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Leibniz on Language and Cognition

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JOLMA
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Preface

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Leibniz's investigations into the structures of both natural and artificial languages, and into the impact of language use on human cognition, are widely acknowledged to have achieved real breakthroughs with respect to the standard early modern assumptions about these topics. Leibniz linked his linguistic interests with his views on mental activity by expounding the idea that language plays a fundamental role not only in communication but also in human cognition, insofar as words and signs in general serve as the indispensable thread for human thought. He used this insight into the linguistic component of thought to approach semantic phenomena such as metaphorical speech and 'empty' words or phrases, as well as psychological phenomena such as cognitive errors and the weakness of the will. Furthermore, his views on psycho-physical parallelism led him to explore the hypothesis that even abstract, conceptual representations have a physical counterpart in the human brain insofar as they are necessarily verbalized in a language or expressed in any other system of perceptible symbols.

Only a small number of Leibniz's writings on these topics were published during his lifetime. Most were posthumously discovered during the eighteenth, nineteenth, and twentieth centuries, while several manuscripts remain unpublished. This state of affairs has fostered a tendency to consider Leibniz's contributions to the philosophy of language and cognition a sort of hidden treasure that can hardly have exercised any direct historical influence, given that scholars were only able to discover and appreciate it much later. However justified

in terms of the history of manuscripts, this picture has the drawback of obscuring how much Leibniz's ideas on language and cognition actually contributed to shaping our modernity by inspiring or influencing diverse – sometimes even opposite – philosophical trends. On the one hand, his universalistic assumptions – primarily concerning the possibility to discover the alphabet of human thoughts, the rational grammar, and the Universal Character – fuelled various modern attempts to unveil the genuine, logical form of propositions, to describe the deep structure of languages, and to introduce an artificial notation for the perspicuous expression of thoughts. On the other hand, his recurring emphasis on the linguistic or generally symbolic character of blind thought became a prominent source for later accounts of higher cognitive activities as dependent on language acquisition and therefore influenced by the specific language acquired. Thus, even the origins of so-called linguistic relativity could be traced back to some Leibnizian ideas.

This collection of studies aims, first, to expand our knowledge of Leibniz's views on language and its cognitive function; and, second, to reassess Leibniz's significance for the contemporary philosophy of language and mind. It includes five research articles, a commented edition of a late text by Leibniz, and the first edition of P.F. Strawson's lectures on Leibniz.

One thing that Leibniz has in common with twentieth-century philosophers of language is a long-standing interest in empty terms – linguistic expressions and phrases which appear to be perfectly meaningful even though they fail to denote anything possible. Two articles in this volume address Leibniz's reflections on such terms and related issues from the logical-metaphysical and the cognitive-epistemic point of view, respectively. Filippo Costantini considers the apparently exceptional status of 'nothing' (*nihil*) in Leibniz's logical calculi as an empty term which may nevertheless enter true propositions. According to Costantini, it is possible to make better sense of Leibniz's treatment of *nihil* by using the resources of contemporary logic, and specifically by adopting the formal system known as Positive Free Logic. This approach also provides a fresh evaluation of the vexed issue of the ontological status of Leibniz's infinitesimals, as well as of Leibniz's proof of God's existence from the *ex nihilo* principle.

Another proof of God's existence, namely the Cartesian *a priori* argument, famously led Leibniz to discover the cognitive role that linguistic (and generally symbolic) expressions play in human reasoning. Observing that Cartesian introspection fails to discriminate between descriptions like 'the most perfect being', which should express the true idea of God, and empty terms like 'the fastest motion' or 'the number of all numbers', Leibniz realized that our thought often uses signs instead of ideas. Lucia Oliveri reconstructs Leibniz's anti-Cartesian argument by focusing on what she calls 'conceivabil-

ity errors' and by highlighting how essential imagination is to the process of symbolic cognition.

A further link that makes it theoretically possible and historically justified to connect Leibniz with later philosophers of language concerns his doctrine of propositions as the bearers of truth and falsehood. Indeed, Bernard Bolzano took Leibniz's concept of 'possible thought' or 'proposition' to be the immediate precedent of his own concept of 'proposition in itself' (*Satz an sich*), which is currently assumed to have inspired Frege's concept of 'thought'.[1] Frege's distinction between propositional content and assertive force is the starting point of Jean-Baptiste Rauzy's investigation into the Leibnizian corpus. By investigating the nature of Leibniz's propositions, his reduction of propositions to terms and vice-versa, and his complex attitude toward Spinoza's view that all ideas involve some affirmation, Rauzy outlines the various facets of what could be regarded as a Leibnizian position on the Frege Point.

There is a tendency to assume that the close link between the philosophy of language and the philosophy of mind is a distinctive feature of contemporary research. Eros Corazza and Chris Genovesi suggest that the language-based approach to the mental may in fact have older roots. Leibniz's famous claim that "languages are the best mirror of the human mind" (Leibniz 1996, 333) raises the question of whether and how he took the study of languages to be relevant to the study of the mind. Although Leibniz did not have our concept of so-called pure indexicals, he considered the use of the pronoun 'I' to be relevant to his monadology. Corazza and Genovesi argue that he somehow came close to the view that the first-person indexical plays an essential function in our cognitive and behavioral economy.

From the mid-1670s, Leibniz focused on how language can be connected with both thought and reality in order to solve issues concerning the nature of truth and counter the challenge posed by Hobbesian radical nominalism. Massimo Mugnai argues that Leibniz's famous 1677 doctrine that characters and things enter a relation of mutual correspondence or proportion can be fully understood in light of his later reflections about the origin of natural languages and about the syntactic and semantic properties of linguistic particles. Prepositions, in particular, are key to Leibniz's non-relavistic account of truth, in that they express the same human perceptions of spatial relations in different languages.

Leibniz's interest in the origins and history of natural languages and in the structure of language families did not wane in the final years of his life. Stefano Gensini provides the first commented edition of a late text Leibniz composed in 1714 for John Chamberlayne's

1 On this Leibniz-Bolzano-Frege connection, see Favaretti Camposampiero 2018, 79-80.

1715 multilingual collection of the *oratio dominica*. Gensini's introduction sheds light on the historical circumstances of this composition and argues for its significance in the context of Leibniz's linguistic and especially methodological research, as well as in relation to early eighteenth-century debates.

The final piece in the present collection is the hitherto unpublished manuscript of P.F. Strawson's lectures on Leibniz, which date back to the very beginning of Strawson's academic career. Information about these lectures and their biographical context can be gathered from his recently published "Intellectual Autobiography" (2011, 227-56). After serving for six years in the Royal Artillery during the Second World War, in the summer of 1946 Strawson was demobilized and pursued his pre-war ambition for an academic career. Following the advice of John Mabbott (his former tutor), he applied for a post at the University College of North Wales, Bangor. Upon his appointment as Assistant Lecturer in Philosophy, he set himself "to some hard reading in subjects on which [he] was to lecture – particularly philosophy of logic […] and Kant's moral philosophy" (Strawson 2011, 230). While at Bangor, he became "deeply concerned with the matter of singular reference and predication, and their objects – a topic which", he writes, "has remained central in my thought throughout my working life" (Strawson 2011, 231). In this period, as well as later in Oxford, he combined a special focus on "questions in the philosophy of logic and the philosophy of language" (ibid.) with a serious interest in early modern philosophy from Descartes to Kant. His Spring 1947 lectures on Leibniz belong to this early stage in his academic career:

> In the course of my year at Bangor I also lectured on the philosophy of Leibniz (studied mainly in the Gerhardt edition) and on ethics in general; and wrote two papers, one an attempt to solve the problem of the 'paradoxes of entailment', the other an attack on ethical intuitionism. (Strawson 2011, 230)

As is well known, Strawson's acquaintance with Leibniz's philosophical works was to play a prominent role in one of his most significant books. In the subsequent decade, Strawson wrote *Individuals: An Essay in Descriptive Metaphysics*, whose First Part ends with a chapter (Strawson 1959, ch. 4: "Monads") examining "the brilliantly conceived and finally impossible Leibnizian ontology of monads" (Strawson 2011, 234). Strawson's reading of Leibniz and especially his criticism of the latter's account of individuation have proved to be of continuing interest not only to historians of early modern thought and early analytic philosophy, but also to scholars of analytic met-

aphysics.[2] We trust that the publication of Strawson's "Leibniz Lectures" will contribute to a better understanding of his long-standing concern with Leibnizian thought.

We are grateful to Galen Strawson and his son Harry for generously consenting to publish their transcription of P.F. Strawson's manuscript in this journal. We extend our special thanks to Antonio M. Nunziante for bringing this manuscript to our attention and helping us realize this project.

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2 Among recent contributions, see Poser 1986; Rossi 1986; Englebretsen 1987; Brown 1990; Pruss 1998; Ryan 1999; Carrara 2002; Martinello 2007 and Debuiche 2019.

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Leibniz on the Empty Term 'Nothing'

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Abstract This paper discusses Leibniz's treatment of the term 'nihil' that appears in some logical papers about the notion of Real Addition. First, the paper argues that the term should be understood as an empty (singular) term and that sentences with empty terms can be true (§2). Second, it sketches a positive free logic to describe the logical behaviour of empty terms (§3). After explaining how this approach avoids a contradiction that threatens the introduction of the term 'nihil' in the Real Addition calculus (§4), and how this approach should be understood within Leibniz's philosophy (§5), the paper assesses the prospects of such an approach with regard to two fundamental issues in Leibniz's thought: the fictional nature of infinitesimals (§6), and the occurrence of the term 'nothing' in the proof of the existence of God that we find in the New Essays (§7).

Keywords Leibniz. Empty terms. Real Addition. Mereology. Nothingness. Positive Free Logic.

Summary 1 Introduction. – 2 The Empty Term 'Nihil'. – 3 Another Characterization of 'nihil'. – 4 A Logic for Nothing! – 4.1 Language of PFL. – 4.2 Syntax of PFL. – 4.3 Semantics of PFL. – 4.4 Discriminating Actual from Merely Possible Objects. – 5 The Formal Machinery at Work 1: Avoiding the Contradiction. – 6 Some Comments about (Weak) Identity. – 7 The Formal Machinery at Work 2: The Case of Infinitesimals and Other Empty Notions. – 8 The Formal Machinery at Work 3: The Term 'Nothing' in the Proof of the Existence of God. – 9 Conclusion.

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1 Introduction

In §153 of the *Generales Inquisitiones*, Leibniz writes:

> This, however, presupposes that every proposition in which there enters a term which is not a thing, is denied; so it remains the case that every proposition is either true or false, whereas every one is false which lacks an existent subject [*Constantia Subjecti*], i.e. a real term. This, however, is to some extent remote from the way we usually speak about existential propositions. But this is no reason for concern, because I am seeking appropriate signs, and I do not intend to apply usually accepted names to them.[1] (A VI 4, 781/Leibniz 2021, 121-3)

For Leibniz a proposition consists in attributing a predicate to a subject. Since the law of bivalence holds, every proposition is either true or false. But a proposition which contains a non-denoting subject-term cannot be true, because there is no object to which we can attribute the property expressed by the predicate. So it will be false.

However, it is less clear what Leibniz had in mind with non-denoting terms. Is he speaking of terms that refer to something which is not actual, but still possible, or he is speaking of terms which are empty by logical necessity, i.e. terms which imply a contradiction such as 'the greatest velocity' or 'the infinite number'? It seems to me that the latter is the right interpretation.[2] First, the adjective 'real' is usually used by Leibniz as indicating something possible: for instance, a definition is said to be *real* (and not simply nominal) when we have a proof of the *possibility* (i.e. of the internal consistency) of the object defined; second, in the above passage, Leibniz uses the Latin term '*constantia subjecti*', which refers to a specific discussion within the Scholastic tradition, as the following passage from the *New Essays* explains:

> The Scholastics hotly debated *de constantia subjecti*, as they put it, i.e. how a proposition about a subject can have a real truth if the subject does not exist. The answer is that its truth is a merely conditional one which says that if the subject ever does exist it will be found to be thus and so. But it will be further asked what the ground is for this connection, since there is a reality in it which does not mislead. The reply is that it is grounded in the linking together of ideas. (A VI 6, 447-8/Leibniz 1996, 447-8).

1 When Leibniz says "there enters a term which is not a thing", he clearly intends "there enters a term whose referent does not exist". Based on this passage, Mates 1972 argues that Leibniz considered sentences with non-denoting terms as simply false.

2 Mates 1972 took the first interpretation; Mugnai, commenting on the text of Leibniz (see Leibniz 2008, 177), took the second. My defence here of the second interpretation is indebted to Mugnai's discussion.

The passage explicitly states that there are true propositions whose subject-term refers to something which does not actually exist. A sentence of the form *P(a)* with '*a*' denoting a non-existent but possible subject has thus the form: if *a* exists, then *P(a)*. With *a* referring to an individual, the sentence is true if the property *P* is contained in the complete concept[3] of *a*, false otherwise. Therefore, non-denoting but possible terms are not a threat for the principle of bivalence. The general picture that emerges is thus as follows: every proposition is either true or false in accordance with the principle of bivalence; propositions with subject-terms whose referent is not actual but *possible* can be either true or false. Propositions that contain contradictory terms, such as 'the greatest velocity' or 'the infinite number', are always false.

2 The Empty Term 'Nihil'

To the picture just sketched there seems to be an exception: the term 'nihil' (nothingness). This is in fact a term that Leibniz employs quite a lot.[4] In particular I shall focus here on two logical essays, *Specimen Calculi Coincidentium* (A VI 4, 816-22) and *Non Inelegans specimen demonstrandi in abstractis* (A VI 4, 845-55), where Leibniz employs the term 'nihil' in relation to the notion of Real Addition. The notion of Real Addition is similar to that of mereological sum or fusion of contemporary mereology: the idea is that we can add or fuse different things and so obtain aggregates of those objects.[5] We shall use the symbol '⊕' employed by Leibniz in a further essay, *Calculus coincidentium et inexistentium* (A VI 4, 830-45) to formalize the notion. There are two axioms that regulate how Real Addition works:

1. $\forall x(x \oplus x = x)$
2. $\forall x \forall y(x \oplus y = y \oplus x)$

Axiom 1 states the Idempotence of Real Addition (which is of course a property not shared by arithmetical addition); axiom 2 expresses Commutativity. Moreover, Leibniz does not state but presupposes a third axiom (associativity):

3. $\forall x \forall y \forall z\ x \oplus (y \oplus z) = (x \oplus y) \oplus z$

3 The complete concept of an individual substance is the concept that contains every predicate of that substance. The notion eminently appears in the *Discourse on Metaphysics* (1686) and is discussed at length in the correspondence with Arnauld (see for instance GP II, 47-9).

4 A famous example can be found in the *New Essays* (A VI 6, 435-6), where Leibniz discusses Locke's proof of the existence of God. I shall analyse that discussion in §8.

5 On Real Addition see, for instance, Swoyer 1994; Lenzen 2000 and Mugnai 2019.

In these papers, it is by means of the notion of real addition (and identity) that Leibniz defines the containment relation (in what follows C(x,y) must be read as *x* contains *y*, or *y* is contained in *x*). Leibniz's definition uses indefinite letters as A, B, etc., i.e. letters that stand for variables, and so allow us to express general statements. Leibniz writes that "B⊕N=L means that *B* is (contained) in *L* or *L* contains *B*" ("B⊕N=L *significat B esse in L seu L continere B*". A VI 4, 832). In what follows, we shall avail ourselves of quantification theory[6] instead of indefinite letters. So Leibniz's definition becomes:

$$C(x,y) \equiv_{def} \exists z(y \oplus z = x)$$

which can be read as '*y* is contained in *x* if there is a z (contained in *x*) such that *y* plus *z* is equal to *x*'. Thanks to the relation of containment, Leibniz also develops a subtraction operation, clearly presented as the inverse of the operation of Real Addition. Leibniz writes:

> Def. 5. If *A* is in *L* in such wise that there is another term, *N*, in which belongs everything in *L* except what is in *A*, and of this last nothing belongs in *N*, then *A* is said to be subtracted (*detrahi*) or taken away (*removeri*), and *N* is called the remainder (*residuum*). Charact. 4. *L*−*A*=*N* signifies that *L* is the container from which if *A* be subtracted the remainder is *N*.[7]

The idea is simply that if C(x,y) is the case (which means that ∃z(y⊕z=x) is the case), then x−y=z is defined, where *z* is the reminder or the complement of *y* in *x*. However, as it stands, this definition must be amended. If we want real subtraction to be the inverse of real addition, the terms *y* and *z* must have nothing in common.[8] In fact, suppose otherwise, and consider the special case in which they have something in common because they are identical: z=y. Then from x−y=z by substitution of *z* with *y*, we obtain x−y=y,which is equivalent to: y⊕y=x. By idempotence, we

6 The choice of quantification theory is useful and elegant; however, one should bear in mind that Leibniz thought of his logical calculus mainly in *intensional* terms, i.e. as a calculus of concepts.

7 A VI 4, 848; the English translation comes from Lewis 1918, 374.

8 As Leibniz himself recognized in §29 of *Specimen Calculi Coincidentium* (A VI 4, 819): "if A+B=C, then A=C−B, and A is called the reminder [Residuum]. But it is necessary that A and B have nothing in common. In fact for example if A+A=A, then A=A−A. But from §30 we have that A−A=nihil, so A=nihil, which is against the hypothesis". (Author's translation). One has to notice that the requirement that A and B have nothing in common is a necessary condition in order to define subtraction, and does not apply to (Real) addition. In other words, from A+A=A we have (by definition of the containment relation) that C(A,A), i.e. the reflexivity of the containment relation. There is nothing problematic with this case of containment, and more generally with the definition of containment (thanks to a referee to ask for a clarification of this point).

have y⊕y=y, so x=y. By substituting the latter into x−y=y, we finally have y−y=y. But the latter is unacceptable, because it contradicts the only axiom that Leibniz states for the subtraction operation:

$$\forall x(x-x)=\text{nihil}$$[9]

What the axiom says is that if you take something and subtract it from itself, you get nothing. This is rather intuitive, particularly if one thinks of subtraction as the inverse of real addition. Subtracting just means leaving out something from something else. The axiom is important because it can be seen as introducing into the calculus the delicate notion of nihil. Clearly, as subtraction is thought of in comparison to arithmetical subtraction, so nihil plays a part similar to that played by the number 0 in arithmetic.

The term 'nihil' is thus introduced in the calculus in order to define subtraction in cases where a thing is subtracted from itself. Since real addition and subtraction are thought of in comparison to arithmetical addition and (arithmetical) subtraction, and the 'nihil'-term plays a role analogous to the number 0, one might think that the 'nihil'-term is not really empty, but that it refers to something, much as the term 'zero' refers to a specific number, the number 0, and the term 'empty-set' refers to a particular set in set-theory. However, this is problematic, not only because this hypothesis seems to graft onto Leibniz some posteriors ideas,[10] but also because the idea that the calculus allows the presence of a nihil-*object* is immediately self-contradictory. Let us see why this is the case.

The notion of subtraction brings with it a principle known as Weak Supplementation (from now on: WS):

$$C(x,y) \rightarrow \exists z(C(x,z) \wedge \neg O(z,y))$$

What the principle says is that if *y* is contained in *x*, there is a *z* which is also contained in *x* but it is disjoint from *y*: *z* and *y* have nothing in common – the predicate 'O(x,y)' indicates the overlapping relation: $O(x,y) =_{\text{def}} \exists z(C(x,z) \wedge C(y,z))$. That this principle is implicitly accepted when one accepts subtraction can be seen by noticing that when we subtract *y* from *x* what remains is a remainder that has nothing in common with *y*: the remainder is everything which is in *x* and not in *y*.

9 Again, Leibniz uses indefinite letters. So he writes: A-A=nihil. This is considered as an axiom in *Calculus coincidentium et inexistentium*; however in *Specimen Calculi coincidentium* (A VI, 4, nr. 173, 819), Leibniz assumes that A⊕nihil=A (§28) and concludes with A-A=nihil (§30), in virtue of the fact that (Real) subtraction is the inverse operation of (Real) addition (§29).

10 As Mugnai 2019 rightly acknowledges.

That WS is a valid principle within Leibniz's calculus is clear from how he defines subtraction.[11] The problem is that WS contradicts the existence of an empty-object, the supposed referent of the term 'nihil'. In fact, in Leibniz's calculus we have the following:

$$\forall x(x \oplus nihil = x)$$

By definition of the containment relation, this is equivalent to ∀xC(x,nihil): nihil is contained in everything. In particular, this implies that there are no disjoint things: given any two things, they will have something in common: the object referred to by the term 'nihil'. We have therefore a contradiction with Weak Supplementation.[12]

In contemporary mereology, the standard way to avoid this situation is to get rid of the empty-object. Subtraction is defined in such a way that there must always be a positive remainder: 'A−A' is not a defined operation. However, this goes against what Leibniz did, and since the term 'nihil' often appears in Leibniz's writings, this standard option is not available. The only solution available is to consider 'nihil' an empty term: a term with no reference at all.

3 Another Characterization of 'nihil'

In these essays we find another characterization of nihil. For example, we can read that

> Not-nihil is something, and not-something is nihil. (A VI 4, 817, §17)[13]

> If *N* is not *A*, and *N* is not *B*, and *N* is not *C*, and so on; *N* is said to be Nothingness [nihil]. (A VI 4, 551)[14]

Nihil is characterized here as what is different from everything, and in this sense is not something.[15] As Lenzen (2000, 91) suggests, commenting on

11 This can be easily appreciated when looking back at the last quotation. Definition 5 and what follows clearly presuppose the validity of WS.

12 The contradiction can be derived even without appealing to Weak Supplementation. It is enough to notice that Leibniz exploits the existence of disjoint terms, i.e. terms that do not overlap and so have nothing in common (as we saw earlier in the definition of subtraction). But since nihil is contained in everything, the latter implies that no terms are disjoint. This way of formulating the problem can be found in Lenzen 2000, §5.1.

13 *Non nihil est aliquid, et non aliquid est nihil.*

14 *Si N non est A, et N non est B, et N non est C, et ita porro; N dicetur esse nihil.*

15 These characterizations go along with other two characterizations of nihil that we can find in Leibniz's texts. The first is a metaphysical characterization of nihil according to which it has no properties ("*nihil nulla esse attributa*": A VI 4, 570). The second

the second of these two passages, '*N* (i.e. nihil) is not *A*' can be translated by the claim that *N* does not contain *A*: ¬C(nihil, A). Since *A* is arbitrary, we have it that nihil does not contain anything: ∀x¬C(nihil, x). However, the containment relation is reflexive,[16] and so we have C(nihil, nihil) which implies that ∃xC(nihil, x). And this contradicts the previous claim.

4 A Logic for Nothing!

To vindicate Leibniz's idea that there are true (atomic) propositions with empty terms, we need a logic that allows such terms. In the literature there are different logical systems that allow for empty terms; in our case the system known as Positive Free Logic (PFL) will do.[17] I shall briefly expose PFL by considering, respectively, the language, the syntax, and the semantics.

4.1 Language of PFL

The language L of PFL does not differ much from a standard first-order language. It is composed of the following elements:

- variables: $x_1,\ldots, x_n,\ldots$
- individual constants: $c_1,\ldots, c_n,\ldots$
- constant function symbols: $f_1,\ldots, f_n,\ldots$
- n-place predicates: $P^n_1,\ldots, P^n_n,\ldots$
- propositional connectives: ¬, → (the others are defined as usual)
- the quantifier: ∀ (with $\exists \equiv_{\text{def}} \neg\forall\neg$)
- the 2-place weak identity predicate: ≈

Terms are defined as follows:

- variables and constants are terms;
- if $t_1,\ldots,t_n,\ldots$ are terms, then $f_1(t_1),\ldots, f_n(t_n),\ldots$ are terms;
- nothing else is a term.

Formulas are defined as follows:

- if $t_1,\ldots,t_n,\ldots$ are terms, then $P^n_1(t_1),\ldots, P^n_n(t_n),\ldots$, are formulas;
- if t_1, t_2 are terms, then $t_1 \approx t_2$ is a formula;

is an epistemological characterization: nihil is what remains when we remove everything that can be known ("*a quo removetur quicquid cogitari potest*": A VI 4, 938). On these two further points, see the introduction by Schupp to Leibniz (2000, lxx-lxxiii).

16 The reflexivity of the containment relation is proved by Leibniz in proposition 7 of *Calculus coincidentium et inexistentium*. Here we can read that "A is (contained) in A. Everything is (contained) in itself [*A est in A. Unumquodque est in se ipso*]" (A VI 4, 835).

17 For a good presentation of PFL together with other systems that allow some terms to be empty, see Nolt's entry on Free Logic in the *Stanford Encyclopedia of Philosophy* (Nolt 2000). I have used this article as a basis for my exposition of PFL.

- if α,β are formulas, then ¬α, α→β, ∀xα are formulas;
- nothing else is a formula.

4.2 Syntax of PFL

I shall here formalize PFL by means of Natural Deduction Rules. PFL diverges from standard first-order logic only concerning the rules governing quantifiers, while all other rules remain as usual. It will be useful for the clarification of the exposition to introduce an existence predicate E(x) defined as follows: $E(x) \equiv_{def} \exists x(x \approx x)$. I shall just focus here on those rules that differ from the classical ones:

Introduction of universal quantifier (∀I)

$$\frac{\begin{array}{c}[E(t)] \\ \vdots \\ \phi(t/x)\end{array}}{\forall x \phi(x)}$$

where ϕ(t/x) is the result of replacing every occurrence of *x* in ϕ with a variable *t* that is free for *x* in ϕ; *t* is new and does not occur in ϕ; ϕ does not depend on some non-discharged assumption where the variable *x* is free. The rule tells us that if we have derived ϕ(x) from the assumption that *t* exists – E(t)– we can conclude with ∀xϕ(x) and discharge E(t). The only difference with the classical ∀I rule is in the requirement that *t* exists. If E(t) is not the case, from ϕ(t/x) we cannot introduce the universal quantifier. This means that the universal quantifier ranges *only* over 'existing' objects.

Elimination of the universal quantifier (∀E)

$$\frac{\begin{array}{c}[E(t)] \\ \vdots \\ \forall x \phi(x)\end{array}}{\phi(t/x)}$$

where *t* must be free for *x* in ϕ(x), i.e. *t* must not be bounded by a quantifier in ϕ after the substitution. Again, the only difference with the classical rule is in the requirement that E(t) is the case. This means that the universal quantifier ranges over *all* existing objects.

Since the existential quantifier is defined in the usual way, the rules that regulate it depart from the classical rules for requiring, as a premise, E(t):

Introduction of the existential quantifier (∃I)

$$\frac{\begin{array}{c}[E(t)]\\ \vdots\\ \phi(t/x)\end{array}}{\exists x\phi(x/t)}$$

(where t is free for x in ϕ);

Elimination of the existential quantifier (∃E)

$$\frac{\exists x\phi(x) \qquad \begin{array}{c}[\phi(t/x),\ E(t)]\\ \vdots\\ \gamma\end{array}}{\gamma}$$

In this case, x need not be free in $\phi(x)$; t is new and does not occur in ϕ or γ; x is not free in the non-discharged assumption used to derive γ.

What these rules tell us is that quantifiers are restricted to 'existing objects', i.e. we can apply the rules governing them only in those cases where the terms involved denote. If we have an empty term, we cannot introduce or eliminate a quantifier. The rationale of such a restriction should be clear: from a sentence with an empty term $\varphi(t)$, I cannot conclude with $\exists x\varphi(x)$ which has existential commitments.

Concerning the weak identity predicate, the rules that govern it are just the classical rules for identity; and the reason is that weak identity is defined even for empty terms. As such the notion of weak identity is similar to the standard notion of identity, with the only difference being that in a weak identity statement 's≈t', one or both of *s*and *t* may be empty. Standard identity may be defined in the following way:

$a=b \equiv_{def} (a\approx b)\wedge E(a)\wedge E(b)$.[18]

4.3 Semantics of PFL

Concerning the semantics for PFL, since we need some atomic sentences with non-denoting terms to be true, we need a positive seman-

18 Since the identity relation requires the relata to exist, we could replace E(a) with a=a. Notice that we could have taken identity as primitive and defined weak identity as follows: $a\approx b \equiv_{def} (a=b)$ and a, b may not refer.

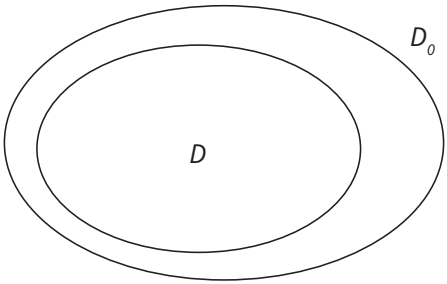

Figure 1
Representation of the relationship between the standard domain D and the enlarged domain D_0

tics (the term 'positive' in PFL just denotes this fact). There are at least two ways of providing a positive semantics for a free logic: the first is to consider a single domain D of objects over which the quantifiers range, and over which the interpretation of denoting terms is defined. To accommodate non-denoting terms, one takes the interpretation function to be partial, i.e. non-defined for these terms. This captures the idea that such terms are empty in a literary way, but makes the semantics complicated: while sentences with denoting terms can be evaluated in the usual Tarskian way, sentences with non-denoting terms must receive a special treatment. For this reason, I prefer a dual domain-semantics. There will be two domains: D,which is the standard domain containing everything, and a further domain D_0 which is a larger domain containing everything that is in D plus further objects which are associated with non-denoting terms (which are therefore the 'non-existing' things).[19] To keep things as simple as possible, we may imagine that there is a unique 'non-existing' thing; in other words, every empty term is associated with the same object. The picture is as shown **[fig. 1]**.

I shall call D the inner domain, while the difference D_0/D (the part of D_0 not contained in D) the outer domain. The basic idea of the semantics consists in letting singular terms and predicates be defined over D_0. At this point the dual domain semantics may be defined as follows: a model is a triple $<D, D_0, I>$, where D, D_0 are as above, and I is an interpretation function such that

- If t is a term $I(t)\in D_0$;
- If P^n is a predicate $I(P^n)\subseteq {D_0}^n$ (in particular $I(s\approx p)\subseteq {D_0}^2$);
- If f^n is a n-place function, $I(f^n)$ is a function defined over D_0.

The valuation function V assigned truth-value to formulas as follows:

- $V(Pt_1,\ldots,t_n)=1$ if and only if $<I(t_1),\ldots,I(t_n)>\in I(P)$, otherwise it is 0;

19 For simplicity, I shall consider D as a subset of D_0.

- $V(s \approx p)=1$ if and only if $I(s)=I(t)$;[20]
- $V(\neg A)=1$ if and only if $V(A)=0$;
- $V(A \rightarrow B)=1$ if and only if either $I(A)=0$ or $I(B)=1$;
- $V(\forall xA)=1$ if and only if for all $d \in D$, $V_{d,t}(A(t/x))=1$ (with t not in A and $V_{d,t}$ the valuation function on the model $<D, D_0, I^*>$ such that I^* is like I except that $I^*(t)=d$).

Notice that the semantics for the quantifier is quite standard; however, the clause is given with reference to D and not to D_0. This matches what we saw above: quantifiers only 'work' with denoting terms. Before proceeding, a word on the basic idea of dual-domain semantics is needed. We said that the semantics associated the empty terms with objects from the outer domain D_0/D, i.e. 'non-existing objects' (or, better, with the unique object in the outer domain D_0/D). This must not be taken literally, as implying that we are accepting both existent and non-existent objects, as happens in Meinongian ontologies. On the contrary, this is only *a technical fiction* that allows us to give a uniform Tarskian semantics both for denoting and non-denoting terms, but no ontological *morale* must be derived from this merely technical fact. It is interesting to note that a similar approach was championed by Leibniz himself concerning fictional entities like infinitesimals, infinite wholes, and others. Leibniz's idea was that we could use them to discover new truths, even though they do not exist or even in the case that they are contradictory notions. We can use them as if they existed, provided that in more rigorous contexts we can dismiss them in favour of some other method. Similarly, we can take empty terms as denoting non-existent objects for the sake of keeping the semantics simple and intuitive, provided that, when drawing philosophical conclusions, we dismiss any talk of non-existent objects in favour of talk about terms that do not refer at all.

4.4 Discriminating Actual from Merely Possible Objects

The semantics that we have just presented does not discriminate what actually exists from what is merely possible, and thus what exists in our world from what exists, according to Leibniz, in another possible world *in mente Dei*. It is not difficult to amend this situation. What we need to do is introduce a relation *comp*(x,y) to be read as '(the individual) x is compossible with (the individual) y', and show that it is an equivalence relation: in this way *comp*(x,y) partitions the domain D into different equivalent classes that correspond to different possi-

20 Notice that the identity sign between $I(s)$ and $I(t)$ is not the same identity sign which we defined by means of weak identity, because the latter belongs to the object language, while the former belongs to the metalanguage in which we are presenting the semantics.

ble worlds.[21] A possible world is thus a maximal series of compossible individuals. A consequence is that it cannot happen that two compossible states belong to different possible worlds. Between the possible worlds, the one that maximizes the amount of goodness is the actual world.

What this partition requires is a Kripke-style semantics, where formulas are evaluated with regard to possible worlds. The details are standard and since they will not play any role in what follows, I will not present them here. However, one has to bear in mind that terms referring to possible objects are not considered to be empty; rather they refer to some object in the inner domain *D*.

5 The Formal Machinery at Work 1: Avoiding the Contradiction

With this formal machinery in play, we can go back to the contradiction that emerges in the 'Real Addition' calculus as soon as Leibniz admitted the empty term 'nihil'. From WS, we have the claim that there are (at least) two disjoint things; but the admission of the term 'nihil' implies the truth of

4. $\forall x(x \oplus nihil = x)$

Which is equivalent (by definition of the containment relation) to:

5. $\forall x C(x,nihil)$

Which says that everything (in the sense of every object) contains the nothingness. In a classical setting, from 2 we could derive

6. $\forall x \exists y C(x,y)$

By applying the classical existential introduction rule. However, within PFL we cannot apply ∃I, because 'nihil' is an empty term, and E(t) (where I(t)=nihil) is false. In this way, one of the requirements necessary to apply ∃I fails, and we cannot derive the contradiction.

The same reasoning applies to the characterization of nihil given in §2.1 (nihil as what is different from everything). There the contradiction was between the claim that nothing is contained in the object nihil: $\forall x \neg C(nihil,x)$, and the claim that something is contained in it: $\exists x C(nihil,x)$, which was a consequence of the reflexivity of the containment relation applied to the notion of nihil: C(nihil,nihil). Clearly, within PFL, we cannot derive $\exists x C(nihil,x)$ from C(nihil,nihil), because this would require an application of ∃I; but since 'nihil' is an empty term, the rule cannot be applied.

21 The details of this construction can be founded in Arthur 2021, Appendix 1, A1.3.

To sum up, our setting allows us to commit ourselves to the claim that nihil is contained in everything,[22] and at the same time to reject the claim that there is something contained in everything, simply because 'nihil' is an empty term. Since we reject the latter, we are not committing ourselves to the idea that every two things have something in common. We are thus not forced to accept that there are no disjoint things. This shows that a positive free logic would allow Leibniz to have his cake and to eat it too: he can have the notion of nothingness, and at the same time accept the existence of disjoint terms.

6 Some Comments about (Weak) Identity

Above, we have defined identity through the notion of weak identity:

$$a{=}b \equiv_{def} (a{\approx}b) \wedge E(a) \wedge E(b)$$

While the standard identity predicate requires that both *a* and *b* are not empty (and for this reason is a *strong* predicate), weak identity is defined also in the case that one or both terms are empty. For this reason, from a=b we can derive ∃x(x=b), but the same cannot be derived from a≈b. The intuitive reading of a≈b is that *a* and *b* are the same, or that '*a*' refers to the same object as '*b*'. The sentence is false when the two terms refer to different objects, or one refers to something, while the other is empty. As such, in the case in which both are empty, they do not refer at all (i.e. they refer to the object in D_0/D), and so in particular it is not the case that they refer to different objects: the sentence will consequently be true.

The introduction of the term nihil is due to the will of defining a subtraction operation as the converse operation of Real Addition. Recall that Leibniz introduced the following axiom: ∀x(x−x)=nihil. Clearly, in our PFL as defined above, the identity symbol must be replaced with the weak identity symbol, the subtraction operation is a function symbol, and so the truth-conditions of this axiom can be interpreted as follows:

> '∀x(x−x)=nihil' if and only if for all $d{\in}D$, $V_{d,t}(t{-}t{\approx}\text{nihil})=1$ if and only if for all $d{\in}D$, $I(t{-}t){=}I(\text{nihil})$ (where $I^*(t){=}d$).

Semantically the axiom says that the referent of any expression of the form *t*−*t* is the same as the referent of the term 'nihil'. This referent

22 Even though Leibniz does not explicitly state that nihil is contained in everything (as far as I know), this is a direct consequence of his axiom governing subtraction and his definition of containment.

will belong to D_0/D. However, one has to notice that this formulation of the axiom only regards objects d such that $d \in D$, since quantifier rules in PFL are restricted to denoting terms. In order to extend the axiom to also cover empty terms, we need a schematic formulation such as $\alpha - \alpha = \text{nihil}$, where α is a meta-variable.

At this point, I would like to draw the reader's attention to two important points. The first regards sentences such as 'The current King of Italy is (≈) nihil', where the first term denotes a possible, but not actual object,[23] while the second is an empty term. Since our domain D comprises both actual and possible objects, the semantics will make all these sentences false.[24] Second, as we outlined above, the interpretation function I associates every empty term with the unique object in D_0/D, i.e. every empty term has the same reference. This makes every (weak) identity statement between empty terms true. This feature exactly captures an idea that we find in *Specimen Calculi Coincidentium* (§20) wherein Leibniz writes that 'if A is nihil and B is nihil, then A=B, i.e. two nothingness coincide' (A VI 4, 817, Author's translation): that 'two nothingness coincide' exactly means that every identity statement between two empty terms is true, as our semantics delivers.

Following a suggestion of Oliver and Smiley (2013), we can generalize the distinction between weak and strong identity to any predicate: Fx is strong if and only if the truth of Ft (where 't' is a term) implies the existence of t. If this is not the case, then the predicate is weak. For instance, 'walk' is a strong predicate, because the truth of 'Mark walks' implies the existence of Mark. But the predicate 'is not different from' is weak: the truth of '$t - t$ is not different from nihil' does not imply the existence of nihil (in fact, 'is not different from' is a good way of reading the ≈ predicate). Clearly, the extension of strong predicates is restricted to the domain D, while weak predicates have extensions in D_0.

23 This is not completely true: the definite description 'the actual King of Italy' is incomplete, and may denote different objects in different possible worlds. What one should do is pick up a complete concept which will denote a unique object in exactly one possible world.

24 This is a major difference between the present approach and the one developed by Oliver, Smiley 2013. According to their proposal, a sentence such as 'The current King of Italy is nihil' would be true, because their domain does not comprehend possible objects, but only actual ones, and so both terms turn out to be empty. In other words, if the sentence 'The current King of Italy is nihil' were false, the terms 'the current King of Italy' and 'nihil' would refer to different objects. But since, in their semantics, the terms do not refer, that sentence is true.

7 The Formal Machinery at Work 2: The Case of Infinitesimals and Other Empty Notions

It is interesting to look at how the present proposal performs with regard to a famous issue concerning Leibniz's philosophy of mathematics, i.e. the nature of infinitely small quantities. As is well-known, Leibniz considered infinitesimals to be useful *fictions* to discover mathematical truths, but at the same time always dispensable:

> Speaking philosophically, I maintain that there are no more infinitely small magnitudes than there are infinitely large ones, that is, no more infinitesimal than infinituples. For I hold both to be fiction of the mind thorough an abbreviated way of speaking […]. [They] are very useful for abbreviating thought and thus for discoveries, and cannot lead to an error, since it suffices to substitute for the infinitely small something as small as one wishes, so that the error is smaller than any given, whence it follows that there can be no error. (GP II, 305/Leibniz 2007, 33)

What Leibniz is claiming is that infinitesimals do not exist *in rerum natura* and that every mathematical sentence in which an infinitesimal term appears can be translated into a sentence that makes no reference to it. Clearly this very last sentence represents the most correct way of stating the truth in question; however, working with infinitesimals has some technical advantages. The question that I would like to raise is the following: what is the status of the sentence that contains an infinitesimal term? For example, consider a sentence $\varphi(t)$, where '*t*' is a term referring to an infinitesimal. The sentence ascribed the property $\varphi(x)$ to an infinitesimal *t*. Let us suppose that $\varphi(t)$ is a mathematical theorem. Should we count it as true or false? Since it is a theorem, we take it for granted that its translation into a sentence with no reference to infinitesimal consists in a true proposition. Let us suppose that this translation is given by the sentence $\forall xA$.[25] However, the status of the sentence $\varphi(t)$ is less clear. One might suggest that the sentence should be read as a conditional: if *t* existed, then $\varphi(t)$. However, Leibniz believed that infinitesimals were contradictory objects,[26] so *t* can never exist, and this path is not viable. Another option would be to consider the sentence as false, since its subject-term does not refer. But then we would end up in the awkward position of

25 I have not chosen a universal sentence by chance; rather Leibniz proposed to paraphrase away reference to infinitesimals by means of general sentences to the effect that no matter how small a quantity can be, there will always be a smaller quantity. On this point, see Ishiguro 1990, 87 and Arthur 2013.

26 As Arthur 2013 and Rabouin, Arthur 2020 have strongly argued.

claiming that φ(t) is false, but its translation ∀xA is true. In this scenario it is difficult to understand how this could be possible: a good translation should preserve the meaning of the sentence, which implies that at least the truth-value of the sentence should not change. How could we assert that ∀xA is a good translation of φ(t) if they have different truth-values?

I think that the best way to solve this difficulty is to admit that sentences with empty terms might be true. The sentence φ(t) is true, even though '*t*' is empty. Clearly this requires a positive free logic as the one we present here, which does not allow to conclude that t exists on the ground that φ(t) is true. Moreover, the translation is now truth-preserving: we translate a true sentence (with infinitesimal terms) into a true sentence with no infinitesimal term. In this context, the translation succeeds in showing that the truth, which we may have discovered by means of infinitesimals, does not really depend on them, and can (and, from a philosophical point of view, should) be expressed without recurring to them.

This approach can be extended to other empty terms, such as 'infinite number', 'greatest velocity' or 'perpetual mechanical motion'. For instance, concerning the latter, Leibniz writes:[27]

> […] for when we speak of perpetual mechanical motion, for example, we know what we are saying, and yet such motion is an impossibility and so we can only appear to have an idea of it. (A VI 6, 438/Leibniz 1996, 438).

With the help of a PFL, we can interpret this passage literally: we know what we usually attribute to such a motion, because there are true subject-predicate sentences about it, even if its existence would imply a contradiction.

8 The Formal Machinery at Work 3: The Term 'Nothing' in the Proof of the Existence of God

In the *New Essays*, commenting on the proof of the existence of God provided by Locke, Leibniz/Theophilus says:

> I assure you perfectly sincerely that I'm most distressed to have to find fault with this demonstration; but I do so only so as to get you

27 Similar considerations can be found in different places; for instance, in a letter to Malebranche we can read: 'But one can also reason about the greatest of all numbers, an idea which nevertheless implies a contradiction, as does also the greatest of all velocities' (GP I, 327-8). The English translation follows that of Loemker (Leibniz 1969, 211). On Leibniz's argument against infinite number see Costantini (2020).

> to fill the gap in it. It is mainly at the place where you infer that 'something has existed from all eternity'. I find an ambiguity there.[28] If it means that there has never been a time when nothing existed, then I agree with it, and it really does follow with entirely mathematical rigor from the preceding propositions. For if there had ever been nothing, there would always have been nothing, because a being can't be produced by nothing; and if nothing had been produced we ourselves wouldn't have existed, which conflicts with the first truth of experience. (A VI 6, 436/Leibniz 1996, 436)

In this critique, the term 'Nothing' compares different times. The first three occurrences can be translated by means of a quantifier phrase. For instance, when Leibniz says "there has never been a time where nothing existed [*il n'y a jamais eu un temps, où rien n'existoit*]", the sentence is naturally understood as 'there has never been a time when *no thing* existed'; or when Leibniz adds "if there had ever been nothing, there would always been nothing [*si jamais il y a avoit eu rien, il y auroit toujours eu rien*]", the sentence is naturally understood as 'if there had been *no thing* at all, there would always be *no thing* at all'. However, the sentence "a being can't be produced by nothing [*le rien ne pouvant point produire un Etre*]"[29] cannot be directly translated – without altering its meaning – by a quantifier phrase, such as 'a being cannot be produced by no thing'. This can be appreciated by considering the equivalent

a. Nothing comes from nothing

where the first occurrence of 'nothing' is a quantifier, while the second a noun-phrase. If we tried to translate both occurrences with a quantifier, for instance

b. $\forall x \neg \exists y$(x comes from y)

we obtain a different sentence. Sentence (b) claims that no object comes from any other objects, which is not what (a) says. In fact, (a)

28 The ambiguity which Leibniz refers to can be expressed by the position of the quantifiers. The sentence 'something has existed from all eternity' can be translated either as $\forall t \exists x(x=x,t)$ or as $\exists x \forall t(x=x,t)$, where *t* is a variable for time. The former claims that in every time there exists something, while the latter claims that there is something that exists in all times. Only the latter implies the existence of an eternal entity, while the former is compatible with the idea that in every time there are only contingent entities.

29 The literal translation of Leibniz's sentence is "Nothing can produce no thing", where the first occurrence of 'nothing' must be a noun-phrase; otherwise, if it were a quantifier, the sentence would become 'there is no thing that can produce no thing', which is clearly false.

just excludes that something comes from nothing, but it is silent on the possibility that something comes from something else (a possibility explicitly denied by b). This implies that we must look for a different interpretation of the term 'nothing' which cannot be paraphrased away in quantificational terms. The reading of 'nothing' as an empty term seems to be perfect for this situation: 'nothing comes from nothing' is true because 'comes from' (in the sense of being produced by) requires the existence of a producer (and so it is a strong predicate); but 'nothing' is an empty term, and so, in this case, we have no producer. Since we have no producer, *there is no thing* that can be a product, and so nothing comes from nothing.

In the passage quoted above, Leibniz claims that, once the ambiguity affecting Locke's argument has been removed, the conclusion of the argument 'does really follow with mathematical reason from the premises'. However, the argument employs at the same time the same linguistic term 'nothing' both as a quantifier and as a noun-phrase, and this might be enough to suggest a certain ambiguity in it. But having accepted a positive free logic, one can accept 'nothing' as a noun-phrase and develop a valid argument which combines both readings of 'nothing'.[30]

The argument is based on the implicit assumption that everything has a reason (Principle of Sufficient Reason). Moreover, according to Leibniz's theory of time, if *a* is a reason for *b* (and they both are in time), then a must temporally precede *b*. The Principle of Sufficient Reason can be formalized as follows:

$$\exists x(x=b,t_1)\rightarrow[\exists y(y=a,t_0)\wedge R(a,b)] \quad (PS1)$$

Where *a* and *b* are two arbitrary constants, t_0, t_1 are two constants for time such that $t_0<t_1$ (t_0 precedes t_1) and R(a,b) means that *a* is a reason for *b*. This says that if there is an entity *b* in a time t_1, then there is a different entity *a* in a preceding time t_0 which is the reason of *b*. However, this will not do: in PFL, quantifiers range only over denoting terms, which implies that the sentence is silent with regard to empty terms, and in particular to nihil. To account for the latter, we might rewrite it as follows:

30 Concerning Leibniz's use in the *New Essays* of the terms '*rien*' and '*neant*', we should observe what follows: the term '*neant*' is used few times (I was able to find 5 occurrences of it) and always as a noun-phrase. Moreover, it is used twice in the expression 'to produce from nothing' (*tirer du neant*). The term '*rien*' occurs many times, sometimes as a quantifier, others as a noun-phrase (as in the example discussed in the main text above). A further occurrence of it as a *noun-phrase* is in the fundamental question of the *Principles of Nature and Grace: Pourquoi il y a plutôt quelque chose que rien? Car le rien est plus semple et plus facile que quelque chose*. The sentence 'nothing is simpler and easier than something' is one more example of an occurrence of the term 'nothing' that cannot be paraphrased away in quantificational terms.

$$\exists x(x=b,t_1)\neg[\exists y(y=a,t_0)\wedge R(a,b)]\vee R(nihil,b) \quad (PS2)$$

But nihil cannot be a reason for the existence of any entities, because it has no properties.[31] Therefore we have

$$\neg R(nihil,b)$$

Supposing that the antecedent of PS2 is true, we can detach the consequent, and by an application of Disjunctive Syllogism, we obtain $\exists y(y=a,t_0)\wedge R(a,b)$. Since this depends on the antecedent, we obtain PS1 (which is not an assumption, but a truth of reason that can be derived by principle of reason, PS2, and a definition). What this shows is that, within PFL, the existence of a reason indeed follows with 'mathematical rigor', as Leibniz claims.

9 Conclusion

Based on the passage of the *Generales Inquisitiones* quoted at the beginning of this paper, Mates (1972) argues that sentences with non-denoting terms are always considered false by Leibniz. Contrary to this position, we have here developed a different approach, according to which Leibniz holds that some sentences with empty terms can be true. Our main reason in support of this view is Leibniz's use of the term nihil in different logical essays concerning the notion of Real Addition. The term nihil can be seen as a counterexample to Mates' position. After having considered the idea that the presence of empty terms does not exclude truth, we sketched a positive free logic that describes a possible way of understanding the logic of such terms. We then proceeded to show that different theses held by Leibniz (the fictional nature of infinitesimals, the fact that we 'know what we say' when speaking of contradictory notions, and the use of 'nothingness' in the proof of the existence of God) can be easily interpreted and vindicated within such an approach.

