Chapter 4. The logical structures in Leibniz’s system.

In this chapter I will treat the logical structures of the fundamental concepts in Leibniz’s system (as it has been systematically expounded in the preceding chapter), viz. complete substance and its nature or essence, force.

The part of Leibniz’s works on logic published during his lifetime is only a fragment of the whole. Furthermore, the published texts do not belong to the period to which I have confined myself here (see the introduction to part 1). It would be very problematic to try and derive from these works a firm understanding of Leibniz’s logic anyway, since it seems that Leibniz did not succeed in establishing a system of logic which served his needs in metaphysics and physics completely (60). Therefore I will not pretend to reproduce Leibniz’s logic, but I intend to establish logical structures which are inherent to the ontological structure revealed in the preceding chapter. In order to demonstrate that the logical structures have been noted by Leibniz himself too, I will occasionally refer to his logical works (belonging to the period mentioned above, to be historically consistent).

Section 1. Logical structures concerning the complete substance

As has been made abundantly clear by now, the complete substance unites two ‘opposing’ aspects. On the one hand it contains the totality of the universe by representation. On the other hand it is only one of the determinate parts of this totality, by expression. In terms of logic: it is both universal and singular.

As has been made clear, the complete substance maintains its individual identity during its continuous change. As such it seems to be something between universal and singular, viz. particular.

The first conclusion must be, therefore, that apparently the complete substance has all the degrees of generality and specificity which are distinguished in formal logic. This need, as such, not be in conflict with the rules of formal logic; in order to be so, it should be established that the complete substance were in the same respect and at the same time both universal and particular, or universal and singular, or particular and singular - but as yet, this has not been established.

The first thing to examine is the concurrence or coincidence of universality and singularity. The main question to be answered here is, whether universality and singularity form indeed an identity (in the logical sense), and, subsequently, of what nature this identity is.

In the schemes of the preceding chapter, which concern what is called there the ‘outer’ circularity, viz. of the universe as a totality and the differentiated universe, it appears that the ‘opposites’ do form an identity.

Consider, for instance, scheme 3.1.c. The universe as a totality appears twice, viz. inside and outside the complete substance. Inside the complete substance it is unified with
its 'opposite', viz. the differentiated universe, in order to unify both 'opposites' also outside the complete substance. Denominate the universe as a totality outside the complete substance: T; inside: T'. Then the following four relations exist in the scheme: D - T; D' - T'; D' - T; and D - T'. The sought-after relation is D - T, viz. the harmony of the universe, which implies that the totality is established by its differentiation and therefore requires a circular relation. If this circular relation is indeed a conclusive circle, D and T can only be distinguished by their proper forms, viz. to be one and to be many. Not, however, by their contents, for this is ultimately the same in both of them: they both are the harmonious universe (in a circle, the end and the beginning are the same; therefore D and T would be the same). Or, to rephrase this, there is nothing in D which is not also in T, and everything in T is also in D; they are both universal. One may conclude, therefore, that T and D are intensionally identical.

This identity, however, is not a simple one. To establish this identity it must be clear how each element of T can be related to an element of D with which it is identical, and vice versa. For if this could not be done, the contents of T would not be that of D, hence they would not be intensionally identical.

D has a number of elements; this is plain, since it is the differentiated form. T, however, seems to have no element but itself, the total sum amounting to one; for if one would say that T actually contained the elements of D, there would be no point in distinguishing T from D; they would be indiscernible, therefore one - but one thing cannot form a circle, and, therefore, no harmonious universe.

The interrelation of elements of T and D can, therefore, not take place in an immediate way. Consequently it must be mediated, for it has to take place in some way. The problem with the interrelation is that the elements of T and D differ quantitatively. Fortunately, they do not only differ, but are opposed to each other. For D must contain all elements; as T must be one, since D is the differentiated totality, and T the totality as one whole. Thus they are necessarily perfectly complementary and if one would succeed in relating one of the opposites as such to the other, the other would on this account be related to the former, which is the required result. Or, to rephrase this: in the opposition one-all the negation of one of the opposites is the establishing or full confirmation of the other. This is fortunate, for there is now a determinate way to the solution of the problem, viz. by the negation of the opposites.

In fact D can be negated by stating that each of its elements contains T, as is clear in Leibniz's system. But the contained T is not T itself. If it were, D would consist of T's, and since all T's are indiscernibly identical, D would be completely identical with T, which is not the case (the problem would vanish then, and its existence is the very essence of the system; the problem must not vanish, it must be solved, which is quite a different thing). Furthermore, the contained T is of another level than T as such is: T as such is universal, as is D - the contained T is an element of D, therefore
singular. The contained T is, then, T’; T’ is contained in the elements of D, that is in D’, which is of course also singular.

The required interrelation would then consist of the relations T’ - D and D’ - T; that is: the elements of T, viz. T’, should be related to each element in D; and the elements of D, viz. D’, should be related to T in the same way.

By this, the terms of the problem have been stated. Now it must be examined how the solution is realized, that is, how the negation establishes the required result.

D and T are identical, yet their relation includes an opposition. As a consequence, their identity is incomplete. To complete it, they have to include a relation which neutralizes the opposition. That which neutralizes an opposition is its reverse. But the inclusion of this latter relation should not result in the actual neutralization of the opposition in the former relation; for then D and T would be completely identical, therefore indiscernible, that is: one. And consequently there would be no opposition, no reverse and hence no latter relation which could make the former relation complete.

It should be observed that this kind of reasoning is forced by Leibniz’s dynamical concept of the universe and complete substance. This dynamical nature forbids a simple identity — identity is always something which has to become, a process instead of a ready thing. This ontological structure determines also its logical representation, the reasoning.

Therefore, besides D and T there is the relation between D’ and T’. D and T are identical since they are universal; D’ and T’ are identical since they are singular. The opposition included in D-T is that D is many whereas T is one; the opposition included in D’-T’ is that T’ is many whereas D’ is one (61). Now D’ represents T, and T’ expresses D. This accounts for the fact that D’ is one, since T is one; it accounts also for the fact that T’ is many, since D is many. Thus there is D-T, its ‘mirror-image’ (on account of the reverse of the included opposition) D’-T’, and the relations D’-T and T-D’, which serve to relate D-T and D’-T’, thus making the circle conclusive.

The negation here is the relation between D-T and D’-T’; that is to say: D’-T’ negates D-T and vice versa. The two relations are each other’s perfect opposite. This is clear: D-T is universal, D’-T’ is the perfect opposite, viz. singular. In D-T there is a relation of one and many, which is reversed in D’-T’; again: the perfect opposite. And, finally, D-T is an identity, as D’-T’ is also, but a reversed one, since the included opposition is a reversed opposition as compared to the former; the perfect opposite once more, for the opposite of identity is not non-identity (which is a non-thing, and can, therefore, only be opposed to nothing) but reversed identity.

Obviously, this negation is expressed in the relations D-T’ and T-D’. These two relations are in fact the relations which establish that, as is required (see above), each element of T is related to an element of D and vice versa. The representation of T, viz. D’, brings about the actual differentiation of T, so that T (by this representation) can be related to the elements of D. And the expression of D, viz. T’, brings about
the actual unification of D, so that D (by this expression) can be related to the elements of T. Thus we have the negation of T (by representation), and the negation of D (by expression), which unify D and T via D′-T′.

Ontologically, this negation/unification is the activity of the primitive force, the nature or essence of the complete substance. Ontologically, this activity is a complex whole; the analytical elements which are examined here have no complete ontological meaning.

Logically, this negation/unification is the basis-structure of relation as such. Logically, one can distinguish the analytical elements and bring them together in one synthetic structure. The relation which forms this synthesis is also rather a problem, since it defies the basis of formal logic.

In formal logic identity and negation cannot be reconciled: the one excludes the other absolutely. But in Leibniz’s system, as expounded in this part, the negation appears to be the very structure that establishes identity, and therefore identity systematically includes negation.

Leibniz’s concept of identity, as far as it can be established historically, does not seem to be completely identical with the concept of identity of formal logic. In fact, the relations between these two concepts are not so clear at all in Leibniz’s works. In his logical works there is no ultimate definition of what identity is. For one thing, Leibniz is frequently ambiguous about what is to be understood by a concept: the real object of it, or the symbol it is itself (62). For another, there is good reason to suppose that Leibniz’s logical calculi (he designed more than one, none of them complete) (63) do not refer to the objects of metaphysics (that is, the real complete substances) but only to concepts, that is, symbols (64). This is not to say that Leibniz’s logic only refers to symbols and propositions, but that his logical calculi do. Of course his logic exceeds these calculi; for it has to be applicable to the objects of metaphysics. The first calculi are based on mathematics (65), and although the later calculi are mixed with metaphysical notions, their basic principle is the possibility of the reduction to primitive simple concepts (66). In the preceding chapter I have pointed out that Leibniz distinguishes between two modes of analysis, and two modes of truth: the truths of reason can be found by reduction to simple concepts; contingent truths, however, cannot. The former belongs to mathematics and similar operations with abstract concepts; the latter to reality. Now in metaphysics it seems to me that Leibniz is forced to use both, as I will show. It would not be surprising, then, nor inconsistent of Leibniz, if one would find different concepts of identity in his metaphysics. And indeed, there are different concepts of identity to be found, as will be made clear below.

Returning to the four relations of D’s and T’s, the following can be established.

D, T, T’ and D’ are as such incomplete. This is obvious, for the structure they form serves to make them complete; therefore, only the result of the structure, viz. the structure itself is complete. Consequently, D, T, T’ and D’ are abstractions, analytical moments. The relations between them,
however, are less abstract, though still analytical distinctions as such, and the total relation (the structure as a whole) is the least abstract (according to Leibniz's system actually not abstract at all, but concrete, for it is the structure of the complete substance) and the final synthesis.

