonstrations. We shall now look at this more closely.

Before moving on to the next section, a last remark can be made. The constitutive role given to first experiences invalidates, from Leibniz's point of view, the opposition that Newton thought he had seen between an experimental philosophy (which he claimed to be his own) and a purely speculative philosophy (attributed to Leibniz). Newton (1715, 224) did indeed write:

It must be allowed that these two Gentlemen differ very much in Philosophy. The one proceeds upon the Evidence arising from Experiments and Phænomena, and stops where such Evidence is wanting; the other is taken up with Hypotheses, and propounds them, not to be examined by Experiments, but to be believed without Examination.

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13 See New Essays IV, xvii, 22; A vi, 4, 491. Leibniz 1996, 491: “This argument is sound in certain cases – for instance, if someone wanted to deny primary, immediate truths, such as that nothing can both be and not be at the same time, or that we ourselves exist; for if he were right there would be no way of knowing anything whatever. [...] What is necessary to uphold our knowledge [i.e. prima principia] must be distinguished from what serves as a foundation for our accepted doctrines or for our practices [i.e. first principles].”

14 For other statements on first experiences, see: A ii, i, 2, 388: Letter to Foucher, 1675; G.P IV, 357: Animadversiones in partem generalem principiorum cartesianorum, 1692; A vi, 6, 367 (Leibniz 1996, 367: “Not only is it immediately evident to me that I think, but it is just as evident that I think various thoughts: at one time I think about A and at another about B and so on. Thus the Cartesian principle is sound, but it is not the only one of its kind”).
The opposition – and Newton’s disdain for hypothetical philosophy – would be justified if Leibniz restricted himself to “experimental philosophy” understood as Newton’s natural philosophy where “propositions are deduced from the phenomena and made general by induction” (Newton 1713, 484). But Leibniz precisely underlines the limits of epistemic induction and criticizes Newton for admitting himself a speculative hypothesis that does not correspond to any experience (Leibniz 1962, 266: Leibniz to Conti, 6 December 1715):

I am much in favour for experimental philosophy, but Mr. Newton deviates strongly from it when he claims that all matter is heavy (or that each part of matter attracts each other part) which experiences do not prove in any way.

Leaving aside the issue of epistemic induction in natural philosophy, we shall now turn to the inductive embedding of (E1) and (E2) experiences in Leibniz’s metaphysics of monads.

3 From the Experience of Variety (E2) to the Statement “There are Composites”

The text of the Monadology has often been read as a thematically organized summary of Leibniz’s main theses and principles. The title Principles of philosophy that the publishers have given to this text (Leibniz 1721; Leibniz 1840) testifies to this reading, and the early reception of Leibniz often considered him to have formulated, but not justified, his principles.

Some commentators have nevertheless tried to reconstruct a strong deductive, and sometimes even axiomatic, structure of the text. All these reconstructions, however, not only assume that the first propositions play the role of axioms or self-sustaining first principles, but also consider, if they consider them at all, the (E1) and (E2) experiences as mere illustrations, or as a posteriori confirmations of an a priori demonstration.

I will argue here that these attempts of a deductive reconstruction from first a priori principles or axioms miss the inductive path of monadological metaphysics by overlooking the role of first experiences. Let us consider the

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15 See Boutroux 1881, 52, 135; Rescher 1991, 5; Köchy 2004; Perkins 2007, 7.
16 See e.g. Baumgarten 1750, preface of the third edition (sharing in this respect the view of Clarke, Hansch and Wolff).
17 See Hansch 1728; and a commentary in Pelletier 2016b.
opening of the text, and particularly the first two paragraphs which are commonly referred to as ‘monadological thesis’ (Fichant 2003, 2):

[M1] The monad, which we shall discuss here, is nothing but a simple substance that enters into composites – simple, that is, without parts.
[M2] And there must be simple substances, since there are composites; for the composite is nothing more than a collection, or aggregate, of simples.
[M3] But where there are no parts, neither extension nor figure nor divisibility is possible.

The most common reading – which is also attested by many of Leibniz’s anti-Cartesian passages – consists in identifying here the argument from ‘borrowed reality’¹⁸: the property of being extended does not exhaust the reality of extended things, so that “something else” – non-extended, and therefore simple – must be assumed for accounting for it. Notice that the argument, even in this form, already implies a version of the Principle of Sufficient Reason (psr), which is explained a little bit later: “What there is in a composite can only come from its simple ingredients” (M8). A careful distinction must be made here between parts and ingredients. Since the composites are indirectly characterized as having parts (M1) and as being extended and divisible (M3), one can say that composition holds between (extended) parts.Strictly speaking, composites are composed of parts but are not composed of simples. The simples are characterized as the ingredients, or that “which enter into composites” (M1), which are ontologically prior to them and account for their reality.¹⁹ If composition holds between parts of the composites, then the relation of ingredience (ingredire means nothing else than to enter in) holds between simples and composites. There are therefore two possible perspectives on the composite: on the one hand, as a composite, it is a collection of (extended and divisible) parts; on the other hand, as a real (or existing) composite, it results from an aggregate of simples.