In conclusion, it must be borne in mind that our proposal consists in treating as empty all those terms that do not refer by means of logical necessity, and not those terms that refer to possible but not actual things. In this sense, the admission of empty terms does not contradict the strategy expressed in the *New Essays* consisting in the translation of sentences with terms denoting merely possible objects into conditional sentences. We argued that this strategy is not applicable to terms such as nihil, the greatest velocity, the infinite number, the perpetual mechanical motion, infinitesimal, etc. For these terms a PFL seems an apt tool that harmonizes perfectly well with the rest of Leibniz's views.

31 See footnote 15.

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Abbreviations

A = Leibniz, G.W. (1923ff.). *Sämtliche Schriften und Briefe*. Berlin: Akademie Verlag.
GP = Leibniz, G.W. (1875-90). *Philosophische Schriften*. Bearb. von C.I. Gerhardt. 7 Bde. Berlin: Weidmann.

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Conceivability Errors and the Role of Imagination in Symbolization

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Abstract In the years 1675-84, Leibniz sought to disprove Descartes's account of clear and distinct perception by implementing a three-step argumentative strategy. The first part of the paper reconstructs the argument and highlights what aspects of Descartes's epistemology it addresses. The reconstruction shows that the argument is based on conceivability errors. These are a kind of symbolic cognition that prove Descartes's clear and distinct perception as introspectively indistinguishable from Leibniz's symbolic cognition. The second part of the paper explores the epistemic implication of the indistinguishability between clear and distinct perception and symbolic cognition: the mind constitutively depends on products of the imagination. My conclusion addresses the role of the imagination in symbolization. Symbolization does not exceed imagination; it rather is an idealized use of cognitive surrogates, like characters, to submit to the imagination what is not subject to it.

Keywords Leibniz. Descartes. Symbolic cognition. Imagination. Symbolization.

Summary 1 Introduction. – 2 Descartes's Transparency. – 3 Conceivability Errors: Leibniz's Strategy. – 3.1 The Argument Reconstructed. – 3.2 Descartes's Theory of Error and Symbolic Cognition. – 4 Imagination and Symbolization.

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1 Introduction

In the years 1675-84, Leibniz sought to disprove Descartes's account of clear and distinct perception.[1] In texts widely explored in the literature, such as *De mente, de universo, de deo* (henceforth, *De mente*, 1675) and *Meditationes de cognitione, veritate et ideis* (henceforth, *Meditationes*, 1684),[2] Leibniz implements the same three-step argumentative strategy:

1. He concedes that there is one process of cognition involving signs and another involving the perception of ideas.[3]
2. He challenges Descartes's claim that we understand signs because we perceive ideas directly. He does this by introducing what I call *conceivability errors*: well-formed linguistic formulations that refer to nothing because the idea they express is impossible.[4]
3. He concludes that we do not perceive ideas directly and instead only by way of what he calls symbolic cognition.[5]

The first part of this paper explains how the argument works and which aspect of Descartes's epistemology it challenges. In the second step of the argument, Leibniz opposes conceivability errors to cases of allegedly clear and distinct perception. This shows, I argue, that Leibniz does not simply rely on raising sceptical doubts about our apprehension of ideas. Rather, he rejects the claim that ideas are ever direct objects of perception by challenging the alleged transparency of clear and distinct perceptions of ideas – the capacity of the mind to know itself to be in a clear and distinct state *about* an idea. In short, the argument based on conceivability errors shows that Descartes's clear and distinct perception is introspectively indistinguishable from Leibniz's symbolic cognition.

The second part of the paper explores the epistemological consequences of my reconstruction of the argument. The fact that clear and distinct perception is introspectively indistinguishable from symbolic cognition means that the mind constitutively depends on products of the imagination, namely signs and symbols. This bestows epistem-

1 I follow Picon 2003, 102-32, who argues that the two texts I focus on here are dedicated to refuting the Cartesian notion of ideas rather than taking a position in the Arnauld-Malebranche controversy on true and false ideas.

2 Mugnai 1676; Bolton 2011; Leduc 2011; Picon 2003; Favaretti Camposampiero 2007.

3 *De mente*, A VI 3, 462.

4 *De mente*, A VI 3, 462-3; *Meditationes*, A VI 4, 588.

5 *De mente*, A VI 3; *Meditationes*, A VI 4, 588/L 292: "Ex his jam patet, nos eorum quoque quae distincte cognoscimus, ideas non percipere, nisi quatenus cogitatione intuitiva utimur".

ic and cognitive value on imagination. I conclude by elaborating on the relation between imagination, understanding, and symbolization.

I begin by reconstructing Descartes's theory of clear and distinct perception, as Leibniz interprets it (§ 1). I argue that clear and distinct perception must be transparent. This happens when three cognitive states occur: the mind attends to the idea (priority), knows itself to be doing so (pure intellection), and is also aware that the idea is possible (epistemic warrant). I then explain Leibniz's overall argumentative strategy and point out that it addresses priority rather than epistemic warrant (§ 2). In § 3, I discuss Leibniz's argument in *Meditationes*, arguing that Descartes's framework cannot explain conceivability errors unless clear and distinct perception is regarded as introspectively indistinguishable from symbolic cognition. I conclude that the best we can hope for are symbolic *expressions* (§ 4) and inquiry into the role of the imagination in symbolization.

2 Descartes's Transparency

Descartes's *Meditations on first philosophy* has the very demanding aim of establishing those truths of metaphysics that cannot be doubted. A proposition cannot be doubted, Descartes argues, if it is the object of a clear and distinct perception:

> A perception which can serve as the basis for a certain and indubitable judgement needs to be not merely clear but also distinct. I call a perception 'clear' when it is present and accessible to an attentive mind – just as we say that we see something clearly when it is present to the eye's gaze and stimulates it with a sufficient degree of strength and accessibility. I call a perception 'distinct' if, as well as being clear, it is so sharply separated from all other perceptions that it contains within itself only what is clear. (AT VIII A, 22/CSM I, 207)

Clear and distinct perception is characterized by immediate assent. It possesses this characteristic in virtue of being independent of other faculties, such as the senses and imagination: it is neither mediated by images nor linguistic expressions. Rather, the intellect immediately grasps an idea and knows its possibility. The immediacy here should not be understood temporally, but rather as cognitive priority: to have cognition, the mind needs first to intuit an idea. An idea is:

> the form of any given thought, immediate perception of which makes me aware of the thought. Hence, whenever I express something in words and understand what I am saying, this very fact makes it certain that there is within me an idea of what is signified

> by the words in question. Thus it is not only the images depicted in the imagination which I call 'ideas'. Indeed, in so far as these images are in the corporeal imagination, that is, are depicted in some part of the brain, I do not call them 'ideas' at all; I call them ideas only in so far as they give form to the mind itself, when it is directed towards that part of the brain. (AT VII, 160/CSM II, 113)

When the intellect is immediately aware of ideas through clear and distinct perception, no epistemic error can arise in the process of knowing. The absence of mediation by other faculties in the perception of ideas is Descartes's transparency thesis (hereafter, TT). For the sake of making Leibniz's argument clear, in this paper I define transparency using three assumptions:[6] the priority of ideas (Priority); pure intellection (PI); and epistemic warrant (EW):

> Priority: in the very act of being presented with an object, an image, or a linguistic formula expressing an idea, the mind understands them because it perceives ideas.[7]
> PI: the mind knows itself to be engaged in clear and distinct perception.
> EW: the mind can reliably believe in the possibility of the object represented by the idea because of priority and PI: It grasps the idea clearly and distinctly, i.e., without the mediation of images, signs, or other intermediaries.

The distinction between priority and PI is important for Leibniz's argument, as we will see in § 2. Leibniz's argument endorses the claim that clear and distinct perception is always transparent. By transparent, I mean that the mind knows itself to be in a clear and distinct state of mind and that this state is about an idea. Not every mental act is transparent: I may be conscious of seeing a mermaid and yet not be aware that I am dreaming. In normal cases, subjects can be aware of the kind of mental states they have but may be attending to an idea in a confused way. However, a peculiar kind of mental state, clear and distinct perception, is always transparent. The mind must be aware that an idea is the object of a clear and distinct perception:

6 My aim is not to enter into the debate about whether *thought*, for Descartes, is transparent (viz., the object of privileged access from a first-personal perspective) (Wilson 1978, 132 ff.). I wish only to suggest that, in order to understand how Leibniz's argument works, we need to assume that clear and distinct perception is transparent, i.e., that the mind must know itself to be in such state.

7 Some scholars, like Perler 1996, may argue that Descartes does not endorse Priority. It might be true. The point in this paper is that, as Leibniz reads Descartes, he does or, if he is not aware of it, he should, otherwise he would face the issues raised in § 3.1 and § 3.2.

> But I know now that I am incapable of error in those cases where my understanding is transparently clear. Or can it be objected that I have in the past regarded as true and certain many things which I afterwards recognized to be false? But none of these were things which I clearly and distinctly perceived […]. For even though I might be dreaming, if there is anything which is evident to my intellect, then it is wholly true. (AT VII, 70-1/CSM II, 48-9)

Leibniz's argument is exclusively addressed to cases of clear and distinct perception. In order to show that there are cases of conceivability errors, he needs to distinguish priority from pure intellection.

The distinction between priority and pure intellection is central to distinguish two senses of *ofness* (Shapiro 2012; Wilson 1999). According to Shapiro (2012), there are two senses of 'idea of'. In one sense, to have an 'idea of' something means that the idea presents what Descartes calls objective being. In the other, pre-theoretical sense, 'idea of' is understood propositionally, as an idea apprehended confusedly or a name.

This distinction, Shapiro further argues, is important to the explanation of cases of clear and distinct perception as cases in which there is a path that brings the mind from perceiving something confusedly to perceiving it in a clear and distinct way. It further explains intentional divergence: the mind apprehends something in a clear and distinct way, but attributes it to the wrong subject. Cases of intentional divergence are cases of materially false ideas because the mind perceives the formal side of the idea of sensation, i.e., that it is an act of the mind, but attributes this positivity to the wrong subject, since it believes that what the idea represents, for instance a color, exists in the body. Likewise, a pagan claims that existence pertains necessarily to Jupiter because she clearly and distinctly perceives the true idea of God, but she attributes it to the wrong subject (Shapiro 2012, 378-418).

Leibniz's conceivability errors question that there can be a process of clarification and distinction, supported by imagination, that leads to grasp an *idea's possibility*. If the possibility of an idea is required for interpretation of signs and images, signs and images, or other products of imagination, cannot be the reason why we apprehend an idea's possibility.[8] The insistence on conceivability errors,

8 This remark makes me conclude that the criticism Leibniz raises is structural: he does not question whether Descartes thought imagination has a cognitive and epistemic role; Leibniz doubts that, if the imagination has any epistemic and cognitive role, this can be compatible with what Descartes holds in *Meditations*. As showed in a survey by Foti 1986, and in a more extensive study by Sepper 1996, imagination has a prominent role according to Descartes. Sepper more specifically discusses the "evolution" of Descartes's conception of imagination from early writings, like *Rules to the Di-*

i.e., acts that make us believe in the possibility of an impossible idea, challenge that there ever is an act of pure intellection. Therefore, they also are not cases of intentional divergence. In cases of intentional divergence, the mind conceives of an idea clearly and distinctly but attributes it to the wrong subject; in cases of conceivability error, the mind has the illusion of conceiving an idea clearly and distinctly, but there is, in fact, no such idea – the idea is impossible in the sense that it entails a contradiction.

3 Conceivability Errors: Leibniz's Strategy

Conceivability errors are cases in which the mind believes itself to be perceiving an idea clearly and distinctly, while in truth there is no such idea because the idea is impossible. The mind believes itself to have an idea because it mistakenly takes syntactic properties of a linguistic formula for a clear and distinct perception of an idea (Mugnai 1676).

The common aim of *De mente* and *Meditationes* is to invert the Cartesian model of the priority of intuition over signs in order to make two points. First, Leibniz aims to show that only products of the imagination, namely images and definitions, are immediately available to an epistemic subject, where immediacy is to be understood both temporally and cognitively: we have signs before the concept, and we can think of the concept because we have the signs (Oliveri 2016b). Definitions are products of the imagination because they require a syntactically and semantically regulated system of signs which must be recalled and represented in the imagination. Second, Leibniz argues that PI is impossible for finite human minds. Undermining the priority of ideas is the key to rejecting PI and, therefore, to disproving TT.

I illustrate my point using *Meditationes*, for this is Leibniz's key text on epistemology and because it exerted significant influence on subsequent accounts of language (cf. Meier-Oeser 2019):

> It often happens that we falsely believe ourselves to have ideas of things in our mind, when we assume wrongly that we have already

rection of Mind – where a central stage in cognitive processes is assigned to this faculty – to *Meditations*, where Descartes seems to deny any epistemic role to it (*Meditation VI*; on this change of mind, see also Bos (2001, chapter 3) who interprets it as a consequence of Descartes's development of analytic algebra, that frees the mind from imagination insofar as the entertainment of geometrical diagrams assumes secondary importance). In Sepper's view, the cognitive role of the imagination remains constant through Descartes's writings: to be an aid for cognition. Leibniz's criticism raises the question of how imagination can be an aid if both priority and Descartes's theory of error are true (see § 3.1 and § 3.2).

> explained certain terms which we are using. It is not true, or at least it is ambiguous, to say, as some do, that we cannot speak of anything and understand what we say without having an idea of it. For often we understand after a fashion each single word or remember to have understood it earlier; yet because we are content with this blind thinking and do not sufficiently press the analysis of the concepts, we overlook a contradiction which the composite concept may involve. […] To explain this I usually make use of the example of the most rapid motion (A VI 4, 588-9/L 292-3)

This passage *prima facie* suggests that the argument rests on the unreliability of the human capacity for apprehending the possibility of ideas, implying that the problematic step in my reconstruction of Descartes is EW. A closer look at the strategy used by Leibniz shows, however, that the real issue is our capacity to know ourselves to be perceiving an idea in a clear and distinct way.

In order to deny TT, Leibniz finds cases in which we cognize a well-formed sequence of signs with the following characteristics:

a. it is construed such that the spontaneous reaction of a rational epistemic subject acquainted with language is to judge that it corresponds to a possible idea; but
b. it actually refers to an impossibility, which means that it cannot be the object of an act of clear and distinct perception.

I call these cases *conceivability errors*. They are special cases of *symbolic cognition*.

Notice that conceivability errors involve a combination of signs which is linguistically well-formed but to which no idea corresponds. Leibniz's example is the most rapid motion: a sequence of signs that can be proved to be impossible, using a diagram, at least according to Leibniz. Imagine a wheel and a nail on the rim, if one extends the spoke beyond the rim, the point on the new rim will move faster than the other, and so on to infinity (*Meditationes*, A VI 4, 589/L 293).

Notice that an ill-formed combination of signs, such as 'greenly fastly blue', would not do the same job because the subject would not be in a position to believe that it stands for an idea. This has to do with the nature of language: when a subject is presented with a linguistically well-formed combination of signs, she is inclined to believe that it refers to something possible.[9] Why? Because this is an important cognitive aspect of language: once speakers of a linguis-

9 This property of language was debated at the time. Bacon, for instance, regards language as being responsible for what he calls idols of the marketplace. Words draw epistemic subjects into error by imposing ideas of non-existing entities on the understanding. In arguing for this, Bacon notes that we spontaneously assume that an object always corresponds to words, without enquiring whether this is really the case. When

tic community are acquainted with a language, they spontaneously conceptualise other people's linguistic expressions.[10]

The other important aspect of Leibniz's argument involves the kind of impossibility that a conceivability error entails. To challenge Descartes, Leibniz needs conceivability errors in a domain in which the mind can potentially obtain clear and distinct knowledge, like mathematics. In *De mente*, Leibniz offers two such examples: 'the number of all numbers' and $\sqrt{-1}$ (*De mente*, A VI 3, 462-3).

This appeal to conceivability errors in mathematics allows us to conclude that transparency is indeed the target of Leibniz's argument, because symbolic cognition cannot be distinguished from cases in which, according to Descartes, we perceive an idea clearly and distinctly. The key point is that, once we undermine priority, the Cartesian framework implies that there is no introspective cognitive difference between linguistically well-formed formulations to which an impossible idea corresponds and formulations referring to what Descartes calls a clear and distinct idea, as in the case of 'that being than which no greater can be thought'. There is, however, a substantial epistemic difference between such cases: in the former, we mistakenly believe something impossible to be true; in the latter, we correctly believe in something's possibility. Now that the overall strategy is laid down, we can move on to reconstructing Leibniz's argument.

3.1 The Argument Reconstructed

Recall that transparency maintains that the mind is capable of clearly and distinctly perceiving an idea's possibility and of knowing itself to be in such a state. This is not our usual way of cognizing. Leibniz's point is not that, to understand a sequence of signs, we always need to perceive an idea clearly and distinctly; he denies the possibility of clear and distinct perception, i.e., that we can introspectively recognize cases of clear and distinct perceiving.

In the Cartesian framework, transparency grounds the epistemic reliability of a subject's beliefs in the possibility of the things her ideas represent. If the mind can reliably judge that x is possible, this is because it grasps the possibility of idea x (e.g., God), independently of any particular mode of presentation of the idea. The intellect cannot generate error. As stated in *Meditation III*: "If I consider just the ideas themselves as modes of my thought, without referring

people talk of 'fortune', for instance, they believe that fortune and misfortune really exist and influence our lives. See Bacon, *Novum Organum*, I, 60.

10 This is an obligatory aspect of language use (Oliveri 2020).

them to anything else, they could scarcely give me material for error" (AT VII, 37/CSM II, 26). *Meditation V* confirms that clear and distinct perception provides us with knowledge free of contradiction: "Admittedly my nature is such that so long as I perceive something very clearly and distinctly I cannot but believe it to be true" (AT VII, 69/CSM II, 48).

Therefore, Descartes attributes epistemic warrant to transparency: priority and pure intellection guarantee that one reliably judges that *x* is possible.

To disprove Descartes, Leibniz introduces cases of conceivability errors. There can be cases where the mind believes itself to perceive a possible idea, but, in fact, cannot be doing so because the idea is actually impossible.

Suppose the mind believes itself to perceive an impossible idea as possible, such as the most rapid motion. If transparency is true, then the mind must know either that it is not in a clear and distinct state (PI) or that the idea is impossible (EW). Since the mind is mistaken in judging that the idea is possible, the only reasonable explanation for this is that it mistakes the words for the idea, i.e., priority is false. In the final stage of my reconstruction of his argument, I argue that Leibniz thinks that this solution is not available to Descartes, given Descartes's view that errors are acts of will.

3.2 Descartes's Theory of Error and Symbolic Cognition

We can ask, as Leibniz does, whether Descartes could say that the signs 'the most rapid motion' deceives us who do not suspend judgement regarding the idea that 'the most rapid motion is possible' because we are, after all, presented with words that make sense. Descartes could have granted that, in this case, we first grasp a sequence of signs, implicitly assume that an idea corresponds to the well-formed sequence, and mistakenly judge the idea to be possible.

Leibniz believes that this solution does not square with Descartes's theory of judgement as an act of will. The real issue is not that we believe something impossible to be possible, but that we believe ourselves to clearly and distinctly perceive something, a state that is introspectively indistinguishable from the presentation of the linguistic formula 'being than which no greater can be thought'. The error arises because the will judges that the most rapid motion is possible, which means that it mistakes syntactic properties of the linguistic formula for properties of the ideas represented by this formula.

In *Meditation IV*, Descartes appeals to the separation between the intellect and the will in order to (i) avoid the objection that God, who gave us the intellectual faculty, is the source of human epistemic and moral failures; and (ii) to reject that the intellect can be the cause of

error (cf. Favaretti Camposampiero, Priarolo, Scribano 2016; Scribano 2016). Without (i) and (ii) there would be no way for the finite mind to resist general scepticism. Descartes maintains that errors do not consist in conceiving of erroneous ideas, but in the act of judging that something may correspond to them. In other words, epistemic subjects do not err in conceiving of the most rapid motion but rather in judging that the most rapid motion *is possible*:

> When I look more closely at myself and enquire into the nature of my errors […], I notice that they depend on two concurrent causes, namely on the faculty of knowledge which is in me, and on the faculty of choice or freedom of the will; that is, they depend on both the intellect and the will simultaneously. Now all that the intellect does is to enable me to perceive the ideas which are subjects for possible judgments; and when regarded strictly in this light, it turns out to contain no error in the proper sense of the term. (AT VII, 56/CSM II, 39)

To discharge the intellect of any responsibility for error, Descartes maintains that error consists in a judgement that affirms or denies something about an idea, like that an idea is possible, and that this judgement results from a free act of the will (see Newman 2008, 334-52). The will has the power to suspend such judgements and refrain from erring. When epistemic subjects do not refrain from making false judgements, they are fully responsible for their errors.

Errors can also arise from deceptive perceptual states that present the mind with materially false ideas. In the case of a stick which looks crooked in water, for instance, the will decides on the ultimate truth about the shape of the stick by refraining or not refraining from drawing a false judgement. If the will does not so refrain from judging falsely, the mind errs because the will is free to remain indifferent regarding the content of the judgement that the stick is crooked or not.

Such indifference is not possible with regard to those truths that the intellect clearly and distinctly understands. In the case of clear and distinct perception, the will must judge according to the truth presented by the intellect. If the intellect grasps that 3 + 2 = 5, the will is not free to deny this conclusion (see AT II, 57-8/CSM II, 40). Only when dealing with materially false ideas, which are not clear and distinct, is the will free to choose what judgement to endorse, because the conclusion is not fully determined by the intellect.[11] Why,

11 Indeed, Descartes acknowledges some falsity in materially false ideas: "For although I have before remarked that it is only in judgments that falsity, properly speaking, or formal falsity, can be met with, a certain material falsity may nevertheless be found in ideas, i.e., when these ideas represent what is nothing as though it were something" (AT VII, 43/CSM II, 30). For a discussion of this issue, see De Rosa 2010.

then, does the will conclude that the most rapid motion is possible when presented with the linguistically well-formed expression 'the most rapid motion', if the intellect is not presented with any corresponding idea?

According to the Cartesian picture, when we are presented with the expression 'the most rapid motion', a corresponding idea must be perceived by the mind. But, because there is no idea, the intellect does not grasp anything, and, nonetheless, the will judges that the idea of the most rapid motion is possible. The only plausible explanation for this judgement is that the mind falsely believes itself to be perceiving the idea and thus to be forming a judgement about the possibility of the idea, while the judgement actually concerns only the linguistic consistency of the formulation.

This is possible because the will does not refrain from judging and because it is subject to an implicit bias that a well-formed combination of signs normally refers to something in the world.

This explanation, however, is more of a threat to Descartes's *Meditations* than it is a solution to the Leibnizian criticism, because it undermines the assumption that the intellect can distinguish cases where a subject is presented with a clear and distinct idea from cases where there is no such idea. Pure intellection should, according to Descartes, guarantee that the mind is in a clear and distinct state concerning an idea, such that the will either judges correctly that the idea is impossible, or refrains from judging. But, when it is presented with impossible notions, the intellect cannot introspectively know whether it perceives an idea or not, so the will instead judges the idea's possibility based on the consistency of the linguistic formulation.

The only solution is to admit that there are cases in which the mind falsely believes itself to have a clear and distinct idea when it actually has a symbolic cognition, because the two states are introspectively indistinguishable. Once we concede this, introspection is seen to be unreliable, even when conjoined with careful attention.

Leibniz's example of the wheel and the rim gestures towards the idea that proving the possibility of something requires the mind to find an expression for it. The linguistic formulation 'the most rapid motion' and its expression by a diagram of a wheel and a rim are not cognitively on a par, but not in virtue of the ideas involved. It is only in virtue of the expression, not of the idea itself, that we conceive with more or less clarity and distinction. This conclusion bestows epistemic and cognitive force on the imagination and its products: signs, images, and imaginative surrogates in general.

4 Imagination and Symbolization

Leibniz does not simply deny that we primarily cognize ideas rather than expressions, like images or symbols; he rather denies that pure intellection is ever available to an epistemic being. We cannot rely on introspection to determine whether the knowledge we acquire is beyond doubt. This change of perspective makes human beings as knowers constitutively dependent on the senses and the imagination through their use of symbolic cognition. My reconstruction of this argument suggests that Leibniz is a *sui generis* rationalist. He claims that all cognitive acts involve a form of imagination-based reasoning. The intellect does not have the capacity to understand without making use of cognitive surrogates:

> Any time a human being reasons about abstract things that surpass the imagination, this does not happen without having in the imagination some signs that respond to them, such as letters and characters. There never is an understanding so pure that it is not accompanied by some imagination. So there always is in the body something mechanical that corresponds exactly to the series of thoughts that are in the mind of a human being insofar as what is imaginable is part of them, as a consequence the *automaton* of the body no more needs the influence of the soul, nor the supernatural assistance of God, than the bodies of non-human animals. (GP IV, 541)[12]

In the final part of this paper, I explore the connection between the work of the imagination and of expressions within a framework in which the introspection of ideas is unavailable. My main claim is that we learn to transform one subject matter into another through the imagination. In this act of transformation, the imagination foregrounds salient traits of the subject matter that one wishes to know by idealizing things that fall under its power: images and signs. Understanding the use of the imagination will therefore shed light on two questions: first, can images be means of clear and distinct cognition? Second, is symbolization a way of going beyond the limits of the imagination?

Through a perceptive analysis of Leibniz's epistemology and theory of cognition, Leduc (2014, 53-68) has argued that symbolization does not have a unified task. While scholars like Belaval (1960, 176-81) and Couturat (1901, 88-93) have argued that symbolization has a single function, namely compensating for the weaknesses of the imagination, Leduc argues that (2014, 63-8) there are two forms of symbolization: one that expands the domain of the imagination; and

12 Pasini 1996 draws attention to this passage.

another that exceeds the imagination by structuring contents that are rational rather than imaginary. The epistemic force of symbolization does not change in virtue of the symbols employed, but in virtue of the kind of notions (i.e., imaginary vs. intellectual) it expresses. When symbols express notions of the understanding, symbolization has nothing to do with the imagination. Leduc concludes from this that images, even intellectualized images, cannot be used to cognize of intellectual notions clearly and distinctly (Leduc 2014, 66).

Why can we not take Leibniz's example of the wheel and rim as a proof of the impossibility of the idea of 'the most rapid motion'? Although Leduc is correct to ultimately conclude that there is a difference between imaginary and intellectual notions (Letter to Sophie Charlotte, 2 May 1702, A I 21, 328-46), the difference between these two kinds of notions is not grounded in the use of symbols rather than images. It depends instead on a joint effort by the intellect and imagination in which the imagination supplies materials that can be idealized to express notions that are not directly available to the imagination. Unless we find ways to express or exhibit an abstract subject matter, we cannot grasp it introspectively simply by knowing that it is apprehended via the intellect. In this sense, symbolization is not a way to exceed the imagination, but rather a mean of extending the work of the imagination to things that are otherwise not subject to it, namely intellectual notions. The process of expressing intellectual notions requires the cognition of notions that would be beyond the mind's reach without the deployment of cognitive surrogates provided by the imagination. In short, I contend that there is a double use of symbolization. There is a cognitive difference when we use symbols to grasp intellectual notions, and when we use them for imaginary notions, but this difference does not mean that one use exceeds the imagination – we rather find ways to submit to the imagination what is not otherwise subject to it. If symbolization is an intellectual use of expressive materials, then why cannot intellectualized images be means of cognizing with more or less clarity and distinction?

This approach accords with two decisive points highlighted by Leduc (2014). The first is that the epistemic and cognitive force of a system of signs does not depend on the kind of signs or characters involved, but on the kind of idealization they allow for. Images or characters can both be reliable forms of symbolic cognition, although symbolization via characters can provide forms of idealization that are not permitted by images, depending on the subject matter under consideration. Symbolization through formal languages is a form of imagination insofar as such languages are rule-governed systems of signs that allow for the expression of relations that other systems do not.

The second point is that Leibniz has the resources to distinguish between imagination and understanding, even within a framework in

which the imagination is pervasive and there is no act of pure understanding. Even if the imagination is often the source of errors, no use of symbols is entirely independent of the imagination. The following four examples illustrate, despite their heterogeneity, that the "movement" to cognize and understand intellectual notions is to find ways of *expressing* them through imagination. In this sense, I do not see expression as a way of exceeding imagination, but rather as a way of expanding imagination's domain to those notions that are not subject to it. This is just a first step towards a more substantial claim that cannot be proved fully within the length of this paper: This process of expressing *is* a process of making those notions more clear and distinct either because it allows to solve problems we were unable to solve without the imagination work (infinite series); or because the expression provides a cognitive tool to understand what the thing might be (metaphors and fictions like the mill); or, finally, because the expression provides a form of visualisation of data that boosts cognition (*ars characteristica*). I analyze these examples in a row.

Consider the use of fictions in mathematics, such as an infinite series. An infinite series is a series in which there is no final term. In treating the series *as if* it were finite, the imagination provides a way of dealing with problems that would otherwise remain unsolvable (Arthur 2013; Arthur, Rabouin 2020). In this case, the imagination expands our heuristic capacities by providing the intellect with a fiction similar to a conceivability error in the sense that there is no final term. Leibniz transforms the limits of the imagination – the fact that the imagination seeks always for a final term (as highlighted through the discussion of the shortcomings of imagination for metaphysical notions) –[13] into a cognitive resource that can provide demonstrations in fields that would otherwise be out of our intellectual reach.

Consider also our use of metaphors and tropes in general. Leibniz thinks that linguistic tropes serve cognitive purposes. They enable the mind to extend the range of notions that it can consider (Olivieri 2013; 2016c; Marras 2010). Without figurative speech, the mind would not be in a position to think about abstract notions. Figures do not give minds the subject matter of their thoughts but rather provide a way of idealizing aspects of things that we can imagine in a way that bears a relation to those things we cannot imagine. The fact that the mind is incapable of pure understanding means that it is dependent upon a developmental process of such expressive tools (Olivieri 2016a, 3: 1-2).

For Leibniz, the mind is associated with an organic body, a condition that means the mind always depends upon the senses and the

13 Letter to Hartsoeker, October 1710, GP III, 507.

imagination.[14] The mind is thus first directed to what falls under the senses and finds expressions for those things. Through the use of metaphors and tropes, the mind finds ways to expand the range of notions it can think about. Figurative speech transforms an imaginative notion into an intellectualized one. In this sense, the mind exercises its constitutive tendency "to explain via the imagination also what is not subject to it" (A VI 4 A 890). This can lead to mistakes, as when we carelessly take expressions like 'God is a king' or 'the soul is inside the body' literally and imagine that God is a king or that the soul has a physical location. Notwithstanding this risk, without this process of intellectualizing images, we could not attend to metaphysical or moral notions, because we form the relevant expressions before we are able to unpack all the requisites of the notions.[15] The process of transforming a sensible cognition into an intellectual one via the imagination is tantamount to the process of clarifying and specifying notions.

Another example hinting at figurative expressions as contribution to understanding is the use of fictions in fields like morals and metaphysics. Leibniz uses fictions such as a mill (*Monadology*, § 17, GP VI, 609/L 644) and two swapped worlds (*Third letter to Clark*, Ariew 2000, 29) to demonstrate metaphysical truths. We use such fictions to achieve a better understanding of intellectual notions. Why cannot images of this kind contribute to clear and distinct cognition and provide an understanding that symbolization alone may not provide?

To clarify my point here, I introduce a final example drawn from logic. Leibniz tried to develop a linear calculus to explain the form of syllogisms.[16] Are these lines symbols or images? It seems to me that Leibniz's idea of using lines to express syllogisms gestures at another general feature of languages and of the *ars characteristica* in particular: the function of visualizing or exhibiting notion in unitary cognitive acts. The *ars characteristica* provides a link from one definition to the other because it is a way of presenting a content 'uno obtutu', all at once. In a text dated to 1685, entitled *De totae cogitabilium varietatis uno obtutu complexione*, Leibniz defines precisely such an act of beholding a multitude 'all at once' as the greatest kind

14 See, for instance, *Principes de la nature et de la grâce*, §§ 1-7, GP VI, 598-602/L 636-8.

15 Oliveri 2016 has argued that signs are invented before minds possess notions and that they function as placeholders for minds' reflective acts.

16 Cf. *De la méthode de l'universalité* (1674; A VII 7, 118/C 125), where Leibniz writes, "mais comme ces choses ne sont gueres intelligibles sans figures et exemples", and he proposes a calculus comprised of segments. A similar procedure can be found in *Schèmes linéaires des syllogismes* (C 248); *De formae logicae comprobatione per linearum ductus* (1986, C 292); *Generales inquisitiones de analysi notionum et veritatum* (1686, A VI 4, 771-3).

of knowledge: "The greatest moment in thinking is when *we can connect all at once* the totality of the conceivable things that our minds are used to observe more frequently" (A VI 4, 595, my italics). This is how we understand comparisons and connections between things, discover the things we are searching, and compare one given thing with others. He concludes that the discovery of a *lingua characteristica* – comprised of true definitions – will greatly expand this capacity (see A VI 4, 595).

What the intellect cannot achieve, namely an intuition, the imagination supplies by visualizing the relations embodied in a system of signs or images. I do not deny that characters may serve this purpose better than images. But, even when we move from images to characters, the work of the imagination remains constant: it supplies the mind with the cognitive materials that can be interpreted as expressing metaphysical or moral notions.

My purpose is not to advocate for the use of intellectualized images, but rather to cast doubt on the idea that there is a form of symbolization that exceeds the imagination. The imagination is involved in the formation of symbols in symbolization in exactly the same way as it is involved in the use of intellectualized images: the imagination provides materials it can manipulate to express notions that otherwise exceed its domain. In light of Leibniz's criticism of Descartes – that there is no pure intellection and reasoning is imagination based – this process must be understood as a way of expanding the domain of imagination, rather than a way of exceeding it. Idealization is achieved by the joint work of the intellect and imagination to change the use of symbols. We could not think of such intellectual notions, were we incapable of exhibiting them in the imagination: metaphors, images, and definitions via signs are all products of the imagination. Therefore, symbolization is essentially imaginative, insofar as it allows us to apprehend intellectual notions by rendering them subject to the imagination. The idealization of expressions is the organization and structuring of notions. This is the imagination's work in human cognition.

Abbreviations

A = Leibniz, G.W. (1923-2021). *Sämtliche Schriften und Briefe*. Berlin: Akademie Verlag.
AT = Descartes, R. (1964-78). *Oeuvres de Descartes*. Ed. by C. Adam and P. Tannery. Paris: Vrin.
C = Leibniz, G.W. (1903). *Opuscules et fragments inédits*. Ed. by L. Couturat. Paris: Alcan.
CSM = Descartes, R. (1984-91). *The Philosophical Writings of Descartes*. Transl. by J. Cottingham, R. Stoothoff, D. Murdoch, A. Kenny. 3 vols. Cambridge: Cambridge University Press.
GP = Leibniz, G.W. (1978). *Die philosophischen Schriften*. Ed. by C.I. Gerhardt. 7 vols. 2nd ed. Hildesheim: Olms.
L = Leibniz, G.W. (1989). *Philosophical Papers and Letters*. Transl. by L.E. Loemker. Dordrecht: Kluwer.

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Leibniz on the Frege Point

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Abstract In the debate on the Frege Point, the 'Spinoza thesis' is often mentioned. But Leibniz is kept out. Yet, on this topic, Spinoza and Leibniz shared a fairly similar goal. They sought to root the assertive force in the conceptual activity of the subject. But Leibniz, unlike Spinoza, wanted also to build a coherent theory of propositions. Propositions are for him always provided with assertive force. But what is affirmed by the propositions of logic is only a possibility – the possibility of the conceptual link they express. Stronger assertions require something more: a mark of actuality, a modal symbol in logic or the use of *notae* or *particulae* which belong to natural languages. Leibniz does not modify his conception of propositions in his "*analysis particularum*". He tries to understand what we do when we use them in various contexts. The Leibnizian proposition is neutral, but it is not forceless. Since it is not forceless, there is no need to appeal to an external act or to a judgment. Leibniz thinks, like most of the authors of the Aristotelian tradition, that the proposition contains the act of judging. Since it is neutral, there is no need to venture into the many difficulties raised by cancellation to account for the force/content relation in the conditional, disjunctive or fictional contexts.

Keywords Proposition. Kudgment. Concept. Assertion. Spinoza, Frege. Leibniz.

Summary 1 The Slogan *Praedicatum Inest Subjecto* is About Propositions. – 2 Spinoza. – 3 Terms and Propositions. – 4 Assertion. – 5 The Leibniz View.

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1 The Slogan *Praedicatum Inest Subjecto* is About Propositions

In an influential article, Peter Geach sheds light on what he himself named the Frege Point:

> A Thought may have just the same content whether you assent to its truth or not; a proposition may occur in discourse now asserted, now unasserted, and yet be recognizably the same proposition. (Geach 1965, 449).

If the same proposition may sometimes be asserted and at other times not be asserted, then propositional content itself must be distinguished from what Frege called "assertive force".[1] The Frege Point (henceforth FP) mainly lies in the interpretation of this distinction, on the one hand, and on the other hand, in its acceptance or rejection. It touches on a number of central points in the philosophy of language and the philosophy of mind, hence the abundance of works it has given way to.

The current questions in this field are primarily concerned – though not exclusively – with the theory of propositions.[2] For the sake of convenience, I distinguish between five main questions:

(i) The nature of propositions and their relation to assertion – are there unasserted propositions?
(ii) The identity of propositional content – can, for example, an assertion have the same propositional content as a question?
(iii) The nature of predication and its relation to judgment – is the link that unifies the different parts of a proposition dependent on judgment?
(iv) The role of assertive force in representation – could a neutral entity, deprived of assertive force, have a representational function? And lastly,

1 Cf. Frege 1984, 280-1, 383 and the passages concerning the introduction of a sign of assertion in the symbolism. He writes for example about Peano's notations: "That is to say, we must deprive the relation sign of the assertoric force with which it has been unintentionally invested. And this holds just as much for my conceptual notation as for Mr. Peano's. However, we do still sometimes want to assert something, and for this reason I have introduced a special sign with assertoric force, the judgement-stroke. This is a manifestation of my endeavour to have every objective distinction reflected in symbolism" (247).

2 Geach defines 'proposition' as "a form of words in which something is propounded, put forward for consideration". But, as is noted by Luís Duarte d'Almeida, that is not how he actually uses the term. He uses it to refer to the *content* that is put forward for consideration (see Duarte d'Almeida 2016). This point is significant in the context of the debate with the ascriptivists. As we are mainly interested in knowing what Leibniz means by 'proposition', we will be forgiven for neglecting what Geach thought of it.

(v) The interpretation given to the force/content distinction involves, at least for certain authors, the nature of belief. In these cases, the discussion of the FP is about the structure of the doxastic space.[3]

Such is, in broad strokes, the geography of the descendants of Geache's paper. From a historical perspective its genealogy may also be of interest and, for the purposes of this contribution, Leibniz' place in that genealogy. I am perfectly aware of the seemingly anachronistic character of this endeavour. The force/content distinction does not exist, at least in these terms, in the Leibnizian *corpus*. It may be more careful to try to reconstruct *what would have been* or *what could have been* Leibniz' position on this distinction. Regardless, there are many arguments that favour overcoming these reservations. First argument: Geach himself, in his 1965 article, emphasizes the fact that Frege was already defending the FP at the time of the *Begriffsschrift* despite not yet having spelled his major ontological distinctions.[4] Geach seems to think that the FP can be detached from Frege's philosophy and discussed separately from it. This is assuredly a necessary condition for being able to export the FP to anterior historical sequences. Nevertheless, some authors are convinced of the contrary. For example, according to Peter Hanks (2015, ch. 1) the Frege Point implies the *Fregean picture*, i.e. a set of theses on the nature of propositions – that propositions are abstract objects, that propositions can be 'grasped', are the primary bearers of truth conditions, etc. – and the discussion of the FP concerns jointly all of these theses. One simple way of avoiding this difficulty is by allowing that Hanks is interested in the thick FP, and that the one which may be the subject of a genealogical investigation, and which would have been of interest for Leibniz, is the thin FP. Knowing precisely what should be included in this thin FP must be accurately determined. However, this can only be done through a historical study that must naturally, and minimally, include the relation between propositions and judgments.

3 (i) and (ii) correspond to the useful distinction, proposed par Peter Hanks, between the "constitutive" and the "taxonomic" versions (Hanks 2015, 9). On (iii) see, for example, Recanati 2019, on (iv) for example Soames 2010 and 2015, 219-23. Finally, on (v) see Mandelbaum 2014.

4 Geach only elusively cites certain precise passages in favour of the Frege Point. He writes: "In some of Frege's writings the point is made in the course of his expounding some highly disputable theories, about sense and reference and about propositions' being complex names of logical objects called 'truth-values'. But the dubiousness of these theories does not carry over to the Frege Point itself. Admitting the Frege Point does not logically commit us to these theories; as a matter of history, Frege already made the point in his youthful work, *Begriffsschrift*, many years before he had developed his theories of sense and reference" (Geach 1965, 449).

The second argument that authorizes the historical enquiry relies on references made to Spinoza in the literature on the FP. The thesis according to which a thought is by nature assertoric is commonly referred to as the *Spinozist thesis*. Geach is partly responsible for this appellation given that he explicitly references the Scholium of Proposition 49 from the second part of the *Ethics* (Geach 1965, 457), and that he does so in order to back up the thesis that a thought is by nature assertoric. Therein he specifies that the Spinozist thesis is not incompatible with the FP since, even if we were to consider all thought as assertoric by nature, it would still be true that a thought may occur now unasserted, now asserted, without any change in content. Whatever the case may be, there is a Spinozist thesis that is heavily present in the debate concerning the FP, and where there is such a thesis it is tempting, if not legitimate, to *ipso facto* introduce a Leibnizian view.

The third argument can be found in the textual evidences. Some, that I mention below, are hidden in the recesses of Leibniz *corpus*, whereas others are before our eyes, so to speak. For example, in the famous passage from the correspondence with Arnauld in which Leibniz formulates the slogan *praedicatum inest subjecto*. With the FP debate in mind, let us take a look at this passage. Leibniz writes:

> I have given a decisive argument which in my view has the force of a demonstration; that always, in every true affirmative proposition, necessary or contingent, universal or particular, the concept of the predicate is in a sense included in that of the subject ; *praedicatum inest subjecto*; or else I do not know what truth is. Now, I do not ask for more of a connexion here than that which exists *a parte rei* between the terms of a true proposition, […] *since there must always be some basis for the connexion between the terms of a proposition, and it is to be found in their concepts*. (Leibniz 1967, 63)[5]

This text passage is usually interpreted as being about the nature of truth against the background of the metaphysical problem of individuation. The 'decisive argument' can thus be reconstructed in the following manner:

1. I (Leibniz) possess a robust conception of truth. This conception entails that in all true propositions the predicate's concept must be included in that of the subject.
2. The same concept of truth applies to all types of propositions.
3. Amongst the true propositions, some are about individuals – have a term referring to an individual in the subject position.

5 Written on the 4th of July 1686. The cuts are included in order to modify the perception of the text's aboutness. Emphasis original.

4. From this there ensues, after some elaboration, a metaphysical theory of individuation.

The received interpretation therefore proceeds from truth to individuation and is difficult to contest.[6] Its fault – which becomes clear once we have read the previous passage with the FP debate in mind – lies in the fact that it bypasses the problem of the proposition, the problem of its unity, and even that of its representational force, despite it being very present in that passage and in many related texts. Leibniz seldom discussed the nature of the concept of truth to which he assigns a role in his argument. However, he spends a great deal of energy on regimenting all propositions, including the negative ones and those that he calls "hypothetical", into the aforementioned propositional format.[7] I also notice that, regarding this propositional format, Leibniz does not insist on the conjoint presence of the subject and the predicate – the 'two-name theory' which has been greatly insisted upon by Geach. In the most simple and non-relational cases, in the absence of any grammatical obliquity, it is the *glue* that holds the subject and the predicate together which interests him. The *inesse* is presented as that which ensures this function of unification. Indeed, if a proposition is considered as the representation of a conceptual link in which the truth conditions are rooted, then its unity and its representational aptitude are jointly conceived. We may therefore modify the received interpretation of the passage from the letter to Arnauld. The "decisive argument" should be understood as follows:

1. All propositions are the expression of a connection between two terms.
2. A proposition admits of truth conditions based on whether this connection is grounded or not.
3. The grounding of all proposition is of a conceptual nature.
4. There ensues, among other things, and after some elaboration, a position on the metaphysics of individuation.

According to the modified interpretation, Leibniz has not discovered a powerful conception of truth from which he could have come to this or that conclusion. Rather, he *begins* with a theory of propositions. The first positive result of the investigation into what Leibniz's position on the FP might have been consists of this modification of our

6 The received interpretation is accepted in Rauzy 2001. The interpretation given against the background of the FP is approached by Di Bella 2014.

7 The effort of regimentation begins as early as the simple case of an affirmative particular. "quidam expertus est prudens" is regimented by the following analysis: the concept of the subject (*expertus*) is in the concept of something (*Y*) which contains the concept of the predicate (*prudens*); this inclusion holds for a species of the subject, not for the subject taken in itself (A VI 4, 203).

reception of one of his most central theses. The slogan *praedicatum inest subjecto* sums up the central part of a theory of proposition *and not of a theory of truth*. Admittedly, we do not yet have Leibniz's position on the FP. But we have a way of obtaining it by seeking to clarify this conception of propositions.

It should be noted that this matter is neither a question of assent, nor of assertion, nor even of judgment. Can we then conclude that the Leibnizian proposition is neutral and that its predication is forceless? I do not believe so. For Leibniz is, as he often repeats, as Aristotelian as possible. He does not dispute the relation that unites propositions and judgments. Rather he tries a kind of neutralization. I intend to show that possibility and conceivability heavily intervene in the Leibnizian neutralization of predication.

2 Spinoza

Let us take force and assertion as our starting point. As we have seen, the position according to which all thought is assertive has, since Geach, been attributed to Spinoza. However, Spinoza does not speak in terms of thoughts, propositions, and assertions. He employs the vocabulary of ideas:

> In the Mind, there is no volition, or affirmation and negation, except that which the idea involves insofar as it is an idea. (E2P49)[8]

Here, the context is that of the debates with Descartes. We cannot endeavour to doubt everything by the exercise of the will and we cannot make doubt out to be a privileged instrument of the scientific method, since an idea is not firstly found in understanding and then ratified by a different and more ample authority that we call volition.[9]

The term 'idea' was particularly popular among post-Cartesian philosophers – Leibniz being a notable exception – whom considered it as clear. However, it was not. Leibniz insisted, as early as his parisian era, on the difficulties pertaining to the use of this word and on the importance of the context of its use.[10] The reference to Spinoza in the

8 The Spinoza citations are from Curley 1985. Leibniz summarizes the whole sequence with a level of care and precision that shows that they have not escaped his attention: "In mente nulla datur affirmatio et negatio seu volitio praeter illam quam idea quatenus idea est involvit (+ nam trianguli idea involvit affirmationem quod duo ejus anguli duobus rectis aequales +). Per ideas enim intelligimus actum mentis, non picturam mutam ut quae est in fundo oculi, aut si placet cerebro" (A VI 4, 1721).

9 On the link between the Spinozist thesis, the problem of doubt, and the method see Steinberg 1993.

10 See Rauzy 2014.

debate concerning the FP thus raises a two-fold difficulty: Firstly, the difficulty pertaining to the transfer of the force/content distinction into the idiom of ideas, and secondly, the difficulty specifically pertaining to the use of the concept of idea in early-modern philosophy.

Concerning the first point, I remark that the transfer of the force/content distinction into the idiom of ideas, as Geach carries it out in "Assertion", is accompanied by a skillful paraphrase. Geach suggests that the force/content relation can be conceived by means of a form of presumption.[11] When a speaker employs, in a non-fictional context, a sentence that has the grammatical form of an assertion, it must be presumptively read or heard as an assertion. Insofar as it is the hallmark of presumptions to be removable by contextual elements, we may suppose that the non-assertive uses of language items that have the same form can, with the use of a version of cancellation, be explained by this general rule. The Spinozist thesis is introduced by Geach when he supposes that it says more or less the same thing, but in the realm of thought:

> The boy whose mind is wholly occupied with the thought of a winged horse, and who lacks the adult background knowledge that rules out there being such a thing, cannot but assent to the thought of there being a winged horse. (Geach 1965, 457)

To put in terms of propositional attitudes, the example borrowed from Spinoza gives relative priority to beliefs: the contents of thought are presumptively taken to be the objects of a belief, just as spoken or written sentences that have the grammatical form as an assertion are presumptively taken to be assertions. Any thought will be believed unless something prevents it in the informational context.

> When an isolated mental propositional content p is the object of the attention of a subject S, S presumptively believes that p. Spi(Pres.)

It is clear that, if it is to have a chance of entering the philosophical debate, Spi(Pres) should be specified and elaborated through different perspectives.[12] Concerning the present enquiry, and insofar

11 "In written or printed language, however, there is something of a clue to what is meant assertorically. There is a certain presumption-though of course it can be upset in various ways that an author of a nonfictional work intends a sentence to be read as an assertion if it stands by itself between full stops and grammatically can be read as an assertion" (Geach 1965, 456).