T, D, T' and D' can be considered as simple elements, the result of the first mode of analysis. Their simplicity appears from the fact, that they need to be related to their opposites; complex elements would include this relation. Thus there is the relation between the opposites T and D, and the relation between the opposites T' and D', each of which is on a single level (universal and singular, respectively) and establishing a complex identity, for T-D signifies the identity of the universe as a whole and T'-D' signifies the identity of its constituent parts. These two relations can be understood by the concept of inesse, or to contain. According to Leibniz, between a subject and its predicates there is the relation of inesse (67). The subject could be the totality, the predicate to be differentiated, consequently the relation expressed as the proposition: the totality is differentiated; but also the reverse: what is differentiated is a totality. Both propositions, meant to apply to the universal level, express the relation D-T. Predicate and subject can be substituted for each other, the relation is not changed as to what it expresses. The possibility of this kind of substitution is for Leibniz a criterium for identity (68). Obviously, this is related to the relation of inesse: if two things contain the same, they are interchangeable. And in fact, this is what the structure of D's and T's signifies: the interrelation of elements, which identifies D and T.

The relation between D and T is, formally, similar to the relation between D' and T', since the latter relation also is of a single level; which means that the same kind of identity is found. But the relation between D and T', and T and D', is obviously of another kind: D and T' are not of a single level, neither are T and D'. In both relations one of the constituents is singular, the other universal. Yet these relations are essential to the overall structure, establishing in fact the identity of the relations D-T and D'-T'.

D-T' is the relation between the actual multitude which the differentiated totality is, and the representation of the totality as such in each part of this multitude. Actually T is differentiated here: the being-one broken up into parts and only continuing to exist in the form of representation. In this case the two constituents of the relation do not contain the same, but one is incorporating the other: D incorporates T', since every part of D is this representation of T.

T-D' is the relation between the totality as such and the expression of D. The differentiation is here expressed in its discontinuous result, the unit D', which compounds D on account of the fact that it is the representation of T. In this case each part of D is related to T, to form a continuous whole; consequently D' can be said to incorporate T. Thus, here the extensional infinite is brought into the singular finite, which becomes thereby intensionally infinite.

In the former relation, D-T', the reverse happens: the intensional infinite T' is brought into the multitude of finites which thereby becomes extensional infinite.
Both relations relate the singular to the universal; as such they are actually negations: T’ negates D, D’ negates T. T’ negates D, making a series of singulars to be related into a whole. The same goes, in a reverse way, for T: it is negated in D’, and thus T makes the parts of D able to be related. It is worth observing that all relations (respectively T-D;D-T’; T’-D’; and D’-T) are conditional to each other, following a circle.

For instance, D’ can only negate T on account of the fact that T is identical with D: the identity with D provides the infrastructure of the universe which, by D’, is brought out (and, of course, by the rest of the relations). But the negation of D in T’ brings about that D is identifiable with T. And T’ can negate D because T’ is identifiable with D’. Et cetera. In this way, a negation underlies every identification, and an identification underlies every negation. This may make it somewhat easier to understand that T-D’ and D-T’ are also identities (as well as negations): T is unified with D’, D is unified with T’.

But it is obvious that this kind of identity is not the same as in D-T and T’-D’. With D and T, as well as with T’ and D’, the two constituents of the relation contain the same: D and T the universe, T’ and D’ its parts.

With D-T’ and D’-T one of the constituents of the relation is incorporating the other. On the one hand the universe is incorporating its parts (T-D’), on the other hand the parts are incorporating the universe (T’-D). As a result of the combination of all four relations, the identities of T-D and D’-T’ are valid, since T-D’ and D-T’ make T and D on the one hand, and T’ and D’ on the other interchangeable. But also, this combination makes the identities of D-T’ and T-D’ valid, since T-D and D’-T’ make together that T incorporates D’ and D incorporates T’.

It seems to me that the establishing of T, D, T’, and D’ as simple elements must be the result of the reduction-type of analysis. As such, T etc. are identities in the sense of formal logic; that is: T is T, and not D, or T’, etc.. Such rigid establishing seems necessary: how to build a structure without elements? On the other hand the circular type of synthetic reasoning seems to be necessary to construct the whole. This involves two different types of identity, which maybe more properly should be called unification, since it refers to identities of non-identical (in the sense of formal logic) things. The fact that negation and identity or unification alternate and are conditional to each other will be dealt with in the next section.

One should, however, note that the transformation of T in D means the transformation of universality into singularity without an intermediate form (which could be particularity). The absence of this intermediate form is, of course, consistent with the rejection of real relations by Leibniz. One could also point out that the abstract relations T-D’ and D’-T function as intermediaries, bringing the universal into the singular and vice versa. But, although it is clear that they function as intermediaries, it is (analytically) not clear how they are able to do so, especially not how they are able to
relate the univeral with the singular. Analytically, this is problematic.

Section 2. The logical structure concerning force.

In the preceding section it has been made clear that the logical structure of the 'outer circularity' consists of unification and negation, together establishing the identity of the conclusive circle. The alternation of unification and negation implies that the whole is dynamical of nature. This concurs with the fact that Leibniz's concept of the complete substance is indeed dynamical. In this section the essence of this dynamical nature will be examined.

In scheme 3.2.d the dynamical identity of the complete substance is pictured, including its 'inner circularity' of expression and representation. In the preceding section it has been pointed out that expression and representation are, in fact, the basis of the 'outer circularity', too. Obviously these relations constitute the essence of the circularity as such, then.

Considering their ontological meaning this is not surprising. Expression and representation are the very concepts which are used in Leibniz's system to fit this ontological system together; they are the main characteristics of the complete substance. The concept of force unites them: primitive force is the representative nature of the substance, it expresses itself as successive activity which concurs perfectly with the state of its body. There is no reason to doubt, then, that if one establishes the logical structure of representation and expression, one establishes the logical structure of force, i.e. the essence of complete substances.

In scheme 3.2.d and its explanation in the preceding section, it has been made clear that the only ultimate reality is the reality of the complete substance. This reality unites two abstract forms, viz. the pre-established harmony and the multitude of corpuscles. The former is completely universal, the latter completely singular. The complete substance unites them by representation and expression; thus they lose their abstract forms. Representation can be compared to what is called in the infinitesimal calculus differentiation: the extensional totality brought into each of its parts. In the same way the points of a curve are said to obtain the local direction of the curve: differentiation results in the tangent of the curve in all its points. Expression can be compared to what is called in the infinitesimal calculus integration: the totality, first brought into the parts, can now be expressed by them, thus forming a totality; in the same way integration is the proceeding from points and tangents to the curves they belong to.

It is evident how differentiation and integration must form a circular structure: from totality to parts, from parts to totality - the first step is conditional to the second, and vice versa. It is also evident that we are dealing with abstractions here. Leibniz, of course, as its inventor, had an intimate knowledge of the infinitesimal calculus; yet it
must be doubted that he used it freely in metaphysics - mathematics is, according to Leibniz, not to be used in this way (see chapter 1, section 2). But he could have applied the same kind of reasoning, the same logic. In the preceding section, the relations T-D’ and D-T’ are very similar to differentiation and integration. D’-T’ can indeed be regarded as related to D-T as a point and tangent are related to a curve.

That Leibniz indeed thought that it were possible and proper to apply this kind of reasoning, seemingly based on mathematics, in metaphysics and physics, can be concluded from several statements he makes. For instance in one of his replies to Bayle, he says that even if there is nothing in nature which is perfectly continuous, as mathematics demands e.g. from motion, yet the actual phenomena are accommodated in such a way that the law of continuity is not violated, and neither are all the rules of mathematics (G.IV, p. 568; see chapter 2, section 1). In a letter to Varignon, February 2, 1702, concerning the infinitesimal calculus, Leibniz says that even if one refuses to admit infinite and infinitesimal lines in a rigorous metaphysical sense and as real things, one may still be confident and use them to shorten reasoning, since they are necessary in expressing real magnitudes analytically, and that, though continuity is something ideal, yet what is real never ceases to be governed perfectly by what is ideal and abstract; that the rules of the infinite apply to the finite and conversely (G.M.IV, pp. 92 ff). Similar statements can be found elsewhere; all indicate that Leibniz thought it admissible to apply forms of reasoning, found in mathematics, to abstract concepts besides mathematics. And not only admissible, but necessary, to express matters in an analytical way.

This, it seems to me, refers once again to the distinction between the two modes of analysis: the reduction to first simple elements, which is analytical indeed, and the establishing of circular structures, which is as a matter of fact synthetical. Analysis alone cannot serve all the metaphysical demands; as has been established, the dominant structure in Leibniz’s metaphysics is the circular structure. Yet a circular structure has elements, and how else can these be found than by analysis? It has already been established that these elements are, as such and by themselves, simple; as such, they must be the result of analysis. But the structure they compound is complex, circular - this must be the result of synthesis.

On this basis the kind of determinism that is inherent to Leibniz’s system can be explained from another angle. His critics held against Leibniz that the pre-established harmony would determine completely and absolutely what would ever happen to anything (see chapter 3, section 3). In terms of the structures developed above, this would mean that the representation of the totality in each of its parts would determine the actual differentiated universe completely; that is: the relation T’-D (the expression) would be absolutely determined as such. But this is not the case at all. T’-D, regarded as integration, is dependent upon D’-T, regarded as differentiation. This is clear: when one integrates a function, the result is not one determinate function, but a class of functions. Yet that which is integrated is the result of the diffe-
rentiation of one determinate function. It seems, then, that the circle is not conclusive: first differentiation, then integration, does not mean that one arrives at the starting point again. But this is only true as long as one keeps differentiation and integration apart, which, in Leibniz's system, is not done at all. In Leibniz's system they are two sides of the same activity, viz. the essence or force of the complete substance. When combined or united in this way, integration forms true totality, and differentiation forms true unities, and the one depends upon the other: only a true totality can be differentiated into true unities (whence would they come if not from the whole? Or, rephrased: whence would the tangent, the direction of a point come, if not from a determinate curve) and only true unities can be integrated into totality (whence would the curve come, if not from the direction of the points?).

