Herbert Hochberg • Kevin Mulligan (Eds.)
Relations and Predicates

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INTRODUCTION

Predication and the problems of universals and individuation have preoccupied philosophers from Plato (if not before) to the present. Concerns about relations and the special problems posed by relational predication came later—along with the explicit recognition of "facts" as purported entities that "make" a judgment true, rather than false, and resultant questions about the structure of such grounds of truth. The essays in the volume explore aspects of the history of the classic issues raised as well as alternative attempts to deal with such issues. Aside from historical aspects of the problems, the essays take up a number of central issues that include:

(1). The persistent "Bradley problem(s)" and the broader issue concerning the viability of the familiar distinction between particulars and universals derived from Aristotle's often cited pronouncement that what is universal is what is "predicable of many" while what is particular is not.

(2) The dispute between those who take attributes to be universals and those who take them to be special kinds of particulars—individual attributes or *tropes*, as they are now commonly called—the red of or in a particular colored area, as opposed to Red *itself*, as Plato might have put it.

(3) The problems posed by the need to account for the *order* in relational facts ("complexes," states of affairs) by those who recognize relations, either as universals or tropes.

(4) The logical properties of relations themselves, and especially those employed in mereological-style analyses (*part of*, *overlaps*), which have come to play a crucial role in the development of trope-type theories of predication. Such theories, somewhat ironically, often attempt to dispense with ordinary relations by grounding the truth of relational predications in the "natures" of what is normally taken to be related. Thus they employ the pattern of dispensing with relations as being "internal"—and hence not being anything in addition to the terms of an apparent relation. In a familiar sense such views take a

"minimalist" approach to standard relations—temporal and spatial, for example. This minimalist approach also connects to a familiar attempt to avoid the Bradley problem(s) by taking true predications in language not to reflect an "external" relation between a particular and a property but to be grounded in the "internal" connection between the property (which must be the particularized property of a given individual) and the ordinary individual it characterizes.

(5) Such questions about predication and relations, in turn, are connected with others regarding the relationship between the linguistic role of predication, and diverse ways of understanding that linguistic phenomenon, and purported ontological "ties" or nexus that are supposedly reflected by it.

(6) The perennial problems associated with the proper logical form of existential statements, the apparent role of "exists" as a predicate, and familiar paradoxical statements that result from ordinary linguistic usage.

(7) The viability, even intelligibility, of the notion of a "bare particular" and the purported corresponding entity that traditionally plays the two-fold role of being a bearer of attributes, thus accounting for the "unity in diversity" of "ordinary" particulars, and the ground of individuation of such ordinary particulars—the particulars one confronts in everyday experience and speaks about in ordinary contexts. Such questions inevitably connect with other traditional issues regarding the analysis of such "ordinary" particulars or "objects"—Are they basic substances, bundles (of tropes, universals, etc.), "structures" that involve "structural properties," etc?

In its way the volume continues some of the centuries old debates that once again receive attention in the current revival of metaphysics that has become part of the analytic turn in philosophy. That turn developed from roots in the realism of Frege, the Austrian tradition of Brentano-Husserl-Meinong, and the revolt against idealism that was initiated in Cambridge in the early 20th century writings and lectures of Moore and Russell and, in a way, culminated in Wittgenstein's *Tractatus*. One of the curious turns recent philosophy took saw the early revival of realism develop into the attacks on traditional ontology of the Viennese and Berlin positivists and the casuist variant of

positivism that emerged among English speaking philosophers, based on the latter's understanding of the later Wittgenstein's teaching and writings and Moore's defense of commonsense. An even more ironic development is seen in the way logical positivism, pragmatic instrumentalism and ordinary language casuistry led to a new era of idealism, with analytic "scientific" philosophers and so-called "continental" philosophers jointly proclaiming that the world was a mirror of our language or, even, a construct out of it. In one of the strangest unions in the history of philosophy, the logical pattern of idealism (rejecting facts as mind-independent grounds of truth) in the form of linguistic idealism (often in the guise of "minimalism" and disquotational theories of truth) embodying the idea that "coherence" of statements is the key to the analysis of "truth" has joined with materialism, via the reduction of "thought" to linguistic use, behavioral dispositions, and, of course, neurological underpinnings. (What could be more "scientific"?) Thus the linguistic turn in philosophy, at the opening of the 21st century, has turned into a circle, taking many philosophers back to linguistic variants of idealism that was dominant at the dawn of the 20th century. Yet, by emphasizing language, rather than thought, the new idealists could blend the contextualism and relativism of idealism with the supposed tough minded scientism of materialism. Such are the twists in the linguistic turn.

