

# Leibniz's Theory of Conditions: A Framework for Ontological Dependence\*<sup>†</sup>

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## Abstract

The aim of this paper is to trace in Leibniz's drafts the sketched outline of a conceptual framework he organized around the key concept of '*requisite*'. We are faced with the project of a semi-formal theory of conditions, whose logical skeleton can have a lot of different interpretations. In particular, it is well suited to capture some crucial relations of ontological dependence. Firstly the area of 'mediate requisites' is explored – where causal and temporal relations are dealt with on the basis of a general theory of 'consequence'. Then the study of 'immediate requisites' is taken into account – a true sample of mereological inquiry, where Leibniz strives for a unitary treatment of part-whole relation, conceptual inclusion and inherence. Far from simply conflating these relations one with another and with causality, therefore, Leibniz tried to spell them out, while at the same time understanding them within a single conceptual framework.

## *Introduction*

In this paper I shall try to reconstruct the leading lines of a Leibnizian project, which prefigures a kind of 'formal ontology', different both from the special metaphysics of the *Discourse* and the subsequent systematic writings on one hand, and from the formal logic of calculi on the other. This sketched sample of a formal ontology presents itself as a general theory of conditions. The resulting logical framework serves to articulate a wide range of concepts, whose focus is the notion we can label as 'foundation' or (conversely) 'dependence'. In particular, we are faced here with a notion of ontological dependence, i.e. a dependence with respect to existence.

Behind this Leibnizian inquiry, there is his dissatisfaction with the available ways of conceptualizing this subject topic. Thus, in his 1670 *Preface* to Nizolius, he disqualifies Suarez's definition of 'cause' in terms of 'influx' as an undue

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usage of metaphorical talk in philosophy; and he extends this criticism to the terminology of ‘dependence’ itself<sup>1</sup>. But also the Cartesian turn – where ontological dependence was simply equated to a conceptual one – does not provide, in his view, an adequate characterization, as is shown by some remarks in his notes to

Spinoza’s causal axiom<sup>2</sup>, or in the discussion with the Cartesian scientist B. de Volder<sup>3</sup>. Cartesian thinkers try to capture ontological dependence through a notion of conceptual need (*‘indigentia conceptus alterius’*) which is only epistemically qualified: A needs B, if A cannot be conceived without B. Moreover, this conceptual dependence being no further specified, the related notion of modification does cover quite different ontological relationships, so that, e.g. causal connection risks collapsing into inherence.

Leibniz, for his own part, tries to spell out more adequately this notion of dependence in his theory of conditions (*requisitum/requisita*). I shall briefly hint at the historical origins of this concept and at Leibniz’s early usage of it within his combinatorial metaphysics. Then, I shall consider the mature development of a semi-formal theory of conditions, embracing two areas: a) the section on Consequences of the category tables, where an analysis of causal and temporal connections is spelt out; b) the theory of immediate requisites, i.e. Leibniz’s outline of a mereology, where physical, conceptual and metaphysical parts are handled together, and ontological inherence is dealt with.

### *0. At the Origins of Leibniz’s Theory of Conditions*

The language of requisites Leibniz uses in the seventies can be brought back to two main sources. First, we have his interest in a ‘logic of conditions’ in the juridical context of his youthful dissertations *On Conditions* - written shortly after the DAC - that can be seen as a significant sketch of propositional logic.<sup>4</sup> Conditional connections, in fact, hold there among propositions, or better among their truth values. Anyway, the ‘if...then’ connective is likely to be interpreted as an implication stronger than a material one. This formal inquiry provides Leibniz with some ideas he will later apply to spell out his analysis of determination.

The main inspiration, however, has to be probably found in Hobbes’s *De Corpore*. In this work, in Chapter 9 of the *philosophia prima*, the cause/effect pair is introduced starting from the basic notion of action: a body is said to act, when it brings about a change in another body. This familiar situation is analyzed into a

set of causal factors, for which a precise ontological interpretation is offered: they belong to the category of accidents, that is to say they are properties or states of the relevant bodies. Conditionship, in Leibniz's studies for a juridical logic, connects propositions to propositions, or truth values to truth values. Here it connects things to things, or properties to properties. The basic notion for the logical working of this conceptual setting is just that of requisite (*requisitum*), which is defined as a necessary condition.<sup>5</sup> The whole sum of these (necessary) conditions works as a sufficient condition and is what properly deserves the name of 'cause'.<sup>6</sup> From such a perfect cause the effect does certainly follow: otherwise, it would not be a sufficient cause. All this amounts to frankly recognizing that every sufficient cause necessarily brings about its corresponding effect.<sup>7</sup>

Leibniz's first inquiries into the 'principle of reason' in the seventies are framed in this conceptual vocabulary. In the *Confessio philosophi* and *De Summa Rerum* we find the notion of '*requisitum*' as a necessary condition for the *existence* of something else. At the same time, "the whole sum of requisites" ("*aggregatum omnium requisitorum*") becomes his standard definition for "*ratio*" or "*causa*"<sup>8</sup>. Moreover, he is entirely ready to accept the deterministic logic of Hobbes's theory.

At the end of the seventies, close to the first essays on logical calculus, '*requisitum*' is given the different sense of element of a definition, within the general combinatorial framework. Therefore, we have two senses of '*requisita*': a dynamic one, as a condition for existence, working as a productive factor, and an analytical one, as a condition of intelligibility, hence an element of essence. The conflation of these two meanings underlies the logic of ontological proof, which Leibniz does reconstruct at the end of his Paris stay and at the beginning of the Hanover years. But this twofold role of *requisitum* exposes combinatorial metaphysics to the risk of monistic collapse:

... since the ultimate reason of things is unique, and contains by itself the aggregate of all requisites of all things, it is evident that the requisites of all things are the same. So also is their essence, given that an essence is the aggregate of all primary requisites. Therefore the essence of all things is the same, and things differ only modally...<sup>9</sup>

Also these metaphysical apories are behind Leibniz's attempt, in the following years, to give an interpretation of the concept of requisite which – though preserving a unifying account of its logical working – will be able to sustain a plurality of different interpretations.

Meanwhile, on the terrain of the philosophy of mind, the study of the chain of thoughts and affections shifts into a more and more formal study of a temporal series of causally connected states. This is the case in the great study *De Affectibus* from 1679<sup>10</sup>. ‘To be determined’ is taken here as synonymous with ‘to follow from’. Leibniz goes further: “Something B follows from something else A, if the existence of B can be derived [concludi potest] from the existence of A, and B is posterior in nature to A.” Derivation is finally expressed by a pure inferential scheme: “B can be derived from A means that: if A obtains, B also does.”<sup>11</sup> Precisely in this last formulation, the study of consequences reduces to the conceptual frame of the logic of conditions we are already familiar with. But the same schema appears earlier in the *De Affectibus*, where it is used for defining the relation of cause and effect: “Let there be two things A and B, of which the former is prior in nature, the latter posterior; and assume that, if A obtains, B also does: then B will follow from A, i.e. A will be the cause, B the effect.”<sup>12</sup> It is not easy to provide a clear logical reading of the implication to hand. Surely, it is stronger than a material one. In any case, variables do not stand here for propositions, but for things or states of things. At least two elements of the definition indicate its extra-logical import. The first one is the explicit reference to the existence of things, as the proper term of the inference. The second is the order of nature. I shall return to both, when considering the logical theory of conditions of some years later. It is clear from now, that conditional logic gives the logical syntax of determination, but the related semantics is still presupposed, and it is open to us to give it its positive content.

