Debilissimae Entitates? Bisterfeld and Leibniz's Ontology of Relations[1]

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Abstract

Over the past decades a number of scholars have identified Johann Heinrich Bisterfeld as one of the most decisive early influences on Leibniz. In particular, the impressive similarity between their conceptions of universal harmony has been stressed. Since the issue of relations is at the heart of both Bisterfeld and Leibniz's doctrines of universal harmony, the extent of the similarity between their doctrines will depend, however, on Bisterfeld and Leibniz's respective theories of relations, and especially on their ontologies of relations. This paper attempts to determine in more detail whether Bisterfeld's ontology of relations contains at least the germ of the defining features of the ontology of relations later developed by Leibniz. It comes to the conclusion that, although Bisterfeld's theory of relations is not as fully developed and explicit as that of Leibniz, it does contain all the key "ingredients" of it.

There is agreement amongst Leibniz's scholars on the fact that there are strikingly similarities between Leibniz's thought and that of the German philosopher and theologian Johann Heinrich Bisterfeld (c. 1605-1655).[2] After the groundbreaking studies of Willy Kabitz, Paolo Rossi, and Leroy E. Loemker, and the milestone article by Massimo Mugnai published in *Studia Leibnitiana* in 1973,[3] many scholars have pointed out Bisterfeld as one of the most decisive early influences on Leibniz.[4] Between 1663 and 1666 the young Leibniz read with great enthusiasm and annotated with care three posthumously published works by Bisterfeld.[5] On the basis of the analysis of these and other works by Bisterfeld,[6] the impressive similarity between two fundamental features of both Bisterfeld and Leibniz's philosophy has been emphasised: their conception of universal harmony and the thesis — central to Leibniz's monadology – that all beings are endowed with perception and appetite.[7] These two doctrines are, so to speak, two sides of the same coin. As Donald Rutherford insightfully summarises, both Bisterfeld and Leibniz see universal harmony as involving three main claims:

> 1) Within the world, there is a primitive *connection* between the states of any one substance and those of every other substance. 2) This connection is grounded in a substance's capacity to *perceive* everything that happens within the world. 3) It is a necessary condition for the maintenance of the world's harmony that every substance be endowed with an intrinsic *activity*.[8]

According to Leibniz's own interpretation in his *Dissertatio de Arte Combinatoria* (1666), the central tenet of Bisterfeld's philosophy is the thesis of the universal

union and communion of everything with everything, expressed by Bisterfeld with the unusual term of *immeatio*.[9] The principle of this "universal union and communion" or *immeatio* is to be found in relations, that is to say in the existence of infinite relations linking everything with everything. Relations are therefore, according to Leibniz, the key to Bisterfeld's theory of universal harmony as *immeatio*:

> We shall at least briefly indicate that everything is to be traced back to the metaphysical doctrine of the relations of being with being ... I think that this has been seen much better than usual among writers of compendia by the most solid Johann Heinrich Bisterfeld in his *Phosphorus Catholicus, seu Epitome artis meditandi* (Leiden, 1657), a work totally founded in what he calls the universal *immeatio* and περιχώρησις of all things in all things, in the similitude and dissimilitude of all things with all things, the principle of which is relations.[10]

In his study of Leibniz's theory of relations, Massimo Mugnai has shown that, according to Leibniz, relations as such are mere mental entities. They are second-level truths which result when two or more things with their properties are thought together.[11] Their reality depends entirely from the reality of the things which are thought together and from the mind which grasps these things simultaneously in a single act of thought (*concogitabilitas*).[12] Taken in themselves, relations are therefore very weak beings. As "results" which "automatically" follow when certain conditions are given (i.e. two or more things which are thought together), relations are not "causes" of a certain state of affairs but mere "consequences" of it. Relations are incapable of movement: a change in relation is merely the result of a change in the properties of the correlated subjects and not the consequence of, so to say, some direct activity of the relation itself.

As Mugnai has thoroughly documented, the conception of relations as weak beings was far from unusual. On the contrary, the view that a relation is an *ens debilissimum* or an *ens deminutum* was a standard scholastic doctrine rooted in the teaching of Aristotle and embraced by such diverse thinkers as Thomas Aquinas and Duns Scotus.[13] It is therefore interesting to note that in a passage of his *Philosophiae Primae Seminarium* Bisterfeld seems to distinguish his own position from the common view that relations are most weak beings (*debilissimae entitates*). The passage in question caught the attentive eye of the young Leibniz, and it is perhaps surprising to note that he registered no dissent from it, especially when we recall that in an early text he explicitly defined a relation as an *ens debile*.[14] Rather, he highlighted the passage quoted below, writing "N[ota] B[ene]" in the margin:

> It is commonly said that relations are most weak entities; which is to be taken with caution. More correctly it should be said that they are most frequent and most efficacious entities.[15]

It seems justified to ask whether we are confronted here with an ontology of relations quite different from that of Leibniz. In particular, what does Bisterfeld mean by stating that relations are most *efficacious* entities, rather than—as it was usually maintained—most weak beings (*debilissimae entitates*)? Is Bisterfeld suggesting, contrary to Leibniz and the common scholastic view, that relations should be considered as efficient causes of a certain state of affairs, instead of mere effects or results of it?

Since the issue of relations is at the heart of both Bisterfeld and Leibniz's doctrines of universal harmony, the extent of the similarity between their doctrines will depend on Bisterfeld and Leibniz's respective theories of relations—and, especially, on their ontologies of relations. In this paper I will try to determine in more detail whether Bisterfeld's ontology of relations shares at least *in nuce* the defining features of the ontology of relations later developed by Leibniz. Only a positive answer to this question will fully justify the *sententia recepta* that Bisterfeld and Leibniz's conceptions of universal harmony are strikingly similar.

1. Bisterfeld's ontology of relations

The theory of the *ens debilissimum* does not in itself resolve the issue of realism or nominalism. To say that relations have a weak or diminished being does not in fact imply that relations are merely mental entities. As a matter of fact, if anything, the *ens debilissimum* theory is more closely linked to authors such as Thomas Aquinas and Duns Scotus who wanted to rescue relations from being purely mental entities. Relations could have a weaker being than that of substances or of accidents (or, at least, of some kinds of accidents) and still have some sort of reality independent of the mind.[16] The built-in ambiguity in the *ens debilissimum* theory with respect to the realism-nominalism divide emerges in full view in a passage on relations written by Bisterfeld's teacher, mentor and father-in-law, Johann Heinrich Alsted.

In his *Metaphysica, Tribus libris tractata* Alsted states: "*A relation is a weak being and of the least entity*: undoubtedly the accidental one."[17] While maintaining the view that relations have a weak being, Alsted seems to identify here their ontological status with that of accidents – i.e. with entities which on the one hand have a weaker being than that of substances, but on the other hand are not mere mental entities. Alsted's association in this passage of relations and accidents does not however necessarily mean that Bisterfeld's teacher was advocating a realist theory of relations. Following Thomas Aquinas, scholastic commentators used to distinguish between two ways of looking at a relation: "first insofar as it is a relation; secondly insofar as it is an accident i.e. considering the property on which is grounded."[18] As Mugnai explains

> Insofar as the real relation is an accident, it *inheres* in the subject; insofar as it is a relation, it *refers* to another subject (the *terminus*). What "inheres" is the accidental property on which the relation is grounded; and through such

accidental property, the relation itself is said "to inhere" in the subject.[19]

Leibniz too embraces this twofold way of considering a relation: on the one hand as the individual property of a subject or, more precisely, as the individual property of a subject in which the relation, strictly speaking, is founded; on the other hand as a relation in a proper sense, i.e. as a "bridge" between two subjects.[20] Alsted leaves unsaid in the text that we are examining whether his association of relations and accidents should be read in the sense of the Thomistic-scholastic distinction between these two ways of looking at a relation. Therefore, despite his clear stand in favour of the *ens debilissimum* theory, his stand toward the issue of nominalism-realism is left unclear.