Given that the problems posed by relations and predication were key aspects of the Absolute Idealism of once dominant figures like F. H. Bradley and B. Bosasnquet, and are now again involved in the various forms taken by linguistic idealism, it is not surprising that resolving such issues is critical for attempts to develop viable forms of realism in the analytic tradition.

LARS GUSTAFSSON

Absurd Claims

1.The Problem

In the following we shall consider a type of sentence, which if seriously uttered in the relevant context, makes a claim which can impossibly be true.

"I am not here."
"I am dead."
"I do not exist."

might serve as introductory examples. At a first look they might appear as the type of playful jokes which populate so much of Lewis Carroll's books and logical puzzles. But there is something more to them - as I shall try to demonstrate. They belong to a region of what Sören Halldén called "The Logic of Nonsense" which illuminates some aspects of Meaning in general.

I have already remarked that the claim made in each of my examples is a claim that can "impossibly be true". But what sort of impossibility are we talking about?

It has to be observed that the air of paradox is achieved only if the egocentric particular, "here" is taken in an authentic sense. In a sentence "I am not here, but I can take a message" recorded on a telephone answering device, there is nothing absurd, because "here" is used in a metaphorical sense. The same would hold for "I am not here any longer" in a letter from an already deceased person to those who live after him. The possibility of such meaningful and true utterances is based on the fact that "here" in such situations is not referring to the place and time of the speaker. In order to constitute an absurdity, "here" in "I am not here" has to refer to the actual place of the utterance.

The claim that I am here, expressed by myself by the sentence "I am here" might seem to be true. But is it a *necessary truth* ? What makes "I am here" different from "Professor X. is here" or "Professor Y is here"?

The truth of such claims, if they are true, is obviously contingent, and if I reformulate something like “I am here” to “Professor X is here” it becomes obvious that I might as well not have been here. And if we take “I am here” as synonymous with “Professor X is here” (where “X” serves as my proper name) - which seems quite reasonable - ”I am here” should be contingent as well.

There is, however, a strong temptation to answer yes, - “I am here” is a necessary truth, because the negation “I am not here” seems to involve some sort of contradiction. And by a valid, even axiomatic, theorem in modal logic:

$$-\Diamond(-P) \text{ if and only if } N(P)$$

the negations of the absurd claims in my three examples seem to be necessary truths. Now to claim that with logical necessity I am here, that I do exist and that I am not dead seem to be as absurd as the other claims.

There is nothing necessary about "Professor Y is present."

2.First Pattern of Analysis; Hintikka s Performatives

A reasonable interpretation of Descarte s “*Cogito, ergo sum*” which fits well with Gassendis objection “*Ambulo, ergo sum*” – what is necessary about “ambulo”? – is that rather than intending a logical inference in the Aristotelian sense, Descartes has the apparent absurdity of the claim “I do not exist” in mind. As Jakko Hintikka has observed in a very useful analysis of the Cogito", there is nothing wrong with the *sentence*” I am not here” or the *sentence* “I do not exist”. They are in perfect order and have nothing of the contradictoriness of “A is a circular triangle” nor the obscurity of “It smells like a sphere”. What is contradictory about them, or creates the appearance of contradictoriness is connected not with their sentential structure but with the idea of a speech-act or other performance (thinking them) which would make use of them.