This distinction between parts and ingredients of the composites already rules out the interpretation of the monadological thesis as a mere conceptual argument resulting from the application of the psr to extended composites.

¹⁸ Leibniz uses the term realitas mutuata or borrowed reality in the letter to De Volder dated 21 January 1704 (GP II, 261; Leibniz 2013, 285).
¹⁹ See A v1, 4, 936: “Prius natura est [involutum (ingrediens) simplicius] A ipso B si demonstratione posita B ita fieri potest assumta demonstratione possibilis ipsius B, ut nihil assumatur inutil.”
According to this reading, just as there must be – in virtue of the PSR – simple or self-conceived concepts to be understood as parts of composite concepts,\(^{20}\) so there must be simple (real things) since there are composite (real things).\(^{21}\)

Although correct, this common reading is incomplete, however, as it is not sufficient to justify the statement that there are composites or that single ingredients are qualified as substances.

Let us consider the extended composites first. One might think with Russell that, “as regards extension [of compounded things], Leibniz took up a more or less common-sense attitude” according to which the evidence of the extended thing would be epistemically prior to the notion of space itself (Russell 1992, 118). Russell criticizes this view and considers it as a “great error” from Leibniz’s part for one should on the contrary assume that extension (or the composition of parts) logically presupposes space. The thesis criticized by Russell is to be found in Leibniz, but not in the present argument. Indeed, the epistemic access to the composite does not involve here the notion of space (and its quantitative properties), but the qualitative change in perceptions, or else the perception of some “change among the parts” (M7). Only the perception of change, and of “the diversity in that which changes (un détail de ce qui change)” (M12), can both attest that there are qualitatively different parts that form a composite (M8), and that it is therefore necessary to presuppose qualitative differences among the simples that can account for them. Although the starting point of the argument is the commonsensical presupposition of a composite, it is now clear that this presupposition involves the (E2) experience of a perceptual change that actually gives epistemic access to this composite.

A series of propositions immediately follow from this, namely that the change in composites implies establishing a principle of change in the simples, i.e. that there is at the same time a multiplicity in the simples, which must therefore be a multiplicity without (quantitative) parts. Leibniz calls the action of this principle of change as appetition (M15) and the relationship of a multitude in a unity as perception (M14). He can therefore conclude: “This is all one can find in the simple substance – that is, perceptions and their changes” (M17). Yet the argument from phenomenal changes does not yield by itself that all monads are qualitatively different from each other. All those propositions need further explanations, and I shall not address them here.\(^{22}\)

\(^{20}\) See AV1, 4, 151 (“Si nihil per se concipimus, omnino nihil concipimus”) and AV1, 4, 157 (“Si nihil per se concipiitur, nihil omnino concipietur”).

\(^{21}\) For such a reconstruction relying on the concept of extension (as repetition of the extended thing, which itself presupposes the concept of substance), see Russell 1992, 117–125.

\(^{22}\) On this, see Pelletier 2016a.
I want to make is that (E2) experience is required to make sense of the word “composite” and of the reality of composites. The question now remains: why are ingredients called substances?

4 From the Experience of the Ego (E1) to the Statement “There are Substances”

It has been established so far that there are (changing) composites because we first experience a change in our perceptions or thoughts (E2). But why shall one introduce the term substance while referring to this perceptual experience of a multitude in a unity: “We ourselves experience a multitude in a simple substance when we find that the least thought we ourselves apperceive involves variety in its object” (M16)? Although substance is mentioned at the outset (in M1), the epistemic access to the notion of substance is only set out in paragraph 30 of the Monadology (M30):

It is also through the knowledge of necessary truths and through their abstractions that we rise to reflective acts, which enable us to think of that which is called ‘I’ and enable us to consider that this or that is in us. And thus, in thinking of ourselves, we think of being, of substance, of the simple and of the composite, of the immaterial and of God himself.