We are confronted with the same ambiguity in Bisterfeld's *Logica* where he writes:

> In a relation, the following seven elements occur, two subjects, the foundation [*fundamentum*], the term [*terminus*], the related, the correlated, and the *respectus* itself. The subject is that substance in which the relation is: moreover, two subjects are required, a proportion occurs in every relation, and indeed a distinction. The foundation [*fundamentum*] is a certain absolute attribute, through which [the subjects] are connected with one another. The related [*relatum*] is called so insofar as it is related; the correlated [*correlatum*] [is called so] insofar as something is related to it[.][21]

The standard scholastic account preferred to speak of the following five necessary "ingredients" of a real relation (i.e. a relation between real entities as opposed to a relation between mere mental entities): two individual substances which constitute respectively the subject and the end (*terminus*) of the relation or, more generally, the two terms (*termini*) of the relation; two properties which inhere in each term of the relation and which constitute the foundations of the relation (*fundamenta relationis*); the relation itself.[22] In Bisterfeld's account, the puzzling distinction between the two subjects on the one hand, and the *relatum* and *correlatum* on the other hand, seems to be a *distinctio rationis* between the two individual substances considered in general (i.e. without taking into consideration which one is the subject of the relation in a strict sense and which one is the end of the relation), and these same individual substances considered this time respectively as the one from which the relation "starts" (*relatum*) and the one in which the relation "ends" (*correlatum*). As for the meaning of *terminus*, rather than the individual substance in which the relation "ends" it seems to mean here the property inhering in the *correlatum* which corresponds to the property or absolute attribute (*fundamentum*) inhering in the *relatum*. In this property or absolute attribute, the relation is grounded.[23] Finally, Bisterfeld seems to use here the word *respectus* to indicate the relation itself between the two individual substances.[24]

The ambiguity to which I referred to above derives from the fact that Bisterfeld

seems to regard the relation as something which *inheres* in the individual substance, i.e. as if it were an accident ("Subjectum est illa substantia *in qua* est relatio"). In what sense could it be said that the relation inheres? In the sense that its reality can be resolved into the reality of the property in which it is founded and which, in a proper sense, inheres? Or in the sense that the relation as such possesses the same ontological status as the accident? An answer to this question can be gleaned from a passage of the *Elementorum Logicorum Libri Tres* where Bisterfeld distinguishes between the *accidens absolutum* and the *accidens cum respectu*:

> *The absolute accident is that which is independent of a term* [*terminus*]. *And it is a quantity or a quality. ... The accident with respectus is that which is dependent on a term. And it is either the relation itself, or something different from the relation.*[25]

Bisterfeld is capturing here the scholastic distinction between absolute accidents (for instance: being red) and relational accidents (for instance: being a father). Both are properties which inhere in an individual substance or subject (*esse in*). What distinguishes absolute accidents from relational accidents is the fact that the latter, in addition to inhering in a subject (*esse in*), also refer to (or, in Bisterfeld's terms, depends on) another subject (*esse ad aliud*). The property of being red does not imply in itself a reference to other subjects. On the contrary, the property of being a father does imply that somewhere there must be at least one son or daughter. The property of being a father has inscribed in itself an intrinsic *esse ad aliud*, an intrinsic reference or *respectus* to another subject.[26]

The important point here is that, according to Bisterfeld, a relation can be considered either as the relational accident itself or as something different from the relational accident (*Accidens cum respectu est ... vel ipsa relatio, vel aliquid à relatione diversum*). This distinction seems to fall back squarely on the Thomistic-scholastic doctrine described above according to which there are two ways of looking at a relation: "first insofar as it is a relation; secondly insofar as it is an accident".[27] I will set aside for the moment the question of what is, according to Bisterfeld, the ontological status of a relation when it is considered as something different from the relational accident. For the moment I would like to stress that when Bisterfeld in his *Logica* speaks of a relation as something which inheres in the subject or substance ("Subjectum est illa substantia *in qua* est relatio"), he is most likely implicitly referring to the scholastic doctrine, embraced as we have seen by Leibniz as well, according to which a relation can be said to inhere when it is considered not as a relation but as the accident in which the relation is founded. Far from being an assertion of realism, Bisterfeld's theory of relations as presented in his *Logica* seems rather to go toward the resolution of the reality of the relation as such in that of its *fundamenta*. He mentions in fact as the seventh "ingredient" not the *relatio* itself, but the *respectus* between the individual substances, i.e. the

properties on the basis of which the two individual substances, so to say, "look at" one another (*respicere*) or "refer" to one another. This reading is confirmed by the definition which ends the paragraph of the *Logica* which we are examining: "A relation is the *habitudo* itself of the related and the correlated."[28]

In order to understand what Bisterfeld means, we must turn to the concept of *habitudo*. As in the case of the unusual term *immeatio*, Bisterfeld seems to have singled out a concept which was certainly attested in the previous tradition albeit in a rather marginal position, and transformed it into one of the hallmarks of his own thought, altering and enriching its original use. *Habitudo* is a word difficult to translate which derives from the verb *habeo* (to have).[29] In Thomas Aquinas and in the logical terminology of the late scholastics it is found in the sense of "relationship" or "relation".[30] However, it can also mean "complexion",[31] "disposition",[32] or "property" of a thing.[33] Bisterfeld mostly uses it, I believe, in order to indicate the ontological structure of a being (*ens*) as including an intrinsic *esse ad aliud* ("being toward another") founded in its properties. According to Bisterfeld, in fact, in the ontological structure of a being there is inscribed an intrinsic *respectus* to everything else which is the foundation of its being in relation with everything else. In Bisterfeld's words, no being in nature is so absolute "that it does not have an intrinsic *respectus* to another".[34] A closer look at a few key passages should help to illustrate this view.

The concept of *habitudo* is discussed in the third chapter of Bisterfeld's *Philosophiae Primae Seminarium*, "De Consistentiâ". The term *consistentia* seems to be employed to indicate the intrinsic relational nature of any *ens*. This is, according to Bisterfeld, so fundamental that it represents the second of the two transcendental principles of the *ens* (the first one being the *essentia*).[35] In this context *habitudo* is presented as the first one of the most general metaphysical terms which refer to a being (*ens*).[36] The terms which follow – *respectus* and *relatio* – are defined in terms of *habitudo*.