What Dr Hintikka, among other things, observed in his essay on the Cogito is that the first person statements of this type seem to be - or can be analyzed as - *performatives*, (performative speech-acts in the sense of J. L. Austin and Searle) which, because of the weird circumstances in which they are attempted, cannot simply be carried out, or performed– cannot be performed. The radical doubt of my own existence, expressed in the question – “Is it the case that I do not exist?” – cannot be *expressed*

(or if you prefer to stick to the Hintikka terminology, *performed*) by me, whether it is true or not. Thus, the Cogito. Rather than expressing a logical inference the *Cogito, ergo sum* describes a situation. That I cannot claim that I do not exist is not a *contradictio in adjecto* . Of course it could be the case that I do not exist ! After all I am mortal. After all my parents might never have met. The claim is not a contradiction it is a case of *absurdity*. Some things can simply not be done. We cannot smell the spherical form of a sphere. In Lewis Carroll's "Through the Looking-Glass" the White Queen refuses to accept Alice's confession that she cannot believe the unbelievable. The naught Red Queen claims that – after some training – she has been able to believe six unbelievable things before Breakfast. You only have to try with both hands.

All these are absurd claims. Things or acts are demanded which simply do not belong within the framework of these acts. Which might be assertive performances.

Is this all that there is about it ?
Not yet.

3.Second Pattern of Analysis; incompleteness

Reformulating a third-person statement like "Professor X is not here" to first-person; "I am not here" is not the only way to produce absurd claims, and this fact limits the use of Jaakko Hintikka's "performative" pattern of analysis. I shall try to show that we actually need something stronger, a more general pattern of analysis.

Let us consider a new set of examples:
"There is nothing such as red in the world"
"There is nothing such as hot in the world"
"The universe does not exist."

Let us first have a look at the first example. Its negation is "There is something red." We shall –in this context—suppress the question whether this something that we have called "red" is external or internal to our mind. The sentence "There is nothing such as red in the world" can of course easily be interpreted as stating that the red we perceive is of a purely perceptual character and that the external world has no colors. Which might be a perfectly reasonable position, taken by many philosophers. But that is not

the present interpretation. We mean that there is nothing red whatsoever, denying the possibility of any red or reddish color experience. (I add "reddish" for the case that somebody might wonder whether that which is denied is the lowest possible determinable. The argument is –as we shall see – not sensitive in this respect.) So if the sentence *"There is nothing such as red in the world"* is true, it means that a color experience, such as red or reddish is not possible. Of course this is not the case. But it could be the case. What is possible in a population where everybody suffers from cerebral color-blindness (*achromatopsia*)[1] could of course be the state of affairs of mankind or of mammals in general. Did the trilobites see color through their crystal eyes ? They might as well not. The point – which the reader has already got – is that even in the strong interpretation there is nothing nonsensical or fundamentally wrong with the *sentence* "There is nothing such as red in the world". Our experience contradicts and rejects it but it *could* have been the case. So the sentence expresses a contingent false proposition.

But still – what would "There is nothing such as red in the world" mean, said in a world where the sentence expressed a true proposition ? It seems as if, if true the sentence would be senseless. And if it were senseless it could not be true. So if it were true it could not be true, and – by *reductio ad absurdum* – not true. But not meaningful either.

The reason is that "red" cannot be defined.[2] It is a *qualium*. If the word "red" shall have any meaning at all it must be based in one way or another on the possibility of color experiences, specifically in the "reddish" field. *So* what would "There is nothing red whatsoever" mean if it were true ? Nothing. The word "red" would lack all sense and by the principle of the dominance of the atheoretical element, if a sentence contains one meaningless constituent, it becomes meaningless as a sentence.

So, again, we have landed in an absurdity. The claim is not contradictory but impossible. So it seems as if we were again in a similar dilemma as with Descartes' "I do not exist" – but with the important differ-

1 See Oliver Sacks "The Case of the Color-Blind Painter" in *An Anthropologist on Mars*. London: Picador, 1995, pp. 1-38

2 If we do not accept the rather naive reductionist view that red or any lowest determinable of red is nothing but a spectral frequency (in the field 400-800 νμ). Actually already Goethe has good arguments against this view, among them the shadow-colors and in later research the discovery of the *metameric* color stimuli, i. e. spectrally different radiations under identic viewing conditions. Of course it cannot be reduced to a neural process either. An electro-chemical process in the V4 section of the brain has nothing reddish about it.

ence that this time no egocentric particular like the first-person “I” is involved.