### 1. *Consequentiae*

#### *The Square of Existential Oppositions: A Logic for Existence*

Since Leibniz’s transfer to Hanover until his Italian travel and beyond, his drafts on conceptual analysis tend to assume the form of a categorial inquiry, i.e. something like a reshaping of the ancient category table<sup>13</sup>. In this type of text, an important section is usually devoted to the study of ‘Consequences’ (*Consequentiae*). This heading echoes, on one hand, a traditional and wide-ranging section of late Scholastic logic, where also some pieces of propositional logic had been preserved; on the other and more closely, the semi-formal theory that constituted the last and most abstract layer of the *De Affectibus*. Several texts exhibit a rather

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compact conceptual block: "Consequences, and the things among which consequences hold"<sup>14</sup>:

*Incomponibilia* (those that cannot be true together)  $\sim (A \& B)$

*Inconnegabilia* (those that cannot be false together)  $\sim (\sim A \& \sim B)$   $A \vee B$

*Opposita* (those that cannot be either true or false together)  $\sim (A \& B) \& (A \vee B)$

*Conditio/Conditionatum*  $\sim A$

$\sim B$

*Inferens/Illatum*

$A$

$B$

Leibniz uses letters here to express his schemes of inference. How are these letters to be interpreted, that is to say: what are the items (the Latin text presents the neutral adjectival form) among which consequences hold? The Scholastic logic of consequences was about propositions. In Leibniz's mind, however, variable letters do not stand directly for propositions, but rather for the things (let them be individuals, or states or properties of them) whose existence is stated in the corresponding propositions:

If, given the proposition 'A exists', the proposition 'B does not exist' follows, then A and B are incompatible (*incomponibilia*) ... If, on the assumption of the proposition 'A does not exist,' the proposition 'B does not exist' follows, then A will be the condition, B the conditioned.<sup>15</sup>

It is not difficult to see that these definitions follow the pattern of the Aristotelian 'syllogistic square'. The relationships which are handled here, however, are not purely logical ones. Rather, they are existential relations, which typically structure a world of existing things. More exactly, they reflect those "relations of connection" that correspond to some basic ontological structures.

*Inferences and Causes: 'Logical' vs. 'Real'*

I shall concentrate my attention on the two pairs *conditio-conditionatum* and *inferens-illatum*: in many drafts, they are the only fragment of the 'square' that is dealt with<sup>16</sup>. The definition of 'condition' is given in the form of the logical skeleton of a scheme of inference (if not-A, then not-B), that captures exactly what we are accustomed to call a 'necessary condition.' Correspondingly, the *inferens-illatum* pair codifies the notion of a sufficient condition (if A, then B). Leibniz is

wholly clear about the reciprocal relation of the two pairs: he remarks, indeed, that the necessary condition (*conditio*) can be in its turn inferred from the existence of its *conditionatum*, on the assumption that the consequence does hold. In this reversed inference, the *conditionatum* will play the role of *inferens* and the condition will be the *illatum*. Conversely, an inferred consequent (*illatum*) will work as a necessary condition (*conditio*) for the holding (existence) of its respective sufficient condition.

The logical scheme of the conditions, however, is not enough to capture the notion of '*requisitum*' of the tables. In order to do this, it has to be implemented by the 'order of nature', exactly as it happened in the *De Affectibus*. So, Leibniz's standard definition sounds:

Requisite = A condition that is prior in nature

Req (A,B):= Cond (A,B) and  $A <_{\text{Nat}} B$

It is important to understand why the order of nature is introduced. In a text devoted to the general notion of antecedent we find an interesting remark:

As concerns the antecedent, I define it in the following way: it is the term from which another follows, which is called consequent ... One should only add: given that it be antecedent for nature: that is to say, *given that it be a real antecedent, and not only a merely logical one.*<sup>17</sup>

The contrast between a 'real' antecedent and a 'logical' one makes this passage rather extraordinary within the Leibnizian *corpus*. It would be misleading, however, to take this contrast as another way of expressing the irreducibility of existence. Rather, Leibniz is faced here with that "problem of the asymmetry of cause and effect" which is the first one has to tackle in the attempt to capture the meaning of cause in terms of necessary and sufficient conditions. Compare his remark with this passage of G.H. von Wright:

From the...explanations we gave of the notions of necessary and sufficient conditions it follows that *p* is a sufficient condition of *q* if, and only if, *q* is a necessary condition of *p*. Thus if rainfall is a sufficient condition of the ground becoming wet, the ground becoming wet is a necessary condition of rainfall. Similarly, if the presence of oxygen in the environment is a necessary condition of the existence of higher forms of organic life, the existence of life is a sufficient condition of oxygen. As far as mere conditionship relations are concerned, these symmetries are quite in order...But as far as causality is concerned, they strike us as absurd. As the second example shows, the oddity is not that we attribute a causal role to a factor that is 'only' necessary but not

sufficient for something. The oddity springs from the fact that our explanations of the two types of condition blur an implicitly acknowledged asymmetry between conditioning or cause-factors on the one hand and conditioned or effect-factors on the other. If  $p$  is a cause-factor in relation to  $q$ , and  $q$  therefore an effect-factor in relation to  $p$ , we do not, or at least not normally, think of  $p$  as an effect-factor relative to  $q$ .<sup>18</sup>

The Leibnizian text points to the same difficulty, I think. The theory of conditions provides a logical grammar for inferences (a logic of *illatio*), where a state-of-affairs A which is a necessary condition for another B can be inferred in its turn from the latter. But the priority in nature identifies which is the true *requisitum*, independently from the order of our inferential practice. This can be seen as a new formulation of the old contrast between order of knowledge and order of being. The need to establish an asymmetry is the more pressing, insofar as the relation of implication displayed in causality goes in both directions for Leibniz<sup>19</sup>.

In the categorial tables, therefore, the notion of order of nature combines with logical consequence to get causal order: "From Order and Consequence taken together, cause and effect do arise."<sup>20</sup> This core relation of cause reduced to consequence plus order of nature, is broader than the strict one, that is reserved for the production of existent beings or existent states. The notion of order of nature, in fact, is worked out by Leibniz firstly on the meta-theoretical terrain of the organization of an axiomatic-deductive scientific system, where an objective order is given to equivalent definitions and to the series of theorems.