> I. *Habitudo*, is an entity, by which an entity is toward an entity;[37] or by which something is toward something. Hence arises the expression "to be (constituted or situated) [*se habere*]". It is said "to have" [that] to which something is united, or [that] with which is something; [it is said] "to be had" [*haberi*] that which is united to something; or, that which is with something. 2. *Respectus* is the *habitudo* of a being as it were quiescent and immobile. "To look at" [*respicere*] is in fact to be [*se habere*] toward something on the ground of position [*ratione sitûs*]; and likewise on the ground of the similitudes or images which are sent out or received. ... 3. Relation is the *habitudo* of a being as it were moving itself and flowing. "To refer" in fact is to be [*se habere*] toward something on the ground of motion; almost to stretch out toward something[.][38]

Bisterfeld outlines here through the concept of *habitudo* the intrinsic *esse ad aliud*

of beings from a static and from a dynamic point of view respectively.[39] Let us first look at the static aspect. This is expressed through the concept of *respectus*, that is through the idea that beings "look at" or "reflect" other beings. In other words, the ontological structure of a being "reflects" the ontological structure of other beings. This is due to the capacity of every being to perceive at least some degree of similitude or conformity in other beings. Here we have already Bisterfeld's theory of perception *in nuce*. In his *Artificium definiendi catholicum* Bisterfeld explains further:

> To perceive is to have within oneself, efficaciously, an intrinsic similitude or *habitudo* proportional to the *habitudo* of things ... Perceptivity is the *habitudo* of a substance which can produce the intrinsic similitude of a being: both belong to every substance; to be sure, the universal harmony and universal communication of things proves this for every being ... And from this arises the connection of things, both of spiritual things amongst themselves, then of corporeal things, and finally of spiritual and corporeal things.[40]

In the ontological constitution of every being there is inscribed an intrinsic similitude or *esse ad aliud* (*habitudo*) which reflects (or is proportional to) the *esse ad aliud* of other beings. This similitude or conformity is the condition of possibility of what Bisterfeld calls perception. It should be noted here that "similitude" and "conformity" is used by Bisterfeld very broadly in the sense of "analogy", to include also what we would call, strictly speaking, dissimilitude. This is indeed the way in which Leibniz seems to interpret Bisterfeld's doctrine when in *De Arte Combinatoria* he describes it as "totally founded ... in the similitude and *dissimilitude* of all things with all things".[41] Bisterfeld claims in fact that "Every positive difference is grounded in conformity or unity; and indeed ... whatever things differ positively from one another, necessarily also harmonise with one another."[42] To give a very rough example, it is possible to "perceive" the difference between, respectively, the "being red" and the "being green" of two apples, because this difference is grounded in a feature common to the two apples and which provide the ground of the comparison: i.e. their "being coloured".

To go back to Bisterfeld's argument, it is because beings have an intrinsic *respectus*, similitude or conformity that they can perceive each other. The universal harmony and universal connection of everything with everything is both the proof that every being is endowed with perception and the result of this universal capacity of perceiving or reflecting, so to speak, the ontological constitution of other beings. Both Mugnai and Rutherford stress the striking similarity between Bisterfeld and Leibniz's doctrines on this point and, in particular, highlight how Bisterfeld's account of perception is reminiscent of Leibniz's theory of expression. [43] It is interesting to note that in a key passage in which Leibniz explains what he means by expression, he employs precisely the term *habitudo* in a way which seems to

reflect Bisterfeld's use of this concept to indicate the ontological "make up" of a thing. This thing reflects the ontological "make up" of other beings due to the intrinsic proportion and *respectus* founded in the properties of the thing itself:

> It is said "to express" a thing that in which there are *habitudines* which correspond to the *habitudines* of the thing which has to be expressed. But there are various kinds of expression; for example, the model of a Machine expresses the machine itself, the scenographic sketch on a plane expresses a solid, speech expresses thoughts and truths, characters express numbers, an algebraic equation expresses a circle or another figure: what is common to these expressions is that from the sole contemplation of the *habitudines* of the thing which expresses we can come to the knowledge of the properties of the thing to be expressed. Hence it is clear that is not necessary that the thing which expresses is similar to the thing expressed, provided that a certain analogy of the *habitudines* is preserved.[44]

So much for the static aspect of *habitudo*, defined by Bisterfeld as *respectus*. A few words remain to be said regarding the dynamic aspect, defined as "relation" ("Relation is the *habitudo* of a being as it were moving itself and flowing").[45] What is meant here, I believe, is that a relation can be seen as a "bridge" between things,[46] so that, following Bisterfeld's plastic description, a being "almost stretches out toward" another being. Moreover, it seems that this passage should not be read as a claim that relations themselves are capable of movement, that is, as a claim that the cause of a change in relation is the relation itself rather than a change in its foundations (from which the change of relation merely results). This appears to be confirmed by the passage from which our analysis of the concept of *habitudo* departed: "A relation is the *habitudo* itself of the related and the correlated."[47] A relation can be identified with the ontological structure of the two individual substances (the "related thing" and the "correlated thing") which include an intrinsic *respectus* of one toward the other. Or, as Bisterfeld writes in another passage of his *Logica*, a relation is a way of being of a thing by which this thing is ordered toward another thing ("Relation is the order of a being toward a being, or is a mode by which a being is [*se habet*] toward another being").[48] In other words, the being of a relation seems to resolve itself in the being of the two individual substances, taken together,[49] with their properties. This view appears to coincide in the last analysis with Bisterfeld's claim that the *accidens cum respectu est ... ipsa relatio*, that is, with the claim that the reality of a relation is totally dependent upon the reality of a property (*accidens*) of an individual substance which includes an intrinsic reference (*respectus* or *esse ad aliud*) to a property of another individual substance.

This is however, as we have seen, only half of Bisterfeld's claim, the other half being that a relation can be considered also as something distinct from the *accidens cum respectu*. At this point we must therefore tackle the question set aside above:

what is, according to Bisterfeld, the ontological status of a relation considered as such, that is as something distinct from the real property of an individual substance in which the relation is founded?

Bisterfeld is less than explicit on this issue. Only a glimpse of an answer can be gleaned from some resolute assertions which reveal Bisterfeld's conceptualism while firmly setting his philosophy in the sphere of Aristotelian ontology. In *Philosophiae Primae Seminarium* Bisterfeld states that "in truth everything which exists in nature is singular".[50] Universals (*entia universalia*) are therefore mental entities (*entia rationis*). This does not at all imply, however, that universals are useless or mere fictions of the mind. Indeed there is a sense in which they exist in nature—namely, not as such (*formaliter*) but through their foundations (*fundamentaliter*).[51] "Indisputably", Bisterfeld continues, "the human intellect cannot either conceive or express the accord and difference of things without comparing them with one another; the universals result [*resultant*] from this comparison".[52] The proper issue to be investigated is therefore the question of the principle of universality (*principium universalitatis*), rather than the pseudo-problem of the principle of individuation (*principium individuationis* or *principium singularitatis*). Every being really existing is in fact by itself singular or individual, and the principle of individuation is nothing else than the essence of the thing itself.[53] The perfect agreement of this doctrine with Leibniz's position as it is presented as early as his first philosophical work, the *Disputatio metaphysica de Principio Individui* (1663) is clear.[54]

What then is this *principium universalitatis*? Apart from saying (as we have just seen) that universals are the result of the work of the mind (*entia rationis*) which compares individual substances really existing, Bisterfeld does not tackle the question directly. In what follows he seems however to suggest that the *principium universalitatis* should be traced back to a *distinctio rationis* which allows the mind to form concepts which do not imply a real distinction (*distinctio realis*) in things, although they are founded in real properties of things (*fundamentum in re*). Amongst concepts which are formed through a *distinctio rationis* Bisterfeld lists relations and "respects" (*respectus*).[55] A few pages earlier he writes: "A relation, obviously insofar as it is a relation [*quâ relatio*], does not compose, but distinguishes".[56] In other words, relations considered as such (as opposed to relations considered as the relational accidents in which, strictly speaking, relations as such are founded) do not "add" (*componit*) something to the individual substance. Rather they "distinguish", that is they consider the thing in a certain respect. For instance, the relation of fatherhood between David and Solomon considers David in the respect of "being a father"; the relation of similarity between David and Solomon considers David in the respect of being, say, male. It seems justified to conclude that relations considered as such are, according to

Bisterfeld, the work of the mind which thinks together two or more individual substances with their properties.[57] From this comparison the relation "results", as universals result from grasping through a comparison the accord and difference of things.