12 Presumption requires a presumption-raising fact (Margalit 1983). Determining what is this fact in the case of thought contents is more difficult than doing so in the linguistic sphere in which the utterance of a grammatically adequate sentence is a natural candidate. The direction of the explanation – going from presumption in commu-

as the question is limited to its historical accuracy, we should note that historians haven't retained Spi(Pres) in their interpretation of E2P49. Jonathan Bennett notably defended a stronger interpretation in his commentary of the *Ethics*. Like Geach, Bennett translates Spinoza's text into the idiom of beliefs, but unlike Geach, he doesn't bother with presumption. He considers that the difficult scholium of the 49th proposition isn't about the relation of attention to belief. Rather, he takes it to be about the nature of ideas. According to Bennett, Spinoza maintains that all mental content designated as an idea is primitively belief-like; thoughts that are not beliefs are of a higher order and are more complex.[13] "The idea of p" envelops an affirmation not because the subject is naturally inclined to believe it, but because it would not even be an idea if it were not believed. Therefore, according to the strong interpretation, E2P49 contains *the identity* of what was then called idea and what we today call belief.

> Spi(Id.) mental contents that are the object of a subject's attention (*ideas*) are beliefs.

Settling the question presents some difficulties. On the one hand, it is dangerous to involve the concept of presumption in an interpretation of Spinoza, when he, contrary to Leibniz, does not employ it. On the other hand, if it is legitimate to reflect on the principles that allow us to translate into our philosophical language ('belief', 'content') what Spinoza stated in his ('idea'), then it would be strange to treat what is said in the text as the very principle of translation that we are searching for. Spi(Id.) may be true of the *Ethics*, but it is certainly not said in the *Ethics*.

Let us then follow the second path and consider more directly the difficulties pertaining to the use of the concept of idea in early-modern philosophy. If, as I sated in the beginning, Leibniz showed such interest in the relation between conceptual contents and propositional contents, going so far as to make it the subject of his first slogan, it is undoubtedly because this relation was or had been of interest to those recent authors that made up his intellectual horizon. Furthermore, he must have believed that his contribution would offer some clarification. In fact, following Edwin Curley (1975), important commentators chose to place this relation at the heart of their interpretations. Curley and Michael Della Rocca (2003) stress the fact that it

nication to something presumption-like in thought – is also, and more generally, contestable. I remark that Geach made it into some kind of systemic principle in *Mental Acts*. See Geach 1957, 98.

13 "This seems to imply not merely that I shall make my idea the content of a belief unless I am prevented from doing so, but that the idea actually is a belief. […] Every idea is intrinsically belief-like" (Bennett 1984, 170).

is indeed a proposition, or something that has a propositional format, that is at play in E2P49 – the affirmation that the tree angles of a triangle are equal to two right angles – and that the passage's details contain two complementary claims about this proposition. Spinoza firstly claims that the proposition contains the idea of the triangle:

> This affirmation involves the concept or idea of the triangle, i.e. it cannot be conceived without the idea of the triangle. For to say that A must involve the concept of B is the same as to say that A cannot be conceived without B**.** Further this affirmation (by E2Ax3) also cannot be without the idea of the triangle. Therefore, this affirmation can neither be nor be conceived without the idea of the triangle.

Conversely he claims that the idea of the triangle itself contains a proposition:

> Next, this idea of the triangle must involve this same affirmation, viz. that its three angles equal two right angles.

"Affirmation" simultaneously designates a propositional format and an assertion-like act. Spinoza invites us to pay less attention to the format and to concentrate on the act. His response to the third objection is very clear on this point (E2P49S). To the question of knowing whether a true proposition and a false proposition have the same ontological status and whether they contain the same kind of act – in other words whether identical formats imply something on the side of acts – Spinoza answers that affirmations that can be said to have the same format whatever their truth value are merely abstractions. They are affirmations in a general and abstract sense and they are also the effect of the will, taken in the general and abstract sense. He continues:

> Not however insofar as it [the will] is considered to constitute the essence of an idea. For to that extent particular affirmations differ from each other as much as ideas themselves. For example, the affirmation involved in the idea of a circle differs from that involved in the idea of a triangle as much as the idea of a circle differs from the idea of a triangle.

General propositions have no reality. The propositional format may render the act explicit (*actus signatus*), but it does not carry it out (*actus exercitus*). That which makes the affirming act real is not found in logic, it must entirely be analysed in terms of the causality in ideas.

3 Terms and Propositions

Spinoza, like Leibniz, proposes an important modification to the Aristotelian framework. Leibniz, like Spinoza, is a friend of concepts. The slogan *praedicatum inest subjecto* is a reminder that Leibniz' ontology of propositions is based on founded conceptual links. What separates him from Spinoza is his taking the propositional format and its relation to truth-values seriously.

In order to clarify this point, let us recall that truth's place in the logical edifice was determined by the tripartition of the three operations of the mind and of the three kinds of entities to which they gave way: concepts, propositions, and inferences or reasonings. According to the canonical text of Thomas Aquinas' commentary of the *Posterior Analytics*, truth belongs to the second and the third level of the edifice and is absent from the first – these levels are simultaneously chapters of the logic and parts of the Aristotelian corpus.

> The parts of Logic must therefore correspond to the different acts of reason, of which there are three. […] The first of these is the understanding of indivisible or simple things, the act by which we conceive what a thing is. (some call this act 'intellectual representation' or 'intellectual imagination'). Aristotle's teaching in the categories is ordered to this act of reason. The second act of the intellect is the composition or division of things that are understood, the act in which truth or falsity is found. Aristotle considers what pertains to this act in his *On Interpretation*. The third act is proper to reason itself ; it is the act by which we proceed from one thing to another, so as to arrive at a knowledge of the unknown from the known. The remaining logical treatises pertain to the third act of reason. (*Commentary on Aritotle's Posterior Analytics*: *Expositio, Proemium*, 4; St. Thomas Aquinas 2007, 1)

The concept is, in itself, neither true nor false. It could be thought of as allowing a grasping of the essence. However, in order for it to be a truth bearer it must undergo a syntactical change. An affirmation or "composition", however simple, integrates it into an entity whose format is propositional.[14] Spinoza is perfectly aware of the heterodox nature of his claim that ideas envelop an affirmation. The principle according to which concepts are in themselves assertive frees him from the received logical syntax.[15]

Leibniz' theory of propositions resembles the Spinozist thesis insofar as it modifies the thomist tripartition. However, it makes a log-

14 On this point see Rauzy 2001, 28-34.

15 Wilson 1993 insists on the difficulties raised by Spinoza's position on truth-bearers.

ically preferable modification possible. Leibniz chooses to rely on the analysis of terms – notions, concepts, and maybe even ideas.[16] He succeeds in laying the foundations of a logical calculus by expressing these terms in a novel symbolism. It must be carried out with the use of notations or characters for which rules of substitution are given. These rules must themselves line up with the traditional logic, i.e. make it possible to rewrite the syllogistic as a series of theorems.

Characters make up formulas. If a formula is equivalent to a character and can be substituted *salva veritate* for it, it is its value. A relation of equipollence is said to hold among those characters or formulae that can be substitute for each other without violating the laws of the calculus. In 1688, while in possession of a finished version of this calculus, Leibniz writes:

> Besides equipollence, there are many other relations which the subject itself will manifest, e.g., inclusions, similarities, determinations – each will be dealt with in the proper place. Relations are to characters and formulae what judgments are to concepts, or the second operation of the mind to the first. […] Therefore, it is clear that formulae (which may be understood to include – as the simplest ones – the characters themselves), relations and operations, are related in the same way as concepts, judgments and syllogisms. (A VI 4, 920)

Thus, the new approach that emphasizes relations replaces the traditional tripartition. It is nevertheless accompanied by an important change that is heavily insisted upon by Leibniz: the reduction of propositions to terms and of terms to propositions.

> Propositions must be considered as terms, and terms must be considered as propositions. Leib(red.)*

This thesis is somewhat difficult because it is effectively stated in both directions.[17] It occurs in different drafts, often of an exploratory nature, such that it is not always possible to determine whether Leibniz therein gives his definitive opinion. The reduction which proceeds from left to right, from propositions to terms, is explicitly

16 Here there are some nuances that we may set aside in the perspective of the FP. Leibniz writes in an important essay on logical calculus: "By 'term' I understand, not a name, but a concept, i.e. that which is signified by a name. You could also call it a notion, an idea" (A VI 4, 238/Leibniz 1966, 39).

17 "Just as any term can be conceived as a proposition, as we have explained, so also any proposition can be conceived as a term; thus, man's being an animal is a fact, is a proposition, is of such a kind, is a cause, is a reason, etc." (*Generales Inquisitiones*, § 109, A VI 4, 770/Leibniz 1966, 71).

presented as the core of the 1686 logical program and includes the hypothetical propositions:

> If, as I hope, I can conceive all propositions as terms, and hypotheticals as categoricals, and if I can treat all propositions universally, this promises a wonderful ease in my symbolism and analysis of concepts, and will be a discovery of the greatest importance. (*Generales Inquisitiones*, § 75, A VI 4, 764/Leibniz 1966, 66)

The universal affirmative proposition is written as an identity statement by means of an "indefinite" term whose use allows the algebraic expression of the quantity:

> An affirmative proposition is 'A is B' or 'A contains B' or, as Aristotle says, 'B is in A' (that is directly). That is, if we substitute a value for A, 'A coincides with BY will appear. […] So 'A is B' is the same as 'A is coincident with some B' or A = BY. (*Generales Inquisitiones*, §§ 16-17, A VI 4, 751/ Leibniz 1966, 56)

Hypotheticals are categorically expressed when names of propositions intervene as subject and predicate:

> If *A* is a proposition or statement, by non-*A* I understand the proposition *A* to be false. And if I say *A is B*, and *A* and *B* are propositions, then I take this to mean that *B* follows from *A*. The validity of these substitutions has yet to be demonstrated. This will also be useful for the abbreviation of proofs; thus if for *L is A* we would say *C* and for *L is B* we say *D*, then for: If *L is B*, *it follows that L is B* one could substitute *C is D*. (A VI 4, 809)

These names of propositions can be considered as terms because terms are also bearers of truth and falsity:

> Certainly, in general I call a term 'false' which in case of incomplex terms is an impossible, or at any rate a meaningless term, and in the case of complex terms is an impossible proposition, or at any rate a proposition which cannot be proved; and so an analogy remains. (*Generales Inquisitiones*, § 75, A VI 4, 764/Leibniz 1966, 66)

The analogy remains, but it carries with it a number of difficulties. Most notably, Leibniz realized that predicative negation couldn't be identified to propositional negation: "*non est*, non est, *est non*".[18] He

18 Cf. Lenzen 2014, which also constitutes the best synthetic presentation of Leibniz's logic.

also noted that categorical propositions could always be expressed in conditional form but that the converse was not true (A VI 4, 125). It seems to me that he ended up limiting the envisaged reduction by inviting us to only consider conceivable terms, i.e. possible terms. The hesitations, of which traces can be found in the *Generales Inquisitiones*, are very significant in this regard. Leibniz first introduces the truth predicate as follows:

> 'True' in general I define in this way: *A* is true if, when we substitute a value for *A*, and treat in the same way as *A* (if possible) anything which enters into the value of *A*, there never arises *B* and not-*B*, i.e. a contradiction. (*Generales Inquisitiones*, § 56, A VI 4, 757/Leibniz 1966, 60)

Then he seems to hesitate about possibility:

> It seems doubtful whether it is sufficient to prove a truth that, on continued analysis, it should be certain that no contradiction will arise; for it will follow from this that everything possible is true. For my part, I call an incomplex term which is possible 'true' and one which is impossible I call 'false'. But doubt is possible about a complex term, such as 'That A contains B', or 'that A is B'. (*Generales Inquisitiones*, § 61, A VI 4, 758/Leibniz 1966, 61)

In the later texts, particularly the *Nouveaux Essais*, he seems to have a stronger stance on the matter. Wherein Locke enumerates the different meanings of the truth predicate when applied to ideas, Leibniz comments:

> Theophilus: I think that one could understand 'true' and 'false', as applied to ideas, in that way; but as these different senses – involving 'conformity' to three quite different things – aren't in harmony with one another and can't conveniently be brought under a common notion, I would prefer to call ideas 'true' or 'false' by reference to a different tacit affirmation that they all include, namely the affirmation of a possibility. Thus, calling an idea 'possible' ('impossible') if there could (could not) be something that it was the idea of, I propose that we call possible ideas 'true' and impossible ones 'false'.[19]

19 "THEOPH. Je crois qu'on pourrait entendre ainsi les vraies ou les fausses idées, mais comme ces différents sens ne conviennent point entre eux, et ne sauraient être rangés commodément sous une notion commune; j'aime mieux appeler les idées vraies ou fausses par rapport à une autre affirmation tacite, qu'elles renferment toutes, qui est celle de la possibilité. Ainsi les idées possibles sont vraies, et les idées impossibles sont fausses" (*Nouveaux essais* II xxxii § 1, A VI 6, 269).

Possibility is truth in 'incomplex terms'. He specifies in book IV that he considers truth as a form of correspondence and, again, provides the following commentary:

> It's true that I have also attributed truth to ideas, by saying that ideas are either true or false; but what I mean by that is the truth of the proposition that the object of the idea is possible. And in that sense one could also say that a thing is true, i.e. attribute truth to the proposition that affirms the thing's actual or at least possible existence.[20]

In the calculus, as in the categorical tables, Leibniz forges a term for the sole purpose of expressing possibility. It is the Latin term *Ens* (being) – sometimes also *Res* (thing) – which he defines through conceivability:

> A being (*Ens*) is that whose concept involves something positive or that which can be conceived by us provided what we conceive is possible and involves no contradiction. We know this, first, if the concept is explained perfectly and involves nothing confused, but then in a shorter way, if the thing actually exists, since what exists must certainly be a being or be possible. (A VI 4, 1500)[21]

This term is systematically used in logic and in the expression of the syllogistic.[22] In this regard it should be noted that Leibniz did not introduce possibility in order to produce an analysis of modal statements. Rather, he did so to express the relationship between propositions and their conceptual ingredients. A term is conceived when it is the name of an entity whose possibility is established or presumed. For this reason we should be weary of what philosophers call "ideas". What they designate as such are concepts from which the dimension of possibility has often been omitted and with which it is highly unlikely that we could reach the truth.[23]

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20 "Il est vrai que j'ai attribué aussi la vérité aux idées en disant que les idées sont vraies ou fausses; mais alors je l'entends en effet de la vérité des propositions qui affirment la possibilité de l'objet de l'Idée. Et dans ce même sens on peut dire encore qu'un être est vrai, c'est-à-dire la proposition qui affirme son existence actuelle ou du moins possible" (*Nouveaux essais* IV v § 4, A VI 6, 397-8).

21 See also A VI 4, 149: "Aliquid autem et Ens revera quidem idem sunt, sed differunt in modo concipiendi. Possum etiam dicere Ens esse cujus conceptus aliquid positivi involvit, seu aliquid ponit quod a nobis concipi potest"; and the recurrent definition: "Ens est positivum quod distincte concipi potest" (A VI 4, 570).

22 "'Some *A* is *B*' gives '*AB* is a thing' […] 'Every *A* is *B*' gives '*A* non-*B* is not a thing'" (Leibniz 1966, 81). The last part of the *Generales Inquisitiones* is dedicated to the use of *Ens* or *Res* in the syllogistic.

23 The critique of the logic of ideas is an important theme in *De Summa rerum* (1676). It marks the beginning of Leibniz' work on conceivability. For example, he writes:

It is therefore the conceivability of terms that allows for an understanding of the unification of the logical syntax and of the reform ultimately adopted. The propositional format imposes itself upon entities that we previously placed at the first level of the logic. The traditional tripartition is abandoned. Leibniz, like Spinoza, considers concepts or notions, as implicitly containing an affirmation. But he maintains, contrary to Spinoza, that this affirmation is made explicit in the logical syntax by means of the technical term *Ens* or *Res*.

Leib(red.) All conceivable terms contain an affirmation of possibility and have, to this effect, a propositional format.

4 Assertion

When we conceive of a concept or a notion, we settle it, so to speak, into the logical space: it is the concept of something if it is a possible (*Ens*). Propositions are made of complex concepts for which we affirm one by one, and taken together, their possibility: *singulatim* and *simul*. What can be said of assertive force? The proposition symbolized in the logical calculus is sometimes called "*enuntiatio*" (A VI 4, 736-8), "truth"[24] but never, to my knowledge, "assertion". However, Leibniz sometimes inquires into the assertive force of a statement, especially when that statement contains a factive predicate or a predicate for which context favors a factive interpretation. In these cases, he mentions assertions and distinguishes conditional assertions from simple assertions. These kinds of analyses are found in fragments of rational grammar that are directed towards ordinary language, most notably in the text titled *Analysis particularum*.

I propose three examples taken from this text. Concerning *Ergo* and *Igitur*, which are "marks of inference", Leibniz makes the following remark. When we say:

(1) The king is wise, therefore (*ergo*) the citizen is happy.

"When I think of something than which a greater can not be thought, I think of something different from when I think separately of the ideas of the individual things that are comprehended under these words, namely 'something', 'greater', 'be thought', 'not', 'can'. I have separately the idea of that which I call 'something', of that which I call 'greater' and of that which I call 'thought'; and so I think of one after the other. Later, I do not join the ideas of these things to one another, but I join only the words or symbols, and I imagine that I have the idea of that than which a greater cannot be thought – as if I were thinking of all these at the same time. In this, we deceive and we are deceived, and this is the origin of error about ideas. We have the ideas of simples, we have only the symbols of composites" (Leibniz 1992, 5).

24 For example in the title of the 1686 essay: *General Inquiries about the Analysis of Concepts and of Truths*, where 'Truths' denotes propositions.

We are not merely saying:

(2) If the king is wise it follows (*sequitur*) that the citizen is happy.

Because, through (1), we are claiming that the king is wise and that the citizen is happy, but not through (2). He continues: here there is no Enthymeme, nor any defect in the proposition, there is only an envelopment (*involutio*).[25] In other words – insofar as I understand this passage – we need not suppose that the speaker is communicating through (1) some reasoning that is grounded in (2), that is to say an MP whose factual premise is implicit:

Explicit general premise: If the king is wise then the citizen is happy.

Implicit factual premise: The king is wise.

Conclusion: the citizen is happy.

The statement of (1) is factual in the sense that the facts –that the king is wise and that the citizen is happy– are neither more nor less asserted than the inference. This is, to paraphrase Geach, a double-barreled assertion: "an assertion about [the king] gets smuggled in along with, and under cover of, an instance of the MP" (Geach 1965, 453). This is why (1) has, for Leibniz, a greater assertive force than (2). However, nothing is said about the relationship between this greater force and the proposition itself (and it is mainly this relationship which is the object of the FP debate). It seems to me that, from the overall project of the text, and on the basis of what we know of the proposition as used by the logician, we may put forth an interpretation.

The proposition in itself affirms a possibility. The greater force grafts itself onto the propositional content by way of the *illatio* (*ergo*). The passage in question proposes an 'analysis' of *ergo* as follows: in its ordinary use, as a particle which belongs to Latin, *ergo* allows: (i) to signify an *illatio* – *ergo* indicates that what is said contains an inference – and (ii) to confer factivity – *ergo* indicates that each of the conjuncts states a fact and is taken to be true in the strong sense. We may raise some doubts; we may notice, for example, that the indicative mood should intervene in an account of the factivity of (1).

25 "Ergo seu igitur. Nota illationis. Cum dico Sapiens est Rex, ergo felix est civitas, non tantum dico si sapiens est Rex sequitur quod felix est civitas, sed etiam affirmo sapientem regem et civitatem felicem esse, ac proinde totus syllogismus hypotheticus in his absolvitur. Ut proinde revera nullum hic sit Enthymema, neque suppressio, seu defectus propositionis, sed tantum involutio" (A VI 4, 658).

However, the important point lies elsewhere, in the layers of the semantics suggested by Leibniz and in the status it confers to propositions. Let us call *thin* proposition the logician's proposition that contains in itself an affirmation of possibility. The use of *ergo* makes it possible to add something to the statement of the thin proposition. The speaker bases himself on the logician's proposition and enriches it through the resources offered by the language. The conditional statement (2), contrary to (1), does not add anything with respects to possibility, it simply connects, through the resources offered by logic, the thin propositions 'that the king is wise' and 'that the citizen is happy'.

In the propositions that Leibniz calls hypothetical the antecedent and the consequent are thus thin propositions. This point is confirmed by numerous texts. The passages on the metaphysical status of "hypothetical propositions" in the letter to Foucher from 1675 offer one such confirmation:

> But although you do not enter explicitly into an examination of hypothetical propositions, I am still of the opinion that this should be done and that we should admit none without having entirely demonstrated and resolved it into identities.
>
> It is the truths which deal with what is in fact outside of us which are the primary subject of your investigations. Now in the first place, we cannot deny that the very truth of hypothetical propositions themselves is something outside of us and independent of us. For all hypothetical propositions assert what would be or would not be, if something or its contrary were posited ; consequently, they assume two things at the same time which agree with each other, or the possibility or impossibility, necessity or indifference, of something. But this possibility, impossibility, or necessity (for the necessity of one thing is the impossibility of its contrary) is not a chimera which we create, since all that we do consists in recognizing them, in spite of ourselves and in a constant manner. (Leibniz 1956, 235-6)

When it comes to thin propositions it is superfluous to add a marker of assertion. However, thin propositions only commit us to possibility, and it so happens that possibility is all that we require for the antecedent and the consequent of conditional sentences. This is good news for the debate concerning the FP. Recall that, for Frege, one of the main reasons for introducing the force and content distinction finds its origin in these kinds of sentence. The assertion of a conditional sentence does not imply the assertion of its components, and nevertheless supposes that we can grasp their content. The content of the components of conditionals is neither asserted nor semantically inert. For Leibniz, the antecedent and the consequent do not have

any special neutrality (as it is for Fregeans), nor are they stripped of their assertive force (as it is for anti-Fregeans). Their propositional status is perfectly normal.

Given that a thin proposition only commits us to possibility, it is probable that we will have to add something to it in most situations of communication; that we will have to consider it under a stronger modality, for example, actuality, probability, or necessity. We have at our disposal several means allowing us to do so. They are mentioned in the *Analysis particularum*. There exists, for example, adverbs of assertion: *ita*, *certe*, *omnino* – among those we can count *utique* and *non* which are "signs of affirmation and negation, that is to say, of truth and of falsehood".

> About these [*utique* et *non*] we will only have to note that one or the other of the two signs can be prefixed to any proposition or implied by it. […] Besides the sign of negation and of affirmation, we have other signs such as *forte* – that of the putting into doubt; *certe*, *omnino* the signs of the more complete affirmation; *necessario*: that of the perpetual, or necessary, affirmation. *An* (is it …?) signifies that we are asking which of the signs, that of negation or that of affirmation, must be prefixed. Moreover, all adverbs of assertion or of affirmation can be converted to nouns when speaking not about things, but about statements. For example, with 'A *utique* is B' we can say 'It is true that A is B' that is to say: 'the proposition *that A is B* is true'.[26]

The thin proposition contains the affirmation of possibility and allows us to avoid using the force cancellation (Recanati 2019) in the case of conditional sentences. Statements of an disjunction nevertheless seem to push Leibniz to recognize that an assertion can be modifiable and to envisage a rectification for illocutory acts. He introduces in the analysis of *alioqui*, what he calls, the conditional assertion to avoid having to systematically resort to rectification. This is our second passage, and this time the example is:

> (3) The child will study, or else he will cry (*Puer studebit, alioqui plorabit*)

26 "Restant Adverbia Assertionis, quae sunt Ita vel utique seu ja. Non. An vel annon. Omnino. Forte. Certe. Necessario. Ex his quidem utique et non, quae sunt signa affirmationis et negationis, seu veritatis et falsitatis in Enuntiatione, non possunt evitari. […] Praeter signum negationis et affirmationis dantur et alia, ut dubitationis, forte, affirmationis [plenissimae], ut certe, omnino, affirmationis perpetuae seu necessariae, ut necessario. An autem significat quaeri quodnam signum assertionis vel enuntiationis sit ponendum. Possunt tamen etiam assertionis seu Enuntiationis adverbia converti in nomina, si loco rerum loquamur de ipsis Enuntiationibus, ut A utique est B, id est verum est quod A est B, seu propositio A est B est vera" (A VI 4, 666).

If he does not study, he will cry: *A will be B, if A is not B then it will be C*. Leibniz continues:

> Here we must be careful because when we state: *puer studebit, alioqui plorabit*, or *puer studebit aut plorabit*, it is as if there were a correction of what was first said and we must ask ourselves whether this correction should be introduced in the general language. Because he who says *The child will study or else he will cry*, says that the child will study, then recognizes that he has said something false, and thereafter proposes a correction. *Or at least he will cry*. If we want to avoid [having to resort to] falsehood so that we won't need to introduce a correction, we may have to explain *aut* and *alioqui* in the following manner: *puer studebit nisi polraturus est*. Because there is neither cut nor omission in the case of conditionals, and we cannot say *puer studebit nisi ploraturus est* and absolutely infer that the child will study. I prefer in the general language to distinguish this conditional assertion from the absolute assertion and I prefer that we always be able to resort to omissions. As if I was saying: It follows that the child will study, *si non est ploraturus*.[27]

It can be surprising to see Leibniz introducing to types of assertions and moving away, in the analysis of *alioqui*, from the solution proposed for conditionals. This is how I understand the passage: if the use of the sentence is understood as the statement of a conditional assertion, the fact represented in the propositional content (that the child will study), is not affirmed. If it is understood as the statement of a simple assertion, it is affirmed. A seemingly disjunctive sentence is interpreted as a simple assertion if the fact contained in the first disjunct is affirmed. In this case the second disjunct introduces a correction: the speaker has said a falsehood. When this is not the case, when it is merely the possibility of the disjuncts that is affirmed, then a seemingly disjunctive sentence is interpreted as a conditional assertion. A conditional

27 "Alioqui. Puer studebit, alioqui plorabit, hoc est: aut plorabit, seu: si puer non studebit, plorabit. Puer seu A erit studens seu B, si A non erit B erit plorans. Ita evitabitur repetitio, alioqui verbotenus interpretando fiet: puer erit studens, si puer non erit studens, erit plorans. Est tamen adhuc opus animadversione aliqua, nam qui dicit puer studebit, alioqui plorabit, vel puer studebit aut plorabit, est quasi correctio praecedentis, est videndum an hoc ferendum in lingua generali, ut quis proferat falsum seu corrigat sermonem suum. Nam qui dicit puer studebit aut plorabit, is utique dicit, puer studebit, sed mox agnoscit se falsum dixisse, itaque correctivum subjicit; vel saltem plorabit. Ut igitur falsitas evitetur nec correctione opus sit, forte aut vel alioqui ita exponi poterit: puer studebit nisi ploraturus est. Scilicet resectiones seu omissiones non succedunt in casu conditionis, nec si dicere licet puer studebit nisi ploraturus est, inde inferri potest absolute puer studebit. Malim in lingua generali istud conditionale assertum distingui ab absoluto, malim enim posse semper procedere omissiones. Perinde ac si dicerem: Sequitur quod puer studebit, si non est ploraturus" (A VI 4, 655).

assertion does not add any assertive force to that of the thin proposition. It is not clear whether Leibniz has some preference for one or the other of these assertions, or whether, as I believe, he considers them as two equal possibilities offered by the use of language.

The third example supports this latter interpretation. In a remarkable passage of the *Analysis particularum*, Leibniz compares:

(4) I want you to be pious (*volo ut sis pius*).

and

(5) I see that you are pious (*video quod es pius*).

He notes that in (4) it is not asserted that the addressee is pious, while in (5) it is. He then wonders whether this difference in the assertive force of the embedded proposition could be attributed to the semantic contribution of '*ut*' and of '*quod*' respectively. He notes that there are cases in which the opposite is true: a use of '*ut*' is accompanied by the assertion of the embedded proposition:

(6) Make sure to be pious (*feci ut sit pius*).

and cases in which '*quod*' does not seem to introduce an assertion, as in:

(7) It is said that Peter is learned (*Dicitur quod Petrus est doctus*).

in which the speaker report something but does not want to express his own assent. This passage proposes a finer analysis that includes the resources usually employed by Leibniz in his account of highly relational statements (*quatenus*):

> All things considered, in the first case the assertion is born out of the fact that the addition of 'make sure' includes the truth of the assertion; in the second case, the assertion is not entirely absent, it is made, although only relatively and not with full approval. The resolution is as follows: I want you to be pious, that is to say: I am wanting insofar as (*quatenus*) the wanted is this: that you be pious. I know that you are pious, I hear that you are pious; we could add: I know that it is true that you are pious, I hear that it is true that you are pious. In this sense, '*quod*' isn't one of those conjunctions that can be retained without a more extensive analysis.[28]

[28] "Re tamen recte expensa, priore casu oritur assertio ex eo quod veritatem assertionis includit additum feci; posteriore casu non abest omnino assertio sed ponitur, li-

The text is partly aporetic, but the attempt at a relational assertion deserves to be emphasized. Through Junigius, Leibniz learns to express irreducible relations by a reduplication of the predicate (*quatenus*).[29] A relation is then thought of as a species of *consequentia*. In his account of relations, Leibniz isolates a predicative part and an auxiliary expression, made explicit by reduplication, whose function is to authorize a set of inferences or to fix a reference. For example, in the relational *doctor* = *magis doctus*, he isolates *doctus*, which is a kind of radical, and, on the other hand: *magis aliquo qui est hic*, which counts as an auxiliary expression. The same analysis is applied to the 'ut-clause'. 'I am wanting' is asserted under a more or less strong modality, determined by context. 'Insofar as the wanted is this: that you be pious' is a determination of the predicate containing a reference to the proposition 'quod es pius'. Since the speaker strives for the fact itself, not just simple possibility, the proposition he references is asserted, and the assertion is simple or non-conditional.

5 The Leibniz View

Let us now attempt to present the main features of a Leibnizian position on the FP.

1. Propositions are both assertive and neutral. Assertive because they contain by default an affirmation or a judgment, and neutral because the default affirmation they contain is that of possibility.
2. The unity of the proposition is assured by the conceptual relation it contains. The composition act contributes to this unity.
3. We can attribute to the proposition a variety of modalities such as actuality, necessity, and probability (in the case of beliefs arising in degrees). These modalities are not part of the propositional content itself. They are prefixed in logic and in thought.
4. Questions are formulated by means of the same propositional content as assertions and orders.

cet tantum relative nec cum plena approbatione. Resolutio talis est: volo ut sis pius id est Ego sum volens quatenus volitum est hoc: tu es pius. Vel adhibita definitione voluntatis; conor quatenus cogito: tu es pius. At feci ut sis pius significat, quia ego egi tu es pius. Scio quod tu es pius, audio quod tu es pius, addi potest: scio verum esse quod tu es pius, audio verum esse quod tu es pius. Caeterum ipsum, quod hoc sensu usurpatum videtur esse ex numero earum conjunctionum quae sine ulteriore resolutione possunt retineri" (A VI 4, 659).

29 See A VI 4, 1241-4 for notes taken from J. Jung; Mugnai (1992, 13, 79-80); and A VI 4, 643-4, 114-15 (for the analysis of *quatenus*), and 651-2.

The question of knowing how Leibniz conceives of the relation between assertion and belief deserves a separate study. Here it suffices to note that the Leibnizian position is anti-Spinozist in the following sense: although beliefs are primarily expressed through assertions, we need not describe the doxastic normativity on the sole basis of the grammar of assertion. The principle reason is this: beliefs arise in degrees. They require probability.

Finally, on the relationship between assertion and representation. Leibniz had an advanced conception of representation. We are indebted to Swoyer and to Kulstad for their decisive clarifications of the Leibnizian notion and use of 'expression', so much so that the precise signification of this notion is no longer a matter of debate: the expression of a thing by another thing is a structural resemblance, i.e. a second order relation between predicates that, themselves, designate properties and relations. These predicates, taken together, constitute an expression when their surrogates are found, or located, in that which is expressed. Since there are more predicates expressible in that which is expressed than there are predicates in the expression – for example, there are always more discernable locations in the city than there are locations symbolized on the map that represents it – we will furthermore say, to highlight this asymmetry, that the expression is an embedding. For Leibniz, proposition are abstract objects. They are abstract in the *positive* sense of 'logical' abstracts. The representational capacity of propositions can be explained by a disposition of the mind to locate or produce expressions (Rauzy 2014). The representational force of proposition is not mind-independent, but it does not depend on assertion or judgment.

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The 'I' in the Monad: Leibniz and the Essential Indexical

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Abstract Some modern and contemporary philosophers argue that the first-person indexical plays an essential role in the explanation of individual actions. As such it cannot be explained away or replaced by a co-referring term without destroying the cognitive force that its use conveys. There are important aspects of Leibniz's work that anticipate the view of the essential indexical. The activity in the monad, such as the petites perceptions and appetitions, plays the cognitive role of grounding indexical reference and uses of the first-person pronoun to explain an agent's perspective and behaviour.

Keywords Monad. Essential Indexical. Perceptions. Memory. Personal identity.

Summary 1 Introduction. – 2 The Essential Indexical. – 3 Leibniz: The Rational Monad and the Mind. – 4 The 'I' in the Monad *qua* Essential Indexical. – 5 Petite Perceptions and Personal Identity. – 6 Conclusion.

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1 Introduction

It is well known that Leibniz holds the view that language is a mirror of the mind:

> I really believe that languages are the best mirror of the human mind, and that a precise analysis of the signification of words would tell us more than anything else about the operations of the understanding. (Leibniz 1996, 333)

The way one expresses (or is disposed to express) one's thoughts in the first-person mood reflects what goes on in one's mind.[1] It is in this sense that we think Leibniz's 'I' in the monad somewhat anticipated the view of the essential indexical in modern and contemporary semantics. We refer to those proponents of this view as holding the *essential indexicality thesis* (EIT). This is shorthand for the view that holding a belief about oneself is importantly distinct from other forms of propositional attitudes that one can entertain. There seems to be an indexical ingredient that certain beliefs (e.g., *de se*) must have given their explanatory role in behaviour and action. We provide some (of our interpretations of) passages below where Leibniz's thought seems committed to EIT. Specifically, we think there are, indirectly, aspects of his mature metaphysics (*Monadology*), and less-indirectly, from Leibniz's comments on indexicality[2] and his philosophy of mind (e.g., consciousness, perceptions, memory) that when taken together, articulate a version of EIT which is alive to some degree in the works of Castañeda (1966; 1968), Chisholm (1981), Kaplan (1977), and Perry (1979), for example. On the other hand, current considerations on the essential indexical may help clarify our understanding of Leibniz's view on mind and language (e.g., by tracking and comparing (dis)similarities of the semantic and metaphysical commitments between the former group and Leibniz).

1 It is worth noticing that on this aspect Leibniz anticipated Frege's well-known linguistic turn. As Dummett 1993 points out, Frege stressed that in order to explain what a thought is we have to focus on the sentence used to voice it. For example, both Leibniz and Frege held that a philosophical account of thought can be attained through a philosophical account of language and that a comprehensive account of the former can only be so attained through the latter.

2 See for example, Di Bella 2005, esp. 193-6, who notes that for Leibniz, properties that do not suffice to capture individuality are those expressed by general terms ('a man', 'a garden') nor definite descriptions ('the first man'). Rather, Leibniz maintains that individuality is captured (at the epistemological level) by indexical and demonstrative devices. Leibniz writes: "A certain individual is *this* one, whom I designate either by pointing it or by adding some distinguishing marks. For although we cannot have marks which distinguish it perfectly form every other possible individual, nevertheless we have marks which distinguish it from other individuals we meet" (A VI 4, 744/ Leibniz 1966, 51, modified). Quoted in Di Bella 2005, 193.

In pursing this line of thought, it is worth mentioning that like Castañeda (1976),[3] we take a 'Darwinian approach' in developing our ideas that we trace from the Leibnizian corpus to EIT in contrast to what he refers to as the 'Athenian approach'.

> Whereas on the Athenian approach one aims at revealing or constructing a master unity and coherence of philosopher's *corpus*, on the Darwinian approach we try to re-live and enjoy the philosopher's peak insights, even if they are the culminations of periods of uncertainty, incoherence, and self-contradiction. (Castañeda 1976, 93)

Thus, our exegesis of the passages and the ideas therein that we discuss in the paper, the claims we make, and the connections we draw between the intellectual milieus should be read as suggestions – that they may run counter to standard interpretations, or be altogether wrong, is certainly a possibility.

2 The Essential Indexical

In "The Problem of the Essential Indexical" John Perry presents us with the following scenario:

> I once followed a trail of sugar on a supermarket floor, pushing my car down the aisle on one side of a tall counter and back the aisle on the other, seeking the shopper with the torn sack to tell him he was making a mess. With each trip around the counter, the trail became thicker. But I seemed unable to catch up. Finally, it dawned on me. I was the shopper I was trying to catch. I believed at the outset that the shopper with a torn sack was making a mess. And I was right. But I didn't believe that I was making a mess. This seems to be something I came to believe. And when I came to believe that, I stopped following the trail around the counter, and rearranged the torn sack in my cart. My change in beliefs seems to explain my change in behaviour. (Perry 1979, 167)

According to Perry, the realization that the messy shopper was in fact himself spilling the sugar is essential to explaining why he acted the way he did – that is to say, rearranging his sugar bag. Without the indexical, first-personal reference to himself, an explanation of the shopper's behaviour is incomplete. In other words, it is only when our messy shopper expresses (or is disposed to) his thought us-

3 Castañeda's main works on Leibniz are his 1979 and 1982 articles. See Sicha 1986 for a discussion on Castañeda on Leibniz.

ing the first-person pronoun that he stops searching for the *one* who made the mess and cleans up the mess *he himself* made.

The moral of the story we draw from Perry's view is that 'I' cannot be replaced by a co-referring expression (e.g., 'John') without destroying the force of explanation.[4] There are numerous Messy Shopper-style examples. Here's another one: An amnesiac can come to know a lot of things about herself that she associates with her proper name, say 'Mary Smith', and comes to know, for instance, that Mary Smith is in danger. Yet if she does not come to entertain the thought she would express by "*I* am Mary Smith" she would not act appropriately (and, e.g., flee from danger). It is the peculiarity highlighted by such examples that lead certain philosophers to argue that 'I' is an essential indexical.

In a general sense, we can say that first-person attitudes are important in understanding agency and provide a means to explain action for modern theorists of the essentialist persuasion.[5] According to Castañeda, intentions are essentially first-personal and indexical. In fact, there can be no such thing as purely third-personal, non-indexical intention. Although intentions and beliefs can be reported from a third-person perspective (e.g., John believes that he is the messy shopper), further analysis of such an account reveals a 'quasi-indicator'[6] (to use Castañeda's terminology) such that what is really going on in John's head is that he *himself* is the messy shopper.

One way to capture EIT is to say that intentional actions are fundamentally indexical. Any account of intentional action needs to be alive to their essential indexicality. In a general sense, we see traces of Leibniz's thought in, and hints to, these more elaborated, mod-

4 More accurately, we should distinguish between the moral we draw from Perry's 1979 article, and Perry's intention in that article. Perry's main aim in "The Problem of the Essential Indexical" is not to argue for EIT. Rather, Perry assumes EIT, and uses it to argue against the view he refers to as the 'traditional doctrine of propositions'. Importantly, in footnote one of the same article Perry gestures to the work of Castañeda indicating that we can find arguments for EIT there.

5 In what follows we employ the term 'essential' when dealing with the essential indexical. Besides, we do not venture into discussing Leibniz's metaphysical essentialism and how it relates to, and differs from, modern and contemporary studies on the topic such as, e.g., the works of Kripke 1980 and Lewis 1986. For a deep analysis of Leibniz's ontology about individual substances and how we identify them, see Di Bella 2005. For a discussion of Leibniz's modal arguments and, in particular, how it relates to the work of Lewis see the seminal work of Mondadori 1973. When we speak of philosophers of the essentialist tradition, we merely mean philosophers inspired by Perry's work on the essential indexical.

6 Roughly, quasi-indicators are anaphoric pronouns that in a that-clause (like in, e.g., "Mary believes that *she herself* is married") capture the indexical reference the attributee made or is disposed to make in her utterance. In our example, the quasi-indicator 'she herself' attributes to Mary an I-thought. For the way quasi-indicators relates to essential indexicals see Corazza 2004.

ern versions of EIT.[7] Most notably, this includes his view of persons (monads) and the way he conceives of cognitive processes. To the first point, consider one of the many representative passages where Leibniz asserts that we are individual, enduring substances:

> I am truly a single indivisible substance, unresolvable into many others, the permanent and constant subject of my actions and passions. (Leibniz 1989, 104 f.)

Later, a few lines below Leibniz describes this indivisible aspect as the 'mind' or 'I'.[8] Thus, for Leibniz, it is precisely the 'I' which qualifies the subject as an individual with the capacity to recognize itself as an individual subject of experience differentiating it from all other substances (or monads). For Leibniz, one's experience of oneself *qua* oneself is immediate to consciousness. To this end, Bobro writes:

> The mind does not in reflection find the *ideas* of, say, being, or unity, or action within itself, rather it has a direct apprehension of itself as being, as one, as acting, and as a consequence acquires the ideas of being, or unity, or actions. That self-consciousness is a direct apprehension or immediate experience of the ego and its actions is stressed by Leibniz in using such expressions as '*le sens interne*' (*Reflections on Locke's Book*, GP V, 23), '*le sentiment du moi*' (*New Essays* II, 27, § 9/A VI 6, 236), '*les expériences internes immédiates*' (*New Essays* II, 27, § 14/A VI 6, 239), when referring to consciousness or reflection on the self. (Bobro 2005, 30, emphasis in original)

In other words, for Leibniz, a rational subject of experience has immediate, and direct experience of itself, first, with other relations being derivative. And as Leibniz states, even if what the 'I' apperceives is confused or distorted, the 'I' lingers within the subject *qua* subject of experience. In this sense, Leibniz could qualify as a super-essentialist concerning how first-person thoughts are comprehended through the essential indexical. Setting aside discussions as to what counts as a rational subject for Leibniz, we can say that it is individuated, at least in part, by virtue of its awareness as being the subject of its perceptions, because of the sort of creature that it is (see Bobro 2005, 50).

7 One of the ramifications of our view is that even if a given essentialist author rejects the ideas of Leibniz wholesale, there are still traces of an undeniably Leibnizian flavour implicit in the theory.

8 Bobro 2005 notices another explicit analogy Leibniz draws between persons and simple substances: "What I take to be the indivisible or complete monad is the substance endowed with primitive power, active and passive, like the 'I' or something similar" (GP II, 251/Leibniz 1989, 176; quoted in Bobro 2005, 44).

3 Leibniz: The Rational Monad and the Mind

In his mature metaphysics, Leibniz introduces the term 'monad' to account for his view of simple, immaterial, and indestructible substances. He tells us that all monads are wholly constituted by two features: perception and appetition. Since it is the very nature of a monad to represent, they differ not in their representations, but in how distinctly they perceive their representations. Perceptions are subject to appetites that move the monad from one perception to another. Thus, appetition is the tendency from one perception to another. Leibniz classifies monads into three types. At the bottom of the hierarchy are bare, or simple, monads, such as plants which only contain petites perceptions. These monads are wholly unconscious because petites perceptions do not make the monad aware of what they represent. Next are animal souls, which in addition to petites perceptions, have confused sensations generated by their sense organs which present impressions that are represented by perceptions. The sensations in animal monads are confused in the sense that they are bundles of petites perceptions that run together. Finally, there are human minds, or rational monads. In addition to petite perceptions and sensations, the human mind can reflect on its perceptions. In this way, the human mind has what we can call self-consciousness.

The fact that rational monads possess such a capacity begets several important consequences for Leibniz. The most important of which is the fact that the mind is aware of itself as the subject of its perception, and the changing perceptions, such that a particular self is capable of entertaining "I perceive X" (see Simmons 2011, 200). Another important feature of this view informs Leibniz's theory of mind. On the standard Cartesian view of the mind, perception is viewed "as *for* and *to* a subject, and self-consciously so" (Simmons 2011, 202). Leibniz's theory of mind proposes at least three different possibilities. Of course, monads can be self-consciously aware of themselves such as when one possesses an idea of oneself like the one she would express by voicing "I am the shopper making a mess". However, a monad could equally have perception without this self-conscious feature. Namely, one might be aware of the mess of sugar on the floor in front without really giving it any explicit attention. Finally, a monad can have unconscious perceptions. This last fact is a result of Leibniz's notion of petite perceptions. Such an account would have raised eyebrows among Leibniz's contemporaries:

> What seems most strikingly new in all this is Leibniz's introduction of unconscious *petites perceptions*, since they seem to usher in something hitherto unheard of. But the sensations of animals would have been just as anathema to the Cartesians for their lack of reflective self-awareness: in being aware of the roses, they

> would insist, one must inevitably be aware of being aware. When Leibniz chides the Cartesians for missing much of what is in the mind, then, it is not just that they have missed the unconscious *petites perceptions*; they have also missed conscious sensations that lack reflective self-awareness. What is more, they have missed these phenomena both as they exist in other living things (animals and simple living things) and in the human mind itself, where all three co-exist. (Simmons 2011, 202)

What is attractive for us is that Leibniz views the mind as possessing various degrees of perception. Some perceptions are unconscious, others are conscious. These two cognitive streams acting in parallel help to deal with problems concerning individuation. The claims made by Leibniz here are surprisingly similar to the modern, cognitive scientific view of the duplex mind, i.e., the distinction between automatic processes and reflective (conscious) ones:

> The human mind has two major processing systems at work, and they have different properties […] The automatic system, also known as the intuitive or reflexive system, generally has many things happening at once […] simultaneously and somewhat independently of each other. […] In contrast, the conscious system does one thing at a time, yet it can process in depth and follow multiple steps. […] only the conscious system seems fully able to make use of the power of meaning and language. (Baumeister 2005, 75)

As Baumeister stresses: "The conscious system did not decide which finger to use to press the elevator button, nor did it supervise each footstep. It only formulated the grand plan" (Baumeister 2005, 278). In other words, most of our thinking activities and actions are guided by automatic cognitive processes operating at the subconscious level. We are guided by self-locating (unconscious) thoughts, by what Leibniz would characterize as petites perceptions.

Rational monads possess appetitions. Suffice it to say that appetitions are those inclinations or motivations that drive monads from one perceptual state to another and incline them to act.[9] Leibniz claims that no monad lacks activity:

> [I]n the natural course of things no substance can lack activity, and indeed there is never a body without movement. […] at every moment there is in us an infinity of perceptions, unaccompa-

9 In the *Monadology* (§ 49) Leibniz writes: "*action* is attributed to a monad insofar as it has distinct perceptions, and *passion* insofar as it has confused ones" (Leibniz 1969, 647).

> nied by awareness or reflection; that is, of alterations in the soul itself, of which we are unaware because these impressions are either too minute and too numerous, or else too unvarying, so that they are not sufficiently distinctive on their own. (*New Essays*, 53)

Further on, Leibniz discusses how petites perceptions are guided by the appetitions – their internal principle of activity and change:

> All our undeliberated actions result from a conjunction of minute perceptions; and even our customs and passions, which have so much influence when we do deliberate, come from the same source; for these tendencies come into being gradually, and so without minute perceptions we would not have acquired these noticeable dispositions. (*New Essays*, 115-16)

> These minute impulses consist in our continually overcoming small obstacles – our nature labours at this without our thinking about it. (*New Essays*, 188)

Leibniz's notion of continual minute activities underscores his view of the monad. This idea is significant because of the cognitive form in which he couches it. Sensible representations, Leibniz tells us, constitute the bulk of our cognitive life and underpin the singular viewpoint of every cognitive agent. Such sensible representations are the result of sub-personal informative states and processes that Leibniz refers to as petite perceptions. In Leibnizian terms, the petite perceptions of a monad give rise to representations of sensible qualities and carve out the singular and original point of view that every substance has of the world.

This, we think, can be read alongside some of the main lessons we take from the works of essentialists on the essential indexicals, such as self-locating beliefs, and agent-centered behaviour. This is what underpins what could be characterized as the automaticity of the *de re* and the d*e se*. That is, the view that most of our thinking activities are guided by automatic cognitive processes operating at the sub-conscious level and that the latter is guided by self-locating (unconscious) thoughts. Since, for Leibniz, appetition is what guides the constant stream in our mental life, the petite perceptions that are accumulated as the monad unfolds *via* appetition can be viewed as the building blocks upon which our interactions with the external world rest.

In other words, the principle of action, that is, the primitive force which is our essence, expresses itself in momentary derivative forces involving two aspects: on the one hand, there is a representative aspect (perception), by which the many petites perceptions are expressed within the one, simple substance; on the other hand, there is

a dynamical aspect, a tendency or striving towards new perceptions, which inclines us to change our representative state, and move towards new perceptions. As the monad shifts from one perception to another, there is the sense of an irreducible quality:

> The thought of myself, who perceives sensible objects, and the thought of the action of mine that results from it, adds something to the objects of the senses […]. And since I conceive that other beings can also have the right to say 'I', or that it can be said for them, it is through this that I conceive what is called substance in general. (Leibniz 1996, 188)

For Leibniz, rational monads have an accompanying representation alongside these petite perceptions, namely, the *I* in us. For such creatures, sensible experience carries with it some instance of what distinguishes them from other minds. Experience is not only of things. It is also from a certain point of view in which things are experienced (or represented). In the messy shopper example, the patrons in the store and John both have access to the facts surrounding the mess and the shopper making it. This can be represented by some description such as 'the person who is such and such' (where 'the person who is such and such' is a description that applies only to the messy shopper, John). However, this description does not provide an explanation of John's behaviour only until he realizes that he himself made the mess. After all, the messy shopper could have formulated a belief about someone who satisfies the description (given above) but does not realize that he is in fact the person making the mess.