A little known episode in the later history of philosophy and logic could help us to grasp the significance of these Leibnizian ideas. I am thinking of Bolzano's theory of the 'consequence' (*Abfolge*) relation, as it is introduced in the second part of his *Wissenschaftslehre*. This notion is not a purely logical one, insofar as it is distinguished from that of 'deducibility' (*Ableitbarkeit*, the true ancestor of our Tarskian consequence), and properly holds only for true propositions. It aims at capturing the old Aristotelian distinction between explanations '*tou oti*' (that) and '*tou dioti*' (why), hence it is an objective asymmetrical relation of 'grounding' between 'propositions in themselves' (*'an sich'*), in Bolzano's jargon. It is accurately distinguished from epistemical inference, but also from the notion of 'cause' (*Ursache*), that is a further specification of that relation in the sense of a 'real ground': "An object A is the cause of another B, whenever the proposition 'A does exist' contains the reason for the proposition 'B does exist'."<sup>21</sup>

The NE passage, quoted by Bolzano, which contains the Leibnizian version of the cause/reason isomorphism, presents a similar threefold distinction of 'reason', 'a priori reason' and 'cause': "Reason is a truth known to us, whose connection with a less known truth has the effect that we give our assent to the latter. It is especially called 'Reason', however, when it is the cause not only of our judgement, but also of truth itself: what is also labelled as "a priori Reason"; and a cause within things corresponds to a reason on the level of truths"<sup>22</sup>. Notice the final shift from 'reason' as a relation connecting propositions, to 'cause' as a relation directly connecting things, or maybe better states-of-things.

*Order of Nature and Temporal Order*

Anyway, we are left with the problem of giving an account of what it means to be naturally ordered. In his note to *Ethica* I 1, Leibniz reproaches Spinoza for his failure to consider it seriously,<sup>23</sup> and considers the possibility of re forging that old notion in Cartesian style, relying on the epistemic relationship of "being conceived through..."; but we already know that he is well aware of the difficulties of giving an objective value to this kind of criterion. There should be, however, an *objective* order of notions, which is intelligible, at least in principle: this is nothing else than the fundamental postulate of combinatorial science, where the simple elements of conceptual analysis constitute the basic level, and the distance from them gives us a measure for the complexity of our notions and a criterion for their reciprocal order, which allows us to compare also notions not included one in the other.<sup>24</sup> This hierarchy is independent of the subjective order of our epistemic procedures and reflects the objective order of the world.

The short note *Quid sit natura prius* documents the shift in the application of this notion of order from the deductive system of truths to a *series of states*, which seem to be logically equivalent, insofar as they are reciprocally involved, according to the causal axiom:

There is some difficulty in explaining, what to be prior in nature means. Exactly as the later state of some substance involves the earlier, in fact, so the earlier does involve the later: each of them can be known from the other. But then, it seems that the earlier is not simpler than the later, but both involve the same elements, and there is some equivalence between them.<sup>25</sup>

In both cases, the ontological priority belongs to *what is easier to be understood* - admittedly, in the objective sense. But in the case of the series of sub-

stance states, the consideration of time is brought into play. In a post-Humean approach, temporal order is often taken as the element which provides an account for the asymmetry of causation. Leibniz's insight is quite different, however: for him, the order of nature is what confers its objective order not only on causality, but also on time itself.

The last lines of *Quid sit natura prius* introduce the temporal dimension by assuming contradiction as its logical basis – a standard view in the categorial tables – and order of nature as the ordering factor of the resulting time series: “From two states, each of which contradicts the other, the one is temporally prior, which is prior in nature.”<sup>26</sup> What is peculiar to this text is the corollary it explicitly draws for a philosophy of history:

In nature, as in art, what precedes in time is simpler, while what follows is more perfect. Nature is, in fact, the highest art. This principle is very important, and it excludes a regression without limit in the world.<sup>27</sup>

By the way, there is a shift from the case of intra-substantial causation to a more general model of a world series (*series rerum*). The remark is highly suggestive, showing that Leibniz's idea of progress is not only a moral postulate of theodicy, but is also underpinned by a precise topology of time.<sup>28</sup>

Elsewhere, causal order explicitly plays the role of a connecting link between order of nature and the temporal one:

From two contradictory states of the same thing, the one is temporally prior, which is prior in nature, *i.e. which does involve the reason for the other*, or, what amounts to the same, which can be more easily understood. E.g. in a clock, in order to understand the present state of the wheels, we are required to understand the reason for it, which is contained in the antecedent state; and so on. And the same holds for every series of things; there is always some certain connection, in fact, although it is not always a necessary one.<sup>29</sup>

We are faced with the sketch of a true ‘causal theory of time’, which is constantly documented in Leibniz's drafts.<sup>30</sup>

“*Conferens cum Successu.*” *Conditional Analysis and the Grammar of Cause*

Actually, the framework of *requisita* seems to be applied by Leibniz, in the category tables, chiefly in order to spell a theory of causal conditions in the strict sense – *i.e.*, conditions for the *existence* of some thing or state of a thing. Leibniz offers us several samples of analysis that prefigure a conditional analysis of cau-

sation. He seems to be persuaded of the possibility of getting, through the simple logical tools of his theory of conditions reinforced by the notion of order, a definition of causality clearer and more exact than that of the Cartesians or Schoolmen, the former being borrowed from epistemic procedures, and the latter entangled with obscure metaphors, such as in the case of Suarez's '*influere existentiam*'.

The terminology employed is the less constant, the richer it is: "If the *inferens* is prior in nature to the *illatum*, I call them, respectively, *praedeterminans* and *praedeterminatum*."<sup>31</sup> The *praedeterminans* is also called simply 'cause', especially when it involves "all sufficient requisites" for the production of the effect - that is to say all necessary conditions which, taken together, are held to be sufficient. This is clearly the translation of the old idea of '*ratio*' as the whole sum of requisites. The logically ambiguous role of causal *requisitum* between necessary and sufficient conditions is justified through its characterization as a *conferens*, i.e. a factor that contributes in some way to the production of the effect. If a requisite is, by definition, a necessary condition, to pose it makes the production easier:<sup>32</sup> in the limiting case, when all requisites are satisfied, by this very fact a sufficient condition for the production of the thing is given.

The notion of *conferens* - we could say, a 'concurring condition' - reveals itself, with its generality and flexibility, to be a central one in causal analysis, overlapping that of requisite and playing the role of a kind of 'focal meaning'.<sup>33</sup> Leibniz is well aware of the relativity that is implied in identifying one of several concurring factors as the decisive one, or as '*the cause*'. He does not ignore that an effect can often be brought about and accounted for in different ways: thus, requisites are relative to some way of production (*requisita ad aliquem producendi modum*).<sup>34</sup> We are not so far from the modern definition of causes as INUS-conditions. Also Leibniz's definition, in fact, presupposes a plurality of alternative sets of conditions, each one sufficient in itself; and identifies the cause with one of the necessary conditions of one of these sets: a condition that, joined together with the others belonging to its set, does suffice to the production of the effect. Other similarities of two approaches lie in the fact that both make room for negative conditions, such as the absence of preventing factors.