2. The Two Theories Compared

While asserting his distance from the *ens debilissimum* theory, Bisterfeld's ontology of relations seems therefore to share Leibniz's conceptualism. So far their positions can be seen as falling back into one of the major strands of the scholastic tradition. There are however two features of Bisterfeld and Leibniz's theories which bring them together while setting them apart from other scholastic accounts. The first one is the presence of a strong Platonic-Augustinian element; the second one is their doctrine of universal harmony, a key aspect of which is the "no purely extrinsic denominations" thesis.

Let us briefly look at the first feature. If the general setup of Bisterfeld's ontology is Aristotelian, this is wedded with an important Platonic-Augustinian element.[58] In other words, as in Leibniz, so in Bisterfeld, nominalism or conceptualism is tempered by an element of realism coming from the Platonic-Augustinian tradition. Through his famous thesis according to which the Divine intellect is the region of the essences of things, Leibniz avoids the extreme anti-realist consequences of a nominalist theory of relations.[59] As already noted, according to Leibniz, the reality of relations as such depends entirely on the reality of the individual substances in which relations are founded, and on the mind which thinks these substances together. So, without a mind grasping these latter in a single act of thought, there would still be the *foundations* of relations, but not the relations as such.[60] Leibniz claims, however, that "relations ... have a reality beyond our intelligence".[61] What Leibniz means is that the reality of relations is grounded in the last instance not in individual minds thinking them, but in the Divine intellect. The Divine mind embraces the ideas or essences of all possible individuals, all truths which can be predicated of these individuals and all relations which result, as second-level truths, from these individuals (with their properties) taken together.[62] In short, God is in the last instance the "root" of every reality, including the reality of truths and relations.[63]

In Bisterfeld we find *in nuce* the same basic thesis, albeit certainly not as fully developed and explicitly connected with the issue of the ultimate foundation of the reality of truths and relations as it is in Leibniz. In *Philosophiae Primae Seminarium* Bisterfeld writes: "It is necessary that in the end one and the same thing [*res*] or entity be the ultimate root of all and of conformity and difference."[64] By this "res" is clearly meant God, as the young Leibniz notes in his copy of Bisterfeld's work.[65] So God is the ultimate root of all things and of their relations ("convenientiae et differentiae"). More generally, Bisterfeld adamantly advocates a version of the traditional Augustinian *analogia Trinitatis*, repeatedly stressing

that the intrinsic *esse ad aliud* and universal connection of creatures is ultimately grounded in the Trinitarian nature of God.[66]

Precisely this idea of the universal connection of everything with everything, however, is the feature which joins Bisterfeld and Leibniz's theories in the most striking way, marking their departure from the more traditional scholastic accounts of relations. As Mugnai shows once again, the standard scholastic view was that extrinsic denominations such as relations are founded in intrinsic properties of the subjects. However, it was normally held that a change in the intrinsic properties of only one of the subjects would have as a result a change of relation without necessarily implying also a change in the properties of the other subject. Leibniz departs from this view in maintaining that a change in relation between, say, two subjects is necessarily accompanied by a change in the intrinsic properties not only of these two related subjects, but of *all* the individuals in the world. The reason of this fact is, according to Leibniz, the universal connection of everything with everything.[67] As a consequence of this universal connection amongst all things, Leibniz claims that from a rigorous metaphysical point of view "there are no purely extrinsic denominations".[68] Even an extrinsic denomination such as "being known by me" must be grounded in an intrinsic property or intrinsic denomination of the thing which is known by me, so that this thing as known by me intrinsically differs from this same thing as not yet known by me.[69]

In Bisterfeld we find most explicitly the main "ingredient" which triggered Leibniz's distinctive account: the idea of the universal connection of everything with everything, described in terms of *panharmonia rerum* or *immeatio*. Precisely this idea, as is now broadly recognised, was what the young Leibniz found so striking in Bisterfeld's works and which evidently made a lasting impression. Much less known is what Bisterfeld has to say regarding extrinsic and intrinsic denominations. In *Philosophiae Primae Seminarium* he distinguishes extrinsic and intrinsic attributes of a being:

> *The latter are those which are in a being per se*; and so they are, emanate, or result from the principles of this being itself. *The former are those which are proper to a being connected with another*; and so they do not result from a being on its own, per se, but from a being taken with others. They are called *extrinsic denominations*. Those excel which result from a being related to a percipient, striving [*appetentem*], and moving or handling [thing].[70]

Intrinsic denominations are properties which inhere in a being taken in itself. Extrinsic denominations, on the contrary, require the simultaneous consideration of two (or more) subjects and result from this comparison. Bisterfeld is referring especially to relations, which are clearly considered here, it is worth noting, as "results". A few pages later he adds:

> The extrinsic attributes of a being presuppose intrinsic attributes. They express

> in fact the various external *habitudines* of a being, which if not nearest, nevertheless in the end are grounded in internal properties.[71]

It seems to me that we are very close here to Leibniz's explicit thesis that there are "no purely extrinsic denominations" because "all extrinsic denominations ... are grounded in intrinsic denominations".[72] This is so especially when keeping in mind the use of the concept of *habitudo / habitudines* in Bisterfeld's philosophy to signify the ontological structures or "make up" of a being as including an intrinsic *esse ad aliud*. Once this is combined with Bisterfeld and Leibniz's doctrine of the universal connection of everything with everything, the stage is set for Leibniz's radical claim that the ontological "make up" of the King of China as known by me differs from his ontological "make up" as not known by me,[73] and that my knowing the King of China somehow makes different the ontological structure of all beings in the universe. As in the case of his conception of universal harmony and of his doctrine of perception, so in his conception of extrinsic / intrinsic denominations, Bisterfeld hints at something which in Leibniz's hands becomes a quite revolutionary departure from common views.[74] In short, what Bisterfeld specifically says on extrinsic / intrinsic denominations seems to substantiate further Rutherford's intuition that Leibniz's " 'no purely extrinsic denominations' thesis sees us squarely back in the domain of Bisterfeld's doctrine of *immeatio*."[75]

To conclude, Bisterfeld's theory of relations is certainly not as fully developed and explicit as that of Leibniz. It does contain, however, all the key "ingredients" of it, namely: 1) a conceptualist ontology of relations in the context of an Aristotelian ontology according to which only individual substances with their modifications exist; 2) a Platonic-Augustinian element which tempers the extreme anti-realist consequences of a nominalist account of relations; 3) the thesis that extrinsic denominations must be grounded in the last instance in intrinsic denominations; 4) the doctrine of universal harmony asserting the connection (or *immeatio*, in Bisterfeld's words) of everything with everything.