4 The 'I' in the Monad *qua* Essential Indexical

In this section we will mainly focus on the way our thinking (and communicative) episodes inherently relate to the reality we apprehend and, in particular, on how this activity is, most of the time, perspective driven. We are, we could say, intrinsically embedded in the surroundings we are interacting with and this situatedness is from a particular viewpoint. So, how do so-called perspectival (or viewpoint-guided) thoughts constitute the (cognitive) grounding of what came to be characterized (after David Lewis' 1979 seminal paper) as the *de se*? The main picture to be defended goes as follows: we are cognitively built to grasp pieces (objects) of our surroundings in an 'indexical' way. This, though, needs to be qualified. For the time being, we will use 'indexical' within quotes for, as we will see, our 'indexical' access to the external world, the (basic) grounding of our thoughts, need not be represented in our minds by our entertaining a token representation of an indexical, i.e. by the tokening of a men-

tal symbol we would exteriorize in uttering an indexical expression. As Castañeda stresses:

> [I]ndexical reference is personal, ephemeral, confrontational, and executive. Hence it cannot be reduced to nonindexical reference to what is not confronted. (Castañeda 1989, 70)

It is worth considering again John the messy shopper from the perspective of a monad – a centre of activity. For Leibniz, each monad contains in it the proposition that would be expressed if the agent were to utter "He is making a mess". Since all monads mirror the entire universe, all monads would entertain this proposition. However, the degree of distinctness of the proposition and the accompanying apperception is available in certain degrees, perhaps confusedly, by the monad. The only monad that can represent this proposition from a first-person perspective correctly *is* the messy shopper, John, who has the ability to become aware of his own distinct point of view. The viewpoint he expresses by voicing "I am making a mess" refers uniquely to John, the messy shopper. The distinct apperception of the content of the proposition is available to John's consciousness. This apperception expressed in the first-person mood reflects the viewpoint of the agent, in our example John. If this apperception were expressed using a co-referential term, say 'he' (when, e.g., looking at his image in the mirror) or 'John', we would lose the agent's peculiar self-attribution. It is in this sense that Leibniz's 'I' in the monad may be best understood along the way we understand 'I' *qua* essential indexical:

> Anyone can believe of John Perry that he is making a mess. And anyone can be in the belief state classified by the sentence "I am making a mess". But only I can have that belief by being in that state. (Perry 1979, 183)

Furthermore, when one expresses one's thoughts in uttering 'I' one need not identify oneself as when one ought to do when one refers to someone else using, e.g., 'she', 'he' or a proper name:

> I can be mistaken in thinking that what I see is a canary or (in case of hallucination) that there is anything at all that I see, but it cannot happen that I am mistaken in saying this because I have misidentified as myself the person I know to see a canary. (Shoemaker 1968, 82)

The 'I' in the monad can also be understood along this view. For, when one comes to be aware of a given perception one cannot misidentify oneself *qua* subject of the relevant perception.

Furthermore, the following two passages where Leibniz talks about the *I* in us, may be understood as anticipating contemporary essentialist perspectives as well:

> Furthermore, by means of the soul or form, there is a true unity which corresponds to what is called the *I* in us; such a thing could not occur in artificial machines, nor in the simple mass of matter, however organized it may be. (*New System of Nature*, GP IV, 482)

> This experience is the consciousness which is in us of this *I* which apperceives things which occur in the body. This perception cannot be explained by figures and movements. (*Reply to Bayle*, GP IV, 559 f.)

As Kulstad and Carlin (2020) point out: "Leibniz's point is that whatever is the subject of perception and consciousness must be truly one, a single 'I' properly regarded as *one* conscious being".[10] The 'I' in the monad understood as an essential indexical, we think, also helps us to appreciate Leibniz's view on personal identity and its relevance to contemporary discussions.

5 Petite Perceptions and Personal Identity

Leibniz, like Descartes, undoubtedly believed that personal identity relied on the continuity of the person's substance. Descartes, focused on substantiality, disregarded the role that psychological continuity played. Leibniz regarded this as an egregious error, for how can a person be sensitive to punishment and reward without memory and consciousness (see Gut 2017, 100-1). Thus, like Locke but unlike Descartes, Leibniz also held that psychological continuity is a necessary condition for the preservation of personal identity. Like Locke, Leibniz believed that if a person lacked consciousness of their past experiences, they would not qualify as the same person in the moral and religious sphere (see Gut 2017, 101). However, Leibniz goes further than Locke. For Leibniz, Locke's account of personal identity was subject to admit of absurd consequences. Leibniz's view of personal identity is able to manoeuvre the problems with Locke's account because Leibniz maintained that all experiences of a person are included in their individual substance, which is the unchang-

10 According to Leibniz apperception is consciousness or, to put differently, the reflexive knowledge one entertains of one's internal state. This consciousness is not given to all souls. Only rational beings (or rational monads) can have access to it.

ing *I* in us.[11] These experiences include both perceptible experiences for consciousness (sensible perceptions), and non-perceptible experiences (insensible perceptions).[12] For this reason, Leibniz is able to maintain that even when a person loses consciousness, that is to say, the apperception of some of one's experiences, one is not entirely stripped of one's perceptions. It is the continuity of perceptions and the interconnections between them that constitute the sameness of a person through time.

Firstly, if personal identity was based only on consciousness, its complete loss by a given person (as, for instance, a result of an unfortunate accident) would mean the loss of personal identity. A person before and after an accident would be a completely different person. Secondly, if consciousness and memory were the only way personal identity can constitute itself, they would actually be all that constitutes a given person. It would lead to absurdity in the case when memory gaps were filled with false content (see Gut 2017, 106-7). Leibniz writes:

> Now, suppose that such a man were made young again, and learned everything anew – would that make him a different man? So it is not memory that make the very same man […] within each substance there is a perfect bond between the future and the past, which is what creates the identity of the individual. Memory is not necessary for this, however, and it is sometimes not even possible, because of the multitude of past and present impressions which jointly contribute to our present thoughts; for I believe that each of a man thought has some effects, if only a confused one, or

11 As Leibniz puts it: "Organization or configuration alone, without an enduring principle of life which I call 'monad', would not suffice to make something remain numerically the same, i.e. the same individual. […] one can rightly say that they remain perfectly 'the same individual' in virtue of this soul or spirit which makes the *I* in substances which think" (Leibniz 1996, 231-2). And he further adds: "I would not wish to deny, either, that 'personal identity' and even the 'self' persist in us, and that I and that *I* who was in the cradle, merely on the grounds that I can no longer remember anything that I did at the time. […] there be a mediating bond of consciousness, even if this has a jump or forgotten interval mixed into it. Thus, if an illness had interrupted the continuity of my bond of consciousness, so that I did not know how I arrived at my present state even though I could remember things further back, the testimony of other would fill in the gap in my recollection. […] And if I forgot my whole past, and needed to have myself taught all over again, even my name and how to read and write, I could still learn from others about my life during my preceding state" (Leibniz 1996, 236-7).

12 As Curley writes: "Leibniz, like Locke, does not want to base the diachronic identity of person on the continuity of transcendental subjects. Instead, like Locke, he makes it depend on a relationship of continuity among the states of the subject. But since he disagrees with Locke that the thinker is necessary aware of his thoughts, persons do not, for Leibniz, exhaust the class of thinking things. He will extend his account of identity to all thinking things. And since, for Leibniz, all genuine individuals are thinking things, this account will hold for all individuals" (Curley 1982, 323).

> leave some trace which mingles with the thoughts which follow it. (Leibniz 1996, 114)
>
> All our undeliberated actions result from a conjunction of minute perceptions; and even our customs and passions, which we have so much influence when we do deliberate, come from the same source; for these tendencies come into being gradually, and so without the minute perceptions we would not have acquired these noticeable dispositions. (Leibniz 1996, 115-16)

Once again, the idea of petites perceptions plays a foundational explanatory role: The petites perceptions (or unconscious thoughts) guiding our automatic actions (see the duplex mind, section 3) ground the subject's experiences to itself. For as Leibniz claims, there is nothing in a simple substance but its petites perceptions and their changes.

If we interpret petites perceptions in the way discussed by Baumeister (section 3), perhaps we can find a way to reconcile it with what Perry (1990) refers to in his later works as 'self-notions'.[13] For Perry, self-notions underscore what we do when we decide what to do. Self-notions are repositories that store our personal information. Self-notions are thoughts about ourselves, and are, therefore, first-personal. The work self-notions play can be instructive in viewing the connection between Leibniz's petites perceptions and apperception. Petites perceptions *belong* to a particular individual such that when that person apperceives them,[14] they apperceive *their* perceptions. In other words, we can think about petites perceptions as an inventory of individual identical information as playing the role of providing reasons for individual action. The reason an individual, X, acts on information involving X and not someone else is because X-information is indexed to the individual, X. The important point here is that the perceiver need not have an accurate perception of an object (e.g., you may think that you see a canary, when really it is a dove) to be able to experience that object from their first-person point of view. Individual perceivers cannot mistake themselves as the perceivers since their perceptions are already indexed to them.

There are two important consequences we can draw from the above considerations we have been discussing at length. The first, it is the idea that indexicality is essential to intentional thought, and intentions are essential to agency. The second is that first-personal access is important to explain Leibnizian and EIT intuitions concerning puzzling cases of identity and memory.

13 We note that we are probably stretching Perry's idea of self-notion a lot further from how he intended it to be used.

14 See Kulstad 1977 for discussion on the apperception of petites perceptions.

Consider again our messy shopper, John. Suppose that while John is shopping, he suffers a lapse of thought whereby he totally forgets what he has come to buy, and more alarmingly, basic facts about his life (e.g., he cannot remember his name, or that he is from Nebraska, and what he had for breakfast that day, etc.). Now, suppose that he notices that the mess of sugar is caused by the bag that he has in his cart. It is plausible that John is able to move from the thought that he would express in uttering "Someone is making a mess" to the thought he would express by "I am the one who is making a mess" despite the fact that he cannot say for certain what his name is, where he was born, or what he ate for breakfast moments before heading to the supermarket. According to Leibniz, all John requires is his repository of petites perceptions, which act as buffers for his first-personal perspective.[15]

> An immaterial being or spirit cannot 'be stripped of all' perception of its past experiences. It retains impressions of everything which has previously happened to it, and it even has presentiments of everything which will happen to it; but these states of mind are mostly too minute to be distinguishable and for one to be aware of them, although they may perhaps grow some day. It is this continuity and interconnection of perceptions which makes someone really the same individual. […] So it is unreasonable to suppose that memory should be lost beyond any possibility of recovery, since insensitive perceptions, whose usefulness I have shown in so many other important connections, serve a purpose here too – preserving the seed of memory. (Leibniz 1996, 239-40).

Let us now consider a second, Leibnizian take on the Messy Shopper example.[16] We call it the Many Johns case.[17] Suppose there are two monads, $John_1$ and $John_2$ in two symmetrical worlds. We know, according to Leibniz that both monads contain the same information about the universe as each other (and every other monad for that matter). Thus, both are indistinguishable in terms of their general de-

15 See Kulstad 1977 for discussion.

16 In fact, this example can be seen as echoing a challenge posed by Strawson's [1959] 1964 introduction of the monad/chess example against Leibniz's doctrine of individuation. Like Nichols 1999, though, we think that the example does not really apply to Leibniz, but rather someone Strawson calls 'Leibniz'. This is because Leibniz had already formulated a similar thought experiment (i.e., what is often referred to as the 'Many Adams') and responded to the challenges it posed.

17 The relevance of Leibniz's substance-accident realism to issues on transworld identity is discussed at length in an excellent article by O'Leary-Hawthorne and Cover 1996. In particular, they point to how the haecceitism/anti-haecceitism debate reintroduced into contemporary discussions by Kaplan 1975 can be squared with Leibniz's doctrine.

scriptions (e.g., memory, appearance, psychological capacities, and dispositions). But let's suppose that $John_1$ and $John_2$ have qualitatively indistinguishable points of view in these symmetrical worlds. That is to say, $John_1$ and $John_2$ are spilling bags of sugar unbeknownst to themselves in Safeway's in symmetrical universes. The putative challenge is that points of view of the world do not carry the explanatory role of distinguishing monads.

We think both Leibniz and EIT theorists share intuitions about this case: Both $John_1$ and $John_2$ have a fundamentally different self-reflexive feeling. For Leibniz, self-reflexivity is nothing other than apperception. In Leibniz's theory of mind,[18] apperception is that distinguishing feature that automatically differentiates among two putatively indistinguishable, monads, or our 'internal principle of distinction'. Similarly, EIT theorists would argue that it is completely natural to believe that both $John_1$ and $John_2$ have their own unique points of view. Thus, $John_1$ and $John_2$ come to utter and say different things when they entertain the thought "I am making a mess". $John_1$ would call of the search of the messy shopper, and hopefully, clean up the mess *he himself* made. The same holds for twin-earth John. For the 'I' they would (or be disposed to) utter stands for John and twin-John respectively. In uttering 'I' John cannot refer to twin-John and *vice versa* where the intentions of $John_1$ to clean up the mess miraculously become those of $John_2$.

6 Conclusion

We are quite sure that our excursion into Leibniz's philosophy through the lens of some contemporary philosophical appeals to essential indexicality did not do full justice to Leibniz's original thoughts and ideas (and perhaps that we've mistreated some of the contemporary views concerning indexicality and *de se* beliefs). Our aim was modest. If anything, we hope to have shown how Leibniz's 'I' in the monad somewhat anticipated current theories regarding the essential indexical. At the same time, we hope that our contemporary philosophical lens may be of some help in understanding Leibniz's philosophy of mind. No doubt, we ignored some important aspects of Leibniz's metaphysics, and possibly numerous other studies linking indexicality to Leibniz's essentialism. To this end, we re-quote Castañeda "Whereas on the Athenian approach one aims at revealing or constructing

18 For a paper on the differences between the Cartesian view of mind and Leibniz's own, and the importance of the latter's thoughts on raising "a set of foundational philosophical questions about the mind that could not be asked from within the Cartesian framework" we recommend Simmons 2001, 73.

a master unity and coherence of philosopher's *corpus*, on the Darwinian approach we try to re-live and enjoy the philosopher's peak insights, even if they are the culminations of periods of uncertainty, incoherence, and self-contradiction" (Castañeda 1976, 93). We, no doubt, enjoyed our Leibnizian excursion even if in our reading and understanding we ended up with uncertainties, confusions and, possibly, contradictions.

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Abbreviations

A = Leibniz, G.W. (1923-2021). *Sämtliche Schriften und Briefe*. Berlin: Akademie Verlag.

GP = Leibniz, G.W. (1875-90). *Die philosophischen Schriften*. Hrsg. von C.I. Gerhardt. 7 Bde. 2. Aufl. Reprint Hildesheim: Olms, 1965.

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Prepositions and Spatial Relations in Natural Languages According to Leibniz

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Abstract In his 1677 *Dialogue*, Leibniz answers the question of how it is possible that speakers of different languages agree on the same truths by postulating "a certain correspondence between characters and things". In the mid-1680s, he arguably attempts to specify this "correspondence" by explaining how linguistic particles are connected to our perception of spatial relations among things in the world. Firstly, this paper focuses on the role that, according to Leibniz, signs and characters play in our knowledge. Secondly, it introduces the solution that can be found in the *Dialogue* to the problem of how the same truth can be expressed in different languages. After briefly expounding Leibniz's theory of natural languages, the paper gives an account of Leibniz's analysis of the nature of prepositions and of how they contribute, in a natural language, to determine the correspondence between characters and things that is mentioned in the *Dialogue*.

Keywords Leibniz. Natural Languages. Knowledge. Prepositions. Spatial Relations. Tropes.

Summary 1 Introduction. – 2 'Common Sense', Imagination and the Importance of Signs for Thinking. – 3 Against Hobbes's Thesis that Truth is Arbitrary. – 4 Onomatopoeia and Similarity: The Origin of Words in Natural Languages. – 5 Prepositions and Our Perception of Spatial Relations. – 6 A "Certain Correspondence [*proportio*]" Exists "Between Characters and Things".

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1 Introduction

In 1677, Leibniz wrote a short dialogue which was posthumously published in 1765 as an appendix to the first edition of the *New Essays*. Leibniz's title was simply *Dialogus*, but Eric Raspe, who edited the *New Essays*, entitled it as *Dialogus de connexione inter res et verba* [*Dialogue about the Connection of Things and Words*] (*Oeuvres philosophiques*, 507-12). Clearly, the *Dialogue* was written under the influence of Plato's dialogues, even though the two main characters, designed by the letters A and B, are lacking in psychological complexity and 'A' and 'B' are rather labels for characterizing the different theses that are discussed.

In the *Dialogue*, Leibniz states that truth is independent of the natural language in which it is expressed, and consequently he raises the question of how it is possible that speakers of different languages agree on the same truths. To answer this question, he suggests that there must be something "which is not arbitrary" in the use and connection of the words, namely "a certain correspondence [*proportio*] between characters and things, and certain relations among different characters expressing the same things" (A VI 4, 24/L 184, transl. modified). Later, around the years 1685-86, in a series of essays devoted to the rational grammar, Leibniz explains how particles are connected to our perception of spatial relations among things 'in the world'. It seems to me that these essays can be considered an attempt to specify the kind of correspondence that Leibniz imagined to exist between words (characters) in a natural language and the things that are spoken of.

Thus, in what follows I first focus on the role that, according to Leibniz, signs and characters play in our knowledge; then I introduce the solution present in the *Dialogue* to the problem of how the same truth can be expressed in different languages. After a short summary of Leibniz's theory of natural languages, I give an account of Leibniz's analysis of the nature of prepositions and of how they contribute, in a natural language, to determine the correspondence between characters and things mentioned in the *Dialogue*.

In the *Dialogue* Leibniz states that "if there were no characters, we could neither think of anything distinctly nor reason about it" (A VI 4, 23/L 184). By 'character' Leibniz means signs or symbols of some sort, such as, for instance, written words or drawings or diagrams. Obviously, even spoken words are signs or symbols, but they have the drawback of being of little help to memory when one has to develop long and complex thoughts or calculations. Leibniz calls the kind of thinking performed by means of signs 'blind' (*cogitatio caeca*) or 'symbolic':[1]

1 On *cogitatio caeca*, see Favaretti Camposampiero 2007.

> Such thinking I usually call *blind* or *symbolic*; we use it in algebra and in arithmetic, and indeed almost everywhere. (A VI 4, 587-8/L 292)

> The neglect of things that are truly good arises largely from the fact that, on topics and in circumstances where our senses are not much engaged, our thoughts are for the most part what we might call 'blind' – in Latin I call them *cogitationes caecae*. I mean that they are empty of perception and sensibility and consist in the wholly unaided use of·symbols, as happens with those who calculate algebraically with only intermittent attention to the geometrical figures which are being dealt with. Words ordinarily do the same thing, in this respect, as do the symbols of arithmetic and algebra. We often reason in words, with the object itself virtually absent from our mind. (*NE* 185-6)

The reason why we are forced to employ signs to think, as Leibniz states on several occasions, is that our *body* is interposed between our soul and the 'external world' on the one hand, and between us and the 'pure world' of concepts and ideas, on the other.

2 'Common Sense', Imagination and the Importance of Signs for Thinking

According to Leibniz's theory of knowledge, in human beings there is a fundamental continuity between each sensation and the concept (or concepts) associated with it. Since we are essentially connected to a body, it is only in a few cases that we may have a direct intuition of pure concepts and ideas, not mediated by the senses. As Leibniz writes in a letter to Sophie Charlotte, by means of a merely conceptual analysis, we can reach some "notions of metaphysics, such as *cause*, *effect*, *action*, *similarity*, etc., and even those of logic and ethics" (GP VI, 501/AG 188, emphasis in the original). We can do so by reflecting on our internal thinking activity, on our different levels of awareness and on the way we relate to objects of knowledge. Clearly, when reasoning *about* these notions, we cannot avoid using of symbols (imagined or spoken in a kind of internal monologue); but because these notions of metaphysics are "distinct, primitive concepts", we may grasp them only by means of an act of intuition (GP VI, 501/AG 188). Leibniz's firm belief, however, is that, with this sole exception, we cannot directly grasp concepts and ideas which are beyond a certain degree of complexity. This point is clearly established in the *Meditations on Knowledge, Truth, and Ideas*, one of the few philosophical papers personally published by Leibniz:

> When a concept is very complex, we certainly cannot think simultaneously of all the concepts which compose it. But when this is possible, or at least insofar as it is possible, I call the knowledge *intuitive*. There is no other knowledge than intuitive of a distinct primitive concept, while for the most part we have only symbolic thought of composites. (A VI 4, 587-8/L 292)

The only doorway to the external world at our disposal is offered by what Leibniz calls the *external senses*, i.e., the senses of touch, sight, hearing, etc. Each external sense, first through perception and then by means of sensation (i.e. perception associated with awareness) conveys some information to what Leibniz – in accordance with the Aristotelian tradition – calls *common sense*. The common sense collects and compares this information by employing ideas that derive from 'pure understanding':

> These ideas which are said to come from more than one sense – such as those of space, figure, motion, rest – come rather from the common sense, that is, from the mind itself; for they are ideas of the pure understanding (though ones which relate to the external world and which the senses make us perceive), and so they admit of definitions and of demonstrations. (*NE* 128)

In the letter to Sophie Charlotte mentioned above, Leibniz distinguishes common sense from the imagination and attributes to the latter the function of putting together the perceptions of different external senses:

> Since therefore our soul compares the numbers and the shapes of colours, for example, with the numbers and shapes discovered by touch, there must be an internal sense where the perceptions of these different external senses are found united. This is called the imagination, which comprises at once the concepts of particular senses, which are clear but confused, and the concepts of the common sense, which are clear and distinct. And these clear and distinct ideas which are subject to the imagination are the objects of the mathematical sciences, namely, arithmetic and geometry, which are the pure mathematical sciences, and their applications to nature, which make up mixed mathematics. (GP VI, 501/L 548)

The imagination plays an important role in Leibniz's philosophy: it occupies an intermediate place between the senses and understanding and contributes to giving a 'sensible' form to the most abstract concepts of mathematics. Again, in his letter to Sophie Charlotte, Leibniz states that there are three levels of concepts: sensible ones, "which are the objects produced by each sense in particular"; those

at once sensible and intelligible, which belong to the common sense; and those which are intelligible only, belonging to the understanding. As Leibniz remarks, concepts of the first and the second type are imaginable, whereas those of the third type "lie beyond the imagination." The second and third types of concepts are "intelligible and distinct, but the first are confused, although they may be clear and recognizable" (GP VI, 502/L 549).

We may grasp concepts of the third type only in a few cases and by means of an act of intuition, as when, for example, we conceive the concept of 'I':

> The thought of myself, who perceives sensible objects, and the thought of the action of mine that results from it, adds something to the objects of the senses. To think of some colour and to consider that one thinks of it are two very different thoughts, just as much as colour itself differs from the "I" who thinks of it. And since I conceive that other beings can also have the right to say "I", or that it can be said for them, it is through this that I conceive what is called substance in general. It is also the consideration of myself that provides me with other notions of metaphysics, such as cause, effect, action, similarity, etc., and even those of logic and ethics. Thus it can be said that there is nothing in the understanding that did not come from the senses, except the understanding itself, or that which understands. (GP VI, 501/AG 188)

Writing to Walter von Tschirnhaus in May 1678, about twenty years before his letter to Sophie Charlotte, Leibniz seems to believe that besides the kind of thought that we develop by means of symbols (and which he identifies with calculation in the proper sense), we have the possibility of developing a way of thinking based on what he calls 'meditation'. In this letter, Leibniz suggests that thinking and computing are analogous, insofar as both are based on the use of characters:

> You are entirely of my opinion when you say that in very composite matters a calculus is necessary. For this is the same as if you had said that characters are necessary, for a calculus is nothing but operation through characters, and this has its place not only in matters of quantity but in all other reasoning as well. (GM IV, 462/L 193)

He then suggests that it is possible to reason "without a prolonged calculation, that is without paper and pen":

> Meanwhile I have a very high regard for such problems as can be solved by mental powers alone insofar as this is possible, without a prolonged calculation, that is, without paper and pen. For such

> problems depend as little as possible on external circumstances, being within the power even of a captive who is denied a pen and whose hands are tied. Therefore we ought to practice both in calculating and in meditating, and when we have reached certain results by calculation, we ought to try afterward to demonstrate them by meditation alone, which has in my experience often been successful. (GM IV, 462/L 193)

It is difficult to tell whether Leibniz here considers it possible to develop some metaphysical thoughts without employing symbols (i.e., without recourse to any language whatsoever). Certainly, in the letter to Sophie Charlotte, as we have seen, he claims that we may grasp some fundamental notions of logic, ethics, and metaphysics by means of intuition. Outside these cases, however, when we compose thoughts and chains of thoughts, we can reach the most abstract notions only by employing some characters, i.e., some signs or symbols formed through the faculty of the imagination.

In the letter to Tschirnhaus, Leibniz stresses again the importance of characters for thinking:

> No one should fear that the contemplation of characters will lead us away from the things themselves; on the contrary, it leads us into the interior of things. For we often have confused notions today because the characters we use are badly arranged; but then, with the aid of characters, we will easily have the most distinct notions, for we will have at hand a mechanical thread of meditation, as it were, with whose aid we can very easily resolve any idea whatever into those of which it is composed. In fact, if the character expressing any concept is considered attentively, the simpler concepts into which it is resolvable will at once come to mind. Since the analysis of concepts thus corresponds exactly to the analysis of a character, we need merely to see the characters in order to have adequate notions brought to our mind freely and without effort. (GM IV, 461/L 193)

3 Against Hobbes's Thesis that Truth Is Arbitrary

Thus, according to Leibniz, imagination helps us to build signs and symbols that are – 'in our present state', as a medieval thinker would say – indispensable tools for grasping and developing thoughts.

Signs and symbols, however, pose a serious problem to Leibniz: to see what kind of problem it is, let me quote some lines from the *Dialogue*:

A. Certain learned men think that truth arises from decisions people make, and from names or characters.
B. This view is quite paradoxical.
A. But they prove it in this way: Isn't a definition the starting place [*principium*] for a demonstration?
B. I admit that it is, for some propositions can be demonstrated only from definitions joined to one another.
A. Therefore, the truth of such propositions depends on definitions.
B. I concede that.
A. But definitions depend upon our decision.
B. How so?
A. Don't you see that it is a matter of decision among mathematicians to use the word 'ellipse' in such a way that it signifies a particular figure? Or that it was a matter of decision among the Latins to impose on the word '*circulus*' the meaning that the definition expresses?
B. But what follows? There can be thoughts without words.
A. But not without some other signs. See whether you can do any arithmetic calculation without numerical signs, I ask. (A VI 4, 22/AG 270)

These 'men' to whom A alludes are Hobbes and his followers. In the *New Essays* Leibniz will attribute to Hobbes the claim that "truth depends upon the good pleasure of men" (*NE* 396). To condense Leibniz's question in few words: if we cannot think without characters (words or other signs), then, because the meanings of words (and other signs) are arbitrary, it follows that even sentences that we consider true are only arbitrarily true. But this seems to be contrary to the received view that truth is independent of the human will.

In the *Dialogue*, Leibniz offers the following solution to this problem:

> […] I notice that if characters can be applied to reasoning, there must be some complex arrangement, some order which agrees with things, an order, if not in individual words (though that would be better), then at least in their conjunction and inflection. And a corresponding variegated order is found in all languages in one way or another. This gives me hope that we can avoid the difficulty. For though the characters are arbitrary, their use and connection have something that is not arbitrary, namely, a certain correspondence [*proportio*] between characters and things, and certain relations among different characters expressing the same things. And this correspondence or this relation is the ground of truth. For it brings it about that whether we use these characters or others, the same thing always results, or at least something equivalent, that is, something corresponding in proportion always re-

> sults. This is true even if, as it happens, it is always necessary to use some characters for thinking. (A VI 4, 24/AG 271)

To fully understand what Leibniz means in this passage, we need to look at his theory concerning the nature of historical languages, like Latin, German, French etc. Thus, let me briefly sum up some features of Leibniz's theory of language, before attempting to figure out what kind of answer Leibniz has given to the above question about the relationship between characters and truth.

4 Onomatopoeia and Similarity: The Origin of Words in Natural Languages

The notion of *affectus* (affect), plays a fundamental role in Leibniz's account of the nature and genesis of natural languages. According to Leibniz, an *affectus* is a kind of reaction that human beings have in response to some stimulus. The Latin word *affectus* is a noun that has the same root as the verb *afficere*, i.e., 'to affect', 'to influence', and in many cases it can be employed as a synonym for *affection*. This may suggest that an *affectus* in Leibniz's sense is the same as an *affection of the soul* according to the semantic theory of Aristotelian origin, but this is not the case. The *affections of the soul* (τὰ ἐν τῇ ψυχῇ παθήματα) of which Aristotle speaks in *De interpretatione* I, were traditionally interpreted as concepts (*animi conceptus*: concepts of the soul), whereas an *affectus* in Leibniz's sense implies (contains) concepts and ideas but cannot be identified with them.[2] Affects imply a judgment because they are reactions of our mind facing the view that our experience (senses plus intellect) offers of the world. Hunger and thirst, for example, according to Leibniz are not *affectus*, because they do not imply any kind of judgment (see A VI 4, 1414). Moreover, *affectus* are not the same for all human beings. Different people usually have different *affectus*, depending on the circumstances in which they are living and on the constitution of their speech organs.

Leibniz's idea is that human beings, at a primitive stage of their development, gave names to things according to the impressions that these produced on them. Thus, according to a tradition that can be traced back (at least) to the Middle Ages, Leibniz conjectured that the first words uttered by human beings were interjections and simple exclamations:

> […] it is quite reasonable to think that human beings […] as soon as they began to forge some words, adapted the nouns to their

2 Cf. Heinekamp 1972; 1976; Rutherford 1995, 240-8; Mugnai 2018, 198.

> perceptions and to their *affectus*; that at the beginning they employed interjections and short particles to express their own *affectus* and that from these interjections as from some seeds all languages were progressively developed. (*EP* 216)

As we read in a text devoted to philosophical language, interjections are what remains of a primitive way of speaking typical of beasts, and they "either express our judgments and affects or are directed towards other things" (A VI 4, 890). Thus, the first manifestations of a natural language (interjections) contain a subjective element (a judgment) and an objective one, that is a reference to the thing that the speaker intends to denote. Both these elements are connected through *onomatopoeia*:

> Every language has a kind of natural origin due to the agreement of the sounds with the affects caused in the mind by the act of seeing things. And I think that this process took place not only in the primordial language, but also in all other languages that emerged partly from the primordial one, partly from a new usage [of the words] introduced by the human beings dispersed all over the world. And of course, an onomatopoeia often imitates nature, as when we attribute 'croaking' to frogs, or when we take 'shh' as a request for silence or rest, and 'r' for designating a running, or when 'hahaha' designates laughing, and 'vae' pain. (A VI 4, 59)

Between a word and the thing named by it, *onomatopoeia* plays the same role that *similarity* plays between a drawing and the thing drawn: the more similar the drawing is to the thing, the more natural we consider it to be. Thus, the onomatopoetic words of a given language are 'more natural' than other words belonging to the same language, insofar as they attempt to reproduce the sounds of the objects named; and from this point of view, they witness a primitive stage in the development of the language, a stage in which human beings were 'closer to things.'

Besides onomatopoeia, other 'ingredients' of Leibniz's theory about the genesis and development of natural languages are the rhetorical tropes of *synecdoche*, *metaphor*, and *metonymy*.[3] These tropes, applied to the basic onomatopoeic words, contribute to expanding their meanings and enable the speaker to perform the transition from 'sensible to insensible things', that is from the speech about concrete things to speech about abstract things:

3 In *NE* 282-3, Leibniz adds *irony* to the classical tropes, according to the simplified list proposed by Ramus'school.

> I remember too that in the Credo written for the Hottentots, it was necessary to use their words for a gentle and pleasant wind to translate 'Holy Spirit'. This is not unreasonable since our Greek and Latin words *pneuma*, *anima*, *spiritus* primarily signify simply the air or wind which one breathes, as being one of the most rarefied things that our senses acquaint us with; one starts with the senses in order to lead men gradually to what is above the senses. (*NE* 104)

> In Spanish, *ricos hombres* signified nobles or chiefs. This also shows how words have passed by means of metaphors, synecdoches and metonymies from one signification to another, without our always being able to follow the trail. (*NE* 282-3)

The rhetorical tropes are even responsible for the shift of meaning underlying the use of prepositions:

> This analogy between sensible and insensible things, which has been the basis for figures of speech, is worth exploring. We will understand it better if we consider the very widespread examples provided by the use of prepositions, such as 'to', 'with', 'of', 'before', 'in', 'out', 'by', 'for', 'on', 'toward', which were all derived from place, distance and motion and were subsequently carried across to all kinds of changes, orders, sequences, differences, and conformities. 'To' signifies approach, as when we say 'I am going to Rome'. But also to tie something down we make it approach the thing we want to join it to, and so we say that one thing is tied to another. Also, since there is an immaterial tie (so to speak) when one thing follows from another according to moral reasons, we say that what results from someone's movements or decisions belongs or attaches to him, as if it tended to cling to and go along with him. (*NE* 277)

So, the onomatopoeic words that at an earlier stage denoted some sensible things (and the effect they produced on us), later became the roots of other words, giving rise to new meanings:

> Thus the Latin *coaxare*, applied to frogs, corresponds to the German *couaquen* or *quaken*. It would seem that the noise these animals make is the primordial root of other words in the Germanic language. Since these animals make a great deal of noise, we connect it with chatterers and babblers, whom we call by the diminutive quakeler; though it seems that this same word *quaken* used to be taken in a favourable sense to signify all kinds of sounds made with the mouth, even including speech. And since those sounds or noises of animals testify to the presence of life, and tell us that

> something living is there before we can see it, in old German *quek* signified life or living; we can find this word in the oldest books, and vestiges of it still remain in the modern language, for *quek-silber* is *quicksilve*r, and *erquicken* is to succour – i.e. revive or enliven after some weakening or great exertion. In Low German certain weeds are called *Quaken*, that is, alive and running, as they say in German, spreading and seeding themselves easily in the fields to the detriment of the grain; and in English *quickly* means promptly and in a lively manner. (*NE* 282)

5 Prepositions and Our Perception of Spatial Relations

Leibniz believes that the attribution of names to things on the basis of *onomatopoeia* is contingent, because it depends not only on the different *affectus* of different individuals, but also on the historical and natural circumstances in which people found themselves living:

> Indeed, the different people who first imposed the names, attributed different words to the same things, according to the different qualities by which they were struck, to the different circumstances and relations in which they were situated, to their own affects, to the occasions, and to their proper advantage […] (*EP* 215-6)

This variability of the attribution of words, however, is counterbalanced by the stability of the perception of spatial relations, which Leibniz assumes to be the same for all human beings. To clarify this point, we need to consider Leibniz's explanation of the nature of words representing particles.

Particles (conjunctions, prepositions, adverbs and pronouns) are essential for natural languages: they connect sentences, parts of sentences and parts of ideas. In a text on rational grammar, Leibniz states that "vocables [*vocabula*] are either words [*voces*] or particles. Words constitute the matter, particles the form of discourse. […] Just as prepositions govern the cases of nouns [*nominum*], so conjunctions govern the moods of verbs" (A VI 4, 882/Leibniz 1966, 15). As far as prepositions are concerned, they are strongly linked with our representation of space:

> All prepositions signify, in particular, a relation of place [*relationem loci*] and, metaphorically, any kind of relation. (A VI 4, 645-7)

> Concerning prepositions, it must be remarked that every preposition employed in our usual languages initially signified some relation to a place and was later transferred by means of some trope to some metaphysical notions less dependent on the imagination. (A VI 4, 890)

In a long essay entirely devoted to the analysis of particles, Leibniz distinguishes two kinds of spatial relation implicit in prepositions: a *simple local relation* (*respectus localis*) and a *local relation containing motion* (a motion of the thing to which the preposition refers or of other things) (A VI 4, 647). A simple local relation is contained, for example, in prepositions like 'with', 'without', 'at', 'about' ('around') and 'between'; a local relation containing motion is found in prepositions like 'across' ('through') and 'towards' (A VI 4, 648-9).

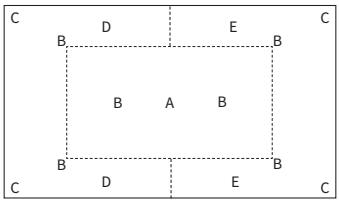
In the *New Essays*, Leibniz generalizes the thesis according to which all prepositions imply some reference to spatial relations:

> Still, this analogy between sensible and insensible things, which has served as the foundation for figures of speech, is worth exploring. We will understand it better if we consider the very widespread examples afforded by the use of prepositions, such as 'to', 'with', 'of', 'before', 'in', 'out', 'by', 'for', 'upon', 'toward', which are all derived from place, distance and motion and subsequently transferred to all kinds of changes, orders, sequences, differences, and conformities. 'To' signifies approach, as when we say: I am going to Rome. But also, to tie something down we make it approach the thing we want to join it to, and so we say that one thing is tied to another. Furthermore, since there is an immaterial tie, so to speak, when one thing follows from another according to moral reasons, we say that what results from someone's movements or decisions belongs or attaches to him, as if it tended to cling to and go along with him. One body is with another when they are in the same place; but we also say that one thing is with whatever occurs at the same time, or belongs to the same ordering or part of an ordering, or co-operates in one and the same action. If someone is of (from) a certain place, the place has been an object for him by virtue of the sensible things with which it has confronted him, and it is still an object of his memory, which continues to be full of it; and that has the result that objects [of thought] are signified by the preposition of, as when we say: it is a question of this, he is speaking of that; as though the person were of (from] the item in question. And just as what is shut up somewhere or is in some whole, is supported by it and goes where it goes, so accidents are thought of similarly as in the subject – *sunt in subjecto, inhaerent subjecto*. The particle on is also applied to objects [of thought]: we say that someone's mind is on such and such a topic, much as a craftsman works on the wood or stone which he is cutting or shaping. (*NE* 277-8)

That the meaning of prepositions is determined by our spatial perceptions was a rather widespread theory in the sixteenth and seventeenth centuries; we find a clear reference to it, for instance, in Giulio Cesare Scaligero, an author well known to Leibniz:

> Several particles are signs of a motion and denote the starting point from which the movement begins, such as *A*, *De* and *Ex*; to make speech easier, they are modified into *Ab*, *Abs* and *E*. The point of arrival, instead, is denoted by *Ad*, *Ob*, *Usque* […] There is also a real kind of motion, as in bodies, and a kind of motion that the Greeks call *analogikòs*, as when we say that someone is moving with his mind. Thus, when we say 'I heard this from Davo', there is some kind of motion. And the same happens with 'I am coming round' […] Thus, *Once* and *Propter* once signified a place. (Scaliger 1580, 388)

Leibniz, however, distances himself from Scholastic and Renaissance grammarians insofar as he attempts to develop a systematic account of the spatial relations implied by the use of prepositions. One assumption in this account is that all human beings perceive spatial relations in the same way. In the treatise on particles mentioned above, Leibniz draws some diagrams to represent the spatial relations implied by certain prepositions (A VI 4, 648):



As Vincenzo De Risi has shown, Leibniz considers space something merely ideal. This does not mean, however, that different human individuals may have different representations of space, or that 'our' space could have been different (i.e. a non-Euclidean one). For Leibniz space is not contingent:

> Leibniz's definition of space as the order of all *possible* situations necessarily includes, in fact, all the situational configurations determined by the set s of monads of the non-existing worlds. Absolute space is one and the same for all possible worlds. What changes is only the specific situational actualization of the order of possibilities. And even that […] merely consists in a different system of boundaries, and by no means in the determination of the curvature or dimensions of the ambient space, or anything else. (De Risi 2000, 566)

6 A "Certain Correspondence [*proportio*]" Exists "Between Characters and Things"

At this point, we may return to our question of how, according to Leibniz, it is possible for different systems of 'characters' to express the same truths. As we have seen, Leibniz thinks that at the 'first level' of every historical language there are certain 'root words' (*mots radicaux*) of an onomatopoeic nature. Based on these root words, other words are built by applying *tropes* to them that extend their meaning in several directions. These tropes are the same for all human beings. However, besides onomatopoeic words and their derivatives, language has other extremely important words that link single words and entire propositions together to form a speech. These special words are particles. Among them, prepositions play a particularly relevant role, because they do not simply connect words, but refer to something external to language: they express spatial relations and even though the names for a spatial relation may change from language to language, they signify the same relations in different languages. Therefore, as we have seen in the *Dialogue*, Leibniz can argue that even "though the characters are arbitrary, their use and connection have something that is not arbitrary, namely, a certain correspondence between characters and things, and certain relations among different characters expressing the same things" (A VI 4, 24/AG 271).

Inter, *tra*, *entre* and *between*, for example, are names of prepositions in different languages – respectively, Latin, Italian, French and English – but they refer to the same kind of spatial relation, and this holds for all prepositions. Leibniz attributes the same perception of space to all human beings, a perception that cannot be altered by the change of occasions and circumstances in which the various individuals are situated. If I see an object A near an object B, I can express this state of things in many ways in different languages, but all expressions will agree in describing a spatial relation that is the same for every human being.

In the final part of the *Dialogue*, Leibniz presents his solution as follows:

> But yet I notice that if characters can be applied to reasoning, there must be some complex arrangement, some order which agrees with things, an order, if not in individual words (though that would be better), then at least in their conjunction and inflection. And a corresponding variegated order is found in all languages in one way or another. This gives me hope that we can avoid the difficulty. For though the characters are arbitrary, their use and connection have something that is not arbitrary, namely, a certain correspondence [*proportio*] between characters and things, and certain relations among different characters express-

> ing the same things. And this correspondence or this relation is the ground of truth. For it brings it about that whether we use these characters or others, the same thing always results, or at least something equivalent, that is, something corresponding in proportion always results. […] Therefore, although truths necessarily presuppose some characters, indeed, sometimes they deal with the characters themselves (as with the theorems about casting off nines), truths don't consist in what is arbitrary in the characters, but in what is invariant [*perpetuus*] in them, namely, in the relation they have to things. (A VI 4, 24-5/AG 271-2)

Eight years after the *Dialogue*, Leibniz works out the details of this solution in his paper on the analysis of particles (*Analysis particularum*, 1685-86), explaining how it is possible for some 'characters' to denote a 'reality' that is the same for every human being. This solution is fully in agreement with Leibniz's views about nature and the genesis of the notion of space as a "representational element" in a world of individual substances.

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Leibniz's Last Letter on Linguistic Matters

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Abstract We reproduce in what follows the last writing published in life by G.W. Leibniz (1646-1716) on linguistic topics. Together with other works by scholars of the time, Leibniz's essay served as an introduction to an important collection of versions of the *Pater noster* in many different languages (Chamberlayne ed. 1715). In his critical remarks, the philosopher not only summarises his main ideas about the importance and method of linguistic comparison, but also integrates them with interpretative insights from neighbouring fields, such as numismatics, archaeology, and the history of writing systems. The editor's commentary gives information on the historical and theoretical context in which Leibniz writes and on the numerous authors and works mentioned in the text.

Keywords G.W. Leibniz. Linguistic comparativism. Writing systems. Pater noster. Oratio dominica. John Chamberlayne.

Summary 1 Introduction. – 2 Leibniz's Latest Reflections on Linguistic Issue.

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1 Introduction

The long letter published here[1] belongs to the last period of Leibniz's philosophical and scientific activity. It was printed for the first time in 1715 and, to the best of my knowledge, has never been reproduced or discussed before in recent times. (Its reprint in Dutens' 1768 collection of Leibniz's works has no philological significance). In the following pages, the reader will find some information about its composition and the topics it deals with. As a preliminary remark, it must be said that this letter to John Chamberlayne is part of that section of Leibniz's work that concerns the theoretical, historical and comparative study of historical-natural languages. This is a field often neglected by scholars, who have mainly focused on strictly philosophical and logical topics. However, the importance of Leibniz's linguistic studies was already recognized in the nineteenth century (in the valuable books by Neff 1870-71) and at the beginning of the twentieth (Pietsch 1908-09). In times closer to us, it was only with the posthumous publication (1973) of Sigrid von der Schulenburg's research (dating back to the 1930s) and with some essays by Hans Aarsleff (1964, 1969) and Albert Heinekamp (1972) that Leibniz "als Sprachforscher" acquired full standing as an object of study. Since then, several scholars have investigated both the observations which Leibniz devoted to individual languages and language families and the role that historical-natural languages play in the philosopher's theory of knowledge. Leibniz the linguist, therefore, is no longer regarded merely as the theorist of the "characteristica universalis", but as a real philosopher of language who (by contrast to what Cassirer supposed in 1923) studied the semantics of ordinary languages and those of artificial languages within the same theoretical framework.[2]

This new strand of studies has concentrated in particular on Leibniz's vast erudite correspondence, beginning in the early 1690s, and on those works in which the topic of historical-natural languages plays a central role. In this regard, it is worth mentioning, first of all, the third book of the *Nouveaux Essais sur l'entendement humain* (1703-05) and then the writings from his late maturity: the *Brevis designatio meditationum, ductis potissimum ex indicio linguarum*, published in 1710 as an introductory essay to the *Miscellanea Berolinensia* of the Berlin Academy of Sciences, and the unfinished *Epistolica de historia etymologica dissertatio* (1711-12), a real handbook of

1 I would like to thank Dr. Sergio Knipe for his valuable help in the stylistic revision of this paper. I would also like to thank the two anonymous reviewers whose suggestions helped me to improve its first draft.

2 See especially Heinekamp 1976; Mugnai 1976; Dascal 1978; Gensini 1991; Poser 1996.

"Leibnizian linguistics", so to speak. Other important materials can be found in the *Collectanea etymologica*, published posthumously in 1717 by Leibniz's former secretary Johann Georg von Eckhart (1664-1730), in the *Otium Hanoveranum: sive, Miscellanea, ex ore & schedis illustris viri [...] Godofr. Guilielmi Leibnitii*, published by Joachim Friedrich Feller (1673-1726) in 1718 and, finally, in his fundamental *Commercium Epistolicum* with the great German Semitist Hiob Ludolf (1624-1704), published by August Benedikt Michaelis (1725-1768) in 1752.

For an overview of the results achieved by studies concerning these aspects of Leibniz's production, I will simply refer to the volume of various authors edited by Wenchao Li (2014), as well as Van Hal (2015), which includes extensive bibliographical references; another very useful book is Michael C. Carhart's *Leibniz Discovers Asia* (2019), which offers an overview of the philosopher's orientalist interests.

2 Leibniz's Latest Reflections on Linguistic Issue

Leibniz's last piece of writing on linguistic matters was the letter (a typical *Epistolaris dissertatio* according to the standard of his times) addressed to the English gentleman and courtier John Chamberlayne (1668-1723). It appeared in the important collection of versions of the *Our Father* in many different languages that Chamberlayne published in 1715 with the title *Oratio dominica in diversas omnium fere gentium linguas versa et proprijs cujusque linguae characteribus expressa* (Amsterdam, typis Guilielmi & Davidis Goerei).

Along with Leibniz's contributions, the book also included a number of essays by scholars from various lands: Englishmen like William Nicholson, Jerreel Jones, and Leibniz's correspondent William Wotton; Dutchmen like the famous Adriaan Reeland and Willem Surenhuis; another member of the philosopher's circle, the Frenchman Mathurin Veyssier de La Croze; and, finally, Germans like Leibniz himself and Johann Joachim Schröder. The editor was a young scholar of German origin, David Wilkins, whom Chamberlayne had entrusted with the task of collecting the necessary materials, and integrating them with a numbers of versions of the *Pater noster* which he already had. Chamberlayne had reserved for himself the diplomatic part of the enterprise, which also had to do with the political relations between the Crown and the Elector of Hannover, two illustrious members of the Protestant world (this aspect of the question is somewhat evident throughout the exchange of letters with Leibniz, which began in 1703 and intensified after 1710).

Chamberlayne's invitation for Leibniz to submit an essay of his own is included in a deferential letter to the philosopher from West-

minster, dated 24 November/5 December 1713 (*T*, 1713, no. 439) ("vous qui peutetre entendez plus de ces versions là qu'aucun autre, et qui connoissez le Genie de Toutes"). As a matter of fact, unlike other scholars involved in the book, Leibniz had not yet published any far-reaching works on such a difficult subject, except for the 1710 essay *Brevis designatio de originibus gentium, ductis potissimum ex indicio linguarum* – the dissertation that opened the *Miscellanea* by the Berlin Academy of Sciences, which he himself had founded in 1701 – and for shorter papers in scholarly journals. However, his reputation as an expert in the study of languages was immense: since 1687 the philosopher had been exchanging letters with the most important scholars in the field (the great German Semitist Hiob Ludolf being a relevant case in point); he had inspired both mature and upcoming researchers to undertake original investigations on German, Slavic, and African languages; and had also encouraged both Ludolf and his Swedish friend Sparwenfeld to compile a synopsis of all known alphabets and their characters to facilitate mutual comprehension. Other very important philological essays (such as the *Epistolica de historia etymologica dissertatio*, of 1711-12) lay unfinished on his desk and were destined to remain unknown, along with his valuable logical papers, until the twentieth century.