One should not read the first sentence in isolation and conclude too hastily that the knowledge of necessary truths could enable reflection, which in turn could enable to grasp the unity of the ‘I’. One should rather understand that the necessary truths, which have just been mentioned in the previous paragraph, testify to a certain elevation of the soul to the degree of the mind by the simple fact that they result from reflexive acts. Leibniz states explicitly elsewhere that the distinctive characteristic of the mind is its “power to reflect and to derive necessary truths” (New Essays 11, xxi, 5: A v 1, 6, 173; Leibniz 1996, 173). In sum, the reflective acts both enable to grasp necessary truths23 – by seizing the necessary relation of a predicate and a subject – and to think about what is called the I – by seizing this time the necessary relation of a variety of predicates to the unity that I am. It is by thinking that “this or that is in us”, or that a diversity

23 As is also explicitly stated in the Principles of nature and grace, § 5: “These souls are capable of performing reflective acts, and capable of considering what is called ‘I’, substance, soul, mind – in brief, immaterial things and inmaterial truths. And that is what makes us capable of the sciences or of demonstrative knowledge.” (Leibniz 1989, 209).
is related to a unity, that we are moved to think about the notion of substance. Leibniz is implicitly referring here to the Aristotelian characterization of substance as the ultimate subject of inherence and predication (Categories 5, 2a10–15). It is only because a reflective act enables me to attribute to myself all first-order perceptions – the “parts” or the “this or that” of perception – as to a last subject, that I know that something concrete corresponds to this very concept of an ultimate subject, and that substance is therefore not an empty word (De scientia juris tradenda, 1680 A vi, 4, 2849):

I feel (sentio) that I am an individual perceiving all these parts of representation. This is so true that we would not even have the idea of a single substance if we had not experienced it in ourselves.

The terminology should not mislead. What is called feeling, or experience in ourselves – and even ‘intimate experience of ourselves’ in other texts24 – is not a first-order sensible perception, but is a second-order perception grasping the intelligible relation between first-order perceptions and their subject of attribution. One must therefore distinguish between two aspects, depending on whether one considers the variety of the content or its relation to a unity. On the one hand, there is a first-order perceptive experience of various “this” or “that”, which corresponds to (E2). Leibniz uses for it the expression “we experience ourselves” (M16). On the other hand, but inseparably bound with the first, there is a second-order reflexive experience that this variety refers to a unity, which corresponds to (E1). Leibniz uses for it the expression “we experience within ourselves” (M20). First-order perceptions may be sensible, but second-order perceptions are intelligible, as Leibniz puts it in a previous letter: “This thought of myself who perceives sensible objects [is] only intelligible, since it is an object of the understanding alone” (Letter to Sophie Charlotte, June 1702; A I, 21, 339; Leibniz 2011, 228). It is also in this sense that Leibniz explained, in the above mentioned quotation, that, in the first experiences, “nothing comes between the understanding and its object” (New Essays 1v, ix, 2: A vi, 6, 434; Leibniz 1996, 434).

Moreover, as M30 suggests, this thinking of the I – which substantiates, both logically and ontologically, the idea of an ultimate subject – opens up to the analysis of all the fundamental intelligible concepts, which enter into all our thoughts and perceptions, and which we can also recognize by reflection. Leibniz mentions in M30 the simple and of the composite, the immaterial

24 See also Leibniz 1948, 558. On the fact that this intimate experience is also that of an associated body, see the exchanges with Fardella in March 1690: A vi, 4, 1669.
and God himself; there he mentions the “other metaphysical notions, such as cause, effect, action, similarity, etc., and even those of logic and ethics” (A 1, 21, 339; Leibniz 2011, 240: Letter to Sophie Charlotte, June 1702); in the Discourse on metaphysics, he indicates that the notions of being, of substance, of action, of identity, and of many others come from an internal experience (A vi, 4, 1572; Leibniz 1969, 321); elsewhere he analyses all the notions that enter our thoughts (Divisio terminorum, 1683 A vi, 4, 558–566). All these developments that are made possible by the first two inseparable primary experiences clearly define an inductive moment – in the non-epistemic sense of induction. Let us conclude with some remarks on the constitutive role of this inductive moment.

5 Conclusion: Leibniz’s Inductive Metaphysics, or the Way out of the Circle

Let us briefly summarize. Although the word induction is never used in this context by Leibniz, a careful reading of the beginning of Monadology nevertheless reveals an inductive moment in the metaphysics of monads. Far from being a priori self-sufficient axioms, as it has been sometimes argued, the opening propositions making up the ‘monadological thesis’ have no concrete meaning except in relation to the experience of the Ego, which refers to both (E1) and (E2) experiences, and which alone gives a concrete reference to the words composite and substance. These singular primary experiences thus play the role of first principles in the argumentation, although they are not explained first. The argument proves to be inductive, not in the epistemic sense of a generalization of particular cases, but in the metaphysical sense of the justification of truly universal propositions on the basis of singular first-person experiences on the one hand, and on meta-principles (such as the PSR) on the other hand.