How then should we resolve the question of whether relations are "debilissimae" or "efficacissimae" entities? Two remarks are in order here. Firstly, as we have seen, the *ens debilissimum* theory does not in itself resolve the issue of the ontological status of relations as beings really existing independently from the mind or as purely mental entities. If anything, this theory was closer to the heart of authors who wished to ascribe some degree of reality to relations. The fact that Bisterfeld asserts his distance from this theory, far from implying an inclination toward a realist ontology of relations, rather reflects his distance from realism. Secondly, Bisterfeld does not reject the thesis that relations are "debilissimae entitates", but simply warns us that it should be taken with caution ("cum grano salis"). What he aims to stress, I believe, is that this thesis should not be mistaken for the claim that relations, given their weak ontological status, are entities of

marginal importance. Leibniz would obviously be happy with such a clarification. In my view, this is the reason why the young Leibniz does not object to Bisterfeld's caveat where the *ens debilissimum* theory is concerned. Relations for both Bisterfeld and Leibniz are *frequentissimae* and *efficacissimae entitates* in the sense that they are the expression of the deepest ontological structure of every being in the universe – an ontological structure (or *habitudo*) which has inscribed an intrinsic reference (or *respectus*) to everything else in the universe. This is the ground of the universal *immeatio* defined by Bisterfeld in his *Logica* as follows: "*Immeatio* sometimes is taken as the innermost union of things; sometimes as the innermost *habitudo* or *respectus* of the united things".[76] In other words, the universal connection of everything with everything (universal harmony) can be considered either from the "extrinsic" point of view of relations which are like bridges linking things with one another ("intimâ rerum unione"), or from the "intrinsic" point of view of the ontological structure (*habitudo*) of the beings which are united and which include a *respectus* toward all other beings. This twofold way of considering universal harmony is in turn the other side of the coin of Bisterfeld and Leibniz's doctrine that perception implies both the universal connection amongst things and the capacity of every being to "mirror" or "reflect" to some degree the ontological structure of all other beings. In short, a detailed analysis of Bisterfeld's ontology of relations confirms the *sententia recepta*: Bisterfeld and Leibniz's conceptions are indeed strikingly similar.

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Notes

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[2] Born around 1605 in Siegen, the largest town in the German county of Nassau-Dillenburg, Bisterfeld completed his studies at the Calvinist academy at Herborn

under the guidance of the leading philosopher of the school, Johann Heinrich Alsted (1588-1638), who became for him a close mentor and virtually an adoptive father. After extensive academic travels which took him to Geneva, Oxford and Leiden, Bisterfeld returned to Herborn for a brief stint of teaching as an extraordinary professor of philosophy. When the disruption of the Thirty Years' War prompted Alsted to accept the invitation to lead the newly founded Calvinist academy in Alba Julia (Gyulaferhérvár), Transylvania, in 1629, the young Bisterfeld went with him, subsequently marrying Alsted's eldest daughter. For the rest of his career before his death in 1655, Bisterfeld was engaged in philosophical and theological instruction at the academy, regularly interrupted by diplomatic missions on behalf of his prince. The principal account of Bisterfeld's life is J. Kvacsala, "Johann Heinrich Bisterfeld", *Ungarische Revue* 13 (1893), pp. 40-59 and 171-197, which reworks an earlier paper published in 1891 in the Hungarian journal *Századok*. Cf. also J. Seivert, *Nachrichten von Siebenbürgischen Gelehrten und ihren Schriften*, Pressburg 1785, pp. 34-37; J.F. Trausch, *Schriftsteller-Lexikon, oder biographisch-literärische Denk-Blätter der Siebenbürger Deutschen*, vol. 1, Kronstadt 1868-1870, pp. 152-154; *Allgemeine Deutsche Biographie*, vol. 2, pp. 682-683; Graeme Murdock, *Calvinism on the Frontier 1600-1660: International Calvinism and the Reformed Church in Hungary and Transylvania*, Oxford 2000, especially pp. 77-78, 80-81, 86-89, 92-97, 182-183, 187-188, 274-277.

[3] Cf. Willy Kabitz, *Die Philosophie des jungen Leibniz. Untersuchungen zur Entwicklungsgeschichte seines Systems*, Heidelberg 1909; Paolo Rossi, *Clavis Universalis. Arti mnemoniche e logica combinatoria da Lullo a Leibniz*, Milano - Napoli 1960; Leroy E. Loemker, "Leibniz and the Herborn Encyclopedists", *Journal of the History of Ideas* 22 (1961), pp. 323-338; Leroy E. Loemker, *Struggle for Synthesis. The Seventeenth Century Background of Leibniz's Synthesis of Order and Freedom*, Cambridge, MA 1972; Massimo Mugnai "Der Begriff der Harmonie als metaphysische Grundlage der Logik und Kombinatorik bei Johann Heinrich Bisterfeld und Leibniz", *Studia Leibnitiana* 5 (1973), pp. 43-73.

[4] Cf. in particular the insightful studies of Donald Rutherford, *Leibniz and the Rational Order of Nature*, Cambridge 1995 (especially pp. 36-40), and Thomas Leinkauf, " 'Diversitas identitate compensata'. Ein Grundtheorem in Leibniz' Denken und seine Voraussetzungen in der frühen Neuzeit", parts I and II, *Studia Leibnitiana* 28 (1996), pp. 58-83 and 29 (1997), pp. 81-102 (especially part II, pp. 88-93). Leibniz's debt to several aspects of Bisterfeld's conception has been stressed by Antonio Lamarra, "Leibniz e la περιχώρησις", *Lexicon philosophicum. Quaderni di terminologia filosofica e storia delle idee* 1 (1985), pp. 67-94. Further affirmations of Bisterfeld's influence on Leibniz's thought can be found for instance in the following studies: Dietrich Mahnke, *Leibnizens Synthese von*

Universalmathematik und Individualmetaphysik, Halle 1925 (especially pp. 68, 218, 266n., 231-232); Francesco Barone (ed.), *G.W. Leibniz: Scritti di logica*, Bologna 1969, p. 126; Hans Aarsleff, "Bisterfeld", *Dictionary of Scientific Biography*, New York 1970; Werner Schneiders, "Harmonia universalis", *Studia Leibnitiana* 16 (1984), pp. 27-44 (especially pp. 28-29); Francesco Piro, *Varietas Identitate Compensata. Studio sulla formazione della metafisica di Leibniz*, Napoli 1990 (especially pp. 24, 65n., 94, 95n., 99, 231); Giovanna Varani, "I 'Loci Topici' nel pensiero di G.W. Leibniz. 'Nouvelles ouvertures' di un concetto consunto", *Annuario filosofico* 9 (1993), pp. 171-194; Konrad Moll, *Der junge Leibniz*, 3 vols, Stuttgart - Bad Cannstatt 1978-1996 (especially vol. 3, pp. 223-224); Hubertus Busche, *Leibniz' Weg ins perspektivische Universum. Eine Harmonie im Zeitalter der Berechnung*, Hamburg 1997 (especially pp. 18-26, 147-148, 448n.); Maria Rosa Antognazza, "*Immeatio* and *Emperichoresis*. The Theological Roots of Harmony in Bisterfeld and Leibniz", in Stuart Brown (ed.), *The Young Leibniz and his Philosophy, 1646-1676*, Dordrecht 1999, pp. 41-64.

[5] The three works in question are Johann Heinrich Bisterfeld, *Philosophiae Primae Seminarium, ita traditum, ut omnium disciplinarum fontes aperiat, earumque clavem porrigat*, Lugduni Batavorum 1657; and idem, *Elementorum Logicorum Libri tres: ad praxin exercendam apprimè utiles. Atque ita instituti, ut Tyro, trimestri spatio, fundamenta Logices, cum fructu jacere possit. Accedit, Ejusdem Authoris, Phosphorus Catholicus, Seu Artis meditandi Epitome. Cui subjunctum est, Consilium de Studiis feliciter instituendis*, Lugduni Batavorum 1657. The *Phosphorus Catholicus* was first published in Breda in 1649. Leibniz's copies are in a *Sammelband*: Niedersächsische Landesbibliothek, shelf-mark Leibn. Marg. I. The marginalia and underlinings are published as *Notae ad Joh. Henricum Bisterfeldium* (1663-66; A VI, 1, N. 7). On the high estimation expressed by Leibniz for Bisterfeld's works see Antognazza, "*Immeatio* and *Emperichoresis*", pp. 41-42.