The invitation reached Leibniz in Vienna, which he had moved to in mid-December 1712. During his lengthy stay in the city, he had embarked upon diplomatic tasks: this was a delicate phase of the long War of the Spanish Succession, which the Hanover Elector, unlike the Emperor, expected to be continued; but Leibniz was also trying to make the most of the Emperor's benevolence (in April 1713 Charles VI had appointed him as *Reichshofrat*) in order to pursue some scientific tasks, including the idea (or, perhaps, the dream) of establishing another Academy of Sciences at the very heart of the Holy Empire. Notwithstanding his engagements, Leibniz soon found some time to meet with Chamberlayne's expectations. On the one hand, taking part in the enterprise was a significant acknowledgement of his own position, not only as a philosopher and theologian, but also as a philologist; on the other, owing to his quarrel with Newton, which had prompted the Royal Society to officially accuse him of plagiarism, Leibniz's relationships with English intellectual circles were strained. It was no coincidence, moreover, that in the following months Chamberlayne worked hard to resolve the controversy with Newton, unfortunately without success.

Leibniz's dissertation "insigni viro Johanni Chamberlaynio" bears the date of 13 Jan. 1714. Already on 18 February 1714, the English gentleman acknowledged its receipt, admitting that Leibniz's letter had reached him "3 or 4 weeks" earlier and that he had not yet had time to reply. Eventually, he declared himself pleasantly surprised at Leibniz's timely answer, and attributed a few minor mistakes in the

text to the latter's haste. Of course, Leibniz had written without having access to his usual resources: the books in his library in Wolfenbüttel. For many references included in his essay, he had to rely on memory, a circumstance that explains a couple of *lapsus* which will be indicated in the footnotes, and that, to tell the truth, apparently escaped even Chamberlayne's and Wotton's revision.

Up until now, Leibniz's last piece of writing on language had not attracted enough scholarly attention to receive an updated edition or a commentary. The promised fifth series of the Akademie-Ausgabe, *Sprachwissenschaftliche und Historische Schriften*, will probably fill this gap. (A full transcript of the letter is already available in *T* for the year 1714). I have decided to provide a provisional edition of the text, enriched with historical references, sources etc., with the limited aim of contributing to the knowledge of this important, but often underrated, aspect of Leibniz's work, which surely helps us to better understand both his cultural background and the role he played in his times, as a scholar and, in some sense, as a linguist.

In the repertoire of *Pater noster* editions that concludes the first volume of his *Mithridates* (1806), Johann Christoph Adelung devoted two full pages to Chamberlayne's book. He appreciated the richness of the collection and its novelty compared to previous attempts, and made some considerations about the critical papers included in it. Leibniz (and other contributors) seemed to him to "repeat things already known" (1806, 665). What should today's reader make of this judgement, which is rather harsh, if not rash?

In a sense, Adelung's critical remark was correct. Unlike other scholars involved in the enterprise (e.g. Reeland and Wilkins, both engaged in the study of Egyptian topics) Leibniz offered no new empirical data but focused on methodological considerations, so to say. After a review of the first collections of *Pater noster* and their valuable authors (Conrad Gessner, Hieronimus Megiser, Andreas Müller etc.), Leibniz had presented and concisely discussed a number of questions debated by scholars at that time. These had to do not only with the classification of the main language groups (as had been the case in the *Brevis designatio*) but also with the role that other fields of study, namely archaeology and numismatics, could play for historical-linguistic purposes. In these pages, contemporary scholars will discover other features of the philosopher's multifaceted scientific profile: his admirable familiarity with the literature on the ruins of Palmyra and Persepolis, through which it was probably possible to shed light on the history of the Near East, and particularly of Syria, in its connections with the Greek-Latin world; his tendency to address difficult questions concerning the history of alphabets, including the origin of runes, the influence of the Greek alphabet on both Slavic ones, Glagolitic and its successor, Cyrillic; some still mysterious cases, such as cuneiform writing or the *Tabulae Eugubinae*,

apparently based on Etruscan, and so on. Further intriguing issues concern Leibniz's concept of Celtic ("id est Germanic*ae* Gallic*ae*que gentes"), Ulfila's authorship of the *Codex Argenteus*, and the peculiar position of Chinese, in which the spoken language and the written (ideographic) one take independent paths. In essence, the philosopher confirms the positions he had defended both in his rare essays and in his still unpublished work (particularly in the *Epistolica de historia etymologica dissertatio* addressed to Eckhart and destined to introduce the forthcoming *Collectanea Etymologica*). These views are not original *stricto sensu*, but, if viewed in the context of the erudite debate of those days, they show the imprint of the scholar's balanced perspective, free from any temptation to bend the study of antiquities in a nationalistic sense. All in all, Leibniz's letter to Chamberlayne is probably a minor piece of his immense scientific production, but one that deserves attention both in itself and for what is tells us of the philosopher's range of interests, which he continued to expand until the last months of his busy life.

A few remarks are in order, here, to illustrate the criteria I have followed in my work. I had no intention to offer a real *critical* edition of the text. Instead, I have tried to provide the reader with a *provisional* edition, adapted to modern reading habits, and integrated with all the useful information I have been able to gather. I hope this will help the reader to extricate him/herself from the mass of references and names (not always easy to identify) quoted by the author. To this end, invaluable help has come to me – as to any other Leibniz scholar – from the online resources made available by the Leibniz Archiv in Hannover. The *Vorversionen* of the correspondence (that will be included in the first series of Leibniz's historical and erudite *Briewechsel*) have proved especially valuable.

I have used the first edition of the *Dissertatio*, published in 1715, leaving aside its reprint in the Dutens's 1768 edition, which is damaged by a number of mistakes. In order to facilitate reading, Latin accents indicating the syllables' quantity have been removed (along with other merely graphic conventions, such as *rectè* instead of *recte*); abbreviations have been solved; punctuation has been adapted to modern usage, when necessary; also the usage of capital letters (notoriously broad in Leibniz's times) has been modernized. Proper names, given in the text in their humanistic form, have been quoted in their 'normal' form in the footnotes. In a couple of (probably obvious) cases my researches have been unsuccessful.

Figures 1-2 *(Following pages)* Manuscript of Leibniz's 1715 Letter to Lord Chamberlayne. Courtesy of the Gottfried Wilhelm Leibniz Bibliothek - Niedersächsische Landesbibliothek. Shelfmark: Noviss 452, 3, 4

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Chamberlayne

~~Adepti~~
insigni Viro Edwardo Chamberlaino
Godefridus Guilielmus Leibnitius
S. P. D.

Non sine applausu intelligo consilium tibi esse reddere prelo auctas et emendatas Orationes dominicas multarum linguarum. Idest enim et specimen ~~linguarum~~ philologicum utilissimum censeo, et dolendum est nihil simile antiquis in mentem venisse, ~~et~~ quo ad posteros transmitti potuisset aliqua linguarum veterum notitia quae nunc intercidere; quales Mithridates ~~[illegible]~~ rex Ponti sine interprete intellexisse dicitur aut quibus Romani ad Pontum per interpretes centum et amplius cum vicinis populis commercia agitabant, Plinio teste.

Primus quod sciam Conradus Gesnerus hoc ~~coll~~ corrogandarum undecunque ~~Orat~~ Orationum dominicarum ~~[illegible]~~ consilio usus est, ~~[illegible]~~ quas suo Mithridati addidit, ~~[illegible]~~ illustrato deinde à Christ. Rem egregie ~~[illegible]~~ provexit Hieronymus Megiserus vir multarum linguarum peritia clarus. Deinde vester Joannes Wilkinsius Episcopus Cestriensis praeclaro suo operi Linguae philosophicae et Characteristicae universalis etiam Orationes dominicas polyglottas subjecit. ~~[illegible]~~ Reuterus etiam ~~Reuterus~~, pastor alicubi in Livonia si bene memini tale quid in publicum emisit, et ~~[illegible]~~ in linguis septentrionalibus emendate edendis non inutiliter consuli potuit ~~potuit~~. Novissime Andreas Müllerus patria Greiffenhagius praepositus Berolinensis, vir ~~[illegible]~~ linguarum ~~[illegible]~~ indigenarum peritia eminens, et praeterea indagator significatuum acutissimus, ~~[illegible]~~ additorum Centum ~~[illegible]~~ Orationum dominicalium editionem in syllabum dedit, et ~~[illegible]~~ pronuntiationi characteres populorum plerisque qui haberi potuere addidit, quanquam operi Libro ~~[illegible]~~ non nisi Typographi nomen praefixum sit. Et miror eos qui opus in Anglia primum ~~edere~~ ~~[illegible]~~ ~~recudent~~ ~~[illegible]~~ recudi curaverunt, autorem virum clarissimum ignoravisse: ~~[illegible]~~ nam dissimulasse non putem. Ipse editionem ampliorem et correctiorem moliebatur, et post ~~[illegible]~~ aliquid olim videre memini

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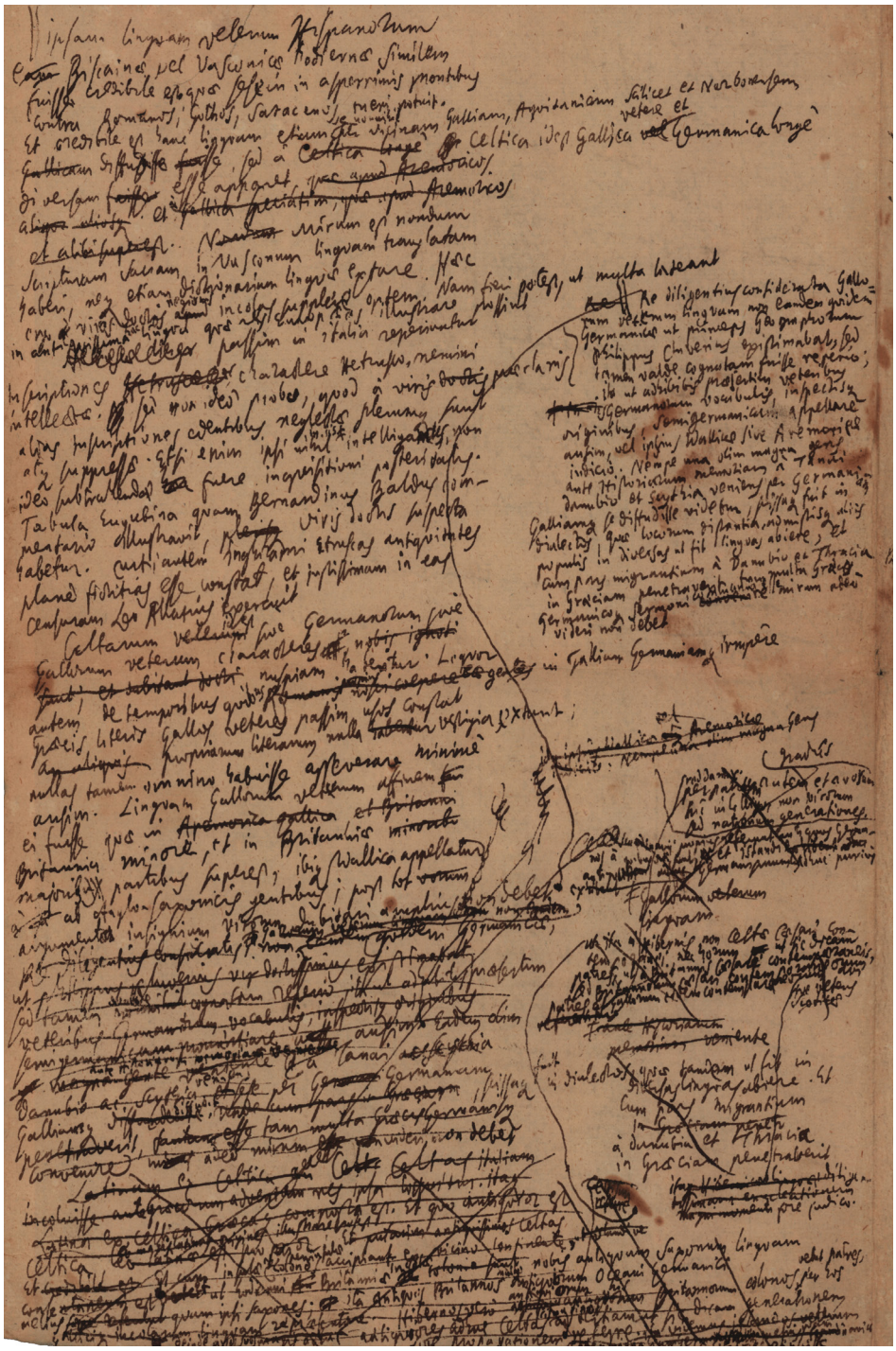

Dissertatio Epistolaris to Lord Chamberlayne (1715)

Insigni viro Johanni Chamberlaynio, Godofridus Guilielmus Leibnitius S[alutem] P[lurimam] D[icit]

Non sine applausu intelligo consilium tibi esse, reddere praelo auctas et emendatas Orationes Dominicas multarum linguarum. Id enim specimen philologicum utilissimum censeo, et dolendum est nihil simile antiquis in mentem venisse, quo ad posteros transmitti potuisset aliqua linguarum veterum notitia, quae nunc intercidere, quales multas Mithridates Rex Ponti sine interprete intellexisse dicitur, aut quibus Romani ad Pontum per interpretes, centum et amplius cum vicinis populis commercia agitabant, Plinio teste.[3]

Primus, quod sciam, Conradus Gesnerus hoc corrogandarum undecunque Orationum Dominicarum consilio usus est, quas suo *Mithridati* addidit, illustrato deinde a Christ[iano] Wasero.[4] Rem egregie provexit Hieronymus Megiserus, vir multarum linguarum peritia clarus.[5] Deinde vester Johannes Wilkinsius, Episcopus Cestriensis, praeclaro suo operi *Linguae philosophicae & characteristicae universalis*[6] etiam Orationes Dominicas polyglottas sed latinis notis subjecit. Reuterus etiam, pastor alicubi in Livonia, si bene memini, tale quid in publicum emisit, et in linguis septentrionalibus emendate edendis non inutiliter consuli potuit.[7]

Novissime Andrea Müllerus, patria Greiffenhagius, praepositus berolinensis,[8] vir linguarum omnigenarum peritia eminens et

3 See Plin., *Nat. Hist.* 7.24 on this: *Mithridates, duarum et viginti gentium rex, totidem linguis iura dixit, pro contione singulas sine interprete adfatus*.

4 Leibniz is referring to Conrad Gessner's (1555) well-known collection of *Pater noster*, which was constantly quoted in the literature of his times. Gessner (1515-1565) was a prominent Swiss naturalist, whose *Historiae animalium* (1551-58), in four volumes, represented a masterpiece of Renaissance zoology. The *Mithridates* was expanded and reprinted in 1610 (Tiguri) by Kaspar Waser (1565-1625), whom Leibniz apparently mistakes for 'Christianus'.

5 Hieronymus Megiser's (1554-1618/9) collection (1603) included fifty version of the *Pater noster*.

6 Leibniz is referring to John Wilkins's (1614-1672) *An Essay Towards a Real Character and a Philosophical language* (1668), a work that he elsewhere extensively discussed in connection to the aims and possible structure of the *characteristica universalis*.

7 Johann Reuter (Jānis Reiters) is the compiler of a collection entitled *Oratio Dominica XL Linguarum* (Rigae 1662), which Leibniz read in its 2nd edition (Rostochii 1675). More information on Reuter's work was given in *ED* § 25 (Gensini 1991, 235).

8 Andreas Müller (1630-1695) played a significant role in the history of Leibniz's interest in linguistic matters. His promised *Clavis sinica*, that is, a 'key' to gain access to the still mysterious Chinese ideograms, was long awaited by Leibniz, but never revealed (see the sketch put forward in Müller's *Propositio super Clave sua sinica*, Berolini 1674). The first edition of his *Orationis Dominicae Versiones* [...] *fere centum* was published in 1680 under the pseudonym of Thomas Ludekenius. The second, posthu-

praeterea indagator abditorum significatuum acutissimus, centum Orationum Dominicalium syllabum dedit, et pronunciationi lectionem in characteribus populorum plerisque, qui haberi potuere, addidit, quanquam libro non nisi typographi nomen praescripserit; et miror, eos qui opus in Anglia primum recudi curaverunt, auctorem virum clarissimum ignoravisse, nam dissimulasse non putem. Ipse editionem ampliorem et correctiorem moliebatur, et posthumum aliquid olim videre memini.

Majoris molis, sed majoris etiam fructus erat, quod Geogius Hornius[9] moliebatur. Cogitabat ille scilicet primum caput Geneseos polyglottum nobis dare, quae specimina linguarum ampliora et ditiora haud dubie (cum in Oratione Dominica non nisi pauca vocabula habeantur) magis profutura essent ad naturam, indolem, originesque linguarum noscendas et posteritati commendandas.

Sane exigua nobis hodie veterum linguarum notitia est, quia (ut jam dolens dixi) veteres tali invento caruere. Andreas Acoluthus[10] apud Vratislavienses theologus, in literatura orientali bene versatus, linguam hodiernam armenam, multum cognationis cum vetere aegyptiaca habere credebat, sed mihi argumenta ejus minus satisfaciebant. Rectius nuper Lacrosius[11] vir egregie doctus (qui praeclaram in lingua armena excolenda operam navavit) detexit ex quibusdam veterum locis, linguam Medorum convenisse cum hodierna armena, cujus etiam peculiares sunt characteres satis antiqui.

Quas Indica apud veteres appellantur, pleraeque hodierna linguae persicae convenire, observavere viri docti, et praesertim celeberimus

mous edition, which Leibniz refers to, was published in Berlin (1703), by Sebastian Gottfried Starcke, along with a detailed biography of the philologist.

9 Georg Horn (1620–1670), a German historian and a geographer, was professor at Leiden University from 1653 until his death. Among his many works, it is worth mentioning *Arca Noae, sive historia imperiorum et regnorum condito orbe ad nostra tempora* (Leyden and Rotterdam, 1666).

10 Andreas Acoluthus (1654-1704), a German orientalist, was professor at Breslau. In a letter to Leibniz dated 27 Aug. 1695 (A I 11, no 438) he had expressed the opinion that the philosopher criticizes both here and elsewhere (see, e.g., his letter to Sparwenfeld of November 1698 (A I 14, fn. 435). Among Acoluthus's works, his *Specimen alcorani quadrilinguis* (1701) is worthy of mention.

11 Leibniz is referring to the French scholar and orientalist Mathurin Veyssière de La Croze (1661-1739), librarian at the King's court in Berlin, with whom Leibniz exchanged many letters on linguistic topics (Chinese, Albanian, "Epirotica lingua", etc.) from March 1704 to 1716. Already in a letter of 30 Oct. 1709 (*T*, 1709, no. 34) La Croze announces his intention to devote himself to the study of Armenian, in the hope of being able to write "un Lexicon qui vaudra mieux que celui de la langue Esclavonne". La Croze also admits that he has undertaken a very serious commitment, because "je ne connois point de langue au monde plus difficile, ni plus singulière".

Relandus.[12] Illud indagatu dignum esset, an lingua Ignicolorum,[13] qui in Persia supersunt, vel certe librorum veterum, quos illi servare dicuntur, toto genere ab hodierna persica differat, an potius quod malim, non sit nisi dialectus servantior antiqui; et quibus literis scribatur.

Extant apud Palmyrenos et alibi in Syria, et vicinis locis complures inscriptiones antiquae duplices, partim lingua et characteribus gentis, partim graece expressae, quae magno studio ex ipsis saxis describi deberent. Inde fortasse constitui alphabetum posset, et linguae indoles tandem cognosci, cum graeca versio adsit, et nomina propria interveniant quorum eadem fere in patrio et graeco sermone pronunciatio erat. Angli vestri palmyrenaeum egregium specimen dedere,[14] sed multa adhuc supersunt. Syriaca illae litterae longe differunt ab iis quae hodie syriacae habentur, et proprius ad hebraicos fontes accedunt; veterum inscriptionem literarum syriacarum, Deum *Malach belum* nominatum in ipso saxo Romae olim eruto, graece explicatam, in collectione veterum inscriptionum habemus;[15] sed cum male descripta videretur, diu frustra quaesita, nuper iterum Romae reperta accuratiusque delineata, rem studiose curante R.mo Doctissimo Blankino,[16] quem admodum

12 Adriaan Reland (1676-1718) was a Dutch orientalist, who became Professor of Oriental Languages at the University of Utrecht in 1701, at the young age of twenty-five. Leibniz probably has Reland's 1701 *Oratio pro lingua Persica et cognatis literis orientalibus* in mind. It is important to remind the reader that the case of the Persian language had been a focus of interest for early comparativism since around 1650, when distinguished scholars such as Pierre Saumaise (see below, fn. 46) and Zuerius Boxhorn (following Elichmann's steps) had noted unexpected similarities with German. The Persian language was on its way to becoming a relevant *trait d'union* between the Far East and Europe.

13 *Ignicoli*, that is, 'fire worshipers', was the name given to the inhabitants of Old Persia, because of the prominent role that fire played in their religion.

14 Leibniz is referring to the news about the ruins of the ancient city of Palmyra that Rev. William Halifax had given in the *Philosophical Transactions* in 1695-97. The similarity which Leibniz grasped between the writing of the extant records and the Hebrew alphabet was later confirmed. The Palmyrene language belongs to the western group of aramaic tongues.

15 This inscription (discovered in the so-called *Horti Carpenses* in Rome) was reproduced by Jan Gruter (1560-1627) in his repertoire *Inscriptiones antiquæ totius orbis Romani, auspiciis Jos. Scaligeri ac M. Velseri accedunt XXIV Scaligeri Indices* (1601, 86), and later in 1685, along with the bas-relief bearing it. In the first decades of the 18th century it was often discussed, as it was a valuable record of those oriental traditions and myths that were arousing much interest in France, England and elsewhere.

16 Francesco Bianchini (1662-1727), an historian from the Physical-Mathematical Academy of Rome, had been in contact with Leibniz since 1689, at the time of the philosopher's *iter italicum*. In his role as the *camerarius* of pope Clement XI, Bianchini was appointed 'President of Rome's Antiquities', a role that gave him the opportunity to investigate Rome's archeological heritage in depth.

ad me perscripsit Gisbertus Cuperus,[17] vir magnorum in rem literariam meritorum. Nihil est simplicius et nihil tamen obscurius characteribus, qui in ruinis Persepolitanis extant,[18] pulcherrimo monumento architecturae sculpturaeque orientalis Graecorum opera, antiquitate transcendentis; in quo noscendo Chardinus gallus,[19] sed a vobis velut adoptatus, et nuper Bruinius batavus egregiam operam editis in publicum delineationibus navavere.[20] Si aliquando describeretur diligenter quidquid illius scripturae illic extat (quae ex meris triangulis varie positis constat), fortasse velut cryptolytica arte,[21] aliquid inde erui posset; quo enim plura specimina habentur, eo facilior est ad interpretandum aditus. Wanslebius erfodiensis,[22] Jobi Ludolphi excellentis viri[23] sectator, juvenis a serenissimo Ernesto Saxoniae Duce Gothano ac postea (cum dominicani ordinis vestem sumsisset) a Rege Christianissimo, praeclaro consilio in Orientem missus, retulit, in Aegypto alicubi cryptas concameratas reperi, plenas characterum veterum, qui si excriberentur, fortasse aliqua

17 The Dutch historian and politician Gisbert Cuper (1644-1716) was a protagonist of Leibniz's erudite correspondence from 1700 to 1713. He constantly kept Leibniz informed about scholars and writings being published in the field of Orientalism. Also important were his contacts with La Croze, another of Leibniz's privileged correspondents in his late years.

18 As is made clear by the subsequent remarks about the 'triangular style' of these writings, Leibniz is referring to the cuneiform writing typical of the Persepolitan inscriptions, whose origins date back to the first millenium B.C. Some first examples of it had been published by the Italian voyager Pietro Della Valle in 1625.

19 The French scholar Jean Chardin (1643-1713) had provided fascinating illustrations of Persepolis' ruins in his 1686 *Voyages*, a book that quickly enjoyed international renown and was translated into English. After leaving France because of the persecution of Huguenots, Chardin was appointed jeweler at the Court of Charles II. A member to the Royal Society since 1682, Chardin published the final, augmented version of his major work in 1711.

20 Leibniz is referring to Cornelis de Bruyn (Bruyn) (1652-1726/7), a Dutch painter and voyager, who during his 1704 trip to the Near East visited Persepolis' ruins. The splendid drawings of them he provided in his *Travels into Muscovy, Persia and Parts of the East-Indies* (1711) have always attracted the attention of Orientalists.

21 A kind of cryptography. Interest in 'secret or 'encrypted' writing was widespread in seventeenth- and early eighteenth-century culture.

22 The German philologist Johann Michael Vansleb (1635-1679) went on missions to Ethiophia on behalf of Ernest the First of Saxonia-Gotha and later, after settling in France, to Egypt on behalf of Louis XIV ("rex Christianissimus"). Leibniz has in mind his *Nouvelle Relation en forme de Journal, d'un Voyage Fait en Egypte par le P. Vansleb, R.D., en 1672 & 1673*, published in 1677.

23 The great German semitist Hiob Ludolf (1624-1704) is probably the most important of Leibniz's correspondents on linguistic topics. The letters exchanged by the two scholars, whose importance is widely acknowledged, were collected and published by A.B. Michaelis unde the title of *Commercium epistolicum* (Gottingae 1755). Ludolf's rich erudite production included, among other things, *Grammatica aethiopica* (1661, 2nd ed. 1702), *Historia aethiopica* (1681), *Grammatica linguae amharicae* (1698), *Lexicon amharico-latinum* (1698).

inde lux hauriri posset. Passim etiam apud Indos orientales, et in aliis orbis locis, incogniti characteres hominum certe (veterum scilicet habitatorum) vestigia reperiuntur, quorum nihil negligi vellem.

Semper tibi pendeat hamus:
Quo minime reris gurgie, piscis erit [24]

Linguae punicae specimen in Plauti *Menaechmis*[25] extat: Josephus Scaliger agnovit punica latinis reddi, et nonnullam linguae lucem attulit;[26] promovit Thomas Reinesius[27] vir magnae doctrinae in Linguae punicae ἱστορουμένοις; sed Samuel Bochartus[28] maxime scenam illam plautinam illustravit, et detexisse visus est binarum ibi linguarum specimina extare, punicae sive phoeniciae a Carthaginis conditoribus illatae, et libycae veteris.

Sed in Europam transeamus. Reperiuntur in Hispania nummi non pauci, characteres veterum Hispanorum praeferentes, quibus scilicet usi erant, antequam a Carthaginensibus et Romanis subigerentur, et quos aliquandiu sub Romanorum Imperio retinuere. Tale quosdam exhibuit Antonius Augustinus,[29] plures nostris fere temporibus Johannes de Lastanosa,[30] vir non vulgaris inter Hispanos doctrinae, libello proprio, in eam rem edito, protulit. Sed magnum eorum numerum habet cl. Baryus vir insignis, et diu apud Hispalim batavae nationis Consul. Cum autem et non raro reperiantur nummi signati

24 The quotation is from Ovidius, *Ars am.* 3.425-6.

25 Memory has apparently failed Leibniz, who knew Plautus's comedies well. Indeed, it is in *Poenulus* (Act V, vv. 930-49) that we find the famous passage in the Punic language, extensively discussed by philologists and historians in the seventeenth century.

26 Leibniz is probably referring to Joseph-Juste Scaliger's (1540-1609) *Opus de emendatione temporum* (1598). In the Appendix titled *In Fragmenta Notae*, p. XXVII, Scaliger provided a translation of two Punic words quoted in Plautus's *Poenulus*. The great Italian scholar also suggested that the Punic language had nothing to do with Arabic, but showed striking affinities with Hebrew. See his *Epistola ad Stephanum Hubertum* in Scaliger: "At Plautinae Poenuli dialectus parum à puritate Hebraismi abest" (no. 362; 1627, 701).

27 The German physician and philologist Thomas Reinesius (1587-1667) had authored *Istoroumena linguae punicae* (Alternburg 1637), to which reference is made here. With respect to the controversial question on the relationship between Punic language and Arabic, he agreed with the "perspicacissimus Scaliger" (1637, caput XII, § 7); see also above, fn. 26.

28 Samuel Bochart's (1559-1667) *Geographia Sacra* (1646) was another monument to Baroque erudition, and was constantly referred to by historians and philologists. What Leibniz has in mind, here, is the *Pars posterior*, book II, ch. 6.

29 The Spanish bishop Antonio Augustin (1517-1587), a pupil of the Italian jurist Andrea Alciati, was well-known, among other things, for his interests in the field of numismatics. Leibniz had seen his posthumous *Diálogos de medallas, inscripciones y otras antigüedades* (I have access to a later, 1744 edition).

30 Refer to Vincencio Juan de Lastanosa's (1607-1681) *Museo de las medallas desconocidas españolas* (1st ed. 1645).

eisdem figuris, nunc latinas nunc hispanicas notas praeferentibus, et vocabula interdum sint nomina propria hominum aut locorum, non desperem, aliquando veteris scripturae hispanicae alphabetum inde constitui posse. Frustra fuere, qui runicos characteres in Hispanicis quaesivere, quasi Gothi intulissent; longe etiam vetustiores sunt hi nummi Gothorum irruptionibus.[31]

Ipsam linguam veterum Hispanorum biscainae vel vasconicae similem fuisse credibile est, quae sese in asperrimis montibus contra Romanos, Gothos, Saracenos tueri potuit. Et credibile est hanc linguam etiam se non nihil per vicinam Galliam, Aquitanicam scilicet, et Narborensem diffudisse, sed a celtica, id est gallica vetere, et germanica longe diversam esse apparet.[32]

Passim in Italia reperiuntur inscriptiones, charactere hetrusco, nemini intellecta sed non ideo probae quod a viris praeclaris, alias inscriptiones edentibus, neglectae plerumque sunt atque suppressae. Et si enim nihil in iis intelligamus, non ideo subtrahendae fuere inquisitioni posteritatis. Tabula Eugubina quam Bernardinus Baldus[33] commentario illustravit, viri doctis suspecta habetur: Curtii autem Inghurami *Etruscas antiquitates* plane fictitias esse constat,[34] et justissimam in eos censuram Leo Allatius exercuit.[35] Celtarum id est Germanorum Gallorumque veterum characteres nuspiam

31 Its is likely that Leibniz is referring to the Danish scholar Ole Worm (Wormius) (1588-1654), whose *Antiquitates Danicae* (1651) included ill-founded opinions on the origins of the runic alphabet. See A I 17, no. 261. In taking this stance on the alleged influence of the Goths, Leibniz was drawing on his own personal conclusions about the history of German peoples. Refer to his *Dissertatio de origine Germanorum* (currently ascribed to 1697) for further details (D IV 2, 198-205).

32 On many occasions Leibniz suggested that the Basque language bore no visible relations to other linguistic families. For instance, in the classification of European languages he put forward in *ED*, § 11 (1991: 210), where he correctly identified a (Neo-)Latin, a Germanic, a Slavic group etc., Basque is presented as an isolated case.

33 The Italian mathematician Bernardino Baldi (1553-1617) was also known for his antiquarian interests. Reference is made, here, to Baldi's interpretation of one from a set of seven *tabulae* discovered nearby Gubbio in the mid-fifteenth century. (The *tabula* on which Baldi commented corresponds to the fourth one of today's editions). The language they are written in is Old Umbrian, but the Italic alphabet used for the first five was mistaken by Baldi for the Etruscan one. This circumstance sparked a long debate, which was to last up to the eighteenth century, on the false premise that they were a valuable document pertaining to the mysterious Etrurians' language. Baldi's booklet, titled *In tabulam aeneam eugubinam lingua hetrusca veteri perscriptam, divinatio*, was published in 1613.

34 The Tuscan archaeologist Curzio Inghirami (1614-1655) had published his *Etruscarum Antiquitatum Fragmenta* in 1637. The documents were a real forgery, which aroused great curiosity and attracted severe criticism.

35 Leone Allacci (1586-1669), a scholar and a librarian, was one of the prominent polygraphs of the seventeenth century. In 1669 he was appointed keeper of the Vatican Library. His *Animadversiones in Antiquitatum Etruscarum Fragmenta ab Inghirami*o edita (1640) were aimed at demonstrating Inghirami's "insignem fraudem".

habentur. Loquor autem de temporibus, quibus Romani in Galliam Germaniamque irrupere, graecis literis Gallos veteres passim usos constat, propriarum literarum nulla vestigia extant, nullas tamen omnino habuisse asseverare minime ausim. Linguam Gallorum veterum affinem ei fuisse, quae in Britannia minore, et in Britanniae majoris partibus superest, ibique wallica ab anglo-saxonicis gentibus appellatur, post tot argumenta insignium virorum dubitari amplius non debet.[36]

Re diligentius considerata, Gallorum veterum linguam non eandem quidem germanicae ut princeps geographorum Philippus Cluverius existimabat,[37] sed tamen valde cognatam fuisse reperio; ita ut adhibitis praesertim veteribus Germanorum vocabulis, inspectisque originibus, semigermanicam appellare ausim, vel ipsius wallicae sive aremoricae indicio. Nempe una olim magna gens ante historiam memoriam a Tanai, Danubio, et Scythia veniens per Germaniam Galliamque se diffudisse videtur, scissaque fuit in dialectos, quae locorum admistisque aliis populis in diversas ut fit linguas abiere; et cum pars migrantium a Danubio et Thracia [in] Graeciam penetraverit, tam multa graeco germanicoque sermoni communia esse mirum adeo videri non debet.[38]

Celtas (id est germanicas gallicasque gentes) Italiam incoluisse ante Graecorum adventum res ipsa loquitur. Gentes enim (et si contradicat Tacitus)[39] terra facillime, mari difficulter et serius propagabuntur; cum navigandi ars sero innotuerit, itaque lingua latina ex celtica graecaque compos[i]ta est. Et quo antiquior est celtica, hoc melius latinas origines ex ea illustrari posse putem.

Et cum insulae et peninsulae colonos accipere soleant ex vicino

36 The passage is consistent with Leibniz's well-grounded opinion that the languages at issue formed a single, Celtic family. See, e.g., *ED* § 11 (Gensini 1991, 211). Further detail in his 1710 *BD*.

37 Leibniz is referring to the German historian and geographer Philipp Clüver (1580-1622), the author of *Germaniae Antiquae libri tres* (1616). Widening the traditional concept of 'Celtic', Clüver had suggested that all peoples included under that label in essence spoke the same language: "Illyrios,Germanos, Gallos, Hispanos, atque Britannos, unam eandemque inter se habuisse linguam, variis tantum dialectis distinctam etc." (1616, I, 49).

38 In this passage Leibniz summarizes concepts extensively expressed in the *Brevis designatio* (1710). Following the steps of Jornandes, who had described Scythia as a "vagina gentium", the philosopher suggested that Europe had been populated by means of a big migratory process which had begun in the east and gradually expanded westward, reaching the Atlantic Ocean, with ramifications to the north (Scandinavia) and south (Greece-Italy). Over time, and depending on the place, the original Scythian tongue had divided itself into a number of languages and their dialects, corresponding to the language families of the present day. For details on Jornandes's view, see his *De origine actibus Getarum* (Jornandes 1872, chap. V) and below, fn. 41.

39 See Tacitus, *Germ.* 2: *quia nec terra olim, sed classibus advehebantur qui mutare sedes quarebant* etc.

continente, consentaneum est, quemadmodum Angli hodierni Britanniae incolae nobis antiquam Saxonum linguam melius saepe referent quam ipsi Saxones hodierni, ita antiquos Britanniae incolas, quos Wallicos dicunt, multo antiquiorum Oceani germanici gallicique incolarum (Cimbrorum fortasse pro parte, unde et Cimbros sese vocant) linguam representare.

Hebraeos vero antiquiorum his Britannorum colonos per hos veluti patres indicare avos suos, antiquiores adhuc Cimbris ipsis Celtas cismarinos, ad tertiam ut sic dicam celtismi generationem. Ut ita in Hibernis non Celtae Caesari contemporanei [,] imo nec horum ut sic dicam patres, ut a Britannis Caesari contemporaneis; sed Britannorum Caesari contemporaneorum patres et Celtarum Caesari contemporaneorum avi quodammodo nobis exhibeantur. Per patrum autem vel avorum gradus hic intelligo non hominum, sed nationum generationes sive propagationes, qualis fit, quoties gens aliqua per magnam migrationem exundat.

Unde incogniti veterum Hispanorum et Hetruscorum characteres orti sint non constat; ex Oriente (an per Phoenices?) profluxisse suspicio est. Sed quae postea in Europa visa sunt alphabeta et hodieque ex monumentis noscuntur, germanicarum scilicet slavonicarumque gentium; omnia ni fallor ex literis graecis romanisque sunt formata.[40] Post eos qui graece, latineque scripsere nullus extat in Europa scriptor antiquior autore libri, qui *Codex Argenteus* appellatur, et fragmentum versionis sacrorum Evangeliorum continet ex Werdensi Westphaliae monasterio perantiquo in Sueciam translatus, nunc Upsaliae servatur, antiqua dialecto Germanica Scriptum esse dubitari non potest. Viri docti hactenus ad Ulphilam[41] et Gothos Danubio vicinos retulere, meo judicio recte, etsi celeberrimus et de literaria septentrionali meritissimus vir Georgius Hikkesius[42] novissime dubitaret, et ad Francos vel aliam teutonicam gentem propriorem haec referre maluerit, credo quod sibi persuadere non posset Gothos

40 As always, Leibniz did not allow himself to be misled by nationalistic prejudices and guessed the most historically plausible solution, often confirmed by later investigation.

41 The Gothic bishop Ulfila (or Wulfila, ca. 311-ca. 383) played an important role in the history of Germanic languages, because of his translation of the Holy Scripture. What remains of his work can be read in the famous *Codex argenteus* (the name comes form the silver ink used in its compilation), which was found in the Benedictine Monastery of Essen, in the sixteenth century. This valuable code is now preserved in the University library of Uppsala.

42 A clergyman and scholar, the Englishman George Hickes (1642-1715) devoted himself to the investigation of Anglo-Saxon antiquities. The "very recent" book being referred here is Hickes's *Linguarum veterum septentrionalium thesaurus grammatico-criticus et archæologicus* (1705), which Leibniz extensively discussed in his still unpublished *Observata quaedam occasione Thesauri linguarum septentrionalium Hikkesiani* (1711?), in Hann. Ldb. Ms. IV 441, ff. 3-14. On the 'German' character of the Gothic language, see esp. p. 1*r*, 3*rv*.

usque adeo teutones fuisse. Sed nomina veterum regum Gothorum nil nisi teutonicum spirant, et librum pertinere ad gentem Graeciae vicinam res ipsa loquitur, quia non latinam *Vulgatam*, sed graecos fontes interpres sectatur; et alphabetum ipsum manifeste ex graeco formatum est, sed populos teutonicos a Graecia remotiores literis ex romano alphabeto corruptis usos constat, et in Scripturae Sacrae interpretatione latinos magis sequuntur. Itaque Codicis Argentei autorem, Ulphilam vel Wulfilam, Gothorum episcopum habendum censeo, jam veteribus celebratum quod etiam literas Gothis dedisse dicatur.[43] Quam rem ita interpretor, ut in ordinem modumque redegerit literas, quae jam ex Graecis corruptae a gente ac vicinis per commercia usurpabantur; quod etiam de russorum characteribus (etsi posterioribus) intelligo, quorum Cyrillus quidam autor habetur unde Cyrillici appellantur.

Post *Codicem Argenteum* proxima antiquitate monumenta literaria europaea, de quorum aetate constet, sunt anglo-saxonica, nam Walli proprias literas non habent et quae afferunt vetera fragmenta suae linguae sunt incerti aevi. Runicorum etiam aetas incerta est. An vero Angli vel Saxones suas literas in Britanniam secum attulerint, an a Britannis didicerint, non dixerim. Si Caedmonis esset, quod Franciscus Junius edidit anglo-saxonicum specimen, antiquissimum foret,[44] sed Hikkesius merito dissentire videtur.

Illud credibile est circa eadem tempora literaturam romanam paulatim in Septentrionem ultimum pervasisse et in Scandinavia runas peperisse. Nam ex literis romanis maximam partem corruptas apparet, neque nullum est monumentum runicum, unde colligi possit magna antiquitas; plerasque cruces pr[a]eferunt et Christianismum;[45] vix habebuntur de quibus certo pronuntiari possit Caroli M[agni] aetatem praecessisse, etsi antiquiora esse alia non negem, sed quae non dignoscuntur. Salmasius runas etiam nomen a Romanis habere conjectabat,[46] non sane inepte: sed opponi tamen possunt aliorunae Jornandis, id est gothicae, foeminae sagae sive magae, arcanorum

43 Other scholars (such as La Croze) believed that the language commonly called 'Gothic' instead had French origins. See David Wilkins's considerations on this delicate point in his *Preface* to Chamberlayne (1715, 2*r*-3*v*).

44 The German François du Jon (Franciscus Junius, 1591?-1677), a pioneering personality in the history of German philology, published *Caedmonis monachi paraphrasis poetica Genesios ac praecipuarum sacrae paginae historiarum, abhinc annos M.LXX. Anglo-Saxonice conscripta, et nunc primum edita* in Amsterdam in 1655. Caedmon, a seventh-century Anglo-Saxon poet, authored a short prayer (known as *Caedmon's Hymn*), which is counted among the early documents in Old English.

45 The sign of the Cross.

46 The Frenchman Claude Saumaise (1588-1653), an outstanding antiquarian and Hellenist, had explained his opinion in a famous passage of his *De hellenistica commentarius*: "Nam forma earum [scil. Runicarum] ex Graecis omnino efficta & expressa detur. Nisi quis potius putet a Romanis imitatas, & inde dictas Runicas quasi *Rumicas*, id est

magicorum, ut credebatur, compotes;[47] et *raunen* Germanis est loqui, ratiocinari, consussurare; consentiunt *reim*, *rythmus*, *rime*, ἀριθμός numeri, nam ligata erant numeris secretiora verba, et magi excantare dicebantur: et cum literae inter Barbaros initio arcanae essent, arcanarum notarum appellatio literis mansit, etiam cum publicae esse coepere. *Aliorunae* appellatio hodieque Germanis superest, et de re magica usurpatur, et plantis ἀνθρωπομόρφοις, qualis mandragora habetur, tribui solet: sed fraudes sunt circulatorum ex radice bryoniae formari figurae creduntur.[48]

Alphabeta hodierna europaea omnia ex latinis formata sunt, demtis duplicibus sclavonicis, uno cyrulico, alterum (ut parum apte vocant) glagolitico, quae ambo magis ad graecos fontes accedunt.[49] Male hoc posterius nonnulli Autori S[ancto] Hieronymo gente illyrio tribuunt falsa persuasione linguam veterem illyricam ex sclavonicarum genere fuisse: sed Slavi sero in Illyrium venere, nec ante Justiniani M[agni] tempora veteres Illyrii erant celtici generis, linguaque ut arbitror, germanicae gallicaeque nonnihil cognata utebantur. Et credibile est ejus reliquias in peculiari quadam lingua Epirotarum hodierna superesse, cujus specimina edita vidi.[50] Slavonicam linguam hodie illyricam vulgo vocant, quod Slavi in Illyrio consedere. Quae nunc notarum literiararum genera apud Indos habeantur, docent viri docti qui res indicas tractavere et in primis egregius Lalovera[51] siamensi legatione clarus, et alia multiplici eruditione etiam mathematica

Romicas. Licet etiam a Graecis Constantinopolitanis, qui Romaioi Ῥωμαῖοι proprie appellabantur, Rumicas dictas opinemur" (1643: 382).

47 Leibniz is referring to Jornandes's *De origine actibusque Getarum* (= Gothorum; a.D. 551?), a historical compilation based on a much larger, but unfortunately lost, work by Cassiodorus (ca. 485-ca. 580). The reference to the *Haliurunnas*, "foeminae […] sive magae", quoted by Leibniz is included in the chap. XXIV. Later on, in chap. LI, Jornandes speaks of Ulfila as of the man who taught Goths the alphabet. The long and complicated debate on the issue of the Gothic language and runes was initiated by the important book *De litteris et lingua getarum sive gothorum* (1597) by the Dutch humanist Bonaventura Vulcanius (1538-1614).

48 Even today it is widely believed that the root of the plant called bryony resembles a human arm.

49 The Glagolitic alphabet was introduced in the ninth century by the Bizantine monks Cyril and Methodius. Modelled after the model of the Greek cursive script, this alphabet preceded Cyrillic, which in the course of time superseded it, ultimately spreading throughout the Slavic world. The Glagolitic alphabet, however, was to survive among the Croats, who followed the Roman rite.

50 The "Epirotica lingua" corresponds to the Albanian language. Leibniz was indebted to his friend La Croze for information and records concerning it (see above, fn. 11).

51 Simon de la Loubère (1642-1729), a French mathematician and diplomatic, and a correspondent of Leibniz was sent by King Louis XIV to Siam (present-day Thailand) in 1687. From this experience he derived the travel book *Du Royaume de Siam* (1691), that enjoyed international renown and was soon translated into English. The "Indian things" being referred to by Leibniz include information about time measurement and astronomy in the East Indies. They can be found in the second section of the book.

insignis. Tartari orientales, qui Sinarum Imperio potiti sunt, peculiari habent scribendi genus, quod ad pronunciationem quidem, non plane ad Alphabetum revocatur; ediditque aliquod ejus specimen vir variae magnaeque doctrinae Melchisedec Thevenotus,[52] Bibliothecae regiae Parisinae praefectus.

Postremo Sinenses ipsi tanquam alterius orbis homines et linguas habent et scripturam toto caelo a nostris diversas. Lingua eorum verbis constat paucis sed velut musico cantu mirifice variatis: scriptura autem ad pronunciationem plane non refertur, sed ad ipsos rerum significatus. Unde eadem scriptura a diversis non in diversis tantum linguis, sed in eadem etiam lingua diversimode legi potest, ita ut verbum verbo (vel potius notae) non reddatur. Et eum fere in modum chymici apud nos suos quos vocant processus, suasque formulas scribunt, nisi quod passim vocabula linguae quisque suae admisceat.[53] Eundem in modum Petrus Herigonus[54] ex Societate Jesu *Cursum Mathematicum* dedit, qui apud diversas gentes legi posset. Japanenses certe Sinensium notis utuntur etsi diversissima sit lingua.

De caetero in meis quoque schedis non nulla erunt, quibus augeri fortasse Orationum Dominicarum syllabus posset,[55] sed nunc ab iis remotus ago, et nihil eorum te, vir celeberrime, fugere arbitror. Vir eminentis doctrinae Eduardus Bernardus tabulam alphabetorum harmonicam aere expressam in publicum miserat,[56] in quam commentarium pollicebatur. Utinam ille inter schedas affectus extaret, aut a viro paris eruditionis suppleretur. Idem de Jobi Ludolphi magni viri promisso Πολυγλωττάτου dixerim, qui commentario rerum aethiopicarum tabulam addere pollicitus fuerat, qua cuique alphabeti

52 Leibniz is referring to the French orientalist Melchisédech Thévenot (1620?-1692), also a reputed cartographer and a voyager. Among other things he published a *Recueil de voyages* […] *dedié au Roi* (Parigi, 1681). The sample (*specimen*) quoted above should be the Malabaric alphabet published as an appendix to Thévenot's *Voyages de Mr. De Thevenot contenant la Relation de l'Indostan, des nouveaux Mogols, & d'autres Peuples & Pays des Indes* (1684, 264-5).

53 The topic of Chinese characters and their relation to the spoken language is a recurrent one in Leibniz's writings. Suffice it here to remind the reader of his 1697 collection *Novissima sinica*, as well as of his correspondence (1697-1707) with the French jesuit Joachim Bouvet (1656-1730), who spent about forty years at the court of the Chinese emperor Kangxi.

54 Leibniz is referring to the French mathematician Pierre Hérigone (ca.1580-1643/4), who made large use of symbols in his *Cursus mathematicus* (6 vols, 1632-42).

55 The posthumous *Collectanea Etymologica*, edited by Leibniz's former secretary Johnann Georg Eckhart in 1717, include further versions of the *Pater noster* in languages such as Samoyed, Mari and Mongolian. Leibniz had received these valuable samples from his friend and correspondent Nicolas Witsen (1641-1717) in the years 1697-98. See *CE* II: 361-84.

56 The Englishman Edward Bernard (1638-1697), Professor of Astronomy at the University of Oxford, had included a synopsis of all the known alphabets in his *Orbis eruditi Literatura a charactere samaritico deducta* (1689).

latini literae diversae pronunciationes ascribi debebant, quas apud diversos populos habet.[57] Sed nescio quam ob causam edere distulit, quo factum est ut utilis labor plane interciderit; putem tamen non difficulter ab alio restitui posse nec incommode tale quiddam tuo labori adjiceretur. Quod superest vale, et rem bene gere. Dabam Viennae Austriae, 13 Januarii 1714.