Differentiation and integration, or representation and expression, must not be considered a series of more or less separate instances, but as depicting the whole of the structure of the universe on the one hand, and the whole of the structure of the complete substance on the other. For they relate, as is shown in the preceding section, D-T and D'-T' respectively.

If they are considered a series, they become abstractions. And with these abstractions indeed it seems that the expression of the represented totality results in a variety of possible states; then one of them is, seemingly, by coincidence or chance, chosen and therefore represented. In this way the representation is the reification of necessity, expression the reification of chance. And consequently one would say that necessity rules through the conditions formed by chance.

But if one relates these abstractions to a whole, in the circular structure, there is no reification of necessity and chance. There is only the actualization of the potency which is inherent to the representation of the totality. Everything that happens is certain, but not necessary in an absolute way, for actualization or expression depends on representation and vice versa.

I have expanded on this, because I think it makes clear what force is, and consequently, what the logical structure of force must be. Force integrates the singular into the universal and it differentiates the universal into the singular; these activities are actually one. But, due to the activity of force, the singular and universal are no longer simply singular and simply universal - they are, as such, abstractions; actually they are united, therefore something different from singular and universal.

Representation brings the universal into the singular. As a result, that which first was simply one, a unit, now is intensionally infinite; it is singular as well as universal. But it is not universal in the way the simple universal is, for the simple universal is one and extensionally infinite, but this new singular is one and intensionally infinite. It is also not simply singular, since it is not merely one, but intensionally infinite, therefore complex.

On the other hand, expression brings the singular into the universal, that is in its differentiated form. The differenti-
ated form is in fact a multitude of singulars. But once the singular is brought in, this multitude forms a whole and its singulars are singulars no more. This new form is a multitude of singulars, which are extending to one whole.

There is no structure in formal logic to signify this, since an apparent contradiction is involved: the singular should contain the universal. It is clear, that force resolves this contradiction by making singular and universal identical; but in terms of formal logic this kind of resolution is out of bounds - it can always be maintained that the 'identity' of the singular and the universal refers not to what is in both in fact singular and universal, but to something different. This must be granted. Yet the structure in which force forms the essential part is conclusive; and this should also be granted, and appreciated. Although the logic is not formal logic, there is logic in this structure.

The non-formal logical structure of force is the following. Expression as such (therefore in an abstract way!) can be considered the formal logical relation between what is universal and that which is contained by what is universal. Representation is, then, the exact opposite or reverse of this relation (but again, in an abstract way!): that which is contained, contains that which it is contained by. I propose to call this opposite of containment: complementary containment. This relation is not found in formal logic for it implies, as such, a contradiction.

But the two relations must be unified. For expression in Leibniz's system is not, in fact, expressing of that which the universal contains; it is expressing of the contained universal, therefore expression of what is complementary contained. Hence it needs representation as a presupposition. Representation is, however, not simply the containment of the universal in the singular, viz. complementary containment, but the containment of the expression of what is complementary contained. Containment and complementary containment are indeed complementary, forming a circular structure. The logical essence of this structure is that one of the involved opposites incorporates the other, and vice versa; this logically essential relation I propose to call hyperception, the circular incorporation of opposites, which contain each other both simply and complementary. Thus, force is logically hyperception of the universal and the singular.

The non-formality of this logical relation also appears from the fact that it has not a determinate quantitative aspect, or number. Universal means all; singular means one. But the hyperception means both all and one in the way described above. Anyway it is not numbered some; some is indeterminate, but not in the way hyperception implies; therefore hyperception cannot be ranked between universal and singular as (in formal logical terms) particular (as "some" would imply) - unless, of course "particular" changes in meaning, as universal and singular have changed inasmuch as they partake of the relation of hyperception; but even then one should come up with a new denomination, to remain exact.

Based on containment and complementary containment, hyperception does not signify a mere state, but a state of change; it is a dynamical concept. This can be made clear by pointing out that the two relations united in hyperception, viz. repre-
sentation and expression, are negations. Change is established through these negations, viz. by unifying them as has been explained above. This accounts for the fact that hyperception does not have a determinate quantitative aspect: change cannot have it. It also concurs with Leibniz’s repeated statement that the nature of the complete substance is dynamical and that its state is a state of change (see e.g. G.IV, p. 518; chapter 2, section 1).

That the nature of a substance is in a state of change implies, according to Leibniz, that it must have sentiment and presentiment and that force is permanent (see chapter 2, section 2). This also concurs with the structure of hyperception, since it includes representation.

That the permanent force is actualized by successive activities, concurs with the structure of hyperception too, since it includes expression.

The permanence of force and its successive activity together constitute the identity of the changing complete substance, viz. its essence. This is structurally signified by hyperception, since it unifies the logical structures of representation and expression. Since this identity furnishes the perspective of the complete substance, this is also signified by hyperception.

The latter aspect makes it possible to test the logical structure of hyperception to some extent. It has been pointed out that the sum of all the perspectives would reduce to no perspective at all, hence that there is no monas monadum (see chapter 3, section 3). Therefore, hyperception should not be possible (that is, lose its character) if applied to a monas monadum. This can be demonstrated.

A monas monadum would be, in fact, the universe as one totality. First: the monas monadum should represent totality as such in itself. This seems quite possible, since the universe could represent itself. Second: the monas monadum should express the intensional infinity it contains by virtue of the representation, and this expression should make the unit the monas monadum a dynamical entity, extending to form a totality, therefore actually changing. This, however, is not feasible: since the universe is as it is, it cannot change; and it can certainly not extend, since it is all there is.

Logically, the case is this: since the monas monadum per se is extensionally what it is intensionally, the relation of containment has no opposite. The complementary containment is completely identical with the simple containment itself. Hyperception is the circular incorporation of opposites which contain each other both simply and complementary; its basis is, therefore, negation (see above). However, when applied to a monas monadum, there is in fact identity where should be negation (viz. the identity of what is extensional and intensional). Therefore, since its basis is the opposite of what it should be, hyperception would lose its character. In fact, it would reduce to simple identity.

It appears, then, that hyperception can consistently be applied to the concept of complete substance in Leibniz’s system.
Section 3. Conclusions

It has been established that hyperception is the logical structure of the essence of the complete substance, viz. force. It is, therefore, the basic and essential structure of Leibniz’s system. It is reasonable to ask, then, why Leibniz did not mention this structure himself; for it is reasonable to suppose that a philosopher should be aware of the basic and essential logical structure of the system he proposes.

The answer to this question must be that, granted that Leibniz did not point out the structure of hyperception as a distinct logical structure, he did point out the essential characteristic of this structure. In one of his answers to Bayle’s criticism, he wrote (as I quoted before partly; see chapter 2, section 1);

"On donne mal des limites à la division et subtilité,
aussi bien qu’à la richesse et beauté de la nature, lorsqu’on met des atomes et du vide, lorsqu’on se figure certains premier Elemens (tels même que les Cartesiens) au lieu de veritables unités, et lorsqu’on ne reconnoist pas l’infini en tout, et l’exacte expression du plus grand dans le plus petit, jointe à la tendance de chacun à se developper dans un ordre parfait, ce qui est le plus admirable et le plus belle effect du souverain principe, dont la sagesse et bonté ne laisse roit rien à desirer de meilleur à ceux qui en pourroient entendre l’oeconomie."

(G.IV, p. 254)

(One does wrong to impose limits upon the dividedness and subtility, as well as upon the richness and beauty of nature, when one proposes atoms and the void, when one imagines certain first Elements (the same as the Cartesians do) instead of veritable unities, and when one does not recognize the infinite in everything, and the exact expression of the greatest in the smallest, combined with the tendency of each one to develop itself in a perfect order, which is the most admirable and most beautiful effect of the sovereign principle whose wisdom and bounty leave nothing better to desire by those who are able to understand its economy.)

It is very clear, then, that Leibniz states the infinite is in everything (by representation) and the greatest in the smallest, which is the very structure of hyperception on the condition that this infinite contents is expressed - which it is, for Leibniz states this state is combined with the tendency to develop itself in a perfect order.

Another example is the way he explains primitive force and its successive activity (see chapter 1, section 2, and chapter 2, section 2). Here also representation and expression are combined in the nature of the complete substance, that is one
thing which represents and expresses the universal harmony.

It seems to me, then, that Leibniz was indeed aware of that logical structure I call hyperception. But to develop it explicitly as a logical structure is yet another thing. As I have indicated in the preceding section, the infinitesimal calculus must have been raised on the same logical basis; it plays, considering for instance the quotation above, obviously a central role in Leibniz’s metaphysical ideas; but Leibniz did not explicate how. Nevertheless, the presence of the structure of hyperception in his system cannot be denied.

The most prominent characteristic of hyperception is that it unifies two different levels by negating both in turn. The universal level is negated in its representation; the singular level is negated in the expression of the representation it is; together they establish the unification of the universal and the singular in which each contains (simply or complementary) the other.

To determine hyperception in more detail, the containment should be examined further. It is, in Leibniz’s logic, a basic concept: *inesse*. The question is, then: what does *inesse* mean?

First of all, both the universal and the singular are in the complete substance. But this is a result of two forms of containment; or maybe this should be put as: in this there are two forms of containment which can analytically be distinguished from each other. The former phrase better expresses the dynamical nature of the circular structure, the fact that it is a process; the latter phrase better expresses that, even as a process, it is still actually one, and every distinction breaks this up and is, therefore, analytical.

As I have pointed out in the preceding section, expression is the actualization of the containment of the singular by the universal: elements compounding a continuous whole. Yet it should be noted, that the universal does not bring forth its singular elements, but that the singular elements bring forth the universal. This means that the universal is presupposed in each singular element, which is the reverse of that the singular elements are presupposed in the universal. The necessary condition for expression is, then, that universal and singular presuppose each other’s containment. But this is in fact the structure of hyperception, of which expression is a part.