Finally, also within a determinate way of production, it is open to us to emphasize one or other of the concurring conditions as the decisive one. So, the causal condition can be differently identified with respect to the different set of further conditions that are taken for granted. There are, however, some objective grounds for privileging both some way of producing and some particular condition as the

properly 'causal' ones; and they are bound up with those aspects of causal relation that, in the metaphysical reflections of former years, had been proved not entirely reducible to conceptual involvement. I am thinking of the constitutive relation that causality has with the notions of existence and action. Thus, among the ways of producing – each one having its requisites – the one is privileged that does *actually* bring up the effect. This is why the most fortunate definition of causal requisite in the tables is that of “*conferens cum successu*”.<sup>35</sup>

Among the different conditions for the existence of a phenomenon, finally, those are privileged that are tied to action. Action, in its turn, does entail change. The cause, therefore, is the ‘*requisitum activum*’. This meaning is strongly bound up with the notion of imputability,<sup>36</sup> a seminal one for Leibniz’s theory of conditions, from his early juristic studies up to the *De Affectibus*. The most comprehensive definition of cause, summarizing all those crucial features, is this: “a condition that does concur *by acting*, according to the way of production by which the thing is *actually* brought about.”<sup>37</sup>

## 2. Interlude. Consequences and Containment Theory: Conditions and States-of-Affairs

In the classic containment theory of truth from the mid-eighties, the subject-predicate relation and the antecedent-consequent one are equated.<sup>38</sup> In order to appreciate the assimilation of the two cases in a unitary definition, we should take into account another aspect of Leibniz’s semantic project: I mean, his unified handling of concepts and truths. In the *Generales Inquisitiones* and elsewhere, he pursues the reduction of hypothetical propositions to categorical ones. To this aim, he makes use of two tools: firstly, the leading idea of interpreting the sign ‘*est*’ both as conceptual containment and propositional implication. Secondly, the transformation of propositions into concepts through the intermediate stage of “logical abstract terms.”<sup>39</sup> The form ‘*tò A being B*’ (the fact of ‘Socrates-being-wise’) is meant to be a paraphrase of the standard abstract ‘B-ness’ (‘the wisdom of Socrates’). They are semantically equivalent, but the ‘logical version’ is ontologically more transparent, as we shall see better later. A presumably later text develops the same idea in more detail:

We have a true hypothetical proposition . . . when “A is B” is the case, and “C is D” follows through substitution of identical terms. Let us call “L” the state, by virtue of which A is B, and “M” the state, by virtue of which C is D:

then, we shall have “ $L \infty LM$ ”. In this way, a hypothetical proposition is reduced to a categorical one. E.g., let us call “being serene” the state by virtue of which the sky is clear, and “being limpid” the state in virtue of which the sky is cloudless; then, we can say: “being serene is being limpid”, that is to say “being serene and being serene and limpid” do coincide.<sup>40</sup>

I am interested in the ontological status of the new terms ‘L’ and ‘M’, in which the antecedent and the consequent of the former hypothetical proposition are contracted, to become the subject and the predicate of the new categorical one. They do not stand either for things or properties, but for ‘states’. Leibniz here comes close to the present-day idea of ‘states-of-affairs’ as a distinct ontological type. The dependence connections among these states provide the truth conditions for conditional propositions. On the other hand, Leibniz’s ontology basically remains one of things: hence, also his ‘states’ are rather the monadic states-of-a-thing (i.e., of a substance, or of a substantial being, constructed from basic substances) than those abstract constructs that we label as ‘states-of-affairs’. They are expressed in this way, exactly in order to avoid treating properties as things, and to stress instead their belonging to concrete things. We could also say: they express the aspects of a thing that provide a basis for causal connections, by offering an explanatory account.<sup>41</sup>

The *De Notionibus Omnia* stresses the distinction between external and internal causes. At the same time, the notion of ‘state’ allows Leibniz to spell out the logical structure of immanent causation which is the appropriate one for substances - where determining and determined states belong to the same thing:

If the *praedeterminans* and the *praedeterminatum* are different things, then the former will be the producing factor, and the latter the product . . . Notice that, if the *praedeterminans* and the *praedeterminatum* are the same thing, then their corresponding abstract terms will be different things, hence they will mutually behave as the producer and the product. So, hot air is the *praedeterminans* of the selfsame rarefied air, but heat in the air is the producing factor, or the cause of rarefaction.<sup>42</sup>

This can be seen as the final point in the working out of the ‘logical’ structure of substance as an ordered series of states, connected by causal (i.e., explanatory) ties, each state playing the role of ‘condition’ or ‘*requisitum*’ for the following one. In the background, of course, there is the leading idea of conceptual containment, hence of the life of the substance as the unfolding of its complete concept.

On the whole, this train of thought seems to reintroduce somehow the collapse of causality into inherence – although properly confined to each single substance, so that the monistic drift is blocked by the isolation of the different chains of states. Another aspect of Leibniz's mature theory of conditions, however, shows that he is eager to maintain some distinction here. I am alluding to the dichotomy of mediate vs. immediate requisites.

### 3. *Requisita Immediata*: Outline For a General Mereology

#### *From Phenomenology to Mereology: Parts and Constituents*

Leibniz proves to be well aware that the general scheme of conditionship, strengthened by the order of nature, can be applied to a lot of different relations. The causal interpretation, though being the most relevant, at least in the section on *consequentiae*, is not the only one it can receive. The draft *Definitiones notionum metaphysicarum atque logicarum*, after the usual definition of *requisitum*, introduces a dichotomy which splits the field of *requisita*:

Among the requisites of things, the ones are mediate – those which are to be investigated by way of reasoning, such as is the case with the causes; the others are immediate, such is the case with parts, extremities and in general all which is said to be-in.<sup>43</sup>

The new dichotomy represents the most mature attempt at distinguishing the two great ways of interpreting the language of requisites: the dynamic-causal, and the analytical one. Also in the latter case, metaphysical applications are only part of a more general framework. On the whole, in fact, the theory of immediate requisites is the outline of a general mereology, around the basic relation of conditionship (*requirere*). If the study of mediated requisite can be fruitfully read having in mind the Bolzanian *Abfolge*, i.e. a theory of the objective truth foundation, the theory of immediate requisites anticipates the pioneering study of these notions undertaken two centuries later by Edmund Husserl, especially in his *Third Logical Investigation*.<sup>44</sup>

The area of immediate requisites is marked by the immediacy of the inference: when all *requisita* are given, by this very fact (*eo ipso*), or by definition (*ex instituto*) the *requires* is also given, and conversely. The intuitive model for this type of relation – and the main source for its study in the historical development of Leibniz's thought - is given by the part-whole relation.<sup>45</sup> From its very beginning,

Leibniz's reflection on this subject is carried out according to a double approach – a phenomenological and a more formal one. The concepts of part and whole, indeed, are rooted, on one hand, in the experience of 'perceiving-together' (*comperceptio*), which grounds the phenomenon of extension; on the other, in the basic logical definitions of identity and diversity, and the related ones of one and many.<sup>46</sup>

The phenomenological side of this double approach to the part-whole relation is especially pursued in two areas of Leibniz's research: a) the study on the *initia rerum mathematicarum* on one hand, i.e. on the basic notions of geometry and other mathematical disciplines; b) the '*characteristica verbalis*' on the other, i.e. the search for a philosophical grammar, or for the underlying logical structure of natural languages. In particular, the inquiries into the '*analysis particularum*' are relevant here, with the study about the preposition '*in*'. The analysis of the meaning of prepositions is especially important, because it brings to light the original content of relations. In this context, an important thesis emerges: Leibniz realizes that all prepositions originally express spatial relations. From signifying places and movements in the sense experience, they are then shifted to non-sensible meanings. Now, remember that the origins of abstract terms for relations from the figured speech of tropes has been denounced since Nizolius's *Preface* as a serious flaw of Scholastic philosophy. At present, however, this origin of metaphysical language on the terrain of sense experience via a figured usage of speech is no longer taken as a mistake to be eliminated, but rather as an unavoidable feature of our approach, which plays a positive role in the creative developing of our understanding of the world, and should only be recognized and controlled. Anyway, the reference to perception is put together with 'logical' definitions by means of conditionship, of the type: "If A, B, C are given, then D is (immediately) given".