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CE = *Collectanea Etymologica, illustrationi linguarum, vetersi Celticae, Germanicae, Gallicae, aliarumque inservientia. Cum praefatione Jo. Georgii Eccardi*, Hanoverae, sumptibus Nicolai Foersteri. (Reprographischer Nachdruck der Ausgabe 1717, Hildesheim-New York, Georg Olms Verlag 1970).

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Leibniz Lectures (Spring 1947)

Peter Frederick Strawson

[1] Leibniz occupies a peculiarly central position in philosophy. By that I don't mean that his philosophical doctrines represented a compromise. On the contrary, he was an uncompromising rationalist – the most interesting and powerful and suggestive of all the rationalists. I mean that he was a central figure in the sense that on the one hand so many diverse strains of thoughts entered into his philosophy and were transformed and combined into a highly coherent and entirely characteristic whole: and, on the other hand, so many diverse strands of thought issued from that philosophy – the germ of so many later developments, even modern contemporary developments, can be found in his thinking. He was born in the middle of the 17th century four years before the death of Descartes, and the philosophical atmosphere of his maturity was predominantly Cartesian: even though he had points of contact with Descartes, he also reached back beyond him to the Scholastic philosophers, against whom Descartes had so vigorously reacted, for some of his central ideas. In his early 30s, he met and talked with Spinoza, shortly before the death of the latter: his thought has important affinities with that of Spinoza, and also important differences: and, since Leibniz was a politic personage, and Spinoza was universally execrated as an atheist and one who denied free-will, Leibniz took care to emphasise the differences and play

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down the affinities. Leibniz and Locke were roughly contemporary: Leibniz wrote what he called the "New Essays" on as a criticism of Locke's "Essays on the Human Understanding" – using Locke's ideas, as he **[2]** used everyone's, as an instrument, a grinding-stone, for sharpening and emphasising his own. Not only was Leibniz central in relation to *other philosophical* thinkers, using their thoughts as an instrument for shaping and perfecting his own; but also in relation to all the intellectual debates of his time: he displayed an astonishing versatility and universality in his intellectual interests, weaving into the fabric of his thoughts the various strands of mathematics, logic, physical sciences, psychology and theology. If a philosopher is one who is able to synthesise the preoccupations of all these different kinds of thinking, to unify them all into a single coherent picture of the world, then Leibniz was pre-eminently a philosopher. In mathematics, he discovered the differential calculus independently of Newton; in logic, though he took over much uncritically from the Scholastics, he also anticipated the most modern developments and some contemporary doctrines that are still controversial; he used his knowledge of physical sciences, notably dynamics, to refute Descartes; from the standpoint of psychology he criticised Locke and, in doing so, anticipated modern ideas of unconscious mental events; he argued with all the notable theologians of his day and one of his ambitions was to bring about the union of the Churches (Protestant and Catholic). To all these questions he had his answers: and all these answers contributed to the harmony of his metaphysical system as a whole. Indeed this need for harmony, displayed both in his desire to heal religious dissension and in his blending together of all these so various activities of the mind, is perhaps the most important psychological determinant of the character of his metaphysical system.

[3] He wanted unity, harmony, concord: a system in which everything should contribute to a single end. If it wasn't obtainable in the world, at least he could make a model – an intellectual model – in which harmony should be realised; and then try, with untiring persuasiveness, to present it to his contemporaries and to posterity as a true model of reality.

This desire to persuade, so characteristic of Leibniz, had one consequence which, from our point of view, is regrettable: and which is the source of much difficulty in the study of him. Although his system is unusually coherent, he never wrote a single systematic work expounding it. There is no single systematic text which we can sink our teeth into, and out of which we can hope to extract all the essential elements of his thought. He corresponded at enormous length with individuals on some one or other particular aspect of his system, indicating its relation to the whole, but stressing those arguments which were most likely to convince or appeal to the particular correspondent in question. Of these letters, the "Letters to Arnauld" (which deal

largely with the logical foundation of his system) and the "Correspondence with Clarke" (largely on the subject of space and time) are perhaps the most important. He wrote papers for the learned periodicals of his day, and conducted in print endless controversies arising out of them. Of these "The New System of the Nature & Communication of Substances" is the most important. The "New Essays on the Human Understanding", which I have already mentioned as written in criticism of Locke, Leibniz wrote for publication, but never actually published: they were not printed until after his death. **[4]** Finally, in addition to his private correspondences with learned persons – into which went much of his best work – Leibniz was always prepared to turn out a short tract for a prince or a princess with intellectual leanings. In these he tended to paint his system in bright colours, likely to appeal to the princely eye – and to leave out the difficult bits which made it worth while. It is to this "readiness to oblige" the aristocratic that we owe the most famous of Leibniz's works – "The Monadology" – which, as Bertrand Russell remarked – reads like "a kind of fantastic fairy tale, coherent perhaps, but wholly arbitrary". To the same class belong "The Principle of Nature & of Grace" and "The Ultimate Origin of Things". All these, of course, were published after Leibniz's death. At no time, however, did he take the step, which would have saved subsequent students such a lot of trouble, of writing a single comprehensive treatise fully expounding all his views and the reasons for them.

The practical point of all this, of course, is that, if we have only limited time, we have to study Leibniz in selections. So it is necessary for me to say a word about books. The two most convenient and readily available editions in English are (1) *The Everyman Edition* edited by Morris and (2) the Oxford selection edited by Latta. Of these two, the Everyman edition is greatly to be preferred, since it includes some of the correspondences – particularly a selection of the letters to Arnauld & Clarke – which is not to be found in Latta. Latta, however, has a very comprehensive introduction and notes. Best of course to have both. **[5]** Of critical works and commentaries of I will mention. (1) Latta's introduction; (2) Russell: *The Philosophy of Leibniz*; (3) H. W. Carr *Leibniz*. Of these by far the best and also the most difficult, is Russell's *The Philosophy of Leibniz*; the worst is Carr. I will also mention, for further reading, the chapter on Leibniz in Russell's *History of Western Philosophy*.

Now a few words about the course I shall trace out in these lectures. As I have already remarked, mathematics, logic, physical science, psychology and theology all played their part in shaping Leibniz's thought. Commentators have wrangled over which of these aspects of his thought was fundamental, and which were subordinate to this fundamental aspect. If this question means – which did Leibniz regard as most important? – then I think the question is probably unanswerable, and I don't think the answer is of very great im-

portance. But if the question means: – which is the best point of view to take in order to understand the *structure* of Leibniz's thought, to see how his various doctrines are related together, then I think there is no doubt at all about the answer. I think we must agree with Russell that his logical doctrines are the bones and framework and skeleton of his system and that we must understand the orientation of these elements before we can grasp the shape of the system as a whole. By his logical doctrines, I mean essentially: his analysis of propositions in accordance with the subject-predicate logic; his division of propositions into necessary and contingent; his use of the Law of Identity and the Principle of Sufficient Reason; and his conception of substance as related to his conception of the logical subject of **[6]** a singular contingent proposition. Once we have mastered the articulation of the logical bones of the system, we can clothe them with the flesh of his metaphysical doctrines. However, I shall not talk about Leibniz's logical ideas straight away. (1) First of all, and by way of introduction, I shall try to sketch briefly what he meant by the monad, the Leibnizian unit reality; and what some of his non-logical reasons were for thinking that there must be such entities and that they were the ultimate constituents of the universe. This introductory sketch of Leibniz's modification of the conception of substance will make up the first, short part of my lectures. (2) Secondly, I shall deal with those logical doctrines I mentioned, examining each one in turn and showing how it contributes to the construction of the system as a whole. (3) I shall outline the resulting picture of the universe. (4) I shall show how particular problems like those of time and space; perception; the union of soul and body; theory of knowledge; theology and ethics all fall into place in the Leibnizian scheme of things. I shall criticise and expound at the same time: the two can scarcely be separated if one is seeking to understand a philosopher.

First of all, then, to obtain some idea of what Leibniz meant by simple substances or monads, and why he thought such entities must exist as the ultimate constituents of reality. Incidentally, we shall see why he rejected the Cartesian conception of material substances as essentially that which is *extended* in space. We **[7]** might take as our text the first three paragraphs of the *Monadology* –

1. "The Monad, of which we shall here speak is nothing but a *simple* substance which enters into compounds. By 'simple' is meant, without parts.
2. And there must be simple substances, since there are compounds; for a compound is nothing but a collection or aggregation of simple things.
3. Now where there are no parts, there can be neither extension nor form, nor divisibility. These Monads are the real atoms of nature, and in a word, the elements of things".

This is an extremely compressed statement: in order to elucidate it we must turn elsewhere in Leibniz's writings. The passages to which I principally direct your attention are certain of the Letters to Arnauld [pp. 77-83 in the Everyman edition] and the first few pages of the "New System" [pp. 97-104 in the Everyman edition]. Now this compressed passage I have just quoted makes three fairly definite statements:

1. The existence of simple substances is implied by the existence of compounds, collections, aggregations.
2. Simple substances are non-spatial (i.e. they have neither extension, nor form, nor divisibility – *they have no spatial parts*).
3. They are the *real* elements of nature, and everything else is made up of them.

Notice that these conclusions, if the argument really establishes them, are very remarkable: indeed startling. The premiss is that there exist objects which Leibniz refers to as "compounds, collections, aggregates": the conclusion is that there exist a different kind of objects which have no parts, **[8]** are non-spatial, and are real in a sense in which the first kind of subjects are not real: in fact, the first kind of objects really consist of collections of objects of the second kind.

How does Leibniz argue for this conclusion? Clearly a lot depends upon what he means by "aggregates, collections, etc." He says over and over again, in the Letters to Arnauld: where there are aggregates there must be things which are not aggregate but true unities. Where there are entities whose unity is merely the manner of existence of certain other entities of a different type, then there must *be* entities of the second type in order for there to be entities of the first type. In his own words:

> It appears that what constitutes the existence of an entity by aggregation is nothing but a manner of existence of the things of which it is composed; for example, what constitutes the essence of an army is simply a manner of existence of the men who compose it. This manner of existence, then, presupposes a substance whose essence is not the manner of existence of a substance. (79)

The example helps to make the meaning clear. An army in nothing but a collection of men organised in a certain way. The army is not an entity having an independent existence: it is just a "manner of existence" as Leibniz puts it, of entities of a different type altogether, namely men. It is *convenient* to speak of it as if it were a single thing: but it is not *really* a single thing, but a multitude of single individuals. In modern logical terminology, we should say that the entity "ar-

my" was a logical construction out of individuals: Leibniz says much the same thing when he calls such **[9]** entities "fictitious" – "fictions of the mind" (83), "entities of reason" (78). If we consider how such entities as a heap of stones or the Dutch East India Company, to take two of Leibniz's examples – or a stamp-collection or a class of students to suggest two of our own – we can see, I think, that they are all entities of this kind. They are all *collections*: and any such collection can exist *only* if there exist entities which are *not collections of the same kind as that collection*. I.e. a stamp collection can exist only if there exist entities which are not themselves stamp-collections, namely stamps: an army can exist only if there exist entities which are not themselves armies, namely *men*: a heap of stones can exist only if there exist some things which are stones and not *heaps* of stones. Let us note down a list of those things whose existence implies the existences of other kinds of things; and a list of the kind of things whose existence is implied in each case, in order to see what we can notice about them.

[1] Collection	[2] Members
stamp-collection	a stamp
a heap of stones	a stone
a class	a student
an army	a man
[Type *n*+1]	[Type *n*]

Now I think it is very obvious that between the entities mentioned in the first list and the entities mentioned in the second list, there is a special kind of *relation* which is sufficiently indicated in the headings I have given to the two lists: the relation between a class or collection and a *member* of that class or collection. And I think it is **[10]** also obvious that any collection or class is a different *type* of entity from anything which is a *member* of that collection or class. We might express this by saying that the members are of a more *ultimate* or *basic* type than the classes: we might express this quasi-mathematically by fixing a number to anything which is a member of a certain class and a higher number to the class of which it is a member: if a stamp, or a man, for example, belongs to a type of order *n*, then a stamp-collection or an army belongs to a type of order *n*+1. This seems to have taken us some way from Leibniz. But it hasn't really. It helps us to see exactly what he is asserting or what he is *justified* in asserting when he says that the existence of an aggregate implies the existence of something which is not an aggregate. If he means merely that the existence of an aggregate implies the existence of something which is not an aggregate of the *same type or order*, we

may agree. The existence of any entity of type *n*+1 implies the existence of some entities of type *n*. An army can't exist without soldiers or a stamp-collection without stamps or a class without students. If an aggregate is defined as a collection, as something which has numbers, we can certainly agree that the existence of an aggregate implies the existence of some entities which are of a lower type-number than that aggregate, namely its members. But we cannot agree that the existence of aggregates enables us to infer the existence of some things which *are not aggregates at all*. **[11]** "*x* is of order *n*+1, has members, and exists" certainly enables us to infer "There are entities of orders *n* which are members of *x*". But it certainly does not enable us to infer: "There are entities which have no members". The existence of the United Nations Organization, for example, – an entity, let us say, of order *n*+1 – implies the existence of entities of order *n* – namely nations. But it does not imply that nations are not themselves collections having members of a still lower order, *n*–1 as in fact of course they are. No argument has been produced, in fact, to show that the series *n*-1, *n*-2 etc. must have an end: it might be infinite like the series of fractions between 0 and 1.

Nevertheless, although no argument has been produced to show that there must be entities which are not aggregates at all, there seems to be something quite plausible in this assertion. The mind shrinks from infinite series. And we can uncertainly agree that Leibniz has proved one point: namely that if any collection exists, some things of a lower type, a more fundamental type than that collection, must exist, namely its members. How does Leibniz use this argument to show that simple substances much be without parts in the sense of "non-spatial"? – First of all, remember that Leibniz has not yet succeeded in showing even that there must be entities which are not aggregates, in the sense of collections. He *has* shown that if there are collections, then there must be entities or a more fundamental type which are members of these collections: This **[12]** is indeed tautologous. But he has *not* shown that there must be some *members* of collections which are not themselves collections or aggregates. But although he has not shown this, we are prepared to regard it – as I say – as a plausible assertion, since we tend to shrink from the prospect of an endless series of collections of collections. We like to believe, as Leibniz liked to believe, that there are genuine unities to be found somewhere. Let us assume then for the moment that the assertion there exist entities which are simple substances (in the sense that they are not collections [or aggregates] of entities of a different type from themselves) – let us assume that this is a true and significant assertion.[1] How do we get from here to the conclusion that they

1 Question this "significant" later.

are non-spatial? That what is simple in the sense of not being a collection of entities of a different type from itself, is also simple in the sense of not having parts? There is only one way of getting from the one conclusion to the other: and that is, by making a mistake. This mistake Leibniz made. Anything extended, he said, is *as such* an aggregate because it is divisible. If everything extended is an aggregate, and no simple substances are aggregates, then it follows – with syllogistic certainty – that simple substances are not extended. That is to say, they have no spatial parts: they are non-spatial

If this conclusion was sound, then, besides being startling in itself, it at once exploded two respectable philosophical theories about the ultimate constituents of the universe, by both of which **[13]** Leibniz himself had been influenced, as he remarks in the "New System". First, it exploded the old atomic materialism, which had a classical ancestry in Greece and according to which the universe consisted of small material particles – atoms – whose relative motions produced the phenomena with which we are acquainted; since material particles, however solid and resistant and impenetrable in fact, *had parts*; they were divisible in thought; and therefore, if the Leibnizian hypotheses were correct, would not be the simple substances, which were the ultimate constituents of reality. Secondly and even more decisively, it exploded the fashionable Cartesianism according to which matter, whose essence lay in extension, in divisibility, was one of the ultimate substances: a position which, as you will remember, it shared with minds, or spiritual substances, whose essence lay in thought. The consequences of Leibniz's argument, then, if it was sound, were philosophically revolutionary at this time. Unfortunately the conclusion that simple substance is not spatial and has no parts, does not follow from the previous conclusion that no aggregate is a simple substance. For the sense of "aggregate" in which Leibniz had shown that no aggregate was a simple substance was the sense in which an aggregate may be defined as a collection of entities of a different type from itself (as stamps are of a different type from a stamp-collection and men are of a different type from armies). Leibniz, as I said, based the next step of his argument on the premiss: "Everything which has parts and is extended, is, *as such*, an aggregate." And this, of course, is the **[14]** mistake. Certainly what is extended *has parts*: That is another tautology. And what has spatial parts is divisible, at least in thought. But when you cut a piece of cardboard in half, you do not obtain two entities *of a different type* from the original piece of cardboard. A soldier is an entity of a different type from an army, a stamp is an entity of a different type from a stamp-collection, a student is an entity of a different type from a class. But half a piece of cardboard is *not* an entity of a different type from the whole piece of cardboard from which you cut it. The *mere* fact that an entity is spatially extended and hence di-

visible does *not* show that it is an aggregate in the sense of a collection of entities of a different type from itself. So the mere fact that an entity has parts does *not* show that it is *not* a simple substance, if by simple substances is meant – what Leibniz's previous arguments suggest is meant – viz. an entity that is not an aggregate. The confusion is obvious enough. It is the confusion between the relation of whole and part and the relation of collection and member. Leibniz has been at pains to show that the fact that something is a *collection* with members implies that it is not a simple substance: but, if this is intended as a *definition* of "simple substance", then it simply does not follow that something which is a whole with parts is not a simple substance.

It is important to uncover this confusion for Leibniz has really given us two separate and distinct definitions of substance: (1) as **[15]** that which is not an aggregate (in the sense of a collection with members); second, as that which has no parts. He then used the first definition to try to convince us that there were simple substances and that they were the ultimate elements of reality. We saw that this demonstration was not formally valid since, while the existence of collections does imply the existence of entities which are not collections of *that type*, it does not imply the existence of entities which are not collections at all. Or in other words it does *not* follow from the fact that there are entities which have members, that there are entities which have *no* members. But, although the demonstration was not formally valid, we were prepared to concede as reasonable the assertion that there *were* simple substances in this sense, i.e. entities which were not collections. Now, having used the first definition to persuade (rather than convince) us that simple substances are the ultimate elements of reality, he then uses the second definition to persuade us that nothing extended or spatial is a simple substance. But this convenient exchanging of definitions is not philosophically admissible. On the first definition, we are perhaps prepared to concede as reasonable the assertion that everything either is a simple substance or consists of a collection of simple substances or a collection of such collections. But if the new connotation – non-spatial, without parts – is added to the definition, we are no longer prepared to concede that as even a plausible assertion without some additional demonstration that

> (i) the existence of something with parts presupposes the existence of something without parts (which is not at all obvious)

and **[16]**

> (ii) that that which has parts *really* consists of that which has no parts (which is still less obvious).

But for this no demonstration is offered at all. All that Leibniz's arguments on this point have shown is that the existence of a collection presupposes the existence of members of that collection. They have not shown that the existence of collections presupposes the existence of things which are not collections, though we were prepared to regard that assertion as plausible in itself. Once the confusion of the collection and member relation with the whole and part relation is pointed out, it becomes obvious that the only corresponding conclusion he is really justified in asserting in terms of the second relation is that the existence of something which *has* parts presupposes the existence of the parts. It certainly does not presuppose the existence of anything without parts. Of course, if we adopt the definition of simple substance as that which has no parts, it follows immediately that nothing extended, and hence divisible, is a simple substance. But then there has been no proof that what seems to us extended matter really consists of simple substances in this sense, and indeed as proof that simple substances in this sense exist at all. The assumption that the ultimate constituents of reality are simple substances in this sense is seen for what it is – just an assumption, a postulate – if you like, a definition.

Starting, then, from this assumption – that the real elements of things are non-spatial and consequently have no spatial parts – what other characteristics does Leibniz ascribe to these **[17]** simple substances which constitute reality? The purely negative criterion of having no parts,no spatial magnitude, is satisfied by a *mathematical point* (see "New System" pp. 98 and 103-4). But, as Leibniz quite clearly saw, a mathematical point is purely an abstraction and the hypothesis that the universe consists of mathematical points is absurd. To mention only two of the arguments Leibniz uses to show that this is so. First, *change* would be totally inexplicable <Monadology para. 8>: for since a mathematical point is nothing but a position, it makes no sense to talk of the motion or change of position of such abstract entities. Or to put it as Leibniz did, if – *per impossibile* – motion did occur, the state of affairs after the occurrence of motion would be quite indistinguishable from the preceding state of affairs. But, even more final from Leibniz's point of view, since a mathematical point is defined by its position alone, it makes no sense to talk of the "real existence" of such a point unless the "real existence" of space is presupposed. But space is infinitely divisible, has parts, and is not therefore on Leibniz's view a "real existence". Committed in advance to the view that space is not ultimately real, Leibniz cannot make the ultimately real substance depend for its existence upon space. It is evidence enough, then, that simpler substances must have some positive characteristics in addition to the negative characteristic of "having no parts" or being non-spatial. Where, then, are we to find something which satisfies the negative requirement of

having no spatial parts and yet does exhibit some positive **[18]** qualities? <*26th April*> For the answer, Leibniz turned from the physical to the mental world. The conscious self or mind, or soul, is certainly in a sense non-spatial, though it is associated with a body which is spatial. Yet at the same time it exhibits a rich diversity of positive characteristics: perception and emotion of all kinds, and a great diversity of thoughts and volitions. In "what is called the *I* in us", as Leibniz puts it <New System p. 103>, he thought he had found an example of what he was seeking – the necessary combination of unity and variety: of unity and or simplicity in the sense of having no spatial parts; of variety, in the sense of having a diversity of different states. Might it not be possible, then, to conceive all simple substances as in some way *analogous* to the self; to conceive the whole universe, even what appears to us as extended matter, as made up of an infinite number of these simple substances which were *analogous* to souls. Of course, "*analogous*" is the word to be stressed. The suggestion is not at all that every simple substance is fully conscious. Even *we* experience considerable variations in the degree of clarity of our perceptions. We may *see* something, as we say, without noticing it at the time: we have, so to speak, *unconscious* perceptions. May not that which we *see* [appears] as inert extended matter – [for our perceptions are only *relatively* distinct and clear] – really be made up of non-extended simple substances whose own perceptions or successive states are always totally unconscious? The fact that we see it as extended matter will be due to the fact that even our perceptions are only *relatively* distinct and *relatively* clear. If this world **[19]** picture is acceptable, then instead of the rigid Cartesian dualism of two totally distinct kinds of substance – minds whose essence is thought, matter whose essence is extension – we have a multiplicity of substances all of one kind in that they are non-extended, but forming a minutely graduated series in respect of the clarity of their perceptions.

This suggestion, then, seems to Leibniz both to satisfy the requirements of simplicity in substances, and to represent a notable improvement on the rigid Cartesian dualism of mind and matter. There was another respect, which I shall do no more than mention now, in which Leibniz considered his revised picture of the physical universe superior to the Cartesian model. Descartes of course had maintained that the essence of material substances was extension: and that once the system of the physical universe was, so to speak, set going, the quantity of motion in that system remained the same. Motion was not an essential attribute of bodies <Letter to Bayle "Cartesian Theory of Quantity of Motion" p. 88-96 Everyman>; which, as such, were passive or inert – it was something brought in from outside (by a miracle or by God) and once introduced, its quantity remained constant. Now it was easy for Leibniz to show – from experimental dynamics – that the quantity of motion (defined as mass x

velocity) did not remain constant: that it was necessary to maintain that it was energy (or as Leibniz called it, "*force*"), not motion, that was conserved. Now, said Leibniz, the force of a body is measured by its effect; but it can't be identical with those effects. The force of a body must then be something *in* the body, a capacity for *producing* these effects, a kind of spontaneous activity: but if this is so, the essence of body cannot consist solely in extension for a merely extended substance is as such quite passive and not endowed with anything **[20]** which could be called "force". But if we conceive all simple substances as non-extended monads, analogous to minds, there is no difficulty: for just as we find in conscious minds such spontaneous activities as willing and thinking, so we can postulate, as analogous to these, a kind of unconscious activity in those inferior monads of which what we see as material objects are composed. So the hypothesis of simple substances as "living points", non-extended but active, receives confirmation from dynamics.

With the merits of this argument from dynamics, which seems to me neither clear nor convincing, I am not at the moment concerned <Anticipation (?) of modern physical theory>: though it is worth mentioning, at this stage, to indicate the cleavage between Cartesian and Leibnizian conceptions of substance, and to contribute a detail to this initial rapid sketch of some of the characteristics of the Leibnizian monad. Obviously this sketch of the positive characteristics of Leibniz's simple substances – the "real" elements of the universe – raises a simply enormous number of questions, with which we shall try to deal in due course. The point I am concerned with at the moment is a relatively restricted but extremely important one.

It is this: that as soon as he starts describing the *positive* characteristics of his simple substances, saying what sort of things they positively are, Leibniz introduces, without explicitly mentioning it, another element into his definition of a simple substance. The first definition of simple substances we considered was: that which is not an aggregate; the second definition was: that which is without parts. **[21]** Now clearly if the simple substance was to be anything real at all, it had to have *some* positive property or properties, not merely the negative property of not being spatially extended: otherwise it would be a mere abstraction, like a mathematical point. Looking, therefore, for something which is non-spatial but has some properties, Leibniz immediately hits upon the soul, the self, the "I" as the name of a substance; of something, that is, which satisfies his requirements for a simple substance. Now this, if we consider carefully the previous definitions of a simple substance, is a little surprising. For the conscious self, though it is not extended in space, is certainly continuous through time. It has perhaps no *spatial* parts: but it is not obviously nonsense to say that it has temporal parts. Now time, like space, is infinitely divisible: just as there is no finite spatial ex-

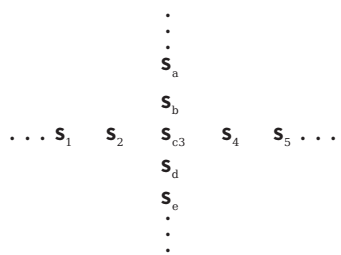
tension which is not, in thought at least, divisible, so there is no finite *temporal* duration which is not, at least in thought, divisible. If "simple" (*indivisible*) atoms are a contradiction in terms, so are "simple" (*indivisible*) instants. If nothing extended in space can be a simple substance, how is it that something extended in time can be a simple substance? Why should time be treated differently from space in this respect, and temporal parts differently from spatial parts? Our perplexity deepens, indeed, when on further investigating the Leibnizian system, we find that he does in fact treat space and time as on the same footing, and adopt a **[22]** relativist theory for both. And if we neglect the second definition of a simple substance as that which has no parts, and turn to the first definition – that which is not a collection or aggregate – the puzzle is not removed. For it is at least plausible to maintain, as Hume did and as many modern philosophers do, that the self is an *entity by aggregation* in Leibniz's sense of the term. It might be argued, that is to say, that the self is not simple at all: that what we call the self is *really* a collection of mental events related to one another in a certain unique way, the chief relational element in this unity-by-aggregation being the relation between mental states which we call memory. If we adopted such an account of the self – and it is certainly seems plausible – then it would satisfy perfectly Leibniz's definition of an entity by aggregation: to remind you of it – "what constitutes the essence of an entity by aggregation is nothing but a manner of existence of the things of which it is composed" <p. 79>. Then, for example, to say that the mental events e_1 and e_2 belonged to the same self would be to say that e_1 and e_2 were related to one another and to other events in a certain way; just as to say that two soldiers s_1 and s_2 belonged to same army would be to say that s_1 and s_2 were related to one another and to other soldiers in a certain way. Logically, then, it would seem that Leibniz should maintain that simple substances are analogous, not to selves, but to mental events. But even this analogy is not very helpful when we remember the second definition of a simple substance as that which has no parts: for it is difficult to conceive of anything which we should call a mental event which **[23]** does not extend over *some* finite period of time, however short: but to be absolutely without temporal parts, it would have to have no temporal duration at all. Logically, then, it would seem that Leibniz ought to maintain that simple substances have neither extension nor duration: that the qualities they have, they have both timelessly *and* – so to speak – spacelessly: and that the appearance which things exhibit of being extended in space and enduring through time are, *in both cases*, due to failure of clarity in the perceptions of simple substances. This is the conclusion which Leibniz should have drawn: and, in fact, this is the conclusion that he did draw: *whenever* he took the problem of time seriously. But of course, once this conclusion is drawn, there seems to be no long-

er any ground for maintaining that the self *as we know it* is a simple substance at all: for what we refer to when we talk of the self is certainly something which has duration; which *was* yesterday; which *is* today; and – we trust – *will be* to-morrow. And if this is so, the suggestion that simple substances are at all analogous to selves as we know them, breaks down.

But on the whole I think we can say that Leibniz failed to see this clearly. And if we ask why he failed to see it, I think the answer is that when he started to talk of the positive characteristics of this simple substances, Leibniz made an assumption about simple substances which was not included in his earlier definitions, and was, if interpreted in the most neutral way, incompatible with them. The two earlier definitions we are familiar **[24]** with: that which is not an aggregate (i.e. is without members) or collection; and that which is without parts. The third characteristic of simple substances which Leibniz assumes without explicitly mentioning it in the definitions is that *it is the subject of change*. (Although he doesn't make this part of the definition of "substance", he makes the assumption quite explicit in para. 10 of the *Monadology*: "I assume also … that every created being and consequently the created Monad is subject to change".) Now the most *natural* interpretation of "X is the subject of change" is "X has different properties, or is in different states, at different times". But if that which is without parts has neither extension nor duration – is not extended, so to speak, in either space or time – it is a flat contradiction to say that the simple substance is without parts *but* has different properties at different times: for a thing can have different properties at different times only if it has duration. Of course, there is a way out, as I have suggested; and it is the way which Leibniz followed when he took this particular problem seriously. And that is to say that the properties of a simple substance are related to one another by non-temporal relations which *appear*, to the confused perception of the simple substance itself, as a temporal sequence. But to take this way out is also to abandon the ground on which the self was *said* in terms of be a simple substance in the first place. For in the case of the self we were said to have *experience* or distinct knowledge of a simple substance with a diversity of states or properties <Monadology para. 16>; whereas, though we certainly **[25]** experience diversity in our states of mind, we also experience those states as enduring through time or temporally successive; and thus cannot be said to experience the self as *simple*, if "simplicity" is taken seriously as regards time as well as space. Similar considerations apply to the argument from dynamics designed to show that simple substances must be endowed with "force". "Force" is known, and measured, by its *effects*: but the sequence of cause and effect is a *temporal* sequence, and, thus, if the concept of "simplicity" is to be taken seriously, can only be the mode of *appearance* of the *real* relations

between substances. The whole concept of *change*, too, – of having different states, or properties, at different times – is thoroughly temporal: on the face of it, there is just as little reason for suggesting that a *simple* substance should be the subject of change as for suggesting that it should be extended. Why in fact should Leibniz think of his simple substances, defined as he defined them at first, as being the subjects of different states at all? Wouldn't it be a simpler hypothesis, more consistent with his original definition, to conceive of the universe as consisting of an infinity of simple substances which might be called (on analogy with Leibniz's own metaphor of "metaphysical points") – "metaphysical point-instants" – so ordered, in non-spatial, non-temporal relations, that they appeared, say, as temporally successive states of an aggregated self or spatially contiguous parts of a material thing?

[We might pause, for a moment, to construct a model of a tiny fragment of such a universe. Let S_a, S_b ... etc. and S_1, S_2 ... etc. be **[26]** simple substances, ordered in various relations.



Then the relation between S_a ... S_e etc., represented by this vertical displacement in the diagram, might be such as to constitute them what appears as successive states of a single self. The relation between S_1 ... S_5 etc., represented by their horizontal displacement, might be such as to constitute them what appears as a material thing, (say a table). S_{c3}, which belongs to both series, might be what we should describe as "the self perceiving the table". There is no need, in this model, to suppose that any *substance changes* or that any substance is extended. Change, and spatial or temporal relations, would be merely the appearance of the real inter-relations of the simple substances.]

Nevertheless, although there is nothing self-contradictory about such a model as this, and it is indeed what Leibniz's first definition of a substance (as that which has neither members, nor parts, is neither as aggregate nor a divisible whole) would lead us to expect – nevertheless it is plain that this is not the Leibnizian model. The new kind of element in his account of substance – that which is

the subject of change, has different properties at different times – is essential to the whole system: though of course, since time is only appearance, the real relations between different properties of the *same* substance must be non-temporal. This third element must, in fact, rank as part of the definition of substance. The fact that it is so diverse from the first two elements in that definition **[27]** and even difficult to reconcile with them, suggests that we have not yet dug down to the logical foundations of Leibniz's conception of substance. And it is to Leibniz's logical doctrines that must now turn, to begin the "second phase" of our attack on this philosopher. We shall find that these logical doctrines not only illuminate this particular problem of Leibniz's conception of substance, but form the framework of the whole system.

(a) The Subject-Predicate Doctrine and the Denial of Interaction

Running through the whole of Leibniz's letters to Arnauld <G II pp. 10-138> (and elsewhere in his writings) you will find one phrase that recurs, with variations, like a refrain. It is "*verae propositionis praedicatum inest subjecto*": the predicate is included in the subject of a true proposition – an old and respectable doctrine of the scholastic logic. Notice that it really says two things; or, rather, it makes *one assumption* which Leibniz, and everyone else at the time, took for granted and never thought of questioning; and then, on the basis of that assumption, makes one further *assertion* on which Leibniz laid tremendous stress and interpreted in such a way as to derive from it results which he himself calls paradoxical and surprising <Ev. p. 67, 73>. What are, respectively, this assumption and this assertion?

(i) That all propositions whatever have a certain logical form i.e. they all ascribe a predicate to a subject.
(ii) That in the case of all *true* propositions, the predicate is included *in* the subject:

or, in Leibniz's words "Of every true proposition every predicate, necessary or contingent, past, present or future, is contained in the *notion* of the **[28]** subject" <p. 71>. From this principle Leibniz claimed to devise such distinctive doctrines as the Denial of Interaction between substances, the Identity of Indiscernibles and even the Principle of Sufficient Reason. The doctrine is clearly important. What, then, does it mean?

In the course of his letters to Arnauld, Leibniz offers two arguments which are intended not so much proofs of his principle as illustrations of it. These I propose to paraphrase:

(1) Suppose, he says, I go on a journey (let us say, a journey to Paris) next week <pp. 70-73 [Ev.]>. Then the proposition "Leibniz goes to Paris at time *t*" is a true proposition; its subject "Leibniz", its predicate "goes to Paris at time *t*". But the predicate of a true proposition is included in the notion of the subject. i.e. the "complete notion" of the subject (L) is such that, if we knew it, we could deduce from it not only that L. would take this journey to Paris, but all the other predicates of this subject, that is to say, everything that ever happens to Leibniz and all that he ever does. Given the existence of Leibniz, then it is *certain* that everything will happen to him just as it does and not in any other way; because all these events can be expressed as true propositions with "Leibniz" as their subject, and all the predicates of these propositions are included, so to speak, in the *definition* of the subject-term "Leibniz". So that "Leibniz" wouldn't *be* "Leibniz" at all unless he did exactly what he does do in fact. Furthermore, if it is true that "Leibniz goes to Paris at time *t*", then it *always was* true, just as if it is true that it will rain to-morrow, then it is true *now* and always has been, even though **[29]** no human being knows for certain whether it's true or not, or has even thought about it. Similarly, every other proposition, truly asserting some state of Leibniz's or some event which happens to him, does not merely *become* true when the event occurs, but was always and timelessly true. Thus, since the predicate of every true proposition is included in the notion of the subject, the complete individual notion of Leibniz involves eternally everything that will ever happen to him, all his states, all his "predicates".

That is the first illustration. And I think our first reaction to it is to say that, if this is all the doctrine of inherence of the predicate in the subject amounts to, then it amounts to very little more than a set of tautologies. If a subject is *defined* by the totality of its predicates, then it is certainly true, but also trivial, to say that it wouldn't be the subject that it is, unless it has the predicates it has. Since we are not in a position to frame such definitions, the point is not of much practical importance. As regards the second point in the illustration, it is also tautologously true to say that all true propositions about the future are true now, though we don't know them. But from this point again, no interesting conclusions follow.

This first illustration of the principle of inherence, then, sounds at first, like an announcement of the most rigid determinism and then looks, on closer examination, like a set of trivial tautologies. Leibniz, as we shall see, would have rejected the suggestion that it was either. Let us look at the second illustration.

(2) This involves a reference to the identity of **[30]** the subject of two propositions referring to different times <p. 66 Ev>. "Leibniz was in Paris at time t_1". "Leibniz is in Germany at time t_2". By what right,

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says Leibniz, can we say that the person referred to in the first proposition who *was* in Paris is the same as the person referred to in the second proposition who *is* in Germany? And, he answers, the only reason we can have for saying this is that both predicates "being in Paris at time t_1" and "being in Germany at time t_2", and all the other predicates <p. 67> associated with the subject of each of these propositions at each of these times, are included in one and the same subject. "And," he concludes, "since from the time when I began to exist, it was possible to say of me truly that this or that would happen to me, it must be acknowledged that predicates were laws included in the subject, or in the complete notion of me which caused me to be called *I*, which is the foundation of the interconnection of all my different states, and which was perfectly known to God from all eternity".

I think the comment we are inclined to make on this illustration is similar to those we made on the first: i.e. if the complete notion or definition of a subject includes *all* its predicates or all that can be truthfully said of it, then *clearly* two predicates can be the predicate of the same subject only if they are both included in the definition or complete notion of that subject. This conclusion, like the previous conclusion that all the predicates of a given individual are included in the complete notion of that individual, **[31]** follows quite clearly from the sense in which Leibniz has elected to use the expression "complete notion". In fact we can, if we like, regard these illustrations, and many others which occur in the letters to Arnauld, as simply making clear the meaning of that expression. The concept of a "complete notion", so considered, is a bare logical concept, of no practical, or, indeed, metaphysical, importance: and the statement that all the predicates of an individual are timelessly included in the complete notion of that individual is, from this point of view, merely another way of uttering such tautologies as: "Every individual has the properties it has"; or "If an individual did not have the properties it has, it would not have those properties"; or "Any true proposition asserting that an event occurred at such and such a time is true at all times".

But, plainly, if the principle that the predicate of a true proposition is always included in the notion of the subject amounted to no more than this, Leibniz would scarcely have accorded it the importance he evidently did accord it. That importance was considerable. For he directly based his *metaphysical* conception of a substance upon this *logical* conception of the subject of a true *singular* proposition. [The qualification "singular" I shall explain in due course]. From the complete notion of a logical subject, all its predicates can be derived by a process of logical analysis without reference to anything else in the universe. Therefore – and this is a simply enormous non sequitur – all the states of a substance develop by its own internal activity, from its own **[32]** intrinsic nature, without reference to anything else in the universe. Admittedly the process of logical analysis can-

not be performed by such as ourselves: we cannot predict everything that will happen to a given individual because, with the limitations of our knowledge, we can never form the "complete notion" of that individual. "Complete notions" are known only to God; and it is God also who actualises a given "complete notion", creates the individual substance of which it *is* the notion. But *once the substance is created*, its states develop with complete necessity, unaffected by anything else in the universe, in accordance with the inner laws of its own nature. To quote Leibniz: "The proposition in question [i.e. that every predicate … is comprised in the notion of the subject] is of great importance, and deserves to be established, for it follows *that every soul is as a world apart*, independent of everything else except God; … that it keeps in its substance traces of all that happens to it." <G II 46-47 Arnauld.> Here, then, we have the logical foundation of one of Leibniz's most characteristic doctrines: the denial of interaction between substances. This logical doctrine of the inherence of predicate in subject was not the only reason for the denial of interaction: that denial was a popular philosophical prejudice of the time. But there is no doubt that Leibniz thought it an extremely cogent argument, perhaps the most important of all. Clearly then there must be more involved in this logical doctrine than we have so far discovered, and I shall have more to say in a moment about the connection between the subject-predicate logic and the denial of interaction. First of all, however, notice that this argument from logical subject to metaphysical substance also provides answers to the question with which I ended phase (1) **[33]** of these lectures. That question was: how could Leibniz consistently define the substances which formed the ultimate realities of things as *simple* i.e. as having neither duration nor extension, and yet at the same time assume without any question that simple substance was the subject of change, the subject of different attributes at different times?

The analogy of the logical subject and the metaphysical substance – I won't say, makes the answer clear, but at least indicates the form of an answer. The "complete notion" of the logical subject includes *timelessly* all the predicates of that subject, although these predicates are of the form "has property *p* at time t_1", "has property *q* at time t_2" and so on. If the metaphysical substance is to be conceived analogously to the logical subject, as the actualisation of the "notion" of that subject, perhaps Leibniz can say that the substance contains timelessly a complex property whose complexity manifests itself in the temporal order as the succession of properties *p*, *q* and so on. This, in effect, is what he did say: the complex property he christened the "activity" of the substance, i.e. the principle in virtue of which changes occurred in it as they did occur, the law of succession of its states. He goes so far as the say that activity is the essence of a substance – cf. the famous definition which begins "The

Principles of Nature and of Grace" – La substance est un être capable de l'action. <G VI p. 598 P of N & G.> But it is difficult to believe that the notion of activity really removes the time-difficulty. If the temporally successive states really are different states of the same substance, then that substance is something which endures **[34]** in time. If, on the other hand, the substance is nothing more than a timeless "law-of-succession" of states (i.e. *simply* a "*logical* subject" of a collection of true propositions), then the substance is merely an aggregate, a collection of states related to one another in certain ways; and to say that two states belong to the same substance is simply to say that they both form part of the same independent series of states related by the law of that series. Leibniz would certainly have rejected this view, [since he was convinced by his own logical argument that different states could be states of the same person only if the corresponding predicates inhered in an individual subject, since he was so firmly wedded to the analogy between "different predicates of the *same* logical subject" and "different states of the *same* substance". Logic *seemed to* require some identical something in which the different states inhered. The Leibniz who was in Germany at t_2 was the same as the Leibniz who was in Paris at t_1 only because all the predicates of each inhered in one identical logical subject: and since, as we have seen, he argued from logical subject to metaphysical substance, this meant saying that his states at time t_1 and at time t_2 inhered in the one identical substantial Leibniz.] <since he was so firmly wedded to the analogy between "different predicates of the *same* logical subject" and "different states of the *same* substance". Logic seemed to require some identical something in which the different states *inhered*.> The truth is that, most of the time, Leibniz thought of substance as something identical which endured though time, the permanent subject of change; it was only occasionally, when he faced up to the time-difficulty, that he was inclined to hedge about this.[2] The doctrine of activity as the essence of substance doesn't really get him out of this difficulty (cf. ch. IV – Russell: *Philosophy of Leibniz*, "Substance"). But perhaps the principal importance of the doctrine of activity is in connection with the denial of interaction between substances: and to this question I shall now return. <*May 3*>

2 The odd thing is that Leibniz didn't realise that his argument from logical subjects to metaphysical substances was inconsistent with his requirements of *simplicity* in substances – countless aggregates, from the Empire State Building to the Dutch East Indies Company, can stand as a logical subject of different predicates and different times. Are they all to include timelessly their predicates and be capable of spontaneous activity?

[35a] You will remember in our last lecture that Leibniz seemed to proceed as follows:

> (1) Define a complete notion of a subject as the totality of all true propositions about it; or as a notion such that all true propositions could be obtained from it by logical analysis

and then:

> (2) Assume without further argument that a substance was a kind of hypostatized "complete notion", an entity of which all the states sprang simultaneously from itself without reference to anything else in the universe.

This procedure is so obviously preposterous that we must conclude that we have failed to grasp the full significance of the logical doctrine we are investigating. **[35]**

You will remember that when we first began to consider the doctrine that the predicate of every true proposition is included in the subject, I recommended that the doctrine really contained two parts: an assumption, and an assertion. The assumption was that all propositions were of a certain form, viz. the subject-predicate form, i.e. that every proposition ascribed a predicate to a subject. The assertion was that, in the case of every *true* proposition, the predicate was included in the notion of the subject. Now this logical assumption that all propositions were of the subject-predicate form was so fundamental to Leibniz's thought that he took it entirely for granted and never even explicitly stated it, yet the assumption is extraordinarily important: for from it alone (*without* the additional claim of *inest in subjecto praedicatum*] there immediately follows the denial of the reality of relations and consequently the denial of interaction between substances.

Let us see how this is so. First of all we must ask: What is a proposition? I think the simplest answer to this question is that a proposition is the meaning of a sentence: a proposition is what a sentence expresses. Thus different sentences which have the same meaning will all express the same proposition. For example, the following sentence "The king of England is dead," "The English monarch is dead", "*Le roi d'Angleterre est mort*" are recognisably different sentences; but they all have the same meaning, they all express the same proposition. In terms of the subject-predicate doctrine, we may say that all three sentences have the same meaning or express the same proposition, *because* they all refer to the same subject, and they all ascribe to that subject the same predicate. And, **[36]** furthermore, if the subject-predicate form is the only form of proposition, if the only correct logical analysis of any proposition whatever is into (1) the

subject and (2) the predicate that is ascribed to it; then clearly the *only* occasion on which different sentences can have the same meaning or express the same proposition are occasions when they each have the same subject and each ascribe to that subject the same predicate. To say that two sentences s_1 and s_2 have the same meaning or express the same proposition will be the same thing as saying that the subject of the proposition expressed by s_1 is identical with the subject of the proposition expressed by s_2 and the predicate of the proposition expressed by s_1 is identical with the predicate of the proposition expressed by s_2.

But now consider the two following sentences:

1. Brutus stabbed Caesar
2. Caesar was stabbed by Brutus.

I think we should normally say that both these sentences had the same meaning; that they were two *equivalent* ways of saying that two individuals, Brutus and Caesar, were related by a certain relation. But if we do this, of course, then we are saying that the proposition expressed by both of these sentences alike is not of the subject-predicate form at all: it hasn't merely a subject and a predicate identical in both the sentences which express it: it contains *two* terms and a relation between them, which relation can be correctly described either as "stabbing" or "being stabbed by" according to the direction, so to speak, from which we look at it. If then we interpret these two sentences in the most natural way as describing one and the **[37]** same state of affairs, as having the same meaning in expressing the same proposition, we must give up the doctrine of the universality of the subject-predicate form of proposition and admit some propositions as irreducibly relational in form. But suppose, like Leibniz, we are irrevocably wedded to the view that all propositions ascribe a predicate to a subject. What are we to say of these two sentences? The subject of the first is *Brutus* (B): to him is ascribed the predicate *"stabbed Caesar"*. Let us call this predicate p_1. The second sentence has a different subject, namely Caesar (C), and a different predicate, namely "was stabbed by Brutus". Let us call this predicate p_2. Then the first sentence expresses a proposition of the form "B has p_1", where B is the subject and p_1 the predicate; and the second sentence expresses a proposition of the form "C has p_2", where C is the subject and p_2 the predicate. But two sentences of subject-predicate form only have the same meaning when the subject and predicate of the proposition expressed by the one are respectively identical with the subject and predicate of the proposition expressed by the other. But Brutus is certainly not identical with Caesar, nor is p_1 identical with p_2. Therefore the sentences do not have the same meanings, but express quite different propositions. There is no such thing as *the re-*

lation between B and C which can be indifferently described by saying that B stabbed C or C was stabbed by B. The so-called "relation" is only a fiction of the mind. It is a fact that Brutus has one predicate, and it is also a fact that Caesar has another predicate: but these are quite distinct facts, one a fact about **[38]** Brutus and the other a fact about Caesar and there is no real relation or connection between Caesar and Brutus at all.

This conclusion – the denial of the reality of relations – doubtless seems to us fantastic; if it followed from our doctrine of the logical form of propositions, we should be inclined to think there was something wrong with our logic sooner than accept such a conclusion. But there is no doubt that Leibniz drew it. I refer you to the correspondence with Clarke, when he considers the parallel case of a relation of difference in size between L and M <pp. 222-223 (Ev.). G VII 347-421>. (The inference from the logical form of propositions to the nature of reality is very clearly indicated by the parallelism between the subjects and predicates of propositions on the one hand, and the substances and accidents of reality on the other). What, he asks, are we to say of this "relation"? "We cannot say that the two, L and M together, are the subject of such an accident, for in that case we should have an accident in two subjects, with one leg in one and one leg in the other, which is contrary to the notion of accidents. Then we are bound to say that … being neither substances, nor accidents, it must be a purely ideal thing …" [i.e. contrary to the subject-predicate logic]. Leibniz contemplates for a moment the hypothesis that things really are related to one another: that there really is a relation between L and M, which can be indifferently described by saying either that L is greater than M or that M is smaller than L; but, because it does not accord with his subject-predicate logic, his substance-accident picture of the world, he thrusts it aside in favour of the view that L and M each have totally independent predicates **[39]** (being greater than M, and being smaller than M, respectively) out of which we manufacture this fictitious idea of a size-relationship between L and M. I will quote one more instance of this curious blindness, induced by the subject-predicate logic, on the subject of relations. This is from where Leibniz says: "You will not, I believe, admit an accident which is in two subjects at once. Then I hold, as regards relations, that paternity in David is one thing and filiation in Solomon is another, but the relation common to both is a merely mental thing, of which the modification of singulars are the foundation." <G II 486 Letter to Des Bosses> As in the case of B. and C., there is no real relation between D. and S. which can be indifferently described by saying that "David is the father of Solomon" or that "Solomon is the son of David". On the contrary, these two sentences have quite different meanings: one ascribes a predicate to David, and the other ascribes a quite independent predicate to Solomon and there is no

connection at all between two subjects except a purely fictitious one which we manufacture and call the relation between them.