The same can be said of representation, but then in a reverse form. Representation is the actualization of the containment of the universal by the singular (which is a complementary containment). But why does the singular represent the universal? Because it must express it; and it is the totality of expression that is, as the universal, represented. Thus, the necessary condition for representation is that universal and singular presuppose each other. And, again, this is the very structure of hyperception, of which representation is a part. Obviously, then, in hyperception the whole of the structure and its constituent parts are related according to the same logical structure they form: whole and parts hyperceive each other. Which means that hyperception is its own basis.

This is very much similar to the concept of identity in formal logic. In formal logic identity is its own basis,
because its parts are related according to the same logical structure they form. In $A = A$ there are two relations to be distinguished: the one $A$ is the other $A$ and the other $A$ is the one $A$. Together they form identity; and each forms as such identity.

Furthermore, as identity is the basic concept of formal logic, hyperception is the basic concept of the logical structure Leibniz applies in his ontology.

It has been made clear that *inessse* means (logically) hyperception. In the first section of this chapter it has been pointed out that Leibniz wants to make *inessse* the basis of the concept of identity in his logical calculus (and that he does not succeed). Evidently, the structure of hyperception is for Leibniz the structure of identity.

Not, however, of simple identity, as the concept of identity of formal logic, which Leibniz advocates to use in the reductonal analysis. But the identity as it should be used in metaphysics, which applies to the real universe; hence as it should be used in the other form of ‘analysis’, the circular form, which is in fact synthesis.

Reductonal analysis is to be used in mathematics, according to Leibniz (see section 3.3). And mathematics is the basis of Leibniz’s logical calculus (see section 4.1). The concept of identity of reductonal analysis, however, is not fit to be used in Leibniz’s logic; it should be the concept of hyperception, since this is what Leibniz means by *inessse*. Obviously, there is a conflict of identities in Leibniz’s logical calculus, then. And this might well account for the fact that he did not succeed in completing the calculus to his satisfaction; and consequently for the fact that he did not publish his essays on logic. It might even account for the fact that he never gave a systematic exposition of his metaphysics – a systematic exposition needs a logical structure to precede it, since it is presupposed in it, but Leibniz did not have a logical structure to present (69).

As has been pointed out in the preceding section, hyperception is a structure with a dynamical nature; it signifies change, viz. the tendency of the complete substance to develop itself. Force is the essence of this tendency; it is the essence of change, then, and as such it is the central and basic concept of Leibniz’s ontological system, in the same way hyperception should be the central and basic concept of his logic.

It has also been pointed out in the preceding section that hyperception is quantitatively indeterminate, since it is both many (or all) and one. Since hyperception is to signify change, this is understandable. But it furnishes a problem for physics: how to measure something which is quantitatively indeterminate? It cannot be done; and therefore Leibniz says physics is not the science of reality, but of abstractions. Abstractions are quantitatively determinable, they are open to mathematical operations and reductonal analysis; here, formal identity has its proper place. But metaphysics, the science of reality as it is, must use hyperception as the ultimate concept of identity, viz. dynamical identity. The separation of metaphysics and physics (see chapter 1, section 2) can be explained in this way. Leibniz’s criterium, viz. that metaphysical concepts are universal, as physical concepts are not, is
now also intelligible: that which conceptualizes the universal must be circular of structure, hence it must need hyperception.

It is interesting to notice that in Leibniz’s view physics is no more than the abstract expression of nature, whereas metaphysics is the concrete expression of nature (viz. of reality as it is – therefore concrete); therefore, that to the former applies the reductional analysis which leads to truths of reason, and to the latter the synthetical analysis which leads to contingent truths. Somehow, one expects the reverse: contingent truths in physics, truths of reason in metaphysics. But in Leibniz’s system it is consistent: abstractions are the products of reason, but the synthesis must match reality, which is contingent. In this system, force actualizes the contingent reality, which is contingent with itself, therefore universally harmonious. Substance is the multitude of complete substances, and force is their nature or essence. Force is a dynamical structure; therefore, in Leibniz’s system, the universe is compounded of dynamical structures. The logic of these structures is laid down in the concept of hyperception.

Yet, for metaphysics and logic hyperception also furnishes a problem. It offers a conclusive structure for the unification of universality and singularity, but (as has been pointed out before) it does not offer an exact analysis for the transformation of the universal in the singular and vice versa (70). Thus, from a synthetical point of view, the structure is satisfactory (on account of its conclusiveness and its consistency within the Leibnizian system as a whole), but from an analytical point of view it is not. The structure of hyperception is forming, as one could say, too well one whole, it is unification which succeeds too well; it is, as a result of this, not completely transparent and therefore one cannot be completely sure that the implied contradiction is solved in a satisfactory way. In other words, the Leibnizian system wants analytical development. This is what brings us to Kant.
Notes to division 1.

1. Every translation is an interpretation, no matter how close one tries to come to the original. In this sense, the historical exposition is a part of the systematical exposition, where much more explicit interpretation is carried out. I thought it a matter of consistency, therefore, to make my own translations. Of course I made use of the existing translations of Leibniz’s works. The original text is that of the edition of Gerhardt (occasionally amplified with that of Dutens in order to reproduce the texts in the form Leibniz published them).

In the text, I make use of abbreviations (e.g. SpDyn for Specimen Dynamicum, etc.). For full references and abbreviations, see the list of used literature.

2. E.g. Leibniz’s controversy with Bayle (for instance G.IV, pp. 517-524, 554-571 for Leibniz’s replies to Bayle’s criticism). Only in his correspondence with Clarke Leibniz occasionally finds some difficulty in maintaining this attitude.

3. See e.g. SpDyn and NS.

4. In chapter 1, I will expound the reasons I have for my view that Leibniz’s "mature period" begins with the publication of De prima philosophiae emendatione, etc. There are other views.

The 'general' view divides Leibniz’s works into two parts of which the "mature" part starts with the Discours de Metaphysique (1686). See for instance G.Gale, Leibniz’s force: Where Physics and Metaphysics Collide, in: Studia Leibnitiana, Sonderheft 13, Stuttgart, 1984. This view seems plausible, since in the Discours most if not all of the concepts are introduced which feature in later writings. Moreover, as G.H.R.Parkinson points out (G.H.R. Parkinson, Logic and Reality in Leibniz’s Metaphysics, New York & London, 1985, p.4), Leibniz wrote in a letter to Burnett (18 May 1697) that he was only satisfied with the philosophical views he had held for roughly the last twelve years (G.III, p.205), which is more or less consistent with the date favoured by the general view.

A different view is held by D.Garber. He claims that one must distinguish between three periods in Leibniz’s philosophical development. The first is the more or less Cartesian period (which is the pre-mature period in the general view also). Then the period of the 1680s and ’90s, when the Discours and the Specimen Dynamicum were written; this is the middle-period in which Leibniz was most strongly influenced by Aristotelian concepts as, for instance, entelechy. Finally the third period which is dominated by the "idealism" of the Monadology (see D.Garber, "Leibniz
and the Foundation of Physics: the Middle Years", in: K.Okruhlik & J.R.Brown (eds.), The Natural Philosophy of Leibniz, Dordrecht, 1985). This view is (with minor variations) also advocated by C.D.Broad (see C.D.Broad, Leibniz; an Introduction, Cambridge, 1975, pp.87-90)

These views have in common that they pay little attention to the fact that Leibniz did not publish some of his "major" works, as for instance that very frequently quoted Discours.

5. H. Herring translates: "Deshalb ist hier ein besonderes Verfahren im Aufstellen der Sätze nötig, gleich einem Faden im Labyrinth, mit dessen Hilfe nicht weniger als bei der euklidischen Methode die Fragen - einem Rechenverfahren gleich - lösbar sind. Dabei ist nichtsdestoweniger die Klarheit zu wahren, die der gebräuchlichen Redeweise kein Zugeständnis macht." (H. Herring (hrsg). G.W. Leibniz - fünf Schriften zur Logik und Metaphysik, Stuttgart, (1966), 1982, p. 20). H.H. Holz translates, almost in an identical way: "Daher ist eine besondere Methode der Aussage und gleichsam ein Faden im Labyrinth nötig, mit dessen Hilfe nicht weniger als durch die Methode Euklids die Fragen nach Art einer Rechnung gelöst werden können, wobei nichtsdestoweniger die Klarheit bewahrt werden muss, die keinerlei volkstümlichen Redewendungen Zugeständnisse macht." (H.H. Holz (hrsg). G.W. Leibniz - Kleine Schriften zur Metaphysik, Frankfurt a/M, 1965, p. 197). And L.E. Loemker translates: "And so a certain distinctive order of procedure is necessary, which, like a thread in a labyrinth, will serve us, no less than the method of Euclid, to analyze our questions in the form of a calculus, yet nonetheless preserve the clarity which should never be lacking from popular speech." (L.E. Loemker, (ed.). G.W. Leibniz, Philosophical Papers and Letters, Dordrecht 1969, p. 433). The first two translations are practically identical; especially in this respect, viz. that they translate "ratio proponendi" as a special method of making propositions. The third translation contains obvious mistakes: popular speech is, according to Leibniz, lacking clarity and should not be used; furthermore, Loemker does not translate "proponendi" very accurately ("procedure" is rather vague). But it has the merit of stressing order, whereas the other two do not expressly do this. Apparently, Holz and Herring think that Leibniz is discussing his total method here, and in a rather global way, viz. as a system of propositions in general. This certainly has some plausibility. "Propono" means literally "to put forth", but has the implicit meaning of "to put forth statements", that is "proposing" or "making propositions", which at least in this context cannot be reasonably doubted. A "ratio proponendi", then, means "a system (or order, or method, or procedure, etc. - anything which refers to the establishing of some-
hing which is regulated according to a certain standard) of making propositions." But now look at the context. Leibniz accuses Descartes of omitting necessary intervening notions in his reasoning; Leibniz wants to amend this — how else could this be done than by giving a system, which prescribes the series of concepts in order to avoid any kind of gap? This prescribed series of concepts or order of propositions (by which the series of concepts is expressed) is, I think, the "ratio proponendi". Therefore the emphasis is not on a system of arguing in general, but a specific system, viz. a system which prescribes the order of the series of concepts to be used in valid reasoning (viz. reasoning without gaps or leaps, and according to the contents of the concepts).