Moreover: already in the semantic reflections related to the first essays on logical calculi, the notion of part elaborated in that double field is compared to that of requisite, taken in its analytic meaning within the theory of definition: "The requisite is what can go into a definition... Thus, a requisite is to a definition like a part to the whole, or a factor to the product."<sup>47</sup> In a further step, the *requisitum* will shift from a term of comparison to the all-embracing genus of all these relations.

*Varieties of Containment*

All these ideas are taken up and unified in a precise phase of Leibniz's intellectual history, I mean the period of intensive logical work around the Italian journey, which leads him to elaborate the important group of calculi '*de continentibus et contentis*'. He has already explored, a few years before, the metaphysical and logical implications of the idea of truth as conceptual containment in the *Discourse* and the GI, respectively. Now, with the background of his new calculi, he seems ready to tackle the task of a general account of all the forms of 'containment'.

In the GI, conceptual containment was simply expressed by the copula '*est*', and the basic form of predication was  $AB=A$ . In the new group of calculi, instead, inclusion is defined assuming the idea of composition, so that  $A\oplus B=L$ ; where the peculiar sign aims at distinguishing this operation – marked by idempotency  $A\oplus A=A$  – from arithmetical addition. Exactly like in the GI, the natural interpretation of these calculi is that of conceptual combinatorics, aiming at an algebra of concepts. But now also geometric interpretations are in view, where the part-whole relation is the natural reading for containment. Moreover, geometric examples make Leibniz aware of the fact that some types of non-conceptual items are contained without being 'parts', as is the case with the elements of continua like lines and points. A *Scholion* of the well-known logical essay *Non inelegans specimen demonstrandi in abstractis* warns us that "not every inexistent is a part, nor is every container a whole; e.g., an inscribed square and a diameter are both in the circle; the square, however, is a part of the circle, while the diameter is not. In order to give an accurate account of the concepts of whole and part, something should be added; but this does not concern us here."<sup>48</sup>

The cognate *Calculus coincidentium et inexistentium* lists, by way of summary, the several different interpretations of the relationship of 'being-in': "We say that the concept of genus is in the species concept, the individuals of the species are within the individuals of genus; again, the part is in the whole, and even the indivisible is in the continuum, despite the fact that it is not a part of the latter."<sup>49</sup> The first two interpretations of the *inesse* are in terms of logical relations among concepts or classes – taken both intensionally, according to the privileged reading of conceptual containment, and extensionally. In this way, the language of the '*plus-minus calculus*' is able to capture both interpretations of calculi envisaged already in 1679 by the distinction of the 'method of ideas' and the 'method of

individuals'. Then, we have a pair of clear mereological interpretations: one in terms of parts and whole, and the other in terms of inclusion in a continuum. In order to distinguish the part-whole relation from generic 'being-in', Leibniz imposes on it the further condition of homogeneity. Once again, the terrain where these concepts are elaborated is the inquiry into the foundations of geometry.

Other texts focus their attention only on the properly mereological interpretations. One of them introduces the notion of part through the familiar inference scheme:

If, assumed that many things are given, by this very fact we understand that another thing is given, the former are said to be parts, the latter a whole. Nor is required that they exist in the same time or in the same place, it is enough that they are considered in the same time. Thus we can make one aggregate from all Roman emperors taken together.<sup>50</sup>

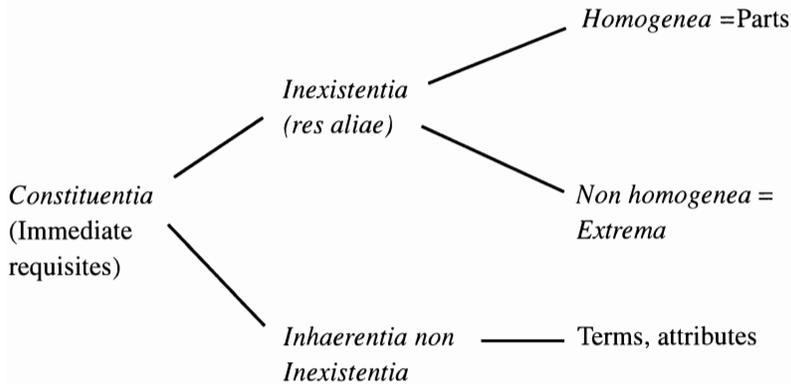
This liberality is in tune with the arbitrariness of the object notion in contemporary extensional mereology, and is clearly bound with the intervention of an act of the mind. The counterpart of this ontological liberality is the strong metaphysical assumption, according to which true beings have no parts. Our text continues, indeed: "No being that is truly one, indeed, is made up from many parts; every substance is indivisible and things having parts are not beings, but only phenomena."<sup>51</sup> It is worth noting that the parts can be spread out not only in space, but also in time.

We can find some hints for a comprehensive classification scheme in a typical text of *initia rerum mathematicarum*, the *Five Fragments on Contained and Continuum*:

A part which exists-in (*pars inexistentis*), i.e. a different thing which is an immediate requisite, or a constituent of the containing thing. We are not considering here, indeed, the term or attribute ... If, once many things are given, A, B, C, by this very fact something L is given, *without any inference*, the former are called constituents, the latter is called constituted; or those contained, this containing, i.e. those exist in this. And this is what means that A is an immediate requisite of L, as we have said. If the constituent things are things different one from another, A, B, etc., they are called parts, L whole. The Geometers further require that the inexistent thing be homogeneous to the containing, in order to be called its part."<sup>52</sup>

The clarification "we do not consider here the term or attribute" aims at excluding the case of conceptual components, which constituted the other great (better:

the first and most important) interpretation of the calculi *de continente et contento*. But also conceptual containment remains a fundamental model for the *inesse* relation. Putting all together, Leibniz seems to have in mind something like this:



*De abstracto et concreto: The Ontology of Predication*

Furthermore, the term/attribute dichotomy we have found above alludes to some inner complexity in the case of conceptual containment. Conceptual constituents, in fact, can be taken *in concreto*, just as they are signified by 'terms' (e.g. 'hot'), but they can also be taken as attributes, or as names for (admittedly abstract) things (e.g. 'heat'). Moreover, the container itself can be taken in a double way, as a concept or as a thing:



Correspondingly, also the two horizontal relations of 'being-in' - one concerning the conceptual level, the other the ontological one - are to be specified each in a different way. Thus, Leibniz is well aware that the *inesse* relation can have a lot of different interpretations. At the same time, he is eager to maintain its unity from the point of view of logical treatment.