Since Leibniz does not use the term, one could discuss whether it is adequate to still talk about induction, especially if it refers to one of the Aristotelian meanings of the term, and one which is no longer in use today. Dietrich Mahnke, one of the very few commentators to have drawn attention to the role of first experiences in Leibniz, has thus refused the term “inductive metaphysics”, precisely because he associated it solely with the generalization of empirical or psychological content. Indeed, Dietrich Mahnke interpreted the “Selbstschau der Seele” as possibly founding, on the one hand, a “metaphysics in the current sense of a theory of reality” and, on the other hand, “a metaphysics in the ancient sense of an a priori ontology” (Mahnke 1964, 407). In the first case, reflection, or self-consciousness, is linked to factual
empirical knowledge; in the second case, to *a priori* rational knowledge. In the first case, says Mahnke, one initiates the project of an “empirical-psychological derivation of an inductive metaphysics”; in the second case, which corresponds to Leibniz’s profound project according to him, one initiates “the phenomenological-intuitive foundation of a rational ontology” (Mahnke 1964, 408). The description of the alternative is quite correct, as is the fact that the consideration of the Ego is a product of the understanding, never a mere empirical presentation. If Mahnke refuses the name and the way of an “inductive metaphysics”, it is because the Leibnizian project is not that of a generalization of particular experiences. This is, however, a mere nominal issue if one agrees that induction is not reduced to the generalization of empirical statements. If one had to look in Leibniz’s own words for this inductive moment, one candidate would perhaps be the apparent oxymoron of *a posteriori demonstration*, which makes clear that first experiences can be proper parts of a demonstration. He uses it once in his correspondence with De Volder, where he explicitly refers to (E1) and (E2) experiences.

The essential point is that the inductive moment specifies a certain exercise of thought that is irreducible to a demonstrative sequence, and that involves a use of sensible experience that is not purely auxiliary. Let us recall for example how Leibniz defends a certain role for experience in mathematics and refuses it in metaphysics. The experience referred to in mathematics is that of writing and reading sensible signs that express thoughts in a perfectly adequate way, so that the order of signs makes the order of thoughts perfectly explicit, and that one can experience following and checking the sequence of propositions in a demonstration. The experience of sensible signs is thus an auxiliary to the mathematical demonstration. Metaphysics is deprived of such an auxiliary, for there is no “parallel between reasoning and experience” in this sense. But metaphysics makes another, properly constitutive use of experience, including the experience of sensible perception: that of providing a starting point.

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25 See Letter to De Volder, 10 November 1703; GP II, 258; Leibniz 2013, 279: “I do not see how you could have doubts about the internal tendency to change in things, since we are taught that there are changes in things by our experience of the phenomena (E2), as well as from the inside (E1), where the operations of the mind themselves exhibit changes. Therefore, I think that the fact is *demonstrated a posteriori*” (E1 and E2 are my additions, A.P.).

26 See A VI, 6, 371; Leibniz 1996, 371 (New Essays A IV, ii, 9): “It has been easier to reason demonstratively in mathematics largely because experience can vouch for each step in the reasoning. But in metaphysics and ethics there is no longer this parallel between reasoning and experience, and experiments in natural science require labour and expense.”
We have seen that experience, and first experiences, serve, for us, as an infinite chain of unexpressed definitions. They prevent us from regressing to infinity. They thus offer a real starting point that breaks out of the circle of interconnected principles.

Indeed, a common question raised by commentators is to ask whether, among all the entries into Leibniz’s philosophy, one entry would not be preferable to the others. Mondadori (1977, 69–70) has used the phrase “Leibnizian circle” to refer to a family of notions and doctrines that are so interconnected that

Leibniz’s description, and understanding, of reality – of the World – has no natural ultimate starting point (except perhaps the assumption that each individual substance exemplifies a complete concept, or the attendant view that monads are the stuff reality is made of); no natural middle point; and no end point whatsoever.

He suggests that the notion of connection itself is “metaphysically ultimate” and that the different concepts are as many starting points for “variations on the same theme” (ibid., 92–93). Interconnection is indubitably a characteristic feature of the metaphysics of monads. I would however suggest that the inductive moment we have examined seems to point at its real, irrefutable starting points: ego sum percipio, varia a me cogitantur.

Abbreviations

A = Leibniz, G. W. 1923–. Sämtliche Schriften und Briefe, edited by the Deutsche Akademie der Wissenschaften. Berlin and Darmstadt: Akademie Verlag. Reference is to series, volume, and page.


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Grazer Philosophische Studien 98 (2021) 167–185