[6] A collection of Bisterfeld's works was published posthumously as *Bisterfeldius Redivivus*, 2 vols, Hagae-Comitum 1661.

[7] See especially Mugnai, "Der Begriff der Harmonie", and Rutherford, *Leibniz*, pp. 36-40.

[8] Rutherford, *Leibniz*, p. 38. Cf. also Mugnai, "Der Begriff der Harmonie", especially pp. 55-56 and 70-71.

[9] On the theological and philosophical origins of the concept of *immeatio* see Maria Rosa Antognazza, "Bisterfeld and *immeatio*. Origins of a key concept in the early modern doctrine of universal harmony" (forthcoming).

[10] Leibniz, *Dissertatio de Arte Combinatoria*, A VI, 1, 199: "Uno saltem verbo indigitabimus omnia ex doctrina metaphysica relationum Entis ad Ens repetenda esse ... Hoc vidisse arbitror, praeter morem compendiographorum solidissimum Joh. Henr. Bisterfeld in Phosphoro Catholico, seu Epitome artis meditandi ed.

Lugd. Bat. anno 1657., quae tota fundatur in immeatione et περιχωρήσει, ut vocat, universali omnium in omnibus, similitudine item et dissimilitudine omnium cum omnibus, quarum principia: Relationes." Unless otherwise stated, translations are my own.

[11] Massimo Mugnai, *Leibniz' Theory of Relations*, Stuttgart 1992. Cf. also Massimo Mugnai, *Introduzione alla filosofia di Leibniz*, Torino 2001, especially pp. 86-96. Mugnai accepts the thesis of Benson Mates, who in *The Philosophy of Leibniz. Metaphysics and Language*, New York – Oxford 1986 had already pointed out that relations are "results" (cf. *ibidem*, especially pp. 209-222 and Mugnai, *Leibniz' Theory of Relations*, p. 14).

[12] Cf. Mugnai, *Leibniz' Theory of Relations*, p. 7 and Mugnai, *Introduzione*, p. 89.

[13] Cf. Mugnai, *Leibniz' Theory of Relations*, p. 27. See in particular passages from Thomas Aquinas and Duns Scotus quoted *ibidem*.

[14] Leibniz, *Specimen quaestionum philosophicarum ex jure collectarum*, 3 (13) December 1664, A VI, 1, 94: "relatio debile quidem Ens est in se".

[15] Bisterfeld, *Philosophiae Primae Seminarium*, p. 185: "Vulgò dicitur, relationes esse *debilissimae entitatis* [sic!]; quod cum grano salis est accipiendum. Rectiús diceretur, quód sint *frequentissimae et efficacissimae entitates*." Cf. A VI, 1, 159. The general meaning of the term *entitas* is explained by Bisterfeld as follows (*ibidem*, p. 14): "Entitas *est, id, quod est entis*; seu, *id, quod in aut cum ente est: quod non est nihil*."

[16] Cf. Mugnai, *Leibniz' Theory of Relations*, pp. 32-33.

[17] Johann Heinrich Alsted, *Metaphysica, Tribus libris tractata*, Tertiùm edita, Herbornae Nassoviorum 1616 [First edition under the title *Metaphysicae methodus exquisitissima*, Herbornae Nassoviorum 1611], p. 263: "*Relatio est ens debile & minimae entitatis*: scilicet accidentalis illa." Cf. also *ibidem*, p. 167: "relatio ... praedicamentalis ... est purum putum accidens, & quidem debilis, seu minimae entitatis." On Alsted see the two monographs by Howard Hotson *Johann Heinrich Alsted (1588-1638): Between Renaissance, Reformation and Universal Reform*, Oxford 2000, and *Paradise Postponed: Johann Heinrich Alsted and the Birth of Calvinist Millenarianism*, Dordrecht 2000.

[18] Petrus Niger, *Clypeus Thomistarum*, [c. 1470]. Quoted by Mugnai, *Leibniz' Theory of Relations*, p. 44 and by A. Krempel, *La doctrine de la relation chez Saint Thomas*, Paris 1952, p. 269: "*Relatio* dupliciter potest accipi. *Uno modo* inquantum relatio, *alio* inquantum accidens, id est pro forma substrata".

[19] Mugnai, *Leibniz' Theory of Relations*, p. 44.

[20] Cf. *ibidem*, p. 133.

[21] Bisterfeld, *Logica*, in *Bisterfeldius Redivivus*, vol. 2, p. 368: "In Relatione occurrunt haec septem, subjecta duo, fundamentum, terminus, relatum, correlatum, et ipse respectus. Subjectum est illa substantia in qua est relatio: requiruntur autem

subjecta duo, in omni relatione occurrit proportio, adeoque distinctio. Fundamentum est attributum quoddam absolutum, ob quod inter se conferuntur. Relatum dicitur quatenus refertur; Correlatum quatenus ad id aliquid refertur". The same list is found in Bisterfeld, *Elementorum Logicorum Libri Tres*, p. 80.

[22] Cf. Mugnai, *Introduzione*, p. 87. Bisterfeld's *Logica*, p. 376, presents a list closer to the standard one: "In relatione videndum relatum correlatum, fundamentum et ipsa relatio."

[23] Cf. Leibniz, *Notes on Aloys Temmik's Philosophia vera theologiae et medicinae ministra* (after 1706), in Mugnai, *Leibniz' Theory of Relations*, p. 161: "Fundamentum relationis praedicamentalis est accidens absolutum." It should be noted that in another passage of his *Logica* Bisterfeld seems to consider as *fundamentum relationis* the *ens* itself, rather than an absolute property of it (cf. p. 366: "fundamentum relationis sunt entia absoluta"). I think however that his concern here was not to decide whether *entia* rather than properties should be considered as *fundamentum relationis*, but to stress that relations must be grounded in something absolute.

[24] Alsted's *Metaphysica*, p. 265, presents the following account: "*Relatio alia est rei, rationis alia. Relatio rei* est respectus inter extrema realia. In hâc quinque sunt consideranda. I. *Subjectum*, in quo est relatio. Omne enim respectum fundatur in absoluto. 2. *Fundamentum*, seu materiale, causa efficiens, à quâ est relatio. Nam omne respectum non solùm est in, sed etiam ab absoluto. 3. *Terminus*, finis ad quem relatio ordinatur. 4. *Relatum*, producens. 5. *Correlatum*, productum."

[25] Bisterfeld, *Elementorum Logicorum Libri Tres*, p. 80: "*Accidens absolutum est, quod est independens à termino. Estque quantitas vel qualitas. ... Accidens cum respectu est, quod dependet à termino. Estque vel ipsa relatio, vel aliquid à relatione diversum.*" Cf. also Bisterfeld, *Logica*, pp. 365-366, 369, 376.

[26] On the distinction between *esse in* and *esse ad aliud*, see Mugnai, *Leibniz' Theory of Relations*, pp. 43-44, 97.

[27] Petrus Niger, *Clypeus Thomistarum.* Quoted by Mugnai, *Leibniz' Theory of Relations*, p. 44 and by Krempel, *La doctrine de la relation chez Saint Thomas*, p. 269.

[28] Bisterfeld, *Logica*, p. 368: "Relatio est ipsa relati et correlati habitudo."

[29] Cf. Aegidius Forcellini, *Totius latinitatis lexicon*, Patavii 1771-1816.