Both issues – I mean, the splitting of the predicative *inesse* relation in predication, and the search for a unified handling – are tightly interwoven in an important draft of this period, the *De abstracto et concreto*<sup>53</sup>, which marks the culminating point of a relatively rich series of drafts devoted to the abstract/concrete linguistic distinction and its logico-ontological implications. While in the GI and related drafts Leibniz emphasizes the need to take terms always *in concreto*, in order to have only predications *in recto* (e.g. ‘man is an animal’, ‘Appius is just’), in these texts he takes especially into account abstract talk and the related ‘oblique’ predication (i.e., syntactically, a predication where subject and attribute are connected by a preposition):

We should also consider that when we say ‘wise,’ which is a concrete term, two items are talked about: being *in recto*, and the abstract term corresponding to ‘wise’ *in obliquo* ... So, if  $A \infty \text{Ens} \text{—}o B$ , and this proposition is immediately evident, then A will be a concrete term, and B the corresponding abstract one.<sup>54</sup>

Why is Leibniz not content to simply dismiss abstract talk, but accepts to embarrass himself with the manipulation of oblique predication? Abstract reference and oblique predication are seriously taken into account, I think, because they seem suitable to capture the ontological underpinning of predication. The study of inherence is needed to do full justice to the ontological dimension of the containment theory of truth. But then, after physical parts (surely, ‘inexisting constituents’, or ‘concrete things’) and conceptual ones (they also constituents, but not ‘things’), we come across that puzzling type of ‘metaphysical parts’ which were traditionally called ‘accidents’.

The seminal text of *Categories 2*, quoted in the chapter on accidents of Hobbes’s *De Corpore*, defined accident as “what is-in, *not as a part*”. Hobbes subscribed to the negative side of this definition:

That the accident is in the body, this is not to be taken, as if something were contained in the body, e.g. as if the red color were in blood in the same way as blood itself is in the blooded coat, that is to say as a part is in its whole; in this way, in fact, the accident would also be a body.<sup>55</sup>

The refusal to take accidents as physical parts is in tune with Hobbes’s ontological worry in handling them, which is chiefly a deflationary one: his main point is to deny accidents the status of concrete things, i.e. ‘bodies’. Notwithstanding, he cannot but recognize some semantic – if not properly ontological – autonomy to accidental terms, and seems to be puzzled by the topic

of inherence. He is dissatisfied with Aristotle's positive criterion of the one-sided dependence of accidents; but he also fails to fill the gap.

As we have seen, also Leibniz meets this topic starting from the semantic analysis of abstract talk. Each concrete term can be analyzed into the concept of 'being' or 'thing' plus its corresponding abstract, the two being connected by the oblique relation of inherence. Hobbes said that the abstract term indicated the 'cause' for the concrete one. Leibniz is eager to emphasize the *immediate* character of this relationship: whereas Hobbes thinks of a truly explanatory role of abstract term, Leibniz thinks of a purely semantic relationship:

B belongs immediately to A, e.g. wisdom to the wise, this means that if wisdom is not there, the wise also is not there, and this does not result from some inference, but from the definition of terms itself. Hence, one can say that wisdom is the immediate condition for the wise. And the proposition 'that the wise has wisdom' is a proposition known by itself, nor it requires, in order to be known, that their terms are explained.<sup>56</sup>

In this way, the case of accident is subsumed under the heading of 'immediate condition'. Are accidents then technically "requisites"? In order to be so, they should also be prior in nature, and this turns out to be the decisive question also for the ontological interpretation of this relationship.

Notice, the need of an ontological correlate in the thing does not mean that the oblique reading of predication, as such, is loaded with a realistic interpretation. According to Leibniz, the standard realistic reading of abstract reference credited it precisely with priority with respect to concrete terms. For his own part, he can well consider abstract terms as the 'immediate conditions' for the corresponding concrete ones. But he does not attribute logical priority to them, so that they do not deserve the status of requisites.

Correspondingly, he engages himself in giving a version of the language of inherence which is free from realistic commitments. The main device he uses in this operation is one we are already familiar with, i.e. the paraphrase of ordinary abstract nouns ("wisdom"), called by Leibniz 'philosophical abstracts', with the verbal forms "to-be-wise", called 'logical' or 'notional' abstracts, that makes the propositional nature of abstract terms clear.<sup>57</sup> This determines the overturning of priority with respect to 'philosophical' abstracts. In this way, the tool used for the unifying logical handling of concepts and propositions turns out to play also a decisive ontologically deflationary role.

*“I Have Devoted a Long Inquiry to the Relation of Inesse ...”*

At the same time, Leibniz is always willing to find a definition of ‘being-in’ capable of applying to all types of inhering items: proper parts, ‘moments’ of continua, conceptual parts and properties. The general constraint is that they all have to play the role of the conditioned. But this attempt is faced with a serious problem: it is difficult, indeed, to apply the same scheme to independent parts (be they proper physical parts, or also conceptual ones) that are, rather, logically prior to the whole.

In order to answer this challenge, and capture the core of the *inesse* relation, shared by all interpretations, Leibniz tries to lead it back to its phenomenological origins:

I have devoted a long inquiry to the relation of *inesse*; and we are accustomed to saying that some things are in another one, if the former are moved when the latter is moved in its turn. So when a body is moved, e.g. a box, all things that are in it are also moved, and besides them also the parts and boundaries of the box are moved, and finally their adjuncts too, i.e. its properties and accidents. On the model of things that can be actually moved, in fact, we conceive that something inheres also to things that cannot be moved (because they are not material).<sup>58</sup>

According to a strategy I have already mentioned Leibniz is persuaded that the meaning of our most abstract concepts should be traced to their origins in the field of sense experience. But what distinct notion can replace the original sensible meaning, so that it is enlarged to embrace all interpretations of the logico-ontological *inesse* relation? Leibniz finds a general definition by relying on the metaphysical notion of reality:

It seems that something inheres in a subject, if and only if its reality belongs to the reality of this subject. That is to say, ... A is in B, if all that is immediately required by A, is also immediately required by B.<sup>59</sup>

It is interesting to observe, how in the discussion on this definition the old problems re-emerge that embarrassed the 1676 combinatorial metaphysics:

But, one could say, given that the whole reality of creatures is included in God, it seems to follow that all creatures are in God. One should reply, however, that the reality which is proper to creature is not the same as is in God, i.e. an absolute one, but is limited...<sup>60</sup>

Let that be as it may: the general definition of *inesse* marks the achievement of a mereological interpretation of accident. But just this raises some new problems.

*Requisites and the Ontology of Change*

Although the mereological interpretation of inherence comes to confirm the ontological dependence of accident, it does not overcome the realistic challenge, insofar as it seems to imply the attribution to accidents of some reality, belonging to that of substance. A decisive test for this view is to be found in the field of change. The ontology of change provided realists with one of their traditional arguments, i.e. the need to postulate some realities which give an account of change by their arising and perishing. In Leibniz's reflection, however, the aporias of change provoke his final giving up of the realistic interpretation. I suspect that the difficulty with the realistic interpretation of change is bound precisely to the mereological reading of accident. Leibniz was always concerned with the well-known aporia of Theseus's ship. He held that material beings were not true beings, but mere '*entia successiva*', exactly insofar as they could not overcome this aporia, for the continuous change of their parts. On the contrary, he was eager to recognize true sameness to individual substances, thanks to their being true unities without any part; no matter if the notional constituents of a substance *concept* – i.e. its inner conceptual requisites – are a multiplicity ordered according to causal-temporal succession. But if this conceptual complexity of changing substances is translated into a mereological one, then also substances turn out to be committed to the aporias of Theseus's ship.<sup>61</sup> The final result is the well-known profession of "provisional nominalism" with its minimal ontological commitment: "It is enough to assume only substances as things, and to state truths about them."<sup>62</sup>

What I have traced so far is little more than a map of a somewhat still unexplored territory. Better, it is an attempt and an invitation to try to put together – following the leading thread of the relation of condition - some fragmentary and apparently heterogeneous pieces we already possess into a unitary map, whose comprehensive outline lurks behind Leibniz's scattered drafts. It is the outline of a framework where some basic ontological relations like causality and inherence - whose role is both central and controversial in Leibniz's philosophy - could be articulated, in tune with Leibniz's ideal of a '*scientia generalis*', and also with more recent projects of a '*metaphysics as a rigorous science*'.