There is nothing (logically) wrong with the statement, but if the proposition it expresses is true, this truth cannot be meaningfully expressed. So if it were true, this truth would not be expressible, while its negation does not provide any similar problem.

Clearly, it would be very strange to say that the absurd claim “There is nothing such as red in the world” would be senseless if, and only if, it were true. Because that is an unacceptable contradiction that something should be senseless and true at the same time.

The performative exit seems of no value in this example. Nothing prevents us from saying something which is obviously false. Personal pronomina do not play any role in these examples. Instead of talking about a paradox it might make sense to speak about *a paradoxical situation*. If the expressed proposition were true, nobody would be able to express it. But of course it could be true.

So here a language, in this case standard English, is able to produce a string of words which masquerades as expressing something which it cannot meaningfully assert. The second example in this second group can be treated analogically. If these sentences expressed something which were the case, they would not be able to express it. There is a self-referential element implicit in the absurd claims. Their claims seem to undermine the very conditions for their use. It is a well-known fact that a natural or a formal language can produce more strings than can be realized as meaningful representations. In the language of Chemistry it is possible to combine letters for elements and numbers for valences which suggest molecules which could never exist, and in the Laban notation it is possible to suggest movements which no dancer could perform in the real world.

One might say that the absurd claims can express more than they can signify, or that their expressivity exceeds their meaningfulness.

4. *Absurd Claims and the Anthropic Principle*

The implicitly self-referential element becomes more visible, maybe, in our last example, i. e.

“The universe does not exist.”

This example has some relevance for the sometimes rather intense

discussion of a cosmological principle which J. Wheeler baptized *The Anthropological Principle*.

Obviously human life, intelligent to the extent to which it is intelligent is only possible in a universe which satisfies some fundamental physical conditions. Exactly which these might be does not have to analyzed here. Let it be enough for the present discussion that a universe in which questions can be asked has to have such an equilibrium between contractive and dissipative forces that galaxies and stars are able to form.

When the child asks "Why is there something rather than nothing ?"[3] and the helpless parent answers "In order that you shall be able to ask the question" this answer - which clearly applies the anthropological principle - implies that the existence of the world we know is a condition for the question to be asked. Again, there is no self-evident reason to believe that the universe by logical necessity has to be as it is. It might of course be the case that a universe with - say a weaker gravitational force for some physical reason might not have been able to exist. But what excludes the possibility of such a universe can hardly be the fact that I could not have been there to observe it. For such an assumption would make my observation a necessary condition (among other necessary conditions) for the existence of the present universe, an assumption which sounds a bit egocentric, especially as all facts bear witness to the fact that the world I found has been here before me.

Like in the earlier discussed cases, we have a sentence which cannot meaningfully express the fact that the world does not exist inside the language where it is formed. If it is the case that the world does not really exist.

So the generalizable conclusion is that everyday languages make possible formations of strings which if certain facts were the case could not simply be expressed in these languages. The expression we see is a pseudo-expression, a something which appears in the disguise of a true or false sentence but can be neither because its place in the general network of actual or possible speech situations is not well established.

*

3 Which might be the most fundamental and the most impossibly difficult of all philosophical questions.

HERBERT HOCHBERG

Relations, Properties and Particulars

Tropes are introduced to avoid both extreme nominalism, a view that takes predicates to simply apply to ordinary particulars and not represent properties and relations, and the form of realism that takes predicates to represent universal properties and relations that can be common to numerous terms or pairs, triples, etc. of terms—a view Quine has characterized as a form of Platonism. Another motive for trope theory is the belief that tropes allow one to avoid bare particulars or substrata, that are the bearers of properties and, with properties, combine, in some manner, to form ordinary particular objects or facts or both. Thus tropes supposedly allow one to answer two classical questions. Given two objects, A and B, in virtue of what are they said to be the same in a respect? And, in virtue of what are they diverse or "individuated"? For tropes of the same kind, at least since Moore's turn of the century papers[1], are held to be numerically diverse—simply numerically different and not different in virtue of any thing or constituent. Thus if we had two objects that shared all non-relational properties, of shape, color, etc., for example, they would still be two in that the qualities while being exactly similar (or conceptually the same, in Moore's terms) would be numerically diverse—hence one could construe the objects as complexes of such "individual quality instances" without identifying them, as their constituent qualities would not be literally, or numerically, the same.