We might summarise as follows the problems created for subject-predicate logic by such pairs of sentences as "Brutus stabbed Caesar" and "Caesar was stabbed by Brutus". Such a pair of sentences present us with the following choice:

1. First we can say – and this is the natural thing to say – that both sentences have the same meaning because they are simply alternative ways of describing one and the same fact, namely a certain relation between Brutus and Caesar. But if we say this, we abandon the subject-predicate doctrine and admit that some propositions are irreducibly relational.

[40]

2. Secondly we can admit that the two sentences have the same meaning, and at the same time to preserve the subject-predicate doctrine in an esoteric form by saying that ultimately there is only *one* subject – Reality or Spinoza's God or what you will – to which both sentences ascribe the same predicate. This is roughly the position of Spinoza.
3. Or finally, if you wish to avoid Spinozism, you can preserve the subject-predicate logic by denying that both sentences have the same meaning. In other words, you will have to deny relations, and say that each sentence independently describes a characteristic of its own subject, and that there is no necessary connection *between* these characteristics. This is Leibniz's solution.

But plainly it is a solution which raises a tremendous problem. Leibniz claims to have shown that relations are purely ideal; but admits that consideration of them may nonetheless be useful. Relations may be purely mental: but there is some "foundation" for our belief in them in the "modification of singulars" <p. 223>. The denial of relations involves of course the denial of interaction: since one substance cannot be said to act upon another if there is no real relation between at all. But there certainly seems to be interaction. How is the appearance of interaction to be accounted for? Is it an accident that Brutus' having the predicate which we describe as "stabbing Brutus" corresponds so exactly with Caesar's having the predicate which we describe as "being stabbed by Brutus"? But, if it is not an accident, is not the hypothesis of interaction between the substances the simplest explanation of the **[41]** correspondence? Leibniz's solution to this problem is one of the most characteristic features of his philosophy and one of which he was extremely proud <Cf. N.S. pp. 104-108 (Ev.)>. The correspondence between the predicates of different substances, he said, was certainly not accident, nor was it to be explained by the hypothesis of interaction which was quite inconsist-

ent with the whole notion of substance. The states of each substance succeeded one another in accordance with the laws of its own nature and entirely uninfluenced by any other. But the laws of development of each substance were such that at each moment its states *corresponded* exactly with the states of every other substance. So that although there was no interaction, there was a complete and unfailing harmony between the state of any substance at any time and the state of any substance at that time: and it was this unfailing harmony that we took for causal interaction. Furthermore, since the complete relation of a substance included once for all everything that ever happened to it; or, in other words since the principle of activity of a substance was timelessly in that substance; then, once a mutually harmonising set of substances was created, their natural adjustment did not call for periodical interventions of the Creator, but was ensured, once for all, by the initial act of creation.

This fortunate dispensation Leibniz referred to as "The Pre-Established Harmony", and was perhaps more pleased with it than any other of his inventions; or, as he might have preferred to put it, his discoveries. In particular, although it was of course of much wider application than this – he thought it provided the solution to the problem of mind-body interaction which had bothered everyone intensely **[42]** ever since Descartes shirked the question so badly. Descartes' followers, left with this awkward problem on their hands, had resorted to the absolute expedient of making God intervene, on every occasion on which a bodily modification occurred, to produce a corresponding modification in the mind, and vice versa – a hypothesis known as Occasionalism. They couldn't see otherwise how to bridge the gulf between spatial substance whose essence was extension, and non-extended minds whose essence was thought. Leibniz must have thought the necessity for making these continual adjustments a little inconsistent with the divine dignity: he certainly considered that his own hypothesis of one supreme adjustment made at the moment of creation and never calling for maintenance or repair, reflected more credit on the deity.

However, this is to anticipate the general picture a little. My purpose in examining this first logical doctrine on which Leibniz lays so much stress – the principle that "*verae propositionis praedicatum inest subjecto*" – is to show how it provides the key, or at least an important part of the key, to a good many of his *metaphysical* doctrines: the doctrine of the *activity* of a substance; the spontaneous unfolding of its states without external influence; the denial of interaction between substances; and the doctrine of the Pre-Established Harmony. These three aspects of the Leibnizian picture of the world and of substances – which we cannot yet regard as complete, even in outline – are obviously closely related to one another, and to the logical doctrine we have been discussing. The logical subject, time-

lessly containing all its predicates, is an abstract model of the metaphysical substance, timelessly containing the principle **[43]** of succession of all its states.

Why did this argument from logic, which seems to us preposterous, seem to Leibniz convincing? Well, I think it has in common with many metaphysical arguments the following feature. The logical doctrine *can* be interpreted in such a sense as to be tautologously true: in this sense it is also trivial and no interesting consequences follow from it. This is the way in which I interpreted it to begin with; and, as I said, it is an enormous non sequitur to argue from thence to the denial of interaction. Or the logical doctrine *can* be interpreted in such a sense as to entail the denial of interaction, and the other interesting consequences that Leibniz draws: but in this sense the logical doctrine is obviously false. Metaphysical conviction is produced by changing senses at the right moment. Then it is a tautology to say that the complete notion of a subject timelessly includes all its predicates, if the "complete notion of anything" is defined as "the totality of true propositions about that thing", and a predicate of anything is defined as "any true proposition about that thing". For in that case the principle means merely: "Any true proposition about something is one of the true propositions about that thing". And how can we proceed from this to the denial of interaction?

[43a] On the other hand, the logical doctrine may be interpreted in quite another sense: in a sense in which it rests upon and presupposes the logical assumption that all propositions are of the subject predicate form; that all apparently relational propositions are reducible to this form; that relations are fictions of the mind (albeit useful ones) and that substance and accident are the only categories of reality. Certainly from this assumption the denial of interaction follows: along with other consequences perhaps (like the denial of plurality of substances) which Leibniz would have regarded with less satisfaction. The denial of interaction, notice, follows from the denial of relation alone which is implicit in the subject-predicate doctrine. The further assertion that the predicate of a true proposition is *contained in* the notion of the subject must be regarded (as we shall see later) as an assertion to the effect that the succession of predicates is not arbitrary, but arises in accordance with the inner law of the substance's nature, the principle of activity which is essential to it. In fact not only the denial of interaction, but the principle of sufficient reason, are embodied in this second and more startling interpretation of that sentence "*verae propositionis praedicatum inest subjecto*" which *can* be made to look like a harmless tautology. From this second sense of the principle, then, in which it is based upon the subject-predicate dogma, the denial of interaction certainly follows. But in this second sense it is obviously false.

[44] It is in the word "predicate" that the shift of meaning is con-

cealed: at one point it is used in the narrower sense in which to say that a sentence is "predicative" is to deny that it is relational. In another, it is used in the wider sense in which a "predicate" of a thing is simply any true proposition about that thing. Then the harmless tautology "All the predicates of a thing are predicates of that thing" becomes the metaphysically dangerous falsity "All true propositions about a thing are predicative".

<7 May>

(b) Contradiction and Sufficient Reason: Truths of Reason and Truths of Fact

Let us now return to Leibniz's other great logical doctrines: the distinction between necessary and contingent propositions, and the uses, in connection with the former, of the Principle of Contradiction and, in connection with the latter, the Principle of Sufficient Reason. These doctrines, together with those we have been discussing and others derived from them – e.g. The Identity of Indiscernibles – serve to determine the main outline of his system. They are briefly introduced and described in paragraph 31 and the following paragraphs of the *Monadology*: and reference to them is scattered throughout his work. In what follows I shall again refer primarily to the Letters to Arnauld.

To begin then with the all-important distinction between necessary and contingent propositions, or, as Leibniz sometimes calls them, Truths of Reason and Truths of Fact. Truths of Reason he sometimes refers to as "eternal truths". In the *Monadology* he announces the distinction in the following terms. **[45]** "There are two kind of truths, those of reason and those of fact. Truths of reason are necessary and their opposite is impossible: truths of fact are contingent and their opposite is possible". The truth of necessary propositions, he goes on to say, is guaranteed by the Principle of Contradiction. But in the case of contingent propositions, though there is, indeed, always a sufficient reason for this truth, the principle that this is always so is the principle of Sufficient Reason – yet there is nothing self-contradictory or impossible in the supposition that they should be false. In other words, if "*p*" is a necessary proposition, then "not-*p*" is self-contradictory. But if *p* is a true contingent proposition, it is not the case that not-*p* is self-contradictory, though it *is* the case that there is always some sufficient reason for the truth of *p*. Examples of necessary propositions are all the truths of logic and mathematics like the proposition "All the diameters of a circle are equal"; and "2 + 1 = 3". Examples of contingent propositions or truths of fact would be any propositions stating that some event or other took place, or any prop-

osition about the state of some particular substance at some particular time, or any general proposition derived from such particular cases like the causal laws of physical science. The laws of motion, for example, are general contingent propositions; examples of contingent propositions about individual substances would be: "Leibniz made a journey to Paris in such-and-such a year", "Spinoza died at the Hague" and so on. Whereas there is nothing self-contradictory or impossible **[46]** in supposing that Leibniz did not make this journey, or that Spinoza died somewhere else, or that the laws of motion of material particles are different from what they are, it *is* self-contradictory to say that the sum of 2 and 1 is not equal to 3, or that the diameters of a circle are not all equal to one another. It would be self-contradictory to say this because if we carried out an analysis of the notions or concepts involved in these and other mathematical propositions, we should find in the end that – to use these examples – what we *mean* by "3" is the arithmetical sum of 2 and 1, and what we *mean* by a circle is "a figure which has all its diameters equal". So we are contradicting ourselves and saying something which has no meaning if we deny the truth of these propositions. They are true, so to speak, by definition. Their opposite, in Leibniz's words, is impossible: their truth is guaranteed by the Law of Contradiction. But this is by no means the case as regards the contingent propositions we instanced.

Now there is no doubt at all that the distinction which Leibniz here draws between necessary and contingent propositions is a real and very important distinction. And the account which he gives of the distinction seems to be substantially correct – and, I think, would be accepted by many, though not all, logicians to-day. It is when we consider it in relation to Leibniz's doctrine that all the predicates of a subject are contained once for all in the notion of that subject that we start encountering the difficulties and raising the questions which so seriously troubled the theologian, Arnauld, when Leibniz first expounded to him this doctrine. For if, said Arnauld, the **[47]** notion of Leibniz includes once for all everything that has happened or is going to happen to him (just as the notion of a triangle includes the notion of having three sides), then it is just as impossible for Leibniz not to have made his journey to Paris as it is for a triangle not to have three sides: for the supposition that a subject does *not* have a predicate which is included in the notion of that subject is self-contradictory. But on Leibniz's hypothesis *every* state of *every* substance is included eternally in the notion of that substance. So every true proposition describing anything that has happened or will happen in the universe is as absolutely necessary as the proposition that a triangle has three sides. <Cf. D. de M. G IV p. 437> Since the truth of necessary propositions does not depend upon God's will (even God cannot make 2 + 1 not equal to 3), and since – said Arnauld – if Leibniz is right, every true proposition whatever is necessary; then eve-

rything that happens, happens with absolute necessity and not only man's freedom but God's is an illusion – and we must either abandon the belief in the power of God, which is tantamount to abandoning belief in God altogether, or we must equate him as Spinoza did with the necessary totality of things and events which make up the universe. This was the reaction of the scandalised theologian. And, even if we do not share his particular worries, we must agree that at first glance, Leibniz's position looks highly paradoxical: if all the states of a substance are included, so to speak, in the definition of that substance, then it does seem to follow that every true proposition about that substance will be true by definition i.e., necessarily true. Then the distinction between necessary and **[48]** contingent propositions will be simply a mistake, and contingency will vanish from the universe. And this is certainly queer: for we don't really believe that the proposition "I am lecturing to you now", say, is logically necessary, like the proposition "A proposition cannot be both true and false" or "The angles of a triangle are equal to 180 degrees".

Leibniz's answer to this difficulty is brilliantly clever, and of capital importance for the understanding of his whole position. To make it as clear as possible, I shall not confine myself to the letters to Arnauld, but go to other sources as well. To begin with he points out (New Essays Book IV ch. 11, sec. 14) that necessary propositions do not involve any assertion of existence. In his words: "As to eternal truths, it is to be noted that at bottom they are all conditional and say in effect: such a thing being supposed, such another thing is". Necessary propositions are hypothetical. E.g. the proposition "All the diameters of a circle are equal" does not depend for its truth upon the existence of anything which is a perfect circle. It is true whether there exists such a figure of not, because all it says is that "if there is such a figure, then all its diameters are equal". It is true because it asserts a necessary connexion between certain general truths or abstract ideas, or, in Leibniz's language, "incomplete notions" – the notion of "circularity" and the notion of "equality of diameters" – and those notions are necessarily connected by reason of the very *meaning* of the terms, irrespective of whether there exists anything which exemplifies them or not. **[49]** Necessary propositions asserting connections between incomplete notions determine the character of what actually exists to this limited extent, viz. that no combination of existing things is possible the idea of which contradicts any necessary truth. But any set of existences which is compatible with necessary truths is possible: and there are an infinite number of such sets. Consider for example a particular existing apple. If it is red all over, it must coloured; and if it is green all over, it must be coloured. For it is a necessary truth that whatever is red is coloured, and whatever is green is coloured. But no necessary truth determines whether the colour it actually has shall be red or green. Both are equally possible. But

both are not *com*possible. If the apple is red all over, it cannot also at the same time be green all over – that is another necessary hypothetical truth. As far as these necessary truths are concerned, then, we can imagine an infinite number of possible worlds or sets of existences, some features of some of which, however, are incompatible with some features of others.

But let us now consider a particular contingent proposition like "Leibniz goes to Paris at time *t*" <p. 72>. It is obvious that however many general terms or predicates we heap up to describe our idea of Leibniz (e.g. "philosopher, born in Germany, frequent visitor to Paris" etc.), they can never logically necessitate the predicate "goes to Paris at time *t*", in the way that the general term "red" applied to any subject necessitates the term "coloured" applied to that subject. Of course this is not in itself **[50]** an answer to the difficulty, since it is only an appeal to our ignorance of the "complete notion" of Leibniz, which is said to include all his predicates.[3] If this were all that could be said, then our criticism would be: "You have not shown that the proposition about Leibniz is not on your view a necessary proposition: you have only shown that owing to our limited knowledge, we can't *see* its necessity." And this criticism would be just, but for the one essential feature of contingent propositions which has not yet been mentioned: *namely that they all involve the assertion of existence*. The complete notion of Leibniz certainly involves the predicates "goes to Paris at time *t*" and involves it necessarily. But the necessary proposition is only hypothetical: it does not assert existence. Let us call the complete notion "N". Then the necessary proposition is: "If 'N' is actualised (i.e. if there exists a substance of which 'N' is the complete notion), then Leibniz (that substance) goes to Paris at time *t*." But the proposition: "'N' is actualised"; or "There exists a substance of which 'N' is the complete notion"; is not necessary. So the proposition "Leibniz goes to Paris at time *t*" is not necessary; for it involves a covert assertion of existence; and no existential proposition is ever necessary, for no necessary proposition ever asserts existence. All judgements of fact, all contingent propositions, rightly analysed, involve such an assertion of existence.[4] For instance our judgement that Leibniz goes to Paris at time *t* amounts to saying: "There *exists* an individual who, in addition to all the predicates **[51]** which we have in mind when we use the name 'Leibniz' has the further predi-

3 [*Note at top of page:*] ~[(∃x) . Nx . ~Φx] (x)Nx ⊃ Φx (x)Nx ⊃ Φx . (∃) Nx
If anything is Leibniz, it goes to Paris at time *t*. Leibniz exists = (∃x) . (y)Ny ≡ y = x . x = Leibniz.

4 Any contingent statement, correctly analysed, is an existential statement of every fact in the universe.

cate 'goes to Paris at time *t*'."[5] Even if we had knowledge of the complete notion of Leibniz (which, he says, only God can have), and saw consequently that this predicate necessarily followed from that notion, our judgement would still be contingent since it would involve the assertion that the notion was actualised, that there existed the individual of which it was the notion.

Thus Leibniz avoids the ultimate rationalist absurdity of saying that all true propositions whatever are logically necessary; and avoids it very sensibly and successfully by this doctrine of pointing out that all propositions about particular circumstances (or general propositions derived from these) involve the assertion of existence, and the assertion of existence is always contingent. But then we are driven once more to ask: Then what, after all, is the point of saying that the complete notion of a substance includes all its predicates, all that will ever happen to it? Is this after all more than adding to the false subject-predicate doctrine the tautology that a thing has all the predicates it has, or that all the true propositions about a thing are true propositions about that thing? We have seen that the denial of interaction follows from the adoption of the subject-predicate logic alone, from the assertion that all true propositions are predicative. But the assertion that the predicate of a true proposition is always *included* in the notion of the subject seems to be something more than the assertion of the universality of the subject-predicate form: it seems to take that assertion for granted, and to make some further assertion. What is this further **[52]** assertion? I think we shall find the answer if we remember the Principle of Sufficient Reason – the principle that while no contingent proposition is necessarily true, there is always a *sufficient reason* for its truth – which we mentioned earlier, but of which so far we have made no use. I think there is no doubt at all that this is the further assertion that Leibniz intends to make when he says that the predicate is *included* in the notion of the subject, viz. that the sufficient reason for the truth of a true contingent proposition is always to be found in the complete notion of the subject of that proposition. Or, in other words, that if we *know* this complete notion, we should not only see *that* the individual subject in question had this particular predicate, but also *why* the subject had this predicate: we should not only see that the proposition in question was true, we should also see why it was true. Let me quote a passage from one of the letters to Arnauld, to bear this out: "It is in this sense only that I say that the individual substance includes all its events and all its denominations, even those that are commonly called extrinsic, … [that] … there must always be some

5 [*Note at top of page:*] like a set of predicates of which Φ is one & being called L another.

foundation of the connection of the terms of a proposition, which foundation must lie in their notions. This is my chief principle, on which I hold that all philosophers ought to be agreed. And one of its corollaries is the common axiom that nothing happens without a reason, which can always be given to explain why the thing turned out thus rather than otherwise … It will be seen," he **[53]** goes on, "that from the aforesaid principle I draw surprising consequences" <p. 73 [Ev.]. Cf. also p. 46 G II>.

<*May 10*> Let us look at these "surprising consequences". In order to do so we shall have to examine rather carefully the distinction between "incomplete notions" and "complete notions". Let us try to define these terms in accordance with Leibniz's usage. Let us first define a *predicate* as "anything that *can be said* of any individual subject or person" i.e. any property whatever, or "whatever can be expressed as the grammatical predicate of a sentence". Thus "having a drink in 'The Lamb' at 10 to 10" will be a predicate and so will "having a deaf grandmother". Then let us define a notion as the idea of any predicate or collection of predicates. And finally let us define a "complete notion" as "a notion such that it seems to determine *uniquely* a *possible* individual" <Ev. p. 66. G II p. 42, 54>.[6] Any notion that does not seem to determine uniquely a possible individual will be an "incomplete notion". I think this is pretty well in accordance with Leibniz's usage. And I think it is obvious that a complete notion so defined is not an easy thing to form. Suppose we list all the predicates we can think of pertaining to a given individual called, say, "Brown", giving the circumstances of his birth and death an enormous number of true propositions about him. Can we ever make the list so comprehensive that it is *inconceivable* that there should have been a (different) individual having all those predicates and yet having some predicates different from those which truly appertain to Brown? Obviously **[54]** we cannot. We have omitted to mention, say, the colour of his maternal grandmother's hair or the name of the flowers which stood on his desk on such and such a morning. So our notion is incomplete; it does not suffice to determine *uniquely* a possible individual. It is still possible to form the notion of an individual who has all the predicates we have ascribed to Brown, and yet had a grandmother whose hair was a different colour from that of the grandmother of the actual Brown; who had daffodils, say, and not primroses on his desk. And if we add these two predicates, we are no nearer a complete notion – even if we range right up the scale of Brown's ancestry and down the scale of his descendants, adding all the facts we can think of, it is still possible to conceive of a world in which all these propositions should be

6 A notion determines a possible individual uniquely when it serves to enable us to infer all propositions whatever about that individual. (?) Dis. de Mét. G. IV 433.

true and which would yet be different from the actual world inhabited by our actual Brown. To quote Leibniz's own example: p. 65 [Ev.] … "When in considering Adam … appropriate." The point is, of course, that as long as we use general terms (and our language is made up of general terms, [and of names which simply disguise our ignorance of complete notions]), we can never *say* exactly what it is that makes an individual the individual he is, and not another. No finite multiplication of predicates will ever yield a complete notion: any notion which *we* can form is applicable to more than *one possible* individual and thus is incomplete.

We should notice in passing that since Leibniz defines a substance (or individual), as opposed to an **[55]** accident (or general term) – as that of which the notion is complete [cf. Discours de Mét. G IV p. 433], his famous principle of the Identity of Indiscernibles ("There can be no two substances differing only numerically") follows at once from the definition of substance. A complete notion is defined as a notion applicable to one possible individual only. A substance is that of which the notion is complete. Therefore no two substances can be exactly alike. For if they *were* exactly alike, their notions would be identical: but a complete notion applies only to one possible individual: therefore, if they were exactly alike, they would be the same individual, i.e. they would be identical. But more of that later.

To return to our "complete notions". Is the idea of a complete notion (a notion uniquely determining a possible individual) a meaningless idea altogether? Not at all, says Leibniz. Complete notions could be formed by an infinite understanding, and doubtless were (though in the past tense, this verb should strictly be tenseless) formed by God. But a complete notion of an individual, say, in the actual world would involve a reference to everything that has ever happened, or will ever happen – i.e. to the complete series of events in the universe. The complete notion of an actual individual is nothing less than the complete notion of the entire universe from a certain point of view. Given that complete notion (and the knowledge that it was complete) we could deduce from it every predicate of the individual concerned, leaving nothing vague or undetermined. But nothing less than this will suffice to the unique determination of the **[56]** individual concerned. For if our notion fails to specify *completely* the series of events making up the universe of which the individual concerned is a member, then it is always possible that that notion might apply to some member of a different possible universe i.e. to some different individual.

As far as I can see, this argument is valid. Taken in conjunction with Leibniz's subject-predicate logic and his denial of relations, it yields yet another characteristic doctrine of his system. The complete notion of an individual includes a reference to everything that happens in the universe of which it is a member. The complete notion of

that individual also represents the totality of its predicates. Since, on the subject-predicate logic, all its predicates, in this wide sense, are also predicates in the narrow sense (i.e. states of the substance considered independently of every other substance) then it follows, in Leibniz's words, that each individual substance "mirrors" or "expresses" the whole universe <p. 76>: i.e. there is a modification in each individual substance corresponding to every change or modification in every other element in the universe (though *not* of course the result of *interaction* with those other elements).

So here we have independent logical confirmation of the Pre-Established Harmony (though dependent once more on that fatal assumption of the universality of the subject-predicate form of proposition).

Now we undertook this investigation of "complete notions" with the object of discovering the significance of the Principle of Sufficient Reason. The sufficient reason for the truth of any contingent proposition (i.e. any proposition ascribing a predicate[7] to an existing subject) was to be found in the **[57]** notion of that subject. Now this pronouncement is susceptible of two interpretations both of which are correct, but which are complementary – i.e. both are necessary to the understanding of Leibniz's position, and his use of the Principle of Sufficient Reason. In the first interpretation we can see it as another way of expressing the denial of interaction. If there is no interaction between substances, if as Leibniz puts it "the state of a substance is not [is never] the immediate consequence of the state of another substance" <p. 76>, then the immediate cause of the present state of any substance (i.e. the *immediate* reason for the truth of some proposition about that substance) must be sought in some preceding state of the same substance, and, generally, in the laws of development – or the laws of succession of states – of that substance. This does not mean that our ordinary way of expressing ourselves on the subject of causes is wrong. True, we normally give the reason for any particular occurrence (the *cause* of that occurrence) by speaking in terms of interaction. We say that one body impels another and causes its motion <p. 77>. And, says Leibniz, owing to the Pre-Established Harmony and the fact that each substance expresses the whole universe from its own point of view, this is quite a legitimate way of speaking. It is quite true, on the other hand – owing to the Pre-Established Harmony, – that one body never "begins to have a certain tendency" except when another body "has a proportionate loss". *And* it is quite true,[8] since every substance expresses the universe, that the modification in me which is my "perception of the first

7 [Or any general proposition of (causal) law – but see later.]

8 Cf. p. 77 for the passage, of which this is a paraphrase.

movement" is the immediate cause of the modification in one which **[58]** is "my perception" of the second movement. (The "movements" themselves are fictitious constructions – phenomena – out of the co-ordinated series of "expressions (perceptions) of the movement" occurring in each substance.) In fact, what we regard as the physical laws (the causal laws) of the world *are* the distinct but harmonising laws of development of each particular substance – since each substance expresses the universe from its point of view. In Leibniz's own words: "Each possible individual of any world include in its notion the laws of its world" <p. 63>.

Now this is undoubtedly part of what Leibniz means by saying that the sufficient reason for the truth of any proposition ascribing a predicate to an existing substance is to be found in the complete notion of that substance. But it is also quite certainly not *all* that he meant. For it would be true of *any* possible world that the complete notion of any individual of that world would include the laws of succession of states of that individual (i.e. the laws of that world) i.e. the "explanation" of any particular state of that individual. But it is the essence of any true *contingent* proposition, as we have seen, that it asserts *existence*: it says that such-and-such actually happened to such and such an actual, *existing* individual. So to give a sufficient reason for the *truth* of a contingent proposition ascribing a certain state to a certain individual, it is not enough to appeal to the laws of that individual's world (i.e. the laws included in the notion of that individual); it is necessary to give a reason for the **[59]** *existence* of that individual, laws and states included: it is necessary to give a sufficient reason for the *actualising* of that notion. Let me put this again more briefly. A contingent proposition ascribing a predicate to a substance involves – this is what makes it contingent – the assertion of the existence of that substance. To give a sufficient reason for its truth, then, is to give a sufficient reason for the existence of the substance. But this is not to be done *merely* by citing the *laws* which are included in its notion: for the demand for a sufficient reason for the existence of the substance is ultimately a demand for the sufficient reason for the truth of these laws. They themselves are contingent, not necessary: there are possible worlds in which they do not hold.[9] The sufficient reason for the truth of a simple contingent proposition about a particular substance, then, can be given only by giving a sufficient reason for the "actualisation" of its notion (not by appealing to anything *included in* its notion). But its "notion" refers to the whole series of events in the universe; it mirrors or expresses the whole of the actual world. The demand for a sufficient reason for the truth of a single contingent proposition, then, is the demand for a sufficient reason for

9 Cf. paras. 36-37 of the Monadology.

the existence of the whole universe, as it is, rather than any other of the infinite number of possible universes. The reason for the truth of any one of the series of contingent truths must be outside that series altogether; must be the reason for the truth of the series as a whole.

I have put this argument as clearly as I can, in a way which shows its connection with the rest of his doctrines. But **[60]** you will find it in various forms throughout his writings, some of which make its connection with his thought as a whole clear, some of which make it sound like an independent argument. I refer you, for an example, to paragraphs 36 and 37 of the "Monadology".

The next step is probably familiar to you. Any set of existences is possible which does not conflict with any necessary truth or truth of reason. But truths of reason are always hypothetical: they never assert that anything must exist, only that *if* such-and-such a thing exists, such-and-such another thing must be the case. It is necessary that if anything is red, it should be coloured; but not that there should be a coloured thing. It is necessary that, if there are two things and two things, there are four things, but not that there should be two things or any number of things or indeed anything at all. Thus there are an infinite number of possible worlds or possible sets of existences, of varying complexity and character. For any set of existences is possible, the idea of which does not involve a logical contradiction. What reason is there for the existence of the actual world rather than any of the possible alternatives?[10] Of all the possible worlds, we are told, God elected to actualise this one for the sufficient reason that it was the best of them all (paragraphs 53-55 of the Monadology). Necessary truths determine what "complete notions" are possible: God's decision determines which of the multiplicity of such notions shall be actual. And his decision, though free, **[61]** is not *arbitrary*, but represents a choice of the best *because* it *is* the best. Thus the sufficient reason for every truth of fact is ultimately the preferability in God's eyes of the actual world over the infinity of other possible worlds that he might have created. In Leibniz's own terms "God's decision … about particular things is a consequence of his decision about the whole universe" <p. 64>; for, we will remember, "each individual substance expresses the decision that he has taken in regard to the whole universe" <p. 76>.

Into this rigorously logical treatment of the problem, then, there suddenly bursts a conception which is, on the face of it, not purely logical (or "scientific") at all – but normative: the conception of the "best". Though in the *ordinary* course of our investigations of na-

10 [*Here a deleted sentence:*] By way of answer, Leibniz re-introduces into metaphysics the hypothesis of a final cause: banished by Descartes, and treated with such superb contempt by Spinoza.

ture, it is certainly our business to seek mechanical explanations of things and think in terms of efficient causes;[11] but, in the last analysis, the sufficient reason for things can be given only if we take account of the purposive character of the universe as a whole: that it is *designed* to realise the *best* possible. The Principle of Sufficient Reason reveals itself as not merely a logical, but also a theological, principle. However, there are still questions we can ask. If we examine this answer a little more clearly, it reveals itself as rather less *theocentric* than it at first appears: though Leibniz, who was no doubt sincere enough in his piety, was at pains to emphasise (p. 55 of *Monadology*) the theocentric aspect. For the important question to ask about this answer, of course, is: "What is meant by the *best* possible world?" "What makes one possible world *better* than another?" Leibniz is becomingly shy of giving a very definite answer to this question. But on one point he is **[62]** quite definite, and I think – if the theistic hypothesis is to be entertained at all – quite sound. It is *not*, says Leibniz, the fact that God created the world, that makes it the best possible: it is *because* it is the best possible that God created it. [Any other hypothesis, says Leibniz, would be most impious; for any other hypothesis would involve saying either that God's creation of the world was quite arbitrary, that he had no reason for it at all; or that he is not supremely good – for what other reason would operate with the supremely good except the choice of the best possible as such? (cf. *Discours de Mét.* G IV 427-430). But, in that case, since to say "this is the best of possible worlds" is *not* to say the same thing as "This is the world God created", but, on the contrary, is to say something about the world which is the reason for it being created, then it remains permissible and necessary to enquire: What are these features of the actual world which make it the best possible? To give a detailed answer to this question, says Leibniz cautiously, [Dis. de M. V; G IV p. 430] is too much for our limited intelligences. But he ventures certain general suggestions which are extremely interesting. In general, he says, the best and most provident arrangement of any kind is that which produces the maximum of effect with the minimum expenditure of effort. Obviously the conception of economy of effort does not only apply as such to God, who is infinitely powerful: but something parallel to it may be found in the degree of simplicity, elegance and economy in the general laws or hypotheses which are true of a particular world. In general, then, we may suppose that the best possible world will be one which the greatest unity and richness in phenomena will be combined with **[63]** the greatest simplicity in hypotheses ["le plus simple en hypothèses et le plus riche en phénomènes" G IV p. 431] cf. Monadology paragraph 58.

11 Leibniz is always stressing this.

<*May 14*> [Obviously the hypothesis of the pre-established harmony – whereby every modification of every substance is "represented", with infinite graduations of clarity or obscurity, in every other – is a good candidate for inclusion in such a system. (Question – whether this isn't a feature of every possible world? – if an individual substance can be "defined" – complete notion – only as a member of such and such a system.)] Of the particular hypotheses which God chooses when he chooses this world, the Laws of Motion exemplify admirably this union of diversity in phenomena with simplicity in hypotheses. These are perhaps the most important of *efficient* causes – i.e. of the laws we use to explain the actions of *bodies*. The general law which God has established to regulate the action of *souls* (i.e. self-conscious individuals) is that they shall always pursue what seems best to them. Thus, says Leibniz, "souls act according to the laws of final causes, through appetitions, ends and means. Bodies act according to the laws of efficient causes and that of final causes or motions. And the two realms, that of efficient causes and that of final causes, are in harmony with one another" (paragraph 79 *Monadology*). We ought to note that between what Leibniz calls "final" causes and what he calls "efficient" causes *within* the series of events which make up the universe, the difference is only one of degree of clarity in the perceptions which are the successive states of the monads concerned. The "perceptions" of these monads which make up what we call "bodies" are unconscious: the "perceptions" which are successive states of the monads we call mind are, though confused, sometimes conscious (apperceptions). The brute (or unconscious) monad and the conscious monad alike change their states by a spontaneous activity in accordance with the inner laws of their nature; as, as we **[64]** have seen, these laws are perfectly harmonised. The conscious monad is really no more spontaneous in its activity than the unconscious: but where spontaneity (or activity) is joined to reflective consciousness, we speak of "*ends*" and means, and "final causes": though, in all cases alike, the monad is merely following the law of its own development.

But to return to the question of what makes one possible universe better than others, and the actual universe the best of all. When we examine Leibniz's tentative classification of the nature of this surpassing excellence, then the one final and sufficient reason for everything being as it is, appears far less of an ethically or normatively optimistic, and theistically centred, answer than it did at first. The maximum richness of effect, with the maximum economy of means. The greatest diversity of phenomena, with the greatest simplicity in hypotheses. The criterion of excellence seems to be a mixture of the purely quantitative – as *much* as possible – with a mathematician's demand for elegance in theoretical construction. The possible world which possesses these characteristics in the highest degree

will have, as Leibniz somewhere expresses it, the greatest "claim" to existence. Since necessary truths, independent of God's will, determine what worlds are possible and hence what are the characteristics of the possible world possessing the greatest claim to existence, the rôle of God is reduced to that of recognising and giving effect to this claim. It is always difficult to assess the exact significance of the use of the word "God" in seventeenth-century philosophy. He couldn't be left out, but he tends to become increasingly an abstraction, a philosophical concept, the name for **[65]** a philosophical theory or doctrine, and perhaps an expression of a philosopher's attitudes towards his own world-picture – as pre-eminently, for example, in the philosophy of Spinoza. And it is perhaps possible to regard Leibniz's use of the term just as a name for his principle that: "The sufficient reason for the truth of any proposition asserting or implying existence is that, of all logically possible universes, that one exists which exhibits in the highest degree the combination of richness in content with simplicity in causal hypotheses". And this interpretation is supported by fragments on "existence" scattered throughout his unpublished works.

Russell cites the following definition of existence: "The existent may be *defined* as that which is compatible with more things than is anything incompatible with itself". Whether this is to be taken as meaning that existence follows from essence alone by a *logical* necessity, without the need for an act of creation, I don't know. It is not at all clear that Leibniz ever fully worked out the implications of his view on this point. What, after all, with or without God, is the cash-value of the Principle of Sufficient Reason? I don't think a single answer, a single interpretation, can be given. I don't think it is one principle at all: but one name for several elements in his thinking which presented a certain *analogy* to each other (though in very different fields and perhaps ultimately difficult to reconcile with one another). Leibniz, the logician, I suggest, meant one thing by the Principle of Sufficient Reason, Leibniz the man of science another, Leibniz the theologian another and the Leibniz who had a certain emotional attitude to the world as a whole, a fourth. Logically, the **[66]** principle appears as a correlate, for the contingent propositions, of the Principle of Contradiction which guarantees the truth of necessary propositions. When the logician predominates – but this is only allowed to happen in private – the distinction between contingent and necessary propositions tends to disappear; or, more accurately, contingent propositions appear as a certain sub-class (those that assert existence) of necessary propositions. Necessary propositions other than those asserting existence (i.e. *hypothetical* necessary propositions) determine what sets of existences are possible: from the whole body of these necessary propositions together with the logical definition of existence, there follow logically all the true propositions as-

serting existence. The difference between contingent propositions, and those necessary propositions which are hypothetical, resides on this hypothesis, in the fact that contingent propositions logically presuppose the whole body of hypothetical necessary propositions, and thus could be seen as *necessary* only by an infinite intelligence, never by ours. On this interpretation, the Principle of Sufficient Reason can be regarded as an exact correlate of the Principle of Contradiction. While the latter asserts: "Only what is possible exists"; the former says: "Only what exists is possible".

There is, then, some support in Leibniz's writings for this extreme, rationalist interpretation of the Principle of Sufficient Reason. I don't propose to comment on it or do more than mention it. It is, I think, obviously indefensible and dangerously near to nonsense: it is, moreover, inconsistent with Leibniz's more usual views, and quite as scandalous as the Spinozism from which he was so anxious to disassociate himself. In the end, it would make nonsense of the distinction, on which he was always at such pains to insist, of the distinction between the necessary and the contingent. We **[67]** may notice, however, how easy it is it *seems* to escape Spinozistic impieties and superimpose a more orthodox theological pattern on this logical framework, simply by dropping the logical definition of existence, and making the actualisation of the contingent dependent on the free decision of God. Infinite intelligence, contemplating all necessary truths, sees what worlds are possible; infinite goodness chooses what is best (i.e. the richest in content and simplest in laws!); infinite power creates it. It is to be noted that this answer presents the contingency of the actual world only on the assumption that either God's existence, or his goodness, are contingent: both of which suggestions have more than a hint of impiety. Spinozistic necessity does not, after all, seem to be so easily avoidable.

The truth is, I think, that there is a deep-hidden confusion, which amounts to a contradiction, in Leibniz's conception of a *sufficient reason* for *all* contingent truths. He says that this principle is roughly equivalent to the common maxim that everything has a cause <E. p. 73>. But, if we study it carefully, I think it's plain that his principle is not equivalent to that maxim. It's roughly true, I think, that we do assume that the question "Why?" as applied to any event in the contingent series of events always has an answer. But if we consider what sort of answer we expect to that question, it's obvious, I think, that the answer we expect is always a reference to *some other event* belonging to the contingent series of events; and, explicitly or implicitly, to some empirical rule (causal law) connecting the two. And, if, we take it seriously that the event about which we are asking the question "Why?" is a contingent event, then we must also accept the fact that the **[68]** answer can *only be* a reference to a contingent rule exemplified in the contingent series of events, and that the

question can *never* be significantly asked about the series of contingent events as a whole. For if we attempt to ask the question about the series of contingent events *as a whole*, then we shall *either* get an answer which mentions another contingent event or rule, in which case the series of contingent events is extended by *one* and the question remains unanswered: *or* we shall get as an answer a necessary proposition. But if this is the right answer, i.e. if the series of contingent events really follows from (is explained by) the necessary proposition, then the series of contingent events is not contingent at all but itself necessary. This is the fatal dilemma which underlies the case of the Principle of Sufficient Reason.

Now, since we certainly cannot give up the view that the actual series of events is contingent (i.e. not logically necessary), it follows that, if we persist in asking the question "Why?" of the whole series, we are not *really* asking at all the same sort of question as when we enquire the cause of some particular event (or the reason for some particular decision): for, as we have seen, it makes no sense to ask *that* question of the whole series of contingent events. What then is the significance of this question as asked about the whole series of events? I imagine that normally it is a request for some description of that whole series which shall be found satisfying in some emotional or religious or ethical sense. And I think that when Leibniz proposed to give **[69]** the sufficient reason for everything, he was in part satisfying that demand and in part making a valuable recommendation about scientific procedure. I remarked that the normal use of the question "Why?" asked about some particular event or set of events was a demand to be told of some contingent rule (causal law) exemplified in the phenomena in question. Now Leibniz points out (*Discours de Mét.* VI, G IV p. 431) that, however complicated and irregular any phenomena might be, it is always possible in principle to construct some rule of which they may be regarded as the exemplification ("*De quelque manière que Dieu aurait créé le monde, il aurait toujours été régulier et dans un certain ordre général*"). That is to say, whatever the world was like, it would always have been possible in principle to answer the question "Why?" – This shows quite plainly that the Principle of Sufficient Reason is *not* equivalent to the Law of Universal Causality i.e. the principle that it is always possible to answer the question "Why?", to exhibit phenomena as exemplifying a rule of some kind. For this, Leibniz shows, would be true whatever the world was like, however complicated it might have been: so the Principle of Sufficient Reason must say more than this, since it is said to state that there is a reason why the actual world exists rather than any other of these possible but more irregular worlds.

But though any world would have been regular in a sense, Leibniz goes on, ours – and this is why it was chosen – combines the maximum of regularity in its laws with the maximum of diversity in its

content. It is, therefore, a valuable heuristic maxim in **[70]** scientific investigation always to look for the simplest possible hypothesis to explain a given set of phenomena, for that hypothesis is the most likely to be true. When looking for efficient causes, bear in mind final causes: bear in mind God's preference for elegance and economy in achieving his effects.

This is the scientifically useful element in Leibniz's principle. But we may note that it is simply a recommendation as to procedure; not really a description of the world. To say that a given hypothesis is the simplest possible way of explaining all the facts is the same thing as to say that it is true. A true hypothesis is not something *additional* to the fact: it is simply the systemisation of the facts; and the simplest hypothesis is always the most acceptable just because it is the simplest. It makes no sense, in fact, to speak of a world which would have the same events as the actual world, but which would differ from the actual world in having a less simple set of true hypotheses (i.e. of causal laws). To say, then, that the most satisfactory results in scientific investigations are obtained by seeking the simplest hypothesis consistent with all the facts, is not to describe a feature of this world (and, hence, a reason why is should exist in preference to others); but simply to formulate a rule of procedure in scientific investigation applicable alike to all possible worlds whatever.

Finally, what are we to say of the Principle of Sufficient Reason, regarded as embodying an optimistic attitude to the actual world; that is to **[71]** say, as calling attention to some feature of it which is held to be emotionally satisfying or comforting, or pleasing to religious or ethical sentiment. Regarded from this point of view, the Principle, I think, says something like the following. If full account is taken of the infinite richness and diversity of phenomena in the world; of the endless interconnections of things; and of the simplicity of the laws governing these interconnections – then it will be realised that nothing in the world could be different, no event could happen otherwise than it does, without the world as a whole being less admirable than it is. Individual events, – sins and sufferings – we may deplore; but the sufficient justification (reason) for their occurrence is the excellence and harmony of the whole of which they form a necessary part.

On this doctrine the comment which I find myself immediately inclined to make is that it seems to me plainly false. On second thoughts, however, it is evident that the doctrine is not really a doctrine at all; that it belongs to that class of "proposition" which cannot significantly said to be true *or* false. It doesn't make a statement; it expresses an attitude. Or rather it makes a statement, first – calling attention to the great richness of phenomena in the world and the relative economy of causal laws. And *then* it expresses an attitude: it says: "How much more admirable I find all this than I should if it were different in any respect!" I don't think that is an attitude which many

people share now; although it has often been quite common among the really comfortable members a stable society. It flourished perhaps most in the eighteenth century: and you will find Leibniz's principle **[72]** neatly, if somewhat superficially, versified, in Pope's "Essay on Man". One cannot criticise an emotion as if it were a philosophical theory. One can only confess to not sharing it. But it is perhaps worth pointing out that the apparent cheerfulness of "All is for the best in the best of possible worlds" is rather deceptive. It is not much consolation to the sinful and suffering individual to be told that the cosmic picture which includes his sin and suffering is more impressive, more elegantly simple in construction, than it would have been without it. In general one feels the weakness in the Leibnizian attitude is an over-estimation of the excellence of simplicity in the connection of things. Admittedly, causal laws being what they are and the material of the universe what it is, much that we find excellent could not in fact occur without the occurrence of much that we deplore: but the laws connecting the two are themselves contingent: and on the whole, most of us would, I think, be prepared to barter some of their elegant simplicity for the sake of respite from some of the more obvious evils of existence.[12]

<*May 17*> This brings us to the end of our consideration of the second great set of logical doctrines in Leibniz: the distinction between necessary and contingent propositions; and, side by side with the Principle of Contradiction, which guarantees the truth of the former, the invocation of the Principle of Sufficient Reason which underlies the truth of the latter. The distinction we saw to be a real and important one; but threatened, in Leibniz's own system, by the use he makes of **[73]** the Principle of Sufficient Reason. That principle itself we saw to be a curious amalgam of logical contradictions, theological acknowledgements, scientific recommendations and value-judgements. Leibniz himself regarded the principle as of the first importance in metaphysics: evidently it can be employed for a lot of purposes, but its exact meaning is by no means clear. We also examined Leibniz's distinction between incomplete and complete notions and saw how his definition of a substance as that of which the notion was complete, coupled with the denial of interaction founded on the subject-predicate logic, leads him to the conclusion that every substance "expresses" or represents in itself the whole series of events in the universe. This deduction seems to me quite sound, *given the premisses*; and provides useful confirmation of the Pre-Established Harmony.

12 Incidentally when we talk of "interconnection of things" in the philosophy or Leibniz, it should be remembered that what are really interconnected are states internal to each separate monad. Interaction between monads is apparent, due to Pre-Established Harmony.

(c) The Identity of Indiscernibles and the Conception of Substance

Before we take leave of the fundamental logical doctrines, we must glance at one further principle of great importance: which I have already mentioned *en passant*: viz, The Identity of Indiscernibles. This is the principle that no two substances can be exactly alike: if any two substances differ numerically (i.e. are two), then they must differ in respect of their predicates. This is an important doctrine for three reasons: (1) it really does follow from certain of Leibniz's other principles; (2) it is used by him in developing other important philosophical conclusions, particularly as regards time and space; and (3) it reveals a fatal weakness in his whole conception of substance as a genuine entity, a single unified *something* in which different **[74]** predicates inhere, or which is the subject of different states.

First as to the deduction of the principle.

(1) Leibniz sometimes deduces it from the Principle of Sufficient Reason <e.g. Clarke pp. 213-14>. If two indistinguishable substances were conceivable, he says, God would have no reason for choosing between them and would thus create neither. Therefore there can be no indiscernible substances among created things.

This is not a very good proof: (i) because it uses the Principle of Sufficient Reason and any proof which does that is suspect, in view of the curious and ambiguous nature of that principle; (ii) because it only proves that indiscernible substances do not exist, not that they are impossible – which is what the principle of Identity of Indiscernibles maintains. But plenty of alternative proofs are available.

(2) It can be deduced from the subject-predicate doctrine and the denial of the ultimate reality of relations. For suppose there are two indistinguishable substances, A and B. There must be some relation between them which makes them numerically distinct (e.g. they may be differently situated in space and time). But relations are only ideal and their foundations lie in some predicates of the terms concerned. Thus A must have some predicate corresponding to "being to the left of B" or "being earlier than B" or "being (in some other way) different from B" <cf. Russell p. 58>. But B cannot have the same predicate, for B cannot be different from itself. Therefore A and B have different predicates and do not differ only numerically. – This proof is quite valid, given **[75]** the premisses. The only objection to using it is that the "numerical difference" is most easily conceived in spatio-temporal terms; and this argument hence tends to presuppose a relational view of space and time which the Identity of Indiscernibles is used later on to establish.

(3) The simplest demonstration of all arises, as we have already mentioned, from the definition of a substance as that of which the notion is complete. <D. de M. G IV 433. L. to A. Ev. p. 65> A complete notion is defined as a notion which uniquely determines an individual.

If two substances are numerically different, then, their complete notions must be different. But a notion is a collection of predicates, so their predicates must be different. I.e. any two substances have different predicates.

[(4) An argument which, as far as I know, Leibniz did not use, but might consistently have used, could be drawn from his doctrine that each state of every substance "expresses" the whole universe from the point of view of that substance. If two substances were indistinguishable, their "expression of the whole universe" would be indistinguishable. But their "expressions" could be indistinguishable only if their points of view were indistinguishable i.e. if they were the same substance.]

Of Leibniz's use of this principle I shall speak later. The point I want to make now is this: that the very fact that this principle follows so easily from the definition of substance which Leibniz's logic and his belief that the self is a substance lead him to adopt, shows that this definition is incompatible with his other requirements of "true unity" and "simplicity" in substances. The **[76]** identity of indiscernibles states that any two distinct substances necessarily have different predicates. I.e. given that a set of predicates (P) – which may be an infinite set – is the totality of predicates of a substance S_1, and that an exactly similar set of predicates in the totality of predicates of a substance S_2, then it follows, by the definition of a substance, that S_1 is identical with S_2. But if substance is so *defined* that identity of predicates entails identity of substances, then clearly a substance is nothing more than the *collection* or totality of its predicates (including those predicates which correspond to and are the basis of spatio-temporal position): and to say that a certain state is the state of a certain substance is to say merely that it is a member of a certain series of states, the totality of which *is* the substance in question. Any such an account of substance as this is obviously totally and completely irreconcilable with the view of substance as a true unity, something that is neither an aggregate with members, nor a whole with parts, but a simple, single, indivisible identity. It is plain, I think, that any attempt to achieve consistency by retaining one of these elements in the doctrine of substance while sacrificing the other would lead to the total wreckage of the Leibnizian system: That system can survive only with a contradiction at its very core and centre, namely in the doctrine of substance.

[77] This brings us to the end of the consideration of the characteristic logical doctrines of Leibniz, and, I think it is clear that with their aid we can fix the outlines of the Leibnizian picture of the universe. (For more than that – e.g. for a detailed examination of its parts – I'm afraid we shan't have time). But that at any rate we can attempt.