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Notes

"This paper develops some ideas which are presented in my book *The Science of the Individual. Leibniz's Ontology of Individual Substance*, Berlin, New York: Springer, 2005. I make use especially of some material contained in chapter 6 of the book, with kind permission of Springer Science and Business Media. I thank the publisher for this permission. Translations of Leibniz's texts are mine, unless otherwise stated.

<sup>1</sup> "... Whether terms are popular or technical, they ought to involve either no figure of speech or few and apt ones. Of this, the Scholastics have taken little notice, for... their speech abounds with figures. What else are such terms as 'to depend', 'to inhere', 'to emanate' and 'to inflow'?" (GP IV 148; L 196).

<sup>2</sup> "the fourth axiom does not say that 'the cause of a thing is that without which it cannot be conceived.' (This would be false, for a circle cannot be conceived without a center... yet the center is not the cause of the circle...)" (GP 147; L 312).

<sup>3</sup> "if we define them [the modes] merely in terms of their needing another concept ... this same definition will also fit things which are not contained in something, such as effects, which need causes to be understood ... On this basis, all effects would be modifications of their causes..." (GP II 226; L 853).

<sup>4</sup> See *Disputatio Juridica de Conditionibus, Prima et Posterior*, A VI.1, 127-150. On this, see H. Schepers, *Leibniz' Disputationen 'De Conditionibus': Ansätze zu einer juristischen Aussagenlogik*, in *Akten des II. Intern. Leibniz-Kongresses*, Bd. 4, Stuttgart 1975, 1-17.

<sup>5</sup> "The accident of both the agent and the patient, without which the effect cannot be brought about, is called 'the cause *sine qua non*' and 'hypothetically necessary'; and is also called the requisite for the effect being produced." (*Opera Latina* I 107).

<sup>6</sup> “The cause simply considered, or the entire cause, is the set of all accidents of all agents and of the patient, a set such that if all its elements are given, the effect cannot help being produced; and if only one of them is missing, the effect cannot be produced.” (Ibidem).

<sup>7</sup> “And, if we define a ‘necessary cause’ as the one which, supposing that it is given, the effect cannot help being produced, then one can derive also that every effect that is produced, is produced by a necessary cause.” (*Opera Latina*, I 109).

<sup>8</sup> “The aggregate of all requisites is the full cause of a thing. There is nothing without a reason; for there is nothing without an aggregate of all requisites.”, *De Existentia*, A VI.3, 587 (transl. Parkinson, in G. W. Leibniz, *De Summa Rerum. Metaphysical Papers 1675-76*, 113).

<sup>9</sup> A VI.3, 573. See on this M. Kulstad, *Did Leibniz Incline Towards Monistic Pantheism in 1676?*, in Akten des VI. Intern. Leibniz-Kongresses, 1994, 424-28; Idem, *Leibniz's Early Argument that All Things Are One in Relation to Descartes' Notions of Real and Modal Distinction*, Akten des VII. Intern. Leibniz-Kongresses, 2001, 663-68.

<sup>10</sup> See on this H. Schepers, *De Affectibus. Leibniz an der Schwelle zur Monadologie. Seine Vorarbeiten zur logischen Aufbau der möglichen Welten*, *Studia Leibnitiana*, xxxv/2 (2003), 133-161.

<sup>11</sup> A VI.4, 1439.

<sup>12</sup> A VI.4, 1429.

<sup>13</sup> See on this the seminal papers by H. Schepers, *Leibniz' Arbeiten zur Reformation der Kategorien*. *Zeitschrift für philosophische Forschung*, 20, 1966, 539-67; *Begriffsanalyse und Kategorialsynthese: zur Verflechtung von Logik und Metaphysik bei Leibniz*, in *Akten des I. Leibniz-Kongresses*, Band III. Wiesbaden: Steiner, 1969, 34-49.

<sup>14</sup> This is the case with the *De Notionibus Omnia quae Cogitamus Continentibus* and the cognate *Enumeratio Terminorum Simpliciorum*. Respectively, N 98, A VI.4, 398-405; N 97, A VI.4, 388-397.

<sup>15</sup> *Enumeratio*, A VI.4, 389.

<sup>16</sup> An excellent piece of analysis of this section of category tables can be found in D. Rutherford, *Leibniz and the Rational Order of Nature*, ch. 5, 111-115.

<sup>17</sup> *Potest aliqua notio esse alia generalior ut tamen non sit simplicior* (N. 75), A VI.4, 303.

<sup>18</sup> G.H. Von Wright, *Explanation and Understanding*, London, 1971, 41-42.

<sup>19</sup> See also *Definitiones: Ens, possibile, existens*: “The factor from which the inference is drawn [*inferens*] is not the cause of what is inferred [*illatum*], unless the former is prior in nature to the latter; also indeed the cause can sometimes be inferred from its effect.” (A VI.4, 869).

<sup>20</sup> *De notionibus omnia quae cogitamus*, A VI.4, 398.

<sup>21</sup> Bernard Bolzano, *Wissenschaftslehre*, III § 379, p. 497.

<sup>22</sup> NE, IV, ch. 17, GP V 457.

<sup>23</sup> Notes to *Ethica* I, A VI.4, 1766-1767 (GP I 140-141) Also this notion can be traced back to Aristotle’s *Categories*.

<sup>24</sup> See also *De notionibus omnia que cogitamus continentibus*, A VI.4, 402.

<sup>25</sup> *Quid sit natura prius*, A VI.4, 180. Published also in J.B. Rauzy, *Quid sit natura prius? La conception leibnizienne de l’ordre*, in *Revue de métaphysique et de morale*, 1995/1, 31-48.

<sup>26</sup> A VI.4, 181. Similarly, A VI.4 (N. 97), 390.

<sup>27</sup> *Ibidem*.

<sup>28</sup> A confirmation for this view comes from the draft *Inquirenda logico-metaphysica*: “...It follows that the things which at first sight seem to be simple, are actually more composite, provided that they are posterior in time.” (A VI.4, 998).

<sup>29</sup> *Divisio terminorum*, A VI.4, 563.

<sup>30</sup> The standard reference for this view is the late *Initia rerum mathematicarum metaphysica*, GM VII 18-19. But see for instance, in the category tables, A VI.4, 628-29.

<sup>31</sup> *Enumeratio*, A VI.4, 403.

<sup>32</sup> The idea of facility is important in the (objective) epistemological definition of priority of nature, hence of requisite: prior in nature is that, whose possibility is easier to understand, or to demonstrate. All these ideas play a role also in the application to probability of conditional analysis.