The term "trope," as a name for such individual qualities or quality instances, is apparently due to D. C. Williams, while an earlier commonly used phrase for such entities, *abstract particular*, was employed in 1923 by G. F. Stout in his well known dispute with Moore—"Are The Characteristics of Things Universal or Particular?" As Stout put it in 1923:

[1] G. E. Moore, "Identity," *Proceedings of the Aristotelian Society*, 1, 1900-01, is one.

> What is concrete is a subject to which characters belong and which cannot itself be a character of anything else. Characters are abstract particulars which are predicable of concrete particulars.[2]

While such matters of terminology are of no real import, Stout's use of the term reveals that he takes tropes to be things that are, in Aristotle's fashion, "predicable"—and that notion will be quite relevant as we proceed.

In a recent book defending a tropist account of predication, A. S. Maurin adopts the strategy of not offering an argument for the acceptance of tropes, in the sense in which Russell and Moore purported to offer arguments for universals by attempting to show that denying the existence of universals forced one to accept what was not acceptable—a purported vicious regress or a simple begging of the question at issue.[3] Instead, Maurin proposes to defend a trope account by rebutting purported arguments against tropes and showing how tropes allow one to resolve certain problems. This is a familiar strategy in philosophical disputes—for it is rare that one finds a blatant inconsistency, or even a subtle one, in an opposing view. What is different about the book is the opening declaration that the characteristics of tropes—being abstract, particular and simple—are such that "we must never lose sight of the fact that these traits are *postulated*, and that they are, in this sense, part of the basic set of assumptions from which the present work departs." (Maurin, p. 11) Of course one must start somewhere and cannot offer arguments for everything. The questions that arise are about where we start and how we employ the postulates we start from. Furthermore, to postulate or assume something does not license merely repeating the assumption in response to an objection—especially an objection that claims that while one postulates that tropes are "simple" entities they are employed in ways that indicate they are not really simple. One cannot simply respond to the charge that tropes are implicitly taken to be complex, in that they are taken to be entities that have a nature and therefore involve a distinction between what has the nature and the nature itself, by simply saying that the trope and its

[2] Originally in *Proceedings of the Aristotelian Society*, suppl. vol. iii, 1923, reprinted in L. Blackman, *Classics of Analytic Metaphysics* (New York: 1984), p. 203.
[3] A. S. Maurin, *If Tropes* (Dordrecht: 2002).

nature are one and the same—the trope is its nature. It will not do to hold that, by assumption, tropes are simple, and since they are simple we need not distinguish the nature from the trope. But, as always in such matters, it all depends on the details.

The discussion starts with a claim that I believe to be mistaken, and one that, interestingly enough, the author immediately proceeds to abandon after stressing its importance. Faced by the standard double-edged problem of feeling obliged to explain one's terms while recognizing that just as not everything can be argued for not everything can be explained, since some notions are basic, she tells us that we cannot explain "being simple" in terms of "having no spatial parts." We cannot do so since an explanation of simplicity "using the notion of having no parts is really no explanation at all." It is apparently a mere rephrasing since we can now ask "what does it mean to say of the trope that it is something without parts? Our answer will depend, in particular, on exactly what we mean by 'part' here." (p. 15) This sounds somewhat right, but not quite right. To be sure, explanation always must stop somewhere. But there is a difference between taking the monadic character of "being simple" to be basic—not explicable—and taking the dyadic relation of "is a part of" or "is a component of" as basic. One can do a lot more with the latter—just note the calculi of mereology that are current. It is hard to do much with the monadic property of being simple.