6. The stringency derives from the contents of the concepts. Leibniz does not reduce logical order to formal rules. His logic is of an intensional nature, and, in this respect, opposing the formality of formal logic. I will dwell upon this characteristic in part 2.

7. The extent of the influence of Scholasticism on Leibniz is not easily determined. It is a question which plays a role in the problem of establishing certain periods in Leibniz’s work (see note 4). Leibniz stated that Descartes failed to understand the concept of substance, but Garber points out Leibniz did not (at this stage of his development) assert that substance is only form, that is, that souls or forms are all that is to the world. Garber claims that (in the Discours) soul or substantial form refer to the Aristotelian (therefore Scholastic) concept of form, and that Leibniz elaborated on this idea in the correspondence with Arnauld (Garber, op.cit., pp.30-31). In Garber’s view, Leibniz’s ‘middle-period’ is therefore essentially Aristotelian. One might raise the objection against this view that Leibniz also seems to advocate Platonism in this period (for instance, the appraising remark he makes in PPE&NS about Descartes’ revivitation of the study of Plato). Furthermore, Leibnizian concepts concerning monads (which, in Garber’s view, do not yet belong to the middle-period of Aristotelian realism, but to the third period of Platonic idealism) also include Scholastic notions. In the Monadology, Leibniz still used terms as substantial form, appetitus, and entelechy, and, as Parkinson remarks: "‘Substantial form’ is not an isolated term in Scholastic philosophy, but is one of a cluster of related terms, such as ‘entelechy’, ‘soul’, and ‘appetite’. It is not therefore surprising that Leibniz should use these words to explain what makes a substance able to express both future and past." (G.H.R.Parkinson, op.cit., p.173).

This Latin/German edition is used in this section, since it covers more details concerning the published text and the manuscript versions than the edition of Gerhardt.

9. I.Hacking (Why Motion is Only a Well-Founded Phenomenon, in K.Okruhlik & J.R.Brown, (eds.), The Natural Philosophy of Leibniz, Dordrecht, 1985.) offers an interesting explanation for this Leibnizian view. According to Leibniz, says Hacking, space, time, and motion are only well-founded phenomena (op.cit., p.132). The term phenomena is denoting something public, that is, accessible to all of us (op.cit., p.133). Hacking quotes Leibniz, claiming that these public constructs will not appear in a deeper description of reality (op.cit., p.134). The question is, of course, what is meant by a deeper description of reality? Hacking explains this as follows. One can apply an infinite number of inertial frames of reference to reality. For every motion, one can choose a frame of reference in which the apparently moving body is not moving at all. This is a crucial criterion for the reality of motion, and in fact for the reality of any phenomenon whatsoever: if it disappears with a change of frame of reference, it does not really exist. It is handy, says Hacking, to use the most simple frame of reference, that is the frame in which one needs a minimum of laws to explain or to compute the maximum of phenomena, but simplicity is ultimately no criterion for truth. For instance, the Ptolemaic and the Copernican schemes cover the same phenomena, and correctly at that; therefore they are equipollent, but none of them true (op.cit. pp.138-139). A criterion for truth is, however, invariance under different frames of reference. Leibniz might have applied this criterion. The Leibnizian "living force" (vis viva) is in all frames conserved in interactions, therefore it is invariant, ergo real. Motion varies with various frames of reference, therefore it is not invariant, ergo not real (op.cit., pp.141-143).

The concept of invariance is a modern one, and it is highly unlikely that Leibniz would have used it in this way. Hacking is well aware of this. He only seems to make use of Leibnizian (meta-)physics in order to stress his own view that invariance is a much harder criterion for truth than is simplicity (op.cit., p.147). One might add to this that Leibniz does not rely on this more or less Cartesian argument of relativity of motion only; his arguments for the conviction that motion is not real are much more of a metaphysical than of a geometrical nature. (see also note 14)

10. The relation between primitive and derivative force is not made entirely clear by Leibniz. How derivative forces derive from primitive force is circumscribed rather vaguely. This problem must be
subjected, therefore, to systematic interpretation; see part 2.

11. In Leibniz’s system there is no vertical order of these concepts; primitive force is not the highest concept, containing subordinate concepts, that is various forms of derivative force. Primitive and derivative force are complementary; this will be made clearer in section 4, chapter 1, and in part 2.

12. "Undetermined" in contrast to derivative forces; primitive force as such has no specific determinations, on account of its universality; see chapter 1, section 4.

13. The relation between mathematical expression and physical reality is not clear with Leibniz; see p. 14.

14. Miller (Miller, R.B. Force and Substance; a Study of The Interrelation of Dynamics and Metaphysics in Leibniz. Ann Arbor, Michigan, 1986) points out that, for Leibniz, the principle of conservation is of great ontological importance, that it is even part of an axiom. In SpecDyn, where Leibniz offered his refutation of the Cartesian principle of conservation, he described a thought-experiment with a lever and weights. Leibniz demonstrated there, says Miller, that: "A simple pendulum in a thought-experiment which removes all friction will swing eternally. However, the kind of perpetual motion which Leibniz derives from Descartes' conservation principle is not of this kind. If the machine Leibniz describes could be built it could do work without any energy being added to the system. It could generate energy on its own without any source of fuel. This, unfortunately, is impossible even in frictionless systems." (op.cit., pp.48-49). He continues that Leibniz concluded from this that motion is not fully real, but that force is conserved and therefore most real. Even if Leibniz's argument is not correct (which happens to be the case), says Miller, it is his reasoning that is of interest; but he fails to understand it completely, as he himself admits: "The two arguments which Leibniz seems to be using are: 1. Quantity of motion is not conserved, therefore motion is not real, and 2. Force is conserved, therefore force is real. The suppressed premise in both these arguments would have to be: All and only those properties which are conserved are real. Concerning this premise we must ask why Leibniz thinks that it is true. [...] Again at this point I must also admit that knowledge of Leibniz’s scientific views is not sufficient to explain why he adopted this premise. [...] I think that this premise has for Leibniz a self-evident character that makes it an appropriate axiom. I do not find him arguing for this premise and he probably felt that it required no argument." (op.cit., pp.50-
Miller claims that Leibniz’s scientific views are not sufficient to give us an understanding of Leibniz’s metaphysics, and that the key of understanding the latter is to be found in Leibniz’s Platonic belief that the permanent (i.e. spiritual, monads) is ontologically superior to the transient (i.e. physical, compound bodies) (op.cit., pp.42-43). It seems to me that, given this view, he should have found the rather simple explanation of the metaphysics necessity of the axiom mentioned above. A property which is not conserved can be negated; therefore its existence is insecure, which means that it cannot be applied to all of reality; therefore it lacks universality, and (since universality is Leibniz’s criterion for metaphysical concepts, and metaphysics is to be used to explain reality as such) cannot therefore be used to explain reality.

15. R. Westfall ("The problem of force: Huygens, Newton, Leibniz", in: Studia Leibnitiana, Sonderheft 13, Stuttgart, 1984) remarks that the Leibnizian concept of force (vis viva) which might seem a physical concept essentially entails the active principle inherent in the monads which is a metaphysical concept. According to him, this makes a simple mechanical dynamics inapplicable, as in mechanical dynamics matter is not active but passive; Leibniz had to develop a combination of metaphysics and dynamics (op.cit., p.81).

16. G. Freudenthal ("Partikel- und Systemmechanik: Newton und Leibniz", in: Studia Leibnitiana, Sonderheft 13, Stuttgart, 1984) points out that with Leibniz the laws or rules (such as the conservation of living force, or the equipollence of causa plena and causa integer) do not apply to singular particles (as is the case with Newton’s laws of motion), but to systems of particles (op.cit., p.42).

17. D. Allen points out that final causes were very important to Leibniz. Leibniz claimed, he says, that they are necessary for the correct and complete understanding of motion. Matter must have in itself an active principle (entelechy) which directs it. For if it did not have such an internal principle, it would move undirected (which it does not, for all is in perfect harmony), or it would be directed directly by God (which would make matter God’s own substance, which it is not) (D. Allen, "From vis viva to primary force in matter", in: Studia Leibnitiana, Sonderheft 13, Stuttgart, 1984, p.55).

The connection of final causes and entelechy may seem to point at a very distinct Aristotelian influence, but one should be careful. E. Rudolph remarks that, although Leibniz does refer to Aristotelian concepts such as the active nature of the entelechy (or vis activa primitiva), and the potency of matter
to act rather than being acted upon (i.e. the activity of the soul or form), Leibnizian teleology is not identical with Aristotelian teleology. There are important differences. With Leibniz the ‘telos’ has already been established (in the universal harmony), contrary to what is the case with Aristotle. For Aristotle time is real, and an ontological category; for Leibniz it is a category of subjective experience, and his ontological level is timeless. Therefore, with Leibniz the dynamic process of existence is virtually closed, but with Aristotle it is open (E. Rudolph, "Die Bedeutung des aristotelischen Entelechie-Begriffs für die Kraftlehre von Leibniz", in: Studia Leibnitiana, Sonderheft 13, Stuttgart, 1984).

18. It is clear, that Leibniz tends to think of mechanics as a purely mathematically and geometrically determined discipline. This is, of course, due to the Cartesian idea of matter as "res extensa." If matter were nothing but something extended, it could be fully understood by the sciences which had been expressly developed to understand the extended, viz. mathematics and geometry. Therefore, Leibniz seems to think of mechanics as "pure mathematica et imaginatio subjecta" (SpDyn, p. 22). "Mathematics" is clear; "imagination" is, I think, the kind of mental activity which deals with geometrical affairs – it is the mental representation of geometrical figures, but since these are ideal (in this respect Leibniz follows Plato, as in several others), one can indeed say that this representation is imaginary.