<sup>33</sup> See on this *Potest aliqua notio esse alia generalior ut tamen non sit simplicior*: “Some concept can be more general, while being, despite this, not simpler. Thus, the influencing or concurring factor embraces in its scope the antecedent, the requisite, the cause; nevertheless, the concept of the antecedent is part of its own concept, as is the case with analogy, where the definition of some principal species is part of the definition of genus.” (A VI.4, 303). See also *Definitio conferentis*: “The definition according to which ‘The *conferens* is the requisite of the *inferens*’ is not exact enough. Thus, ‘square’ is an *inferens* for ‘equilateral’, and ‘rectangular’

is a requisite for 'square'. Notwithstanding this, 'rectangular' is not a *conferens* for 'equilateral'. In the *inferens* there can be more requisites than are relevant and are required to draw the inference." (A VI.4. 641). Here, notice, conceptual relations are still being considered. The theory of inference is applied to the study of conceptual composition from the intensional perspective.

<sup>34</sup> A VI.4, 564. The origins of this idea are in the field of the plurality of definitions, and in the topic of genetic definition. See *De Synthesi et analisi universali*, A VI.4, 542.

<sup>35</sup> "Every cause contributes [*confert*] to effect. This is not enough, however; something can well contribute to an effect, which nevertheless does not obtain, either because other requisites are lacking, or because there are some preventing conditions. Thus, in order to have a true cause, the effect is required to actually obtain. Therefore, a cause is a factor that contributes successfully [*conferens cum successu*]", *Definitiones: Aliquid, nihil*, A VI.4, 308.

<sup>36</sup> "Let *a* be *b* because *c* is *d* and *e* is *f*: What is the cause, and what is the effect? We will inquire in which of them action is located, i.e. the principle of change. To be sure, to every proposition one could give a reason through this or many other factors; people, however, look for a fixed point or a source of motion, when they look for a cause. So, for instance, the cause of a murder is the injurer, not the man who provokes him; because a provoked man is not in a merely passive condition, insofar as he is provoked. But the injurer is the cause of murder, not the sword, insofar as the principle of the motion of sword is located within him."

<sup>37</sup> A VI.4, 551.

<sup>38</sup> "A simple proposition is true, if the predicate is contained in the subject . . . A conditional proposition is true, if the consequent is contained in the antecedent, i.e. if, once both the antecedent and consequent terms are analyzed, the consequent turns out being contained in the antecedent . . .", *Notationes Generales*, A VI.4, 551.

<sup>39</sup> "If the proposition "A is B" is treated as a term. . . there arises an abstract term, namely 'A's being B', and if from the proposition 'A is B' the proposition 'C is D' follows, then from this there is made a new proposition of this kind: 'A's being B' is, or contains, 'C's being D'; i.e. 'The B-ness of A contains the D-ness of C', i.e. 'The B-ness of A is the D-ness of C'." GI sect. 138, A VI.4, 777 (LP 78).

<sup>40</sup> A VI.4, 863. The sign '•' means 'coincidence'.

<sup>41</sup> This idea, notice, is already there in an early essay (1679) which presents the double role (analytical and causal) of requisite and offers a definition of the *causal*

*ratio* pair: “A cause is a thing whose existence, or whose way of existing is the reason for the existence of another thing that is called its effect: e.g., the soldier is the cause of the indigence of the farm-worker; from some predicate of soldier, indeed, like ‘avidity’, the indigence of farm-worker does follow; that is to say, from the proposition ‘the soldier is avid’, the proposition ‘the farm-worker is indigent’ follows. In more abstract terms: if *a* is *b* because *c* is *d*, *c* will be the cause, *ab* the effect, or better: *cd* will be the cause, *ab* the effect.” (A VI.4, 153)

<sup>42</sup> A VI.4, 403.

<sup>43</sup> A VI.4, 627.

<sup>44</sup> Consider Husserl’s introductory characterization of ‘part’: “We take here the concept of ‘part’ in its most general sense, embracing each element that can be discerned ‘in’ an object, or ... that does subsist within it. A part is whatever the object ‘has’, in a positive and real sense, i.e. what actually constitutes it, if we consider the object in itself, leaving aside all the connections in which it is involved”. (*Logical Investigations* III, §2).

<sup>45</sup> “Let *a* be one and let several different *b*, *c*, *d* be; and if *a* exists, then also *b*, *c* and *d* exist; and conversely, if *b*, *c*, *d* exist, then *a* exists; and this in such a way that all which is in this manner with respect to *b*, by this very fact is in the same manner immediately with respect to *a*, and so on. Then, *a* will be a whole, the others will be its parts. If *b* is *f* and *c* is *f* and *d* is *f*, and hence *a* also is *f*, without needing any inference, i.e. if given that *b* is *g*, and *c* is *g* and *d* is *g*, it is known by itself that *a* also is *g*, and conversely (I mean, so that no further reasoning is required to prove this conclusion), then *a* will be a whole, and *b c d* its parts.” (A VI.4, 278-79).

<sup>46</sup> A classic example of this double approach is given by *Divisio terminorum*, A VI.4, 561.

<sup>47</sup> *Elementa ad calculum condendum*, A VI.4, 153.

<sup>48</sup> A VI.4, 847.

<sup>49</sup> A VI.4, 832-33.

<sup>50</sup> A VI.4, 627. According to another text, however, the notion of ‘immediate requisite’ is not to be taken for granted by a mereological theory: “In order to explain the concepts of container and contained, or of a thing which ‘exists-in’, the concept of immediate requisite is not needed; to have an aggregate, indeed, it is enough that many beings different from it are understood to concur in a similar way to pose it. Thus, if A, B, C are given in the same way, and by this very fact we understand that L is given, then A, B, C are the *aggreganda* and L the whole

obtained by their aggregation. At the same time, indeed, they are immediate requisites." (A VI.4, 998)

<sup>51</sup> A VI.4, 627.

<sup>52</sup> A VI.4, 1001-1002. Italics mine.

<sup>53</sup> A VI.4, 988-99.

<sup>54</sup> *De Abstracto et Concreto*, A VI.4, 988. The sign '∞' means 'coincidence', the sign ')-o' means 'oblique inherence'.

<sup>55</sup> *De Corpore, Philosophia Prima*, ch.8 (*Opera Latina*, I, 91).

<sup>56</sup> A VI.4, 988. On this piece and the related topic of the analysis of abstract terms, see the seminal remarks in the studies of M. Mugnai, *Astrazione e realtà*, Milano 1976; *Introduzione alla filosofia di Leibniz*, Roma 2001.

<sup>57</sup> A VI. 4, 988. Leibniz takes up again the distinction between the two types of abstract terms in NE III.8, A VI.6, 333-34 (GP V 314-15).

<sup>58</sup> A VI.4, 990. Attention to this type of study of the *inesse* relation has been called in M. Schneider, *Inesse bei Leibniz*, in *Tradition und Innovation. Akten des V. Int. Leibniz-Kongr.*, II, Hanover 1989, 360-371.

<sup>59</sup> A VI.4, 990.

<sup>60</sup> Ibidem.

<sup>61</sup> See *De realitate accidentium*, A VI.4, 996.

<sup>62</sup> Ibidem.