[30] Cf. Thomas Aquinas, *Summa Theologiae*, Pars I, Quaestio 37, Articulus 1; Quaestio 43, Articulus 1. T.C. O'Brien in the Latin-English Blackfriars edition of the *Summa Theologiae* translates *habitudo* as "relationship" (cf. *Summa Theologiae*, London – New York 1976, vol. 7, pp. 81-83); the Dominican English version of the *Summa* translates it as "relation" (cf. *Summa Theologica*, Chicago – London – Toronto 1952, vol. 1, pp. 198, 230). Cf. also Alfonso Maierù, *Terminologia Logica della Tarda Scolastica*, Roma 1972, pp. 100, 101, 258, 379, 395, 420, 454, 460. In

a passage from Duns Scotus's *Super Praedicamenta* quoted in Mugnai, *Leibniz' Theory of Relations*, p. 27, *habitudo* is translated as "relationship".

[31] Cf. Forcellini, *Totius latinitatis lexicon*.

[32] Cf. translations by Loemker, "Leibniz and the Herborn Encyclopedists", p. 329; Rutherford, *Leibniz*, p. 37; Massimo Mugnai and Enrico Pasini (eds and trans), *G. W. Leibniz. Scritti Filosofici*, 3 vols, Torino 2000, vol. 1, p. 193.

[33] Cf. Robert Merrihew Adams, *Leibniz: Determinist, Theist, Idealist*, New York – Oxford 1994, p. 223 and Mugnai – Pasini (eds and trans), *G. W. Leibniz. Scritti Filosofici*, vol. 1, p. 192.

[34] Cf. Bisterfeld, *Logica*, p. 18: "nihil in universâ rerum naturâ sit tam absolutum, quin intrinsecum ad aliud habeat respectum"; Bisterfeld, *Philosophiae Primae Seminarium*, p. 33: "Nullum Ens tám est absolutum, quin intimum eumque varium includat respectum". Leibniz comments (*Notae ad Joh. Henricum Bisterfeldium*, A VI, 1, 153): "nullum Ens praeter Deum solum esse potest. Omne Ens etiam Deus cum alio est."

[35] Cf. Bisterfeld, *Philosophiae Primae Seminarium*, p. 14: "Principia *entis*, sunt Entitates, *ex quibus ens est*, su *constat*. *Suntque*, Essentia et Consistentia." *Ibidem*, p. 31: "Consistentia, *est entitas, per quam ens est ad Ens; per quam ens cum aliquo et respectivé esse concipitur*."

[36] Cf. Bisterfeld, *Philosophiae Primae Seminarium*, pp. 37-38: "*Communissimi illi termini*, Habitudo, respectus, modus, etc. *dupliciter accipiuntur*; nempe, *vel antecedunt et quasi constituunt ens*; *vel id constitutum consequuntur et afficiunt*; unde et *affectiones* vocantur. Illustremus singula: ubi vocibus *entitas*, et *aliquid*, feré utemur promiscué".

[37] Leibniz underlines the passage twice and writes above it, "Trinitas" (cf. A VI, 1, 153). On the significance of this annotation see Antognazza, "*Immeatio* and *Emperichoresis*", especially pp. 63-64.

[38] Bisterfeld, *Philosophiae Primae Seminarium*, p. 38: "I. Habitudo, *est entitas, quâ entitas est ad entitatem*; seu, *quâ aliquid est ad aliquid*. Hinc oritur phrasis, *se habere*. *Habere* dicitur, cui aliquid est unitum; seu, *cum* quo est aliquid; *haberi*, quod alicui est unitum; seu, quod est cum aliquo. 2. Respectus, *est habitudo entis quasi quiescens et stans*. *Respicere* enim, est, se ad aliquid habere ratione sitûs; itemque ratione emissae et receptae similitudinis seu imaginis. ... 3. Relatio, *est habitudo entis, quasi se movens et fluens*. *Referri* enim, est, se habere ad aliquid, ratione motûs; quasi tendere ad aliquid". In the context of Bisterfeld's argument, it seems to me that "referri" (infinite passive of "refero") should be read as "referre" (infinite active).

[39] *Ibidem*, p. 40, Bisterfeld adds: "*Ob* consistentiam *entia utiliter flectuntur per praepositiones*. *Praepositiones* enim, rerum habitudines, statum motumve, exprimunt". Leibniz comments (A VI,1, 153): "Praepositio Habitudinis in genere

est *Cum*, ejus species sunt ad, ab, per, pro, contra etc. sub, ob." With his remark Leibniz seems to stress that the concept of *habitudo* indicates the structural "being in relation" of a being with other beings.

[40] In *Bisterfeldius Redivivus*, vol. I, pp. 58-59: "Percipere est intrinsecam similitudinem seu habitudinem rerum habitudini proportionalem efficaciter in se habere... Perceptivitas est substantiae habitudo quae intrinsecam entis similitudinem producere potest: utramque competere omni substantiae; hanc vero omni enti evincit panharmonia et Catholica rerum communicatio... Atque hinc oritur nexus rerum tum spiritualium inter se, tunc corporalium, tum denique spiritualium et corporalium". This text is translated in Rutherford, *Leibniz*, p. 37 and, partially, in Loemker, "Leibniz and the Herborn Encyclopedists", p. 329. The original is quoted in Mugnai, "Der Begriff der Harmonie", p. 56. Both Loemker and Rutherford translate *habitudo* as "disposition". I prefer to leave the original term, treating it as a *terminus technicus* the meaning of which includes but it is not exhausted by the translation "disposition". It is worth noting that also the *appetitus* is defined in terms of *habitudo*. Cf. Bisterfeld, *Philosophiae Primae Seminarium*, pp. 104-105: "*Appetitus*, quâtenus vim notat, *est entis percipientis circa rem perceptam habitudo*."

[41] Leibniz, *Dissertatio de Arte Combinatoria*, A VI, 1, 199. My emphasis.

[42] Bisterfeld, *Philosophiae Primae Seminarium*, p. 75: "*Omnis differentia positiva fundatur in convenientiâ seu unitate*; adeoque. *Quaecunque inter se positivé differunt, necessarió quoque inter se conveniunt.*"

[43] Cf. Mugnai, "Der Begriff der Harmonie", pp. 56-58; Rutherford, *Leibniz*, pp. 37-40.

[44] Leibniz, *Quid sit idea* (c. 1677), A VI, 4, 1370. L p. 207 translates *habitudo* as "relation"; Mugnai – Pasini, *G. W. Leibniz. Scritti Filosofici*, vol. 1, pp. 193-194 translate it as "abit" / "disposition". Once again I prefer to consider *habitudo* as a *terminus technicus* which includes both meanings but is not exhausted by them.

[45] Bisterfeld, *Philosophiae Primae Seminarium*, p. 38.

[46] Cf. Mugnai, *Leibniz' Theory of Relations*, *passim*.

[47] Bisterfeld, *Logica*, p. 368: "Relatio est ipsa relati et correlati habitudo."

[48] Bisterfeld, *Logica*, p. 366: "Relatio est ordo entis ad ens, seu est modus quo ens se habet ad aliud".

[49] Cf. Bisterfeld, *Logica*, p. 368: "Relata sunt simul naturâ, scilicet quâ talia."

[50] Bisterfeld, *Philosophiae Primae Seminarium*, p. 201: "*Quicquid revera in rerum naturâ existit, singulare est.*"

[51] Cf. *ibidem*: "Ergo, inquis, *entia universalia, sunt entia rationis*? Rectè: *Inutilia itaque et planè ficta*? Minimè gentium, Sunt enim in naturâ fundamentaliter, licet non formaliter."

[52] *Ibidem*: "Nimirum, intellectus humanus non potest, rerum convenientiam et

differentiam, vel concipere, vel exprimere, nisi eas inter se comparet; ex quâ comparatione resultant universalia".