Reality, then, consists of an infinite plurality of simple substances. None is to be conceived as acting upon any other, nor as being act-

ed upon by any other. Each is a world apart. They are not to be conceived of as existing in space and time. That is, we are not to think of them as occupying different points in space, or as lasting yet changing through time. Rather space is to be conceived of as the *appearance* of a certain non-spatial order among different substances; and time is to be conceived of as the *appearances* of a certain non-temporal order among the different states of any given substance. What, then, is meant by speaking of a plurality of substances? What differentiates one from another? The answer is that they differ in representational capacity, in the emphasis and degree of clarity of their perceptions. When we use the word "perception", however, we must be careful. We must not think of it as some action or influence of the perceived upon the perceiver. The series of perceptions which make up the states of monad A are quite independent of anything else in the universe and spring from A alone by that inner principle of activity, that spontaneity which is its essence. But we are justified in calling them "perceptions" for two reasons. First of all, there is a point-for-point correspondence between **[78]** the state of any one substance and the "simultaneous states" of all other substances, so that we can say that the state of any one substance at any moment is a *representation* of the states of all other substances (i.e. of the entire universe) at that moment.

(Just to digress for a moment about "representation": one thing represents or *expresses* another when (in Leibniz's words) <Ev. 84> there is a constant and ordered relation between what can be asserted of the one and what can be asserted of the other. Thus a map may represent a geographical area, and a line on a graph may represent or express attendance-figures or production or a patient's temperature. So long as there is a certain structural or symbolic identity between what represents and what is represented, there need be no other kind of similarity.)

The absolute spontaneity of the succession of states of any one substance, and the unfailing correspondence between the states of these independently developing substances, seems to require some further explanatory hypothesis: and it is duly forthcoming in the shape of the pre-established harmony. The one timeless adjustment ensures the harmony of what *are* separate, and *appear* as temporally developing, substances. Nor is this the only sense in which it is reasonable to call the passing states of a substance "perceptions". For if we consider those passing states of which we are *conscious,* it is evident that the contents of consciousness, though only phenomena, are not a totally illusory guide to reality: they are well-founded phenomena in that they *symbolise* reality. Thus space is only appearance and nothing is *really* extended: but the **[79]** infinite divisibility of extended matter is a *symbol* of the infinite number of simple substances: and in fact, corresponding to every smallest part of what we perceive as matter,

there is an infinity of monads. Or again, what we perceive and speak of as the action of one substance and upon another is a symbol of their initial mutual adjustment <Ev. p. 108>. When it is convenient to *explain* what appears as the state of our substance *by reference to* what appears as the state of another, then it is legitimate to speak of the one "acting upon the other", provided we avoid the mistake of thinking that there is real interaction between substances: "For it may fairly be said … [New System Ev. p. 108] … *acting* upon the other". Or again, since space is a plenum and all matter is connected together, we may see in the material interaction of all parts of the universe (the fact that one motion anywhere has effects everywhere else in proportion to its distance) a symbol both of the fact that each monad mirrors the universe and of the fact that a monad may have a specially close relation to certain other monads, corresponding to what appears as physical proximity. [cf. para. 61 of Monadology].

<*May 21*> The individual character [N. Sys. p. 105 Ev.] of each monad, then, consists in a certain spontaneous power or force or capacity, unique in each, which expresses itself in the temporal order as a succession of these passing states or perceptions. The tendency to pass from one perception to the next is called "appetition": *desire* is conscious appetition just as apperception is conscious perception. Now although each monad without exception is *active* in the sense that all its states arise spontaneously from itself; and although each has the *same* representational capacity in that **[80]** each represents the whole of the universe – yet at the same time there is a sense of "active" and a sense of "representational capacity" in which no monads are *completely* active, and in which they are all different from one another in respect of activity and representational capacity. In this second sense, activity refers not to "spontaneity" (in respect of which all monads are alike), but to clearness and distinction of perception (in respect of which they are all different). In proportion as a monad's perceptions are confused or obscure, or (so to speak) the range of their clarity is restricted – then in that degree the monad may be said to exhibit passivity. God alone is purely active: in that his perceptions alone embrace everything with an equal and absolute clarity. But in all created monads there is an element of passivity. At the lowest end of the scale, among those monads which correspond to what appears to us as inorganic matter, all perceptions are completely unconscious, though even at the level of unconscious perception we must say that these monads *represent* some elements in the universe less obscurely than other elements. As we rise higher in the scale, we reach eventually the levels of conscious sensation (which we share with the animals), and self-conscious thought (peculiar to those monads we call "minds"). Notice that there are two senses in which the element of *passivity* which is present in every created monad may be regarded as the foundation of *matter*. For one

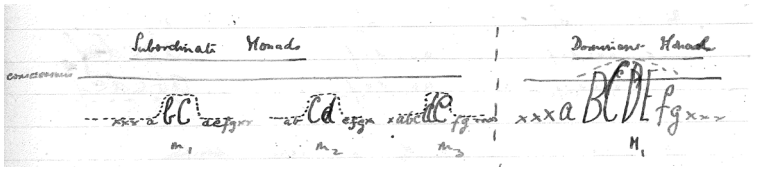
thing, it is because, we conscious beings or animals are purely passive in this sense **[81]** that we have *sense*-experience, sense-perception, at all. Sense-perception is confused and obscure thought. Pure activity would be pure thought: completely non-sensuous. Secondly, the greater the element of passivity in any set of monads, the more certainly will that perception or set of perceptions of ours which correspond to it be a perception of what we call brute matter, inorganic matter. The monads which underlie (or appear as) supremely passive matter are themselves the supremely (though not entirely) passive monads. Passivity in a monad displays itself both in the type of perception of which that monad is itself capable; and in the appearance which (conjointly with others) it presents in the perceptions of conscious beings. Passivity breeds rationality both in the *way* of perceiving (*sense*-perception → unconsciousness) and in what the perceiver is perceived *as* (animal or sheer body). The pure mind and the pure matter of Descartes are both abstractions: and every monad is in some degree *both*. For every monad is active in being the *source* of its *own* perception: but every monad is in some degree passive in respect of the *obscurity* of those perceptions. Leibniz sometimes speaks of the element of activity as "entelechy" and the element of passivity as "materia prima": every monad exhibits both.

Leibniz speaks as monads as differing not only in respect of the degree of clarity *with* which they represent the universe, but also in respect of the point of view *from* which they represent it. Point of view is clearly conceived on analogy with spatial position: but quite clearly we can't in Leibniz's system say that difference in point of view is the *result* of difference in spatial position, but must say that difference in what appears as spatial position must be the result of some other difference in their perceptions internal to the monads which is metaphorically described as difference in point of view. Does this mean, then, that difference in point of view is nothing else than difference in degree of clarity of perceptions? That **[82]** difference in degree of clarity is the only way in which monads can differ from one another? I think if Leibniz were compelled to say this – that the difference between say one state of one monad and the simultaneous state of any other, was simply a difference in *degree* of clarity – then it would be even more difficult to give a plausible account of the relation between the monadic and the apparent or physical world than it is in any case. But I don't think this is necessary. I think, having posited a *variety* in the passing states of monads, Leibniz can say that his monads, which have the same *overall* degree of clarity in their perceptions, nevertheless differ in respect of the *relative* clarity of different but *corresponding* elements in the passing states of each. And I think this is essential to his account of extended mass, of organic body and its relation to the soul. Let me try to make the point clearer with an explanatory model: it can be nothing more than that.

Let letters with subscript figures represent the different elements in the passing state of a monad i.e. different elements in a single total perception. The fact that each monad mirrors/expresses the universe (i.e. there is a correspondence between any state of one monad at a given time and the states of all other monads at that time) is expressed by the fact that the letter and subscript figure are the same for each monad. The temporally successive states are distinguished by change of subscripts. A line of such letters represents a single perception. A series of such lines one above the other represents the successive states of a single monad. Then let degree of clarity of perception be represented by the height of the letters. Then, **[83]** if, as between monads, there was but one variable factor, namely the degree of clarity (a certain coefficient different for each), we should have to represent the universe something like this:

M_1	M_2	M_3
$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$	$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$	$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$
$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$	$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$	$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$

the series extending infinitely in either direction. Now this model most certainly wouldn't do precisely because it would fail to make intelligible the sense in which monads whose perceptions approximated to each other in clarity could nevertheless have widely differing points of view: it would fail to make clear, in fact, the source of what appears as difference in spatial position, and of the fact that a given monad is more "influenced by" (i.e. represents more clearly) some monads than by others. We could perhaps at a pinch say that M_1 represents M_2 more clearly than it does M_3: but the only kind of spatial order of substances which this model could be held even approximately to explain would be something like a set of concentric circles or spheres – which is not at all analogous to the spatial order of things that we know. But our model is quite evidently incomplete. We can quite evidently introduce another kind of variation between monads besides the variation in overall clarity of perceptions: and, that is, by permitting relative variations in clarity within the total passing state. This will serve to explain (i) difference in point of view and, simultaneously, the appearance of spatial position; (ii) a monad's more clearly perceiving one monad than another monad; (iii) the relation between monads which Leibniz expresses by the metaphor of "domination". (i.e. the soul is said to be the **[84]** dominant monad of that cluster or group of monads which form its "organic body". Let me try to illustrate this:



Clarity of perception, in fact, can vary not only in degree, but, so to speak, in *distribution* over the whole range of elements of a given state. When there is a systematic *and continuous* variation in distribution as illustrated in the case of monads m_1–m_3; and when all the monads concerned are below the level of *conscious* perception; then monads so ordered may be held to constitute what appears as a physical body. When there is a monad whose own perceptions rise above the limiting level of unconsciousness, and, furthermore, are related systematically to the perception of such a group of monads as constitute a physical body, (the distribution of intensity in the conscious monad being the mathematical resultant of the distributions of clarity in the associated unconscious monads), then the conscious monad is said to be the *soul* of an *organic body* formed by the associated group. Roughly speaking *distribution of clarity* determines point of view (and apparent spatial position): overall *degree of clarity* determines the grade (whether brute monad, soul, or mind) of the monad concerned.

Interaction between monads, physical or spatial proximity and the perception of one monad by another are all different (and variously suitable) ways of speaking of a simultaneous rise **[85]** in clarity (relative to the other elements in the passing state of each monad) of corresponding elements (or nearly corresponding elements) in the passing states of different monads. A fact which demonstrates very clearly that (i) all motion [and even all spatial position] is relative; (ii) that it is a matter of convenience what we say acts upon what; and (iii) that to speak of the "perception of" one monad by another is simply to say (a) that such a correspondence occurs and, possibly, (b) that one of the two is conscious. The point is also illustrated that the problem of soul-and-body interaction is merely a special case of the *general* problem of interaction. All monads are totally independent of one another: but all *correspond* to one another *more or less closely*. Those monads which together form the organic body of a soul simply correspond to one another and to the dominant monad in a particularly close, systematic and organised way. Hence, in Leibniz's words, "bodies act as if there were no souls and souls act as if there were no bodies, and both act as if each influenced the other" [Monadology para. 81].

But the relation of the dominant to subordinate monads is not confined to those cases in which the dominant monad is above the lev-

el of unconsciousness. There is no reason why this kind of highly organised correspondence of one monad to a plurality should not be repeated below that level. If there is no reason against it, there is a sufficient reason for it. For it will add to both the *quantity* of things, the richness of the content in the universe, and to the degree of *organisation* in the world. Let us suppose, then, that *every* monad is a dominant monad, with an organic body: if we suppose that the number of monads is **[86]** infinite, there is no contradiction in this. The relation of subordinate to dominant may be compared with the relation "square root of": If x is $\sqrt{y}$, there is some other quantity which is the $\sqrt{x}$; and there is some other quantity which is the square root of the square root of x: and so on. Similarly the relation of subordinate to dominant may be repeated over and over again, without end. Monad x may be subordinate to y, but is itself dominant to a further set of monads each of which is itself dominant to a further set; and so on. (This would have to be shown diagrammatically by continual reduction in scale).

This is the point which is developed in paragraphs 64-70 of the Monadology. The combination of a dominant monad with its organic body is called by Leibniz a "living being". And the point is summed up in the paragraph (66) in which he says: "Whence it appears that in the smallest particle of matter, there is a world of creatures, living beings, animals, entelechies, souls" – and again, in the following paragraph "Each portion of matter may be conceived as like a garden full of plants and like a pond full of fish. But each branch of every plant, each member of every animal, each drop of its liquid parts, is also some such garden or pond". There is no doubt that Leibniz thought that the microscopical researches of his day were providing confirmation of this view at the phenomenal level: that, if we had powerful enough instruments, we should continue indefinitely to find minute organisms within each part of any organism, and indeed with each part of matter. This was simply a mistake about a matter of fact. But the factual mistake contributed to the **[87]** metaphysical fancy.

Of course the rough explanatory model I have been using to exhibit the real relations of monads and the sense in which each may be said to mirror the remainder is quite incomplete; it takes account only of the *passing state*. It allows for the appearance of the spatial but not of temporal relations. This is not enough of course, since the passing state of the monad not only "mirrors the whole universe from its point of view", but also "contains traces of all its previous and all its subsequent states". The complete picture of the monad is more comprehensive than we have so far allowed. We might complete the picture by replacing the lines with matrices (a table of lines): one line will differ from the next by variation in the *shape* of the letters (and these variations will be common to all the monads) and further variations in height and height-distribution (clarity and clarity-distribu-

tion). We must conceive the lines we can give as *selections* from a set of lines in which the variations are continuous. With the aid of such a picture as this, we can see how the organic body of a monad can *change* (paragraph 71) i.e. relative clarity-distributions may alter so that a monad which forms part of one subordinate system at one time may form part of another subordinate system at another. Monads may sink below and rise above the level of consciousness. The matrix itself is as "timeless" as a mathematical expression: the fact that we represent it spatially an accident of exposition. For the reasons **[88]** clearly given, every matrix has a set of subordinate matrices. Death and birth (in the absolute sense of separation of soul from body or ingress of a previously unbodied soul into a body) are therefore impossible. This conclusion is not in itself particularly interesting or significant since death and birth in this sense would be defined as involving merely the existence of a monad which was not a dominant monad of any subordinate set. It still remains possible for a monad to rise above or sink below the level of consciousness, or the higher level of *self*-consciousness (memory and reason). That such *risings*-to-new-levels occur Leibniz of course asserts in the case of spermatic animals generally, and – most spectacularly – in the case of man. He would also admit intermittent sinkings-below-the conscious level of those creatures who have once attained it – in sleep or stupor. This is, indeed, all very obvious. He does, however, make the further claim of immortality in the interesting sense (of retention of memory and self-consciousness) for *minds* (i.e. self-conscious monads). But clearly the general doctrine of monads, or simple substances, implies no particular support for this dogma; and accordingly recourse is had to theological and moral considerations, and the Principle of Sufficient Reason. Minds obviously possess more positive perfection; are richer in dynamic content (because having clearer perceptions); have less *passivity* than any other created substances. Consequently they will have more value in God's eyes than anything else, and the organisation of the universe will be ultimately and supremely adapted to the spiritual and **[89]** moral requirements of free and self-conscious beings. These apparently include personal survival, and the divine apparatus of reward and punishment. Leibniz's treatment of these questions is orthodox and not very interesting: a striking contrast with the more original parts of his system.

<*May 24th*> One more respect in which minds enjoy a uniquely privileged position deserves comment. Leibniz often expresses it by saying that while monads in general are representative of the universe of created things, minds are, in a sense, representative of God himself [para. 83 of M.]. All monads mirror the universe: but minds in some degree mirror God. The point seems to be that beings endowed with reason are capable of knowing necessary propositions, or truths of reason. Such knowledge cannot be derived from sensi-

ble experience alone, since such experience can never yield absolute certainty of necessary propositions <cf. N.E.>. In so far as our knowledge is knowledge of necessary truths, it is quite free from obscurity and confusion: *these* perceptions are absolutely clear. Now God's knowledge is all of this kind; all clear and all certain: (even, we have seen, as regards individual substances, since he knows their complete notions which we can never know). In so far, then, as we know necessary propositions, we have knowledge of the same kind (though not of course to a comparable degree) as God. Sometimes, however, Leibniz goes farther and speaks as if the connection between necessary propositions (or "eternal truths") and God were more intimate than this. He speaks of the "understanding of God" as "the region of eternal truths" and argues, **[90]** in paragraphs 43-44 of the *Monadology*, that the fact that these are necessary propositions, or eternal truths, is itself proof of the existence of God. Necessary truths (or essences) determine what is possible, and without God, nothing would even be possible.

This is a very bad argument. It amounts to saying: the truth of necessary propositions proves the existence of God, because unless God *knew* them, they would not be true or necessary: their necessity (or truth) consists in being known by God. But in any sense of the word "know", "A *knows* p" implies "A *believes* p *and* p is true". That a proposition should be true is a precondition of being known: it makes no sense to say that its being known is a precondition of its being true. The argument is valid only if "being known by God" is being used in a *queer* sense to *mean* "being necessarily true". But this is dangerous: it reduces God to a set of logically necessary propositions. He ceases to be the sort of being who can *know* anything in any intelligible sense and becomes the bare principles of abstract logical necessity. If truths of reason are *the same thing* as God's understanding, they cannot be the *object* of that understanding: and it is difficult to see what is meant by *calling* it an understanding at all.

There are one or two other subjects which cropped up in the course of this rapid outline which call for further comment – I didn't want to break the thread by lingering on them at the **[91]** time: and I shall have time only to say a very little about them now. The three subjects I particularly have in mind are: (1) unconscious perceptions; (2) space and time; (3) freedom.

(1) *Unconscious perceptions*. Leibniz loves to dwell on the necessity of admitting unconscious perceptions (*unapperceived* perceptions) and the importance of the role they play in his system. [Cf. esp. "New Essays" – e.g. Everyman pp. 148-152]. Their importance for his system can't be disputed. If you think of our matrix model of a monad, you will see at once that by far the greatest part of the elements making up the successive states of the most highly developed and clearly perceiving monad must be below the consciousness-level. It

is only in virtue of these unconscious elements that the monad can be said either (a) to mirror the universe (i.e. to represent or "correspond to" every other monad); or (b) to contain within itself at any one time "traces of all its past and future states". Since they are essential to these two features of monads, they are essential likewise to the Pre-Established Harmony. Nor does the theoretical indispensability of unconscious perceptions end there. They are the unapperceived determinants of choice where the matter appears to be quite indifferent. [e.g. two apples on a plate, with "nothing to choose" between them – how *do* we choose?]. They supply those continuous gradations which Leibniz thought to be necessary between one state and another. [This was but one aspect of his beloved Law on Continuity – part of his prejudice in favour of "as much as possible" – but seems to be by no means self-evident and in fact mistaken: cf. Quantum Theory]. He seems to **[92]** have thought also that (a propos the denial of interaction) unconscious perceptions made it more plausible to say that the pain of the wasp-sting had nothing to do with the wasp: but was the result of a gradual build-up of unobserved sensation (!) – "Observable perceptions come by degrees from those too small to be observed" <p. 152 E.>. (This was perhaps getting confused about his own views, since there was no objection to saying that the "waspish" *perceptions* were involved in the causation of the "sting" *perceptions*). Finally, unconscious perception helped to explain the Identity of Indiscernibles, since they showed that things apparently alike might differ by insensible variations. Altogether, then, the unconscious perceptions were an indispensable piece of metaphysical apparatus.

Now obviously in the sense in which unconscious perceptions are required for his whole system, they stand or fall *with* that system: and we note that in this sense the word "perception" means nothing more than "a state of a substance correlated, or corresponding, with the state of other substances" – or, even, "an element in such a state". We may accept this use of the word "perception" as a Leibnizian technicality: and note that it is rather a confusing use of the word, since the normal use of the world "perception" is to describe what Leibniz must call a "conscious perception" and distinguish from perceptions not so qualified. Let us use "perception (L)" to indicate Leibniz's usage and "perception (O)" to indicate the ordinary usage. As I say, the acceptance "unconscious **[93]** perceptions" in Leibniz's sense depends upon our attitude to his system as a whole, since they form an integral part of that system. Nevertheless, Leibniz uses some independent arguments of a psychological nature for the occurrence of unconscious perceptions. I don't propose to examine these arguments in detail. They are of varying value, and tend, I think, to show different things. But, speaking generally, I think that they indicate some confusion in Leibniz's thought over the use of this word "per-

ception". He tends, using our ordinary causal language for talking of perception, to argue from the fact that there are unapperceived causes of our conscious perceptions to the conclusion that these are unconscious perceptions. (e.g. our hearing the roar of the ocean depends upon the fact that each wave makes a noise not in itself audible). But the conclusion seems to me to follow only if it is already granted that to every modification of any substance, there corresponds some modification of every other; that the real causes of all perceptions (O) are perceptions (L) of the same subject; and the rest of the Leibnizian doctrines. Without this pre-assumption of the Leibnizian scheme of things, I see no reason why the audible shouldn't result from the inaudible without it being supposed that my conscious hearing presupposes some "unconscious hearings".

(2) *Space and Time*. [Cf. Letters to Clarke Ev. pp. 198-226] Leibniz makes a brilliant use of the Principle of Sufficient Reason and the Identity of Indiscernibles to establish the relational character of space and time; i.e. to show that they are not "absolute real beings" (substances), but are **[94]** constructs from spatial and temporal relations. I can't possibly do justice, in the limited time available, either to the arguments or to the question in itself. Very briefly, if I were to try to put the argument in non-Leibnizian terms, I think I should do so as follows. If we use the word "universe" to mean the total of things and events (physical or mental), then, whereas it always makes sense to enquire, of anything *in* the universe, *where* it is or *when* it took place or *how long* it lasted; it makes no sense to ask these questions of the universe as a whole. It makes no sense to say: "Where is the universe?" or "When did the universe begin?"; and it is only by a confusion of logical types that these questions seem significant. Because they seem significant and are not, people make the mistake of thinking that "space" and "time" are the names of absolute existences, instead of being – what they are – ways of referring to the fact that things are related in certain ways. That this is so can be seen by considering the sort of answers we give to the question: "When?" and "Where?". We always answer these questions *by reference to something else*. Where is A? – It is to the left of B – or just beyond C in the direction of D. When did *x* happen? Oh – just before (or just after or at the same time as) *y*. There is no absolute space in which we can fix the position of things and no absolute time in which we can fix the date of the occurrence of events. All the answers we give are *relational* answers.

In Leibniz's hands, the argument assumes a **[95]** rather different form. If space and time had absolute real being, then the universe must be regarded as occupying a determinate position in this absolute space and this absolute time; and that position could, logically, have been different from what it actually is. e.g. it would be possible for the whole universe to be turned through 90°, say, or for the

whole course of events to have started a year (i.e. a period of time corresponding to what we call a year) earlier than it did. And since time and space, so conceived, are entirely uniform, there would be no reason why one position in space and time for whole course of events should be preferred to any other. If time and space are absolute, then, God acted without any reason in choosing the position in time and space that he did choose for the whole course of events. But God never acts (and nothing ever happens) without a sufficient reason. Therefore time and space cannot be absolute.

Given the principle that nothing ever happens without a sufficient reason, this argument can be stated without reference to God. Another way of doing it (which Leibniz also uses) is by reference to the Identity of Indiscernibles. Suppose that space and time are absolute. Then everything at a given moment has a position in absolute space. Call that state of affairs "A". Then imagine that everything simultaneously moved through 90° in absolute space, with no other change (e.g. in the *relative* position of things) taking place. Call this state of affairs "B". Now if space is absolute, "A" must be different from "B". But, as a matter of fact, there is no distinction between A and B. If you try to think of such a difference, you can do so only by assuming that **[96]** something *in* the universe remained unchanged from A to B, so that there was some *relative* change of position. If you think of *everything* changing together, the second state is no different from the first and there has been no change. [A *difference* is (not indeed an *observed*, but certainly) an *observable difference*] <224>. Then, by the Identity of Indiscernibles, A is identical with B. Therefore space is not absolute. The same arguments apply to time; if, for example, you try to imagine that the whole course of events remaining exactly the same except that the *whole thing* happens a year earlier. There is no difference between the "two" sequences, and we can imagine a difference only if we illegitimately introduce a *relative* time-variation. But if there is no difference, then, by the Identity of Indiscernibles, they are not two sequences, but one. Time is not absolute, but relative. To quote Leibniz: "There is no determination of the when and where of the universe, other than the determination of things and their relations. Time and space apart from things have nothing real in them, nothing to determine them, indeed nothing discernible" <225>.

These arguments, which seem to me eminently sensible, establish, I think, that temporal and spatial facts are always and necessarily relational facts. This conclusion is not in the least surprising and does not involve saying anything absurd like "space and time are ultimately unreal", so long as relations are admitted as ontologically ultimate; or, in other words, so long as relational propositions are admitted as logically irreducible. But for **[97]** Leibniz, for whom relations are ideal; for whom substance and accident are the only ontological categories; for whom all propositions are of the subject-

predicate form; the discovery that spatial and temporal facts are relational facts is equivalent to the discovery that space and time are "ideal", "mere appearance", "*not* ultimately real", and so on. And this conclusion is, indeed, required not only by Leibniz's logic; but by the whole anti-Cartesian prejudice in favour of simplicity (in the sense of indivisibility or "having no parts") in the ultimately real. Space and time, if they were real existences, would be supremely, indeed infinitely, divisible: they are therefore supremely unreal. Nor can things spatially extended, and therefore having parts which are spatially related to one another, be admitted as ultimately real. The atomists' picture of tiny indivisible bodies bombinating in the void, though it may, says Leibniz <p. 213>, satisfy the imagination, will not satisfy the reason. It is, on the contrary, disallowed on all counts: the Identity of Indiscernibles, the requirement of simplicity, the ideality of relations. (The high degree of coherence of Leibniz's philosophy, the extent of the logical articulation of its elements, is well exhibited in connection with this "spatial" question).

Leibniz has further arguments designed show that space and time are neither substances nor accidents and are therefore unreal. I refer you to the correspondence with Clarke. Also for an ingenious account of how we come to "form the notion of space" (pp. 220-222) out of similar **[98]** relations. If at time t_1 *x* is related to A and B in a way which we could describe by saying "*x* is between A and B"; and at time t_2 *y* is related to A and B in a way we could correctly describe by saying "*y* is between A and B"; then we say that *x* at t_1 occupied *the same place* as *y* at t_2. Out of *similarity* of relations we construct for ourselves the notion of *identity* of place: and the notion of *place in general*, or all *places* taken together, yields us the notion of *space*.

The account is not worked out in detail, and we have no time to consider it. But here at any rate is the beginning of a relational theory of space – ruined of course, by Leibniz's absurd refusal to take relations seriously.

(3) *Freedom*. – Just a word – no more – about the freedom of the will in Leibniz. It is customary to say that while Leibniz made a great parade of ensuring the freedom required by morality, he actually denied it. Since I am not at all certain as to the sense in which freedom *is* required for moral responsibility I find it difficult to pronounce upon this question. But there are a few things I can say.

1. The fact that all actions are *contingent* in Leibniz's system is irrelevant. No one ever supposed that "morally free" meant "not logically necessary".
2. The fact that there is no *interaction* in Leibniz's system is irrelevant: for this is true of *all* monads, including many whose "activity" would not be called free in any relevant **[99]** sense.

3. The principle that the complete notion of a subject timelessly includes all its predicates is irrelevant. As Leibniz points out, one of those predicates may be that of "doing such-and-such an act freely". Generally, "freedom", whatever the required sense, must be characteristic of acts and agents in *time*: the characteristics of the timeless monadic world are irrelevant to it.
4. If "free" in the required sense is opposed to "determined", then Leibniz certainly denies freedom. The notion of an undetermined choice he declares even to be contradictory, since a choice must be motivated. More generally, he holds fast to the principle that every action of a substance is determined by some antecedent state of that substance, in accordance with the laws of that substance. I do not personally consider that this involves the denial of freedom in the sense required for morality. As Leibniz himself points out, however complicated phenomena might be, it would always be possible in principle to regard them as exemplifying some rule. Determinism in this sense is not a feature of the world incompatible with some other feature, called "freedom", of certain acts. It is merely a principle of procedure, a hint to look for the simplest rules.
5. Where Leibniz does seem to me to threaten freedom in a sense in which it is required for moral responsibility is where he speaks of the nature of the "final causes" (i.e. motives) which operate for self-conscious beings as invariably being "what seems to us (with our relatively **[100]** unclear perceptions) the best". If, then, we fail to pursue what is good, this is not a failure of will, but of insight. If we do wrong, it is from ignorance. Now this seems to me quite certainly fatal to moral responsibility for wrong-doing; which seems to me to require that we should *choose* to do something, *knowing* it to be wrong. It is not, then, Leibniz's *determinism* which seems to me to be fatal to "freedom" in the sense required for moral responsibility: but his doctrine that our motivation is *all of a piece*; that we always do as well as we *see*; that it's never our will, but always our understanding, that is at fault.

Just one final word in criticism of Leibnizian, and many another, metaphysics. It is exposed to the general criticism that it is self-contradictory: that its premisses are denied in it conclusions. The argument so often goes like this: since the world has such-and-such characteristics (say "A"), then is must *really* have such-and-such others (say "B"): but if it really has B, then it hasn't got A. B are "monadic", A "phenomenal" characteristics. Leibniz, in fact, uses common-sense beliefs as the premisses of an argument which concludes by denying those beliefs: a plainly illegitimate procedure.

An example will illustrate my point. Why **[101]** does Leibniz believe that there are a plurality of monads corresponding to the material world, the world of physical objects? Because, of course, he starts from the common-sense assumption that matter is real, that there are physical objects made up of real parts. He then goes on to give these "real elements" characteristics which are incompatible with their being *parts* of physical objects, of extended matter: and then degrades physical objects, extended matter, to the status of *appearance*, of *phenomena*. But this knocks away the whole ground of his argument for the existence of a plurality of real elements corresponding to physical objects. Why assume monads corresponding to the physical world at all? Why not be content with the harmonising perceptions of *conscious* monads, and leave out brute monads? The only argument left in favour of the latter is the poor one: – the more of everything, the better. But the addition of brute monads will make no observable difference (since, remember, our perceptions are not in the regular sense perceptions of anything, but entirely self-generated) – except perhaps to God.

One might go farther and ask: Why believe in a plurality of monads at all? It's very questionable whether such a belief is compatible with the subject-predicate logic and the denial of relations. Spatial and temporal relations Leibniz has declared to be *unreal*, mere appearances. But, underlying them, in the monadic world, there must be "relations of co-existence" (as he calls them) between different substances (if there *are* different substances); and there **[102]** must be "relations of succession" between the states of a given substance, relations of "simultaneity" between the states of different substances – all of these relations *appearing* as spatio-temporal relations. But surely these relations, whatever they are, are quite as incompatible with the subject-predicate logic as spatio-temporal relations: why should reality be denied to the latter and permitted to the former? Either have done with a plurality of substances altogether and join Spinoza with one timeless substance: or, since a plurality of substances involves relations of some kind, admit the reality of spatial and temporal relations. As soon as they are admitted, of course, the whole Leibnizian metaphysics crashes to the ground in ruins. And surely it's obvious that Leibniz's whole conception of a substance presupposes real spatio-temporal continuity, just as surely as his belief in a plurality of substances underlying the physical world presupposes a common-sense acceptance of the reality of the latter. The substance is essentially conceived as that which endures through time, changing both its states and its position in relation to other substances: and this conception is not intelligible except in spatio-temporal terms. The arguments from the logical subject rest as plainly upon the assumption of the reality of temporal relations, as the arguments from dynamics rests upon that of the reality of motion. The

fact that time, space and motion are subsequently condemned as mere appearance is simply another illustration of the fallacy of assuming the reality of the phenomenal world in the premisses, **[103]** and denying it in the conclusions, of your metaphysics. The full extent and enormity of this fallacy was nearly – not quite – apparent to Kant a hundred years later. But Leibniz was unconscious of it: and so was able to step cheerfully from the phenomenal to the monadic world and back again without realising that the step was one he could not possibly (i.e. logically) make; and sometimes without even realising that he had made it.

It is, however, irrelevant to condemn Leibniz (or anyone) for failure in metaphysics: since there is no such thing as success in metaphysics. His breadth of interest, and inventiveness, are obvious. Of the power of his logical ideas I have already spoken at length. I will conclude by mentioning once more that profound sense of the "harmony" of things which was probably the most important psychological determinant of the character of his system. He had a quite peculiarly strong sense of order, pattern, purpose: of a universe in which nothing was wasted and nothing was irrelevant, but everything contributed to form a whole of consummate excellence. These are of course subjective criteria. Such remarks tell us much about Leibniz and nothing about the world. But, whether we share it or not, Leibniz's vision (or dream) must have been a powerful one: for logic and religion, and all the sciences and all the disciplines, are pressed into service to contribute to a model of the universe which would conform to that vision.

Revision Lectures

[1] In these four revision lectures I shan't attempt to repeat all that I said in the first term. That would be tedious, and, I think, unnecessary. But I shall discuss in a general way some of the ideas which were introduced in that term's lectures and which we have taken for granted since: especially those whose central importance was not perhaps fully grasped at the time.

(1) "*Names*". And first of all I want to make some distinctions between "names" and general words, which we have taken very much for granted after first making it; and about the way in which the expression "names" is used in logic. Consider first how the expression is used in ordinary speech. It's a bit of an over-simplification which I shall risk making, to say that, in ordinary speech, the expression has two main uses:

(1) A *name* is an expression beginning with a capital letter used to refer to a "particular": and by a "particular" is meant an individual *person* (like John Jones) or *place* (London, Wales) or *thing* (the

Eiffel Tower) or *institution* (like the Midland Bank) or *event* (The Boston Tea Party) or *collection* of things or persons or events. The word to be stressed is *individual*. Not any bank in the Midlands is "The Midland Bank"; and not any tea-party in Boston is "The Boston Tea Party". When we use a name with a capital letter, we want to refer not to a *kind* of thing or to anything **[2]** of a certain kind, but to a unique something. It is *this* characteristic of names in-the-ordinary-sense-with-capital-letters, that causes us to make the use of the term that we do in logic. <Names-in-the-sense-with-capital-letters are called "Proper Names">.

(2) There is however another and quite different ordinary usage of the term "name". If I am going for a walk, and ask my companion – "What is the name of that tree?" or "What is the name of that flower?" – I don't expect an answer which has, so to speak, a capital letter: I don't expect an expression ("James!") used to refer to that *particular* tree. I am really asking for a *general word* for the *class* of trees to which that tree belongs. If you like, we may express this by saying that I am asking for a *class-name*: the name of the class of which that tree is a member. But if we do this, we must remember that a *class* is not a particular, not a *unique something*: it is only by courtesy that it can be called a "thing" at all; and that any general world whatever (like "red" or "angry") has just as much right to be called a class-name as any which (like "oak" or "daffodil" in the answer to our question) applies to a natural species.

Obviously these two normal usages of "name" are very different from one another; and neither is an *exact* usage. And neither is identical with the logical use. But the logical use is a great deal closer to the first popular use than it is to the second popular use. What, then, is the precise significance, in our logical use, of this term "name"? It is far more difficult than it seems to give a simple answer. But here is an attempt. **[3]** By "name", in logic, I mean any expression whose primary function is to pick out, denote, refer to, identify an actual individual, – a unique something, to use the phrase I used just now; and any connotative force that expression may have (i.e. anything it may tell us about the *properties* of that individual or something), is irrelevant to its main purpose – which is simply to indicate *what* is going to be talked about, and not to say anything *about* it. If you reflect about this, I think you will see two things straight away: (1) that this really is the essential function or ordinary purpose of names; (2) that our definition of a name in the logical sense implies that many expressions are *names* in this sense which are not names in the first popular sense (i.e. ordinary proper names with capital letters).

That this *is* the essential function of names becomes obvious if you consider how totally arbitrary the choice of ordinary proper names

may be. An ordinary proper name, (say "Leslie") may be applied to anybody and anything whatever: and will serve its purpose whatever it's applied to, since its essential function is not to say anything about that to which it is used to refer, but merely to refer to it – to be a tag, a "handle" (in the expressive popular metaphor). For the job it has to do, one name is, literally, as good as another. There is (it is scarcely necessary to add) nothing of the same successful arbitrariness about the use of general words. In order for one to be able usefully to apply the word "red" to something, it is generally desirable that that thing should have a certain property, i.e. that it should be red. If I *systematically* ignore this requirement, then **[4]** I am altering or destroying the *meaning* (i.e. the *connotation*) of the word. But nobody says that the meaning of "Leslie" has been altered when another child is christened with that name: the reason is that the word, in so far as merely functions *as* a name, has no general meaning. Its purpose is to denote – to pick out, identify, select, point to – a particular individual.

A lot of expressions, I said, must be admitted as names in the logical sense which are not names in the ordinary sense. The pronoun "I" for example is always a name: it refers to the particular individual who uses it, picks him out with complete success as the individual to be talked about – and yet, in itself, says nothing about the individual. The other pronouns are often, not always, names. Not always; because they may have special grammatical functions to perform, or they may be standing as shorthand for a descriptive phrase. The demonstratives "This" and "That" are supremely names. They too indicate that which is to be talked of, but themselves say nothing about it. And we must make another addition to the list which perhaps seems a little stranger. And this is the use, as a name, of a general word with the definite article. Such expressions as "the table", "the child", "the dog", "the horse", "the sheep" we must admit as frequently having the logical status of *names*. That is, they serve in their context unambiguously to pick out a certain specific particular. Of course this use of names cannot be arbitrary: they can be so used to refer only to a particular which have the properties (being a table, a dog etc.) which they connote. But the point is **[5]** that their connotative force is quite subservient to their purpose in this use – which is to pick out the individual. Sometimes a general world may be used as a name even without the article – this is particularly evident in the case of family relationships – "father", "mother" etc.

A *name* in the logical sense, then, is essentially an expression *used* to pick out an individual, to denote a unique something. I have said of some that their connotative force is subservient to their distinctive purpose i.e. its "pointing-out" purpose. And I have also said, rather loosely, of others (like "this" etc.) that they had no connotative force at all, that they merely picked out something, without say-

ing anything about it. This is obviously not *quite* accurate; and the first way of speaking is to be preferred. Even such a colourless word as "This" may be said to have some meaning (connotation): usually something like "What is present-to-one-now". Even a strictly proper name like "Leslie" may be said to have the *general* meaning: "A person or thing referred to by the name 'Leslie'". But the point is that it is not their connotative force, but their *use* in a certain context, that gives them their *unique* references. When we begin a sentence "This" or "The child" or "The table", such general connotative force as the word has *helps* us to make the unique reference we want to make: it is the beginnings of an indicator – but it is the context of the use of the expression that does the main part of the job. The unique reference of a name is never given by its connotation, its general meaning, alone: but by its general meaning together with its context. It is only *in a use* that **[6]** the expression *becomes* a name. Consider the phrase "The child", and you will see what I mean. It is obviously "designed" for use as a logical name: it is not, as "child" is, a *general* word or phrase: but it is only in use that it becomes, so to speak, the name it is – that it acquires its unique reference and becomes distinguished from other occurrences (as *different* names) of the same phrase.

Now this is a very important point. For it serves to distinguish name in the logical sense from definite description and from "disguised" definite description; and explain why proper names, which are sometimes shorthand expressions for definite descriptions, are not always names in the logical sense. If we were to define a name in the logical sense merely as an expression with a unique reference (i.e. applicable to only one individual), it would be difficult to explain why descriptive phrases such as –

The present king of France
The author of the Iliad
The tallest man in the world
My cat

– should not be regarded as names: for clearly, if they are applicable to anything at all, each is applicable to one thing and one thing only. But in the case of these expressions the claim to uniqueness of reference is made as part of the connotation (the general meaning) of the expressions. If I speak of "my cat" you will understand one as asserting that there is one and only object which is cat and is mine. Thus you can interpret these phrases as having a unique reference by virtue of their connotation alone, without any independent knowledge of the object to which they uniquely refer **[7]** and even if there are no such objects. But if we remember that an expression is never a name *solely* in virtue of its general connotational meaning, there is no longer any temptation to regard these expressions as names:

instead, we can all them uniquely descriptive phrases. And we may notice, too, that any proper name which is merely a shorthand way of expressing a descriptive phrase – in a concealed description – is according *not* a name in the logical sense [e.g. "Homer" = "The author of the Iliad"].

A name, then, is an expression which, as used in a certain context, serves to pick out a particular individual person of object or event as the person or object which is to be talked about. It has a unique denotation as used in that context; but its unique denotation does not depend upon its connotation (or general meaning) alone. And this is particularly obvious is the case of such words as "This" which have almost no connotation (general meaning) at all, and yet can function quite successfully as names: and almost as obvious in the case of such expressions as "The child" or "Father" which have a very wide general meaning, and yet which, when used in certain contexts, function successfully as names i.e. serve to denote one unique particular, to pick out unambiguously a unique something. Clearly, then, the fact that such phrases can function successfully as names presupposes some independent knowledge, on the part of all those who successfully understand their functioning as names, of the particular or individual to which they refer i.e. knowledge of that particular independent of the connotation of the expression used as a name. The **[8]** name-phrase that serves simply to direct our attention to that particular which we know independently of what the name-phrase tells us *about* it. If we enquire: – What is the nature of this independent knowledge of the particular required in order that we can (logically speaking) *name* it, the easiest answer to give (and the one that I gave in my first term's lectures) is, I think, that we should be "directly acquainted" with that particular. I am not altogether happy about this answer: [It seems to me that "acquaintance" is a matter of degree, or at any rate a not-at-all-easily-definable relation]: but, to avoid plunging too deep into problems of logic and knowledge, we may accept it as approximately correct. Anyhow we may say that it is *some* independent knowledge of this kind which is the condition of the successful use of an expression as a name. If we are in a picture-gallery which is in total darkness and *you* have never been there before; it is no good my saying "This picture is good" accompanied by a gesture. As far as you are concerned I have not succeeded, (by the use of the phrase "this picture") in *naming* a particular object. It is necessary for you to be able to *see* the object, to have some direct knowledge of it independently of what I tell you about it by the use of the phrase "This picture", in order for the phrase "This picture" to function, as far as you are concerned, as a name – as a means of letting you know *what* particular is to be talked about, what individual is picked out in order that something may be said about it. In the absence of such independent knowledge (by acquaintance) on your part of the particular referred to, my sentence is

merely existential – the **[9]** "this" has no function – and it merely says that there is a picture in the room which is good – there is an *x* such *x* is the picture and in the room and good.

This suggests another criterion for distinguishing between an expression being used as a name in the logical sense, and expressions not so used: a criterion which we have encountered elsewhere. When an expression is used as a name, it is not significant to enquire whether the particular to which it refers *exists*. Thus the question "Do I exist?" is meaningless; and, quite generally, "Does this exist?" or "Does this so-and-so exist?" is not a question which has any sense. But where an expression is used as a (uniquely) descriptive phrase, it always makes sense to enquire whether there exists an individual (object or person or event) to which it applies.

Let us underline these points about names by considering a few examples of (a) expressions not used as names, but descriptively (b) expressions used as names.

(a) To use again the phrase I instanced earlier, in a sentence

(i) The tallest man in the world is French. NB. It seems by connotation alone to refer uniquely to one individual – but, for that very reason it is *not* a name. It says: "There is a man who is taller than all other men and is French" i.e. is existential (might be false as an assertion of existence – two top men might be of equal height).

(ii) Homer was blind.

– Instance of a proper name acting as shorthand for a descriptive phrase – Translate "There was one man who wrote the *Iliad* and the *Odyssey* and was blind and was called Homer". **[10]**

(iii) The present King of France is / England is … bald.

(There is a man who … etc.)

(iv) My cat is called "Cooper" $(\exists x)$. *x* is a cat of mine and called "Cooper".

Note that any of these verbal expression *might* be used as names i.e. with the object of picking out one particular in order to talk about him: but in order for this to be done, the expression would have to lose its primarily connotative use and there would have to be an appeal to some knowledge of the particular independent of the connotative force of the phrase. Cf. the use of the following expressions as names.

(b)	(i)	*The child* is crying	Φa
	(ii)	*I* am thirsty	Φa
	(iii)	*This* is an inferior blackboard (*The blackboard* is inferior)	Φa
	(iv)	*Paul* is taller than *John*	aRb
	(v)	*The college* is cold.	Φa

In all these cases the fact that the sentence is pronounced when and where it is will determine the denotative function of the name-word: i.e. will determine what the expression is the name of. But quite obviously the natural use of each of the underlined expression in these sentences is as a *logical name* in the sense that we have given the phrase and have chosen to symbolise with the small letter at the beginning of the alphabet. All our examples will be the of the form Φa, except the one relational sentence of the form aRb.

I hope this rather lengthy digression makes clear the answer to the question "What do we mean by a "name" in logic – or, as it is sometimes expressed, by a "logically proper name"?"; and shows just how far the class of names **[11]** in the logical sense is and is not co-extensive with the class of ordinary proper names. Just to sum up:

(i) Any expression is used us as a name in the logical sense when it is used to pick out or identify a particular individual (event, object, person) about which something is to be said. It cannot do this in virtue of its connotative force alone; but only by the combination of its connotative force, or general meaning (which may be negligible), with the context of its use. In all cases, therefore, it use as a name depends upon some independent knowledge of the particular concerned (i.e. independent of the connotation of the expression); it is suggested that this independent knowledge is knowledge by acquaintance.

(ii) Many ordinary proper names are used as names in this sense, but many expressions which are not ordinary proper names are also used as names in this sense. Ordinary proper names are given to those particulars which seem to us outstandingly important or which we frequently want to refer to. Persons, animals and ships are not the only things to receive proper names.

(iii) Some expressions which would ordinarily be called "proper names" are used sometimes, not as names in the logical sense, but as shorthand expressions for (uniquely) descriptive phrases.

(2) *General Words and Classes: Connotation and Denotation*. From this discussion of names, several profitable lines of enquiry seem to lie open. Perhaps the most obvious subject is that of general words:

since names and general words between them go to make up these sentences which we said to be logically the simplest, viz. sentences of atomic form. The difference between an expression **[12]** used as a name and a general word, is easily stated. The function of a name is to pick out or determine an *individual*: the function of a general word is to pick out or determine a *class*. One expression may function in both ways: both generally, and (with or without the definite article) as a name. The word "father" for example. We may use it as a name, to pick out a certain individual, and say something else about him: if we were writing it in this sense, we should spell it "Father". Or we may use it generally to talk about a certain characteristic which is common to that individual and all other members of the class of fathers. In that case we spell it "father". When we use it in the first way, it is not the individual's membership of the class that we are primarily interested in: we simply use that characteristic to pick out the individual we want to say something else about (e.g. "Father is playing bridge"). But when we use the word *generally* in a statement of a fact as in "John Jones is a father" – *then* it is the individual's membership of that class which primarily interests us: having picked him out by some other expression used as a name, what we have to say *about* him is precisely that he has the characteristic connoted by the word (or is a member of the class determined by its connotation).

I don't propose to repeat all I've said about denotation and connotation, since we went into that fairly thoroughly; and it's to be found in Miss Stebbing. Notice that the denotation of a general word is the same thing as the membership of the class determined by the connotation of that word. The relations "being denoted by" and […*pages missing?*]

[Lecture plan?]

Introduction

1. The search for true unities – aggregates – the rejection of atomist or extensional thesis <R. p. 105 seq. 239-243> (Descartes) – on both metaphysical and dynamical grounds – the suggestion of the "metaphysical point"
[Arnauld – aggregates etc. p. 77-83
New System p. 98-104
Weldon pp. 17-20]

2. The logical doctrines. (Arnauld passim and extracts from R.)
   (a) The subject-predicate doctrine – inherence of all predicates in the subject – denial of relations <223>, and hence of interaction (how logic accords with popular philosophical prejudice here) [Pre-Established Harmony

Arnauld pp. 57-75
Russell pp. 8-10 and notes.

(b) Distinction between necessary and contingent propositions (arising out of apparent denial of freedom implicit in former)

Necessary propositions as hypothetical and dealing with *incomplete notions*.

The *complete* notion of the individual – completely determines for that *x*, and yet contingent whether that *x* or another.

Principle of sufficient reason as providing <204, 212>

(a) connexion between predicates
(b) ground of selection of actual existences.

The compossible – the possible and the actual. <p. 210-211> (final causes and efficient causes), (the best i.e. the most and most economical)

(c) The complete doctrine of substance <and law> and the identity of indiscernibles. <N.S. 105-8, 213, *224*.>

3. The pre-established harmony – each monad as mirror of the universe – theory of "representation" – defense of the automaton <N.S. 104 seq. Foucher 115. 120-140.>

4. Application to specific question. <198 seq. 220>

(a) Space and time *and* materia secunda
(b) Perceptions – clarity and confusion – Dynamics, activity and passivity – entelechy and materia prima
(c) The dominant monad – soul and body interaction
(d) Confused or unconscious perception <NE 148-156>
(e) Theory of knowledge – innate idea <143-147, 167-74, 181-91>
(f) God in Leibniz
(g) Ethics (free will)

5. The radical inconsistencies and failures.
Plurality of substances
Representation
A logical subject form constituted precisely by the spatio-temporal continuity of states, which relation Leibniz attempts to deny.

Abbreviations

Arnauld	Leibniz-Arnauld Correpondence
D. de M.	*Discours de Métaphysique*
Everyman / Ev. / E.	Leibniz, G.W. (1934). *Philosophical Writings*. Selected and translated by M. Morris. London: Dent (Everyman's Library).
G	Leibniz, G.W. (1875-90). *Die philosophischen Schriften*. Edited by C.I. Gerhardt. 7 vols. Berlin: Weidemann.
N.E.	*New Essays on Human Understanding*
N.S.	*A New System of the Nature and Communication of Substances*
Russell / R.	Russell, B. (1900). *A Critical Exposition of the Philosophy of Leibniz*. Cambridge: Cambridge University Press.
Weldon	Weldon, T.D. (1945). *Introduction to Kant's Critique of Pure Reason*. Oxford: Clarendon Press

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