Of course, a concept like "mole" does not stem from mathematics and imagination; it originates from phenomenal experience. One might even say: from scientific experiment; but although Leibniz seems to have actually carried out a great many experiments (which is not altogether surprising, since the great Huygens was his teacher and Leibniz simply revered and adored him), many an experiment may have been carried out in thought only (as was, to a certain extent, common ‘practice’ in this period).

This inheritance of the Greeks should cause caution as regards Leibniz’s experimental activity. As a source of scientific concepts, experiments do play their role, but thought would play a part at least as large. Therefore, when I refer to the source of concepts applicable to phenomenal nature, I refer to "scientific consciousness" rather than to "scientific experience", since mathematics and imagination are included.

Furthermore, when Leibniz refers to his "systematical rules of motion", he says they are the outcome of adding metaphysical laws to the laws of extension (SpDyn, p. 22). Consequently, in the systematical rules all sources are included and mixed or blended.

It is clear, then, that these three sources are not separated in Leibniz’s system, though they are distinguishable as such.
19. The discussion following the publication of Leibniz’s New System incited him to write several "explanations" or "clarifications"; see chapter 2.

20. For instance, the notion of force (not defined as "quantitas motus", but in a way similar to Newton’s definition of force), which is absent in Descartes’s works, in Huygens’s works sometimes almost seems to appear, for instance in his treatise on the motion of a pendulum (according to E. Dijksterhuis, De mechanisering van het wereldbeeld, Amsterdam 1950, p. 409, 457). Westman claims that Huygens’s concept of mechanics is in essence of a post-Cartesian nature, that is, not strictly mechanistic anymore. (R.S. Westman, "Huygens and the problem of Cartesianism", in: Bos, H.J.M., and others (eds.), Studies on Christiaan Huygens, Lisse, 1980, p. 83). It is a fact that Huygens as a mature scientist rejected most of the Cartesian ideas. In a letter to Bayle (1693) he wrote that after he had discovered time and again things in the Cartesian system to be clearly false, he had come back completely ["fort"] of the prejudice he had and at that moment he could hardly find a thing he could confirm to be true in Descartes’s whole physics or metaphysics or "Metéores" (Chr. Huygens, Œuvres Complètes, Haarlem 1888-1950, Vol. X, p. 402). Huygens acknowledged, e.g., the necessity of the existence of the vacuum (id. Vol. XXI, p. 473). On the other hand, he maintained the major Cartesian principle that all phenomena should be reducible to corporeal motion and the exchange of motion by impact; as a consequence, he rejected Newton’s concept of force, because it could not be explained mechanically (id.; Vol. XXI, p. 471).

21. It is remarkable that Leibniz, when conceiving of a unity of matter, does so in a twofold way, from the very beginning: both a unity which is universal and a unity which is particular or proper to the parts matter consists of. As will become clear throughout this first part, these two unities are two sides of the same coin. In doing so, Leibniz evades the difficulties which are entailed by either concept of unity on its own: to have only a universal unity means having problems with establishing truly active individuals, and to have only an individual unity means having problems with establishing relatedness and consequently overall unity.

22. In terms of formal logic it is difficult to give this concept its proper place. For on the one hand it is obviously universal, but on the other, it is just as obviously individual; thus it is functioning on two different levels at the same time. To complicate things further, these two different levels reflect each other: the universal unity contains the multitude of individuals, but each individual unity contains the universal unity; as a result of this it is diffi-
cult to maintain a difference on formal logical grounds only: when A contains B, and B contains A, in formal logic one would be bound to conclude that A and B were identical. But A and B, that is universal and individual unity, are not completely identical; they are identical indeed inasmuch as they contain each other, but they are also non-identical because the very fact that they contain each other means, in Leibniz’s system, that there is a relation between them, and to have a relation they must be discernible, which in turn means they are non-identical. This logical problem will be elaborated in part 2.

23. This hierarchy refers only to the quality of substantial forms; it must not be taken to mean that the higher form contains the subordinate forms.

24. Miller (op.cit., pp.53-55) draws attention to the anthropomorphic way in which Leibniz treats concepts as force and substance. Properties as "soul", "perception" and "appetite" are (when used together) distinctly human. Miller says: "Leibniz is [...] consciously anthropomorphic about the concept of force. This is probably a bad thing and at least it ought not to be relied on for the analysis of the concept." (op.cit., p.55)

I do not quite agree with Miller’s conclusion. If Leibniz did use anthropomorphic concepts consciously, then I think it very likely that they communicate specific information about force and substance which cannot (or could not) be communicated in another way. Now Miller also remarks (in passing, rather) that force, for Leibniz, is a concept made intelligible to ourselves by reflection on our own thought processes (op.cit., pp. 68-69). In my view, this is exactly the point. As a matter of fact, thought processes are reflection. And reflection is a typical human activity (or so we are inclined to think) which has a very specific structure. Leibniz’s metaphor of the mirror (which is a mechanically reflecting apparatus) to explain the process of reflection in monads, even with the remark that the mirror must be thought of as being alive (which I personally find rather difficult), is an attempt to overcome the anthropomorphism, I think, an attempt to offer a model more in line with the mechanical views of that time; but it is not a tremendously successful metaphor, as will be pointed out. Maybe Leibniz’s ideas need anthropomorphism in order to be completely understood.

25. "Formal" does not refer here to substantial form (the latter is referred to by "substantial") but is used as in "formal logic"; that is, it refers to operations which can be carried out while abstracting from the contents of concepts or from the physical properties of bodies.

26. Especially concerning infinitesimal quantities.
27. One would, then, of course, lapse into subjective idealism, since human consciousness would then be responsible (and solely responsible) for the phenomena of motion related to its point of view.

28. Resistance is not the same as reaction. Reaction is just a form of action. But resistance, or the capacity of being acted upon and the actual carrying out of this capacity, is a necessary complement to action. Resistance is passive primitive force or primitive matter (materia prima) as action is active primitive force or substantial form. The relation action-reaction is derivative, deriving from active primitive force, as mass or secondary matter derives from passive primitive force.

29. see note 8.

30. Leibniz’s intensional logic will be examined in part 2.

31. By "circular" I do not mean "a circle". I use this term to refer to the logical conclusiveness of the structure. A structure may, however, be conclusive and yet something other than a plain circle. It was Kant who introduced this problem in modern philosophy: "is it possible to have a structure of reasoning which is undeniably and absolutely true (therefore "a priori" true, or "circular"), yet gains in contents along its way (which Kant denominated "synthetical")?" Or, to rephrase this: "can we have a spiral which is essentially circular?" I think this kind of circularity is typical of, as well as in, Leibniz’s system: it is circular, but more than a mere circle.

32. Allen (D.Allen, "Mechanical Explanations and the Ultimate Origin of the Universe According to Leibniz", in: Studia Leibnitiana, Sonderheft 11, Wiesbaden, 1983.) has a different view. According to him, Leibniz maintains the following. Both the existence of the world and its particular order are explicable only by an ultimate extramundane reason for things, that is, God. Every successive state is derivable from the previous state, but not by logical necessity, because the contrary would not imply a contradiction; therefore the previous state is not the full or sufficient reason. Sufficient reason must be found in the essence, since the essence of a thing is what this thing is, completely. The more perfect an essence, the more it tends toward existence; therefore, the combination of existing things is the maximum of essence. This partly accounts for the existence; the ultimate origin, however, is a being whose essence implies necessarily existence, viz. God (op.cit, pp.1-4).

On this basis, Allen stresses the activity of primary force as the teleological self-direction of
substances with Leibniz (op.cit., pp.16-18). He then concludes: "Leibniz’s primary forces give a physical basis for the regularities of nature which, largely because they are not to be used to explain particular details of nature, Leibniz calls a metaphysical basis. This metaphysical basis for science functions as an intermediary between mechanical explanations in science, which are science proper and which are to make no references to God, and leibniz’s explanation of the ultimate origin of the world and its order, which resides in God’s wisdom and goodness and in the character of the essences which "tend toward existence"." (op.cit., p.20)

Furthermore: "Leibniz’s physical theory is clearly not a scientific theory. Its fundamental basis is the conviction that the ultimate constituents of nature are enduring, teleologically self-directing individual entities. Its plausibility cannot be supported by predictions nor by explanations of particular natural phenomena. Its plausibility as an account of physical necessity depends on arguments for the views: (1) that the ultimate constituents of nature must be enduring, teleologically self-directing individual entities; and (2) that the physical necessity, which explains observed regularities, must itself have a ground in a metaphysical necessity." (op.cit., p.27). In short: Leibniz’s physics derive from his metaphysics, and his metaphysics derive from his theology.

I agree with Allen that Leibniz’s physics should not be regarded as standing by itself, and that neither should his metaphysics. As R. Catesby Taliferro remarks (The Concept of Matter in Descartes and Leibniz, Indiana, 1964, p.24): "It would be exactly consonant with the Leibnizian theory of monadic perception and thought to consider logic, mathematics, mechanics, and metaphysics as symbolic systems representative of an idea which none expresses completely." But I do not agree with Allen’s view that God is in effect the ultimate reason of existence, and that the ultimate ground of the world is an extramundane one. Leibnizian ontology is in no way in need of Leibnizian theology: once it has been created, the Leibnizian universe is completely self-supporting; hence, primitive forces or the essence of complete substances do not need God to close the circular structure they are establishing.

33. I do not intend to say here that this mediation is, from a logical and philosophical point of view, completely satisfactory. In fact, I think it is not; but I also think that Leibniz intended this mediation to be conclusive and that he succeeded in this, to a certain extent. He only failed in devising all the necessary stages of the mediation, thus offering mediation more or less in outline only: one can see that it must be conclusive, but not exactly how it is conclusive.
34. This means, in fact, that in Leibniz’s view God does not literally intervene, but established the universal laws of nature, i.e. the pre-established harmony. The term intervene is probably used both to display Leibniz’s religious fidelity and to leave open the possibility of miracles, which must, however, be of a kind that resembles the establishing of other laws of nature.

35. Here, "as" means "in the way of", since it is the translation of "comme". Of course Leibniz does not regard monads to be atoms of substance, since he rejects atomism.