This is especially so if one keeps in mind that a number of variants of trope theory take ordinary particulars to be bundles of or to be composed of tropes—i.e. to have tropes as constituents or parts. And some involve taking classes of tropes that are all exactly similar, say the class or bundle of all red tropes of a specific shade, to overlap with a class or bundle of tropes that constitutes an ordinary concrete particular. And to speak of overlapping can be construed in terms of having a common part. (One need only keep in mind that a logical structure with dyadic predicates is quite different from one with only monadic predicates—it was not an accident that Russell spoke of monadic properties as one-term relations—as, in effect, a limiting case.) Such differences are not only lost at the outset by the author's desire to protect her type of trope theory from an obvious line of questioning, but, and it is an interesting *but*, on the very

same page, in response to arguments that tropes are not simple, she proceeds to tells us, to be sure with a qualifying phrase and in the context of a specific argument, that the "sense in which the trope is *not* complex is ... best put as follows: it does not contain (it is not constituted of) more than one kind of entity." What this does is make use of the quite natural idea that to be a simple entity is not to have other entities (or even one other entity) as a constituent (part, component). This is not, to repeat, to quibble. For one is not just saying the same thing when one construes the simplicity of an entity in terms of its not having one or more other entities as components. For, first, one needs some sort of part-whole notion in any case in dealing with a number of related issues (facts, bundles, etc.); second, just think of the following case. "x is not a part of y but is a part of z"—how will one analyze that out in terms of "is a simple" and "negation"?

After considering simplicity, the book proceeds to take up the notion of a particular. Maurin suggests that there is an intuitively appealing way of distinguishing particularity from universality, spatio-temporal position. She quotes K. Campbell:

> Universals are promiscuous about space-time: they can be completely present at indefinitely many places at once. But particulars, and in our case this includes above all the tropes, all have a local habitation, a single, circumscribed place in space-time.[4]

One is struck by the phrasing of Campbell's quotation, where no argument is offered, but it is conveyed that universals are entities that are ontologically "promiscuous"— entities that lack a proper place. One is almost invited to think they wantonly occupy various places—any place that will "keep" them. How universals have degenerated. From being the perfect, changeless, eternal prototypes in Plato's heaven of the Forms, they have fallen to being promiscuously distributed among indefinitely many places and particulars and are thus, unlike respectable entities, such as solid, localized, settled (bourgeois—one almost thinks) particulars. Colorful as Campbell's choice of terms may be, his view will hardly do.

[4] Maurin, 2002, p. 17.

But before turning to that, consider another, more philosophically interesting, but less picturesque, passage Maurin quotes from Campbell. She writes:

> As Campbell notes, in discussing tropes, if one is asked how two exactly similar items (tropes) can be two and not one, the intuitive and simple answer is: by "being at different places at the same time or by the one ceasing to be, at a time before the other comes to be." (p. 17)

I don't find this either intuitive or simple. In fact, given the sorts of things Campbell and other trope theorists, including Maurin, say about tropes, one would expect them to say that it is simply the two tropes themselves that suffice for the tropes to be different—something Maurin will eventually say. Thus the obvious, intuitive and simple answer would be: "they just are different—nothing, but the tropes themselves, accounts for their difference." This is what led Moore to speak of "numerical difference" as opposed to "conceptual difference." Aside from the obvious problem that tropes are such that different tropes can be at the same place at the same time, if one seriously follows the above cited line of reasoning one will be asked to produce an explanation as to how difference of space-time location accounts for the difference of entities. Clearly it doesn't in the case of universals, if such there be, and there are familiar arguments, from Russell, among others, that it cannot do so for ordinary particulars without the stipulated premise that no two such particulars can be at one place at the same time and that one such particular cannot be at two places at the same time. But if one brings in such a stipulation about tropes then the real answer is simply that that is what it means to be *a trope*. But that is not an intuitive answer that explains "how"—or explains anything.