[53] Cf. *ibidem*, pp. 201-202: "*Principium* individuationis *non est aliquid ab essentia rerum diversum, sed ipsissima earum propria essentia*. Ratio: quia, quodlibet ens, actu existens, est per seipsum singulare. Potiùs ergo, universalitatis, quàm singularitatis, principium fuisset investigandum."

[54] Cf. A VI, 1, N. 1. At the outset Leibniz lists four standard positions on the principle of individuation (A VI, 1, 11): "Aut enim Principium Individuationis ponitur *Entitas tota* (I), aut non tota. Non totam aut *Negatio* exprimit (2), aut aliqvid positivum. Positivum hoc aut pars Physica est essentiam terminans, *Existentia* (3); aut Metaphysica speciem terminans, *Haecceitas* (4)." He declares himself in favour of the first one (A VI, 1, 11): "omne individuum suâ totâ Entitate individuatur". Needless to say, neither Bisterfeld nor Leibniz's position is novel, as already shown by the "authorities" (including Francisco Suarez) in support of this opinion diligently listed in his *Dissertatio* by the young pupil of the Aristotelian Jakob Thomasius.

[55] Cf. Bisterfeld, *Philosophiae Primae Seminarium*, pp. 203-204: "*distinctio rationis*, dividitur, in *distinctionem rationis ratiocinatae, et rationis ratiocinantis: Illa est, quando ratio habet aliquod fundamentum in re*: puta in ejus perfectione: vel *quando connotat multos respectus aut relationes ... Haec, quando ratio non habet fundamentum in re, sed eandem rem cum ipsa comparat*: quod non potest fieri sine repetitione conceptûs simplicis."

[56] *Ibidem*, p. 200: "*Relatio*, scilicet quâ relatio, *non componit, sed distinguit*".

[57] Cf. also Bisterfeld, *Logica*, pp. 368-369: "Relata sunt simul naturâ, scilicet quâ talia. ... Sunt simul cognitione, itâ ut qui novit unum, noverit et alterum."

[58] Cf. Loemker, "Leibniz and the Herborn Encyclopedists", pp. 324 and 337; Mugnai, "Der Begriff der Harmonie", p. 68.

[59] It should be noted, however, that the doctrine according to which ideas are in God's mind was shared by authors with very different theoretical positions, including also nominalist-conceptualist thinkers. See Mugnai, *Leibniz' Theory of Relations*, p. 23 and Marilyn McCord Adams, *William Ockham*, 2 vols, Notre Dame 1987, vol. 2, pp. 1033 ff.

[60] Cf. Adams, *Leibniz*, p. 182.

[61] Leibniz, *Notationes quaedam ad Aloysii Temmik Philosophiam* (c. 1715-1716), VE, p. 1083 and Mugnai, *Leibniz' Theory of Relations*, p. 155: "relationes ... habent realitatem, citra intelligentiam nostram".

[62] After having claimed that "relationes ... habent realitatem, citra intelligentiam nostram", Leibniz continues (*ibidem*): "Accipiunt tamen eam ab intellectu divino; sine quo nihil esset verum. Duo igitur realisantur per solum divinum intellectum veritates aeternae omnes, et ex contingentibus respectivae."

[63] Cf. Leibniz, *Specimen inventorum de admirandis naturae generalis arcanis* (c. 1688), A VI, 4, 1618 and *Monadology*, § 45. Quoted in Adams, *Leibniz*, p. 177. On God as the ultimate foundation of the reality of eternal truths and relations see *ibidem* the chapter on "The Root of Possibility".

[64] Bisterfeld, *Philosophiae Primae Seminarium*, pp. 75-76: "*Necessum est, ut tandem una eademque res* seu entitas *sit radix ultima omnis, et convenientiae, et differentiae.*"

[65] Cf. A VI, 1, 155.

[66] On this point see Antognazza, "*Immeatio* and *Emperichoresis*", pp. 46-52. Cf. Bisterfeld, *Philosophiae Primae Seminarium*, p. 132: "omnium rerum panharmoniam fundari in Sacro-sanctâ Trinitate, ipsamque esse omnis ordinis fontem, normam, et finem"; *ibidem*, p. 186: "tum varietas, tum societas, *relationum*, primó et ultimó fundatur, in adorando S.S. Trinitatis mysterio." Both passages are underlined by Leibniz in his copy of Bisterfeld's work (cf. A VI, 1, 158-159).

[67] Cf. Mugnai, *Leibniz' Theory of Relations*, pp. 50-55 and 133-134.

[68] Cf. Leibniz, *Nouveaux Essais*, A VI, 6, 227: "PHILAL. *Il peut y avoir pourtant un changement de relation, sans qu'il arrive aucun changement dans le sujet. Titius, que je considere aujourdhui comme pere, cesse de l'étre demain, sans qu'il se fasse aucun changement en lui, par cela seul que son fils vient à mourir.* THEOPH. Cela se peut fort bien dire suivant les choses, dont on s'apperçoit; quoique dans la rigueur metaphysique il soit vrai, qu'il n'y a point de denomination entiérement exterieure (*denominatio pure extrinseca*), à cause de la connexion réelle de toutes choses." Cf. Mugnai, *Leibniz' Theory of Relations*, p. 52.

[69] Cf. Leibniz, *Notationes quaedam ad Aloysii Temmik Philosophiam*, VE, p. 1086 and Mugnai, *Leibniz' Theory of Relations*, p. 158: "Omnes denominationes extrinsecae meo iudicio fundatae sunt in intrinsecis, et res visa realiter differt a non visa, nam radii a re visa reflexi aliquam in ipsa mutationem produnt. Imo ob connexionem rerum universalem differt intrinsecis qualitatibus Monarcha Sinarum cognitus mihi, a se ipso mihi nondum cognito. Certe ipso tempore quaevis res mutatur, et tempore opus est, ut transeat ab incognito ad cognitum."

[70] Bisterfeld, *Philosophiae Primae Seminarium*, pp. 44-45: "*Illa sunt, quae enti per se insunt;* adeoque ab ipsius principiis sunt, emanant, seu resultant. *Haec sunt, quae enti cum alio collato conveniunt*; adeoque, non ex solo ente, per se, sed cum aliis sumto, resultant: Vocantur *denominationes extrinsecae*. Excellunt illae, quae ab ente ad percipientem, appetentem, et moventem seu tractantem, relato, resultant."

[71] *Ibidem*, p. 49: "*Attributa Entis extrinseca, praesupponunt intrinseca.* Exprimunt enim varias entis habitudines externas, quae, si non proximé, tandem tamen in internis affectionibus fundatur."

[72] Cf. Leibniz, *Nouveaux Essais*, A VI, 6, 227 and *Notationes quaedam ad Aloysii Temmik Philosophiam*, in VE, p. 1086 and Mugnai, *Leibniz' Theory of Relations*,

p. 158 (quoted above, note 69).
[73] Cf. *ibidem*.
[74] On Leibniz's departure from traditional views cf. Sven K. Knebel, "Intrinsic and Extrinsic Denomination: What makes Leibniz's departure from the schoolmen so bewildering?", in *Nihil sine Ratione. Mensch, Natur und Technik im Wirken von G.W. Leibniz. VII. Internationaler Leibniz-Kongress,* Hanover 2001, pp. 615-619.
[75] Rutherford, *Leibniz*, p. 145.
[76] Bisterfeld, *Logica*, pp. 17-18: "Immeatio aliquando pro intimâ rerum unione: aliquando pro intimâ unitorum habitudine ac respectu sumitur".