36. I use the terms "express" and "expression" for the activity of bodies as well as of souls (or corpuscles and monads respectively), which activity refers to the specific points of view within the actual totality. Strictly speaking, in Leibniz's system bodies or corpuscles as such do not possess expressive activity, only monads do. But then, bodies or corpuscles as such do not really exist, since they are always tied to their souls or monads and form one entity with them; hence bodies/corpuscles do, in a way, express the actual totality - but as such they only are specific points of view within the totality. "Exact representation" does not mean that the actual totality and the represented totality are absolutely identical in every respect. They are identical, but in the way an original triangle and its representation (e.g. after a rotation of 60 degrees, or a translation, etc.) are identical: they share the same structure but may have different shapes.

37. The metaphor of the mirror is a slippery one. Parkinson remarks on this that Leibniz warned not to take his metaphor literally (G.H.R.Parkinson, Logic and Reality in Leibniz’s Metaphysics, op.cit., p.147); the analogy itself, he says, signifies the quality any substance must necessarily have, viz. to include in its concept the whole universe, but: "The analogy breaks down, however, in that at any one time a mirror can reflect things only as they are at one time [...] whereas a substance at any moment expresses all states of substances at all times, including its own past and future." (id., p.142).

Parkinson is right, of course, but I find his use of "expresses" rather mystifying; surely he must mean "represents".

38. H.H. Holz (Gotttfried Wilhelm Leibniz; eine Monographie, Leipzig, 1983, pp.73-75) claims that Leibniz’s system must be understood as being "open" rather than "closed". He explains that the appetitus of a monad is the striving for form and structure, that is, striving for being determined; it is, therefore, striving for that which is not yet existing, but which is possible. The monad’s perceptio is the ta-
king on (privatio) of one of many possible forms. Those forms are present in the monad itself, since it represents the pre-established harmonious universe (representatio mundi). Because the internal relations in the monad itself can be repeated again and again, and because the external relations of the universe are infinite in number since there is an infinite number of complete substances, Holz concludes that, intensionally and extensionally, this system of monads is infinite, and therefore "open".

39. As yet, complementarity refers to the reciprocal nature of the circular structure which is so typical of Leibniz’s system. The complete meaning of the term will be elaborated in part 2.

40. G. Hunter ("Monadic relations", in: Okruhlik, K. and J. R. Brown (eds.). The Natural Philosophy of Leibniz, Dordrecht, 1985, p. 157) remarks that: "The world of related bodies is preserved in monadic representation. But monadic representation is itself qualitative, not relational." He argues that in the monad the world is represented, i.e. "performed" as in a play, thus relating the world’s parts (op. cit., p. 159). He concludes: "Thus the claim that there are no relations in the monadic realm which is the ontic infrastructure of our world, reposes on the analysis of representation as activity, and of activity in turn as a principle of unity outside time, and time’s real foundation. This I take to be the conceptual skeleton of Leibniz’s answer to the question of how the represented many cohere in an unified representans."

(op. cit., pp. 160-161).

41. R. T. W. Arthur, ("Leibniz’s theory of time", in: Okruhlik, K. and J. R. Brown (eds.). The Natural Philosophy of Leibniz, Dordrecht, 1985, p. 271) points out that Monads and their states have no spatial or temporal extension, so space and time cannot be composed out of them.

42. Leibniz demands of metaphysical notions that they have a distinct phenomenal or physical applicability, though, as has been made clear in chapter 1, not immediately so. Metaphysics which is sterile in this respect must be rejected. For instance, Cartesian metaphysics is rejected, since the notion of "res extensa" cannot account for physical entities as mass and force (see ch. 1, sections 2, 4). Leibniz’s own metaphysics is carefully devised to have physical applicability indeed, viz. as a structural and basic part of his systematical rules of motion (id.).

43. Leibniz is taking a materialistic position at least in this respect.

44. In a monistic system matter and substance are the same.
45. W. Bonsiepen ("Die Ausbildung einer dynamischen Atomistik bei Leibniz, Kant und Schelling und ihre aktuelle Bedeutung", in: Allgemeine Zeitschrift für Philosophie, 13, 1 (1988), Stuttgart, pp. 4 ff.) says that Leibniz’s concept of the monads originates in his criticism of Gassendi’s atomism, especially concerning the questing how the smallest parts of matter are capable of motion. An absolute self-moving atom would lead to materialism and atheism, which Leibniz rejects. External force is also rejected (contrary to Newton’s view). Therefore the ultimate solution is a form of internal motion which does not absolutely originate in the monads themselves but rather in the universe as a pre-established harmonious whole. The monads represent the motion of the universe as a whole.

Of course, the next problem is how the represented motion of the universe (which is the internal force of the monads) is externalized. According to Bonsiepen, Leibniz maintained his principle of continuity and accordingly claimed that actually existing (that is, physical) motion is the result of an infinite number of sollicitations. This Leibnizian solution loses part of its essence in Chr. Wolff’s interpretation of Leibniz’s system, says Bonsiepen: "Leibniz’ Monadologie wird dann von Chr. Wolff mit einem neuen Bedeutungsgehalt versehen. Er nimmt ‘elementa rerum materialum’ an, die nicht ausgedehnt sind, also keinen Raum erfüllen. Er spricht von Naturatomen, von ‘monades physicae’, die sich von allem Seelisch-Geistigen unterscheiden. Aus der Zusammensetzung der physischen Monaden soll Ausgedehntes entstehen. Das Leibnizsche Kontinuitätsproblem wird von Wolff nicht mehr gesehen. An die Stelle echter Kontinuität tritt Kontiguität punkthafter Krafteinheiten. [...] Die so modifizierte Leibnizsche Philosophie bildet im Grunde keinen wirklichen Gegensatz mehr zur Newtonschen." (op.cit., p. 6).

Bonsiepen, I think, is right in stressing Leibniz’s principle of continuity. It is linked with the self-incitation of the monads, therefore with the very essence of his system. The infinite multitude of the differentiated universe springs from the monads of the complete substances. The differentiation of the monad’s essence, viz. primitive force, as successive activity brings the internally represented totality of the universe to the external physical multitude which becomes in this way a unified process instead of a mere collection without relation. This process is (without, however, its temporal and spatial dimensions) represented in the monads, which establishes the self-incitation and self-determination of the monads; this makes the circular structure conclusive. Interestingly, matter disappears in this circular structure; it is the corporeal moment of the complete substances, that is, it is the physical subject of real and discontinuous change in the process and it is as such not part of the represented
universe in the monad which is the continuous essence of the physical universe.

46. The "nature" of a substance, that is the twofold primitive force, is the "essence" or the "determinateness of form" of the substance (hence the use of "substantial form"). It is thus only a part of the total or complete substance. The complete substance includes its "activity", which is the actualisation of its determinateness of form (and therefore includes the material aspect). The complete substance is the actual subject of divine law.

47. M. Guèroult (Leibniz: Dynamique et Metaphysique, Paris, 1967) takes the view that Leibniz did not claim that bodies physically interact; bodies simply move according to the pre-established harmony, therefore they move spontaneously and need not interact. Miller (op.cit., pp.82-83) says that there seems to be evidence of this alleged Leibnizian claim in SpDyn (where Leibniz states that bodies in collision do not interact but only provide the occasion for the other body to spontaneously change from within), and in the Essay de dynamique. But, says Miller, Leibniz did not actually reject interaction, he only rejected one particular metaphysical picture of it: "Leibniz has his own way of thinking about the interaction of bodies, one which does not involve the transfer of properties from one body to another. His rejection of substances exchanging their properties should not be read as a simple denial of interaction." (op.cit., p.83). Miller quotes from Leibniz's letters to De Volder where he tries to explain to the latter that he admits no interaction of substances or monads, but that no one should deny collision and upset in appearances composed of aggregates. Miller remarks to this: "It is strongly implied that the collision of bodies is just the sort of "action of substances upon each other in the proper sense" denied of monads." (op.cit., p.88). Concluding that Leibniz did not reject the interaction of bodies, Miller says that the rejection of the transfer of properties from one substance to another is a familiar claim in metaphysics (op.cit., p.92), and that "influence" in SpDyn must be understood as the influx of Scholastic philosophy (i.e. the technical term for transference of properties amongst substances) (id., p.93). Therefore: "Leibniz denies not the interaction of bodies but only influx as the metaphysical picture of physical interaction.[...] Bodies interact. They change each other in collision [...] In denying that either motion or tendency to motion is transferred Leibniz explains how he does conceive the interaction. [...] A body can neither lose nor receive force from another body. Properties do not flit from substance to substance like swallows. Substances can, however, bring about changes in other substances. A substance can receive from another, and thus one
substance can impose on another, limitations or de-
terminations of its inalienable force. [...] interaction consists only of a redirection of the internal forces already within these bodies." (id., pp. 94-95). But Miller admits that Leibniz gave no further information concerning the required type of interaction (id., p. 103).

48. Of course, "fill up" suggests that time and space are absolute, which is in fact, according to Leibniz, not the case. It is, however, difficult to see how one might evade the use of this or similar terms, when discussing this matter in an analytical and (therefore) abstract way, that is. For if one abstracts time and space from what they are actually related to (viz. actual matter), they become in fact empty and thus the re-relating to matter (still analytically) sets the character of "filling up". I think one of the main reasons why the concept of absolute space and time appears again and again in the history of science and natural philosophy, is the reification of analytical thought, separating it from synthetical thought. Leibniz obviously does not reify analytical thought, which should have a distinct influence on the kind of logic he applies (this will be dealt with in part 2).

49. See Descartes, R. Principia Philosophia, second part, section 36.

50. This is not to say that Leibniz’s metaphysics are to be combined with Cartesian mechanics. Leibniz’s system is, as a whole, different from that of Descartes.

51. H.H. Holz (Dialektik und Widerspiegelung, Köln, 1983, p. 65) points out that the metaphor of the mirror (which Leibniz introduced) implies that what is represented and what is the object of representation are "virtually" identical: "Der Spiegel selbst ist ein reelles Ding so wie das Bespiegelte, das im Spiegel erscheinende Gespiegelte ist hingegen ein virtuelles Bild (weder den Raum, in dem es erscheint, gibt es im Spiegel wirklich, noch die körperliche Ausdehnheit, die es "vorspiegelt"). Gerade weil das Spiegelbild kein reelles ist, [...] erblicken wir im Spiegel das Ding selber - wobei dieses "selber" mit dem Index "virtuell" ausgestattet ist."

52. In the next chapter I will examine this from a logical point of view, viz. from the point of view of the inesse.

53. It is not enough to say that a thing must be divisible, or divided. For since only quantity is discussed here, there is no ‘thing’ which can be referred to. Therefore one must not only establish the relation ‘one-divided’, but also the reverse,
which must be ‘one-compossible’, since both are conditional for each other.

54. The concept of a Monas Monadum, a monad reflecting all monads, which is used by e.g. Holz, H.H., G.W. Leibniz, eine Monographie, Leipzig 1983, p. 57, can only signify the abstract totality, not the concrete actual totality or one of its parts; for the absence of perspective negates the differentiation necessary to the actual totality. A Monas Monadum can, therefore, be present in in Leibniz’s system only as an analytical presumption, which is ultimately sublated in the final synthesis of the system, viz. the self-inciting complete substances. Leibniz himself seems, however, to argue that God could be conceived of as a Monas Monadum, since he perceives all. But systematically one has to judge that God is, in this mode, a concept which is alien to the structure of the system. Historically this would be an erroneous remark, since there is no doubt that Leibniz intends to give God some place in his system of the universe; but a systematical judgement is not necessarily identical with a historical judgement.

55. For Leibniz, imagination is that which forms a picture in the mind resembling something which has extension; see also SpDyn, p. 22; chapter 1, section 2).

56. See also Monadology, sections 33-37.

57. Large parts of the Theodicy are filled with Leibniz’s extensive response to Bayle’s criticism; on free will, and whether his own system should be considered heretic, for instance, explicitly from section 290 till about 340, then gradually merging into the consideration of natural laws (sections 346 ff.) – but also a large number of sections before section 290 deal with theological aspects concerning free will. The answer to Clarke is made most extensively in Leibniz’s fifth letter.

58. It is obvious that in Leibniz’s system possibility does not exceed reality. Since the structure of representation and expression is circular, anything which is possible in this universe is, eventually, real in it. If this were not so, the circle would not be conclusive, hence no circle; but it is, since the representation of the universe is, as has been pointed out repeatedly, exact and complete. As Leibniz writes to Des Bosses: "Monades puto existentiam semper habere plenam, nec concipi posse, ut partes potentia dicuntur esse in toto." (G.II, p. 451) (I believe that monads always have a full existence, and that it cannot be conceived of parts, which are
said to be potentially in the whole.)
There are no potential monads, not even monads
which are partially potential.

59. In the Monadology, e.g., Leibniz states in secti-
on 79 that separate (therefore abstract) final causa-
tion belongs to morality, as separate efficient cau-
sation belongs to mechanics. Since morality can only
be Christian morality for Leibniz, this means theolo-
gy. As mechanics can only mean physics.

60. Loemker observes: "[...] there is a difficulty in
adjusting Leibniz’s logic to his metaphysics [...].
Its source is to be found in his theory of the propo-
sition. His problem was to generalize a logic of the
subordination or inclusion of meanings into a logic
of symbolic forms and then to make this fit both
metaphysical dynamism and metaphysical pluralism. In
none of these tasks was he successful." (Loemker,
L.E., G.W. Leibniz, Philosophical papers and letters,

61. T' is many, since it is the representation of T
in D’: it brings totality in a unit. D’ is one, since
it is a unit.

62. See, Parkinson, G.H.R., Logic and reality in
Leibniz’s metaphysics, New York/London, 1985, pp. 6-
7.
Also see Kauppi, R, Ueber die Leibnizsche Logik, New

63. R.Kauppi (op.cit., p.13): "Leibniz hat offen-
sichtlich meistens nur gewünscht, seine eigenen Ge-
danken festzulegen und ihnen eine Form zu geben.
Denn folglich findet man einerseits Lücken in der En-
twicklung der Gedanken, andererseits scheinbare
Widersprüche, denn es können miteinander unvereinbare
Gedanken, entweder neben- oder nacheinander entwic-
kelt, in demselben Zusammenhang vorkommen."

64. See Kauppi, R., op. cit., pp. 34 ff.

65. See Kauppi, R. op.cit., pp. 129 ff.

66. See Kauppi, R., op.cit., pp. 163 ff.

67. Parkinson points out that, for Leibniz, every
predicate (if it is true) is in the subject, therefo-
re concepts can and do include other concepts
(G.H.R.Parkinson, op.cit., pp.8-9). The question is,
of course: what is inclusion? Parkinson claims that
this question can be answered by reference to one of
Leibniz’s earliest philosophical ideas, viz. the idea
that there are a number of primitive concepts, from a
combination of which all others are formed (id.,
p.14). Leibniz, says Parkinson, regards a singular
proposition as a form of universal proposition; he
took this position in *De arte combinatoria*, but in his mature period the argument remained the same, viz. that "a is b" means "every a is b" (id., p.27). So, when one asserts a singular proposition, one is saying that the concept of the predicate is included in that of the subject, just as with an universal proposition (id., pp.27-28).

According to Parkinson, a result of this Leibnizian logic is that, according to Leibniz, truth must be (a) the subject including its predicates, or/and (b) a true proposition is (or is reducible to) a tautology (id., pp.56-57). These conditions (a) and (b) are related by Leibniz in this way: in an identical (tautological) proposition the predicate is in the subject manifestly or expressly, whilst in all other propositions it is present in the subject in a concealed form (Leibniz used the term *tecte*), or implicitly or virtually (a term Leibniz used in the Discourse on Metaphysics), says Parkinson (id., p.57).

H.H. Holz uses the same term (viz. virtually) to describe the relation between the represented object and the real object which is the object of the representation in the Leibnizian living mirrors (see note 51).

68. See Kauppi, R., *op.cit*, pp. 71 ff.

69. Although hyperception and formal identity differ, they need not be contradictory, since - as I have demonstrated in section 4.2 - formal or simple identity can be a special case of hyperception, viz. when the two levels which are to be united are in fact one.

70. J.König (Das System von Leibniz, in: *Gottfried Wilhelm Leibniz (Vorträge der aus Anlass seines 300. Geburtstages in Hamburg abgehaltenen wissenschaftlichen Tagung)*, Hamburg, 1946, pp.17 ff.) claimed that the mediating structure which is implied in the Leibnizian system can be found in Hegel's logic: "Die logische Grundfigur des Systems [i.e. of Leibniz], von der ich sprach und sprechen werde, hat ihre Heimat nicht in der aristotelisch-scholastischen Logik, aber auch nicht in der modernen mathematisch-logischen Logik [...]. Ihren Wurzeln nachzuspüren ist hier nicht der Ort; aber es muss gesagt werden, dass sie ihren bisher reifsten Ausdruck in der Logik Hegels gefunden hat, in dessen System sie sich deshalb um so ungleich sichtbarer entfaltet, weil Hegel sozusagen das Person gewordene Bewusstsein ihrer selbst gewesen ist."

(op.cit., p.21) The same view is taken by H.H. Holz (*Dialektik und Widerspiegelung*, pp. 63 ff.). The essence of this view is that the Leibnizian mirror-structure (i.e. the relation between the object of reflection and its reflexion-image) is logically a relation between a universal and a particular in which the universal and the particular mutually contain each other although the universal is the ultima-
tely containing factor; in Hegel’s logic this is known as the logical structure of "das übergreifende Allgemeine". König says: "Ich nenne die spekulativ logische Grundform, um die es hier geht, im Anschluss an Hegel die Form des übergreifenden Allgemeinen. [...] Demgemäss lehrt Hegel hier, dass das Allgemeine als solches zwei und nur zwei Arten hat: nämlich erstens das Allgemeine selbst und zweitens das Besondere, also das Gegenteil des Allgemeinen. Die Konzeption des übergreifenden Allgemeinen ist mithin dadurch bestimmt, dass ein in sich einiges Doppelles vorliegt [...] nämlich dass das Allgemeine das Allgemeine seiner selbst und seines Gegenteils ist; dass die Gattung Gattung ihrer selbst und ihres Gegenteils ist. [...] Allein was hat dies nun mit Leibniz zu tun? Nichts minderes als dies, dass der im Verein mit dem Monade oberste Begriff des Leibnizschen Systems, der der Kraft, der Macht, der puisance, der Entelechie [...] in einer Weise konzipiert und entfaltet wird, die prägnant dahin festgemacht werden kann, dass ihm die Kraft ein, ja eben das übergreifende Allgemeine ist. [...] Und dass die Kraft für Leibniz übergreifende Gattung ist, stellt sich also bestimmter dahin dar, dass sie Gattung ihrer selbst und ihres Gegenteils, nämlich Gattung der aktiven und der passiven Kraft ist." (op.cit., pp.23-24)

In my opinion, König and Holz are mistaken. Not in the fact that Leibniz’s system is further developed in Hegel’s system, not even in the fact that Hegel’s type of logic can be more or less recognized in the type of logic which is implicit in Leibniz’s system. They are mistaken in that they think that in Leibniz’s system there is such a thing as an "übergreifendes Allgemeine" in the Hegelian sense of this concept. For it is crucial in this concept that the universal’s opposite is particular, and, as I have pointed out above, this is not the case with Leibniz. Force, with Leibniz, is indeed twofold; it is representation and expression, but in both instances it unifies universality and singularity, not universality and particularity. As will become clear in the third division of this thesis (which is on Hegel), the absence of particularity in the Leibnizian system is the very factor which makes it possible to view this system as a stage of the development which leads to Hegel’s system and which is conceptualized in Hegel’s system.