Maurin then, puzzlingly, asserts three things. First that the individuation of distinct tropes is a matter of epistemology, not metaphysics. I can only take this to mean that given that they are distinct, the metaphysical problem of individuation—in virtue of what are they different—does not arise. What arises is merely a question about how we would in fact distinguish them. But, if there is a problem of individuation at all, it does arise for tropes. It is just that the trope theorist simply says

that it is resolved by the tropes just being numerically diverse. Doing this employs a premise without articulating it—simple entities, and only simple entities, can simply differ without anything (other than the entities themselves) accounting for their diversity. Tropes being, by assumption, simple account, like Bergmann's bare particulars, for the diversity of complex entities, but require no further account of their own diversity—they just differ. Second, Maurin asserts that the problem of individuation only arises if we refuse "to accept that two different basic facts may be true of one and the same simple entity." What is puzzling is that what she says, as it stands, is not something that one would really argue about—for example one who holds to universals as simples will certainly accept a variety of basic facts about the same simple entity, as will one who holds to bare particulars, or one who holds that sets are simple, and on and on. What she seems to mean, though, is that those who argue that tropes are complex, because one must account for the diversity of two tropes and for the two tropes being of one and the same kind, refuse to accept her basic assumptions.

Some critics of tropes claim that tropes simply duplicate the classical problems that lead one to accept universals and substrata. This is not just a matter of "refusing to accept that two different basic facts may be true of one and the same entity." What is at issue is seen in a passage from Campbell:

> The resemblance relations among the Fs hold in virtue of the fact that those items are F, not the other way around. Tropes (abstract particulars, quality instances) must be particular natures. They are not 'bare particulars" which, without some similarity tie, would have no nature at all. The particularist glosses 'o is red' as 'a red trope is among those compresent at o's place'. He does not have to add 'that trope's being red depends on its resembling other members of the *red* similarity circle'.[5]

For Campbell, as for Maurin, tropes are thus natured. Moreover, and here is the "rub" as Hamlet might say, they are identified with their particular natures. Though they are natured they do not have a nature, since they

[5] K. Campbell, *Abstract Particulars* (Oxford: 1990), p. 60.

literally are their natures. The problem this raises is not settled by holding that those who raise it oppose the "very possibility of the entire trope-theoretical enterprise" and that it is of "no interest ... here (where the possible existence of tropes is *assumed*)." (p. 19) For what is at issue is a crucial difficulty and is not to be dismissed in such an offhand manner.

I will put it a bit differently. Let us forget about individuation and simply ask: how it is that a trope is identical with its nature? (Actually, here, only one aspect of its nature is relevant, but we may forget that too, for the moment, for the natures are quite rich as we will see.) We have two red tropes, say, that are both such that we can say we have cases, to quote Campbell, of "being red"—they are red tropes as opposed to blue tropes. Thus, unlike bare particulars they have a nature that they are. If the nature is distinct from the trope we have a trope and a red nature, or red making nature, or whatever one here says—that is what grounds the trope being red, and not the trope itself. If they are one and the same, as is now commonly asserted by trope theorists, then the nature (as the trope) is diverse from the nature of the other red trope—which is identified with that trope. How then are they of the same kind? Maurin wants to say they just are and that is that. But look at it this way.

One can allow a trope theorist the diversity of the two red tropes, whether we take diversity either as a basic notion or as the negation of identity. To say A is diverse from B is to say they are two—they are numerically different—and let us grant that there is nothing that need be added. Let that be so about tropes. Now we also say they are the same—but they are not one and the same—they are not identical. Rather, what we then mean is that they are of the same kind, red tropes. But here, unlike the case of diversity, a question does arise about the use of "same," since we don't mean literally one and the same. We mean of the same kind. And then the obvious question, going back to Plato, if not before, arises –what is involved in the use of the notion of a "kind"? We cannot simply accept, as a hypothesis of trope theory, that that question is taken care of, by assumption, by tropes being the kind of simples that they are. So argument must here cease. But I, for one, fail to see that the trope theorist takes us anywhere. In short, though I willingly grant the assumption that diverse tropes are simply different—what I fail to see is how diverse tropes are of

the same kind if they are said to "be their natures." But if they are not said to be so—what are their natures? And if there are no natures at all—then they are bare particulars or at least things about which the question of how they come to belong to the same similarity circle arises. This is why Campbell's statement strikes me as outlandish, though on the surface it appears quite reasonable. Red tropes are similar because they are red, and not red because they are similar. But that leads us into the quandary I just laid out. What Campbell doesn't seem to see, let alone appreciate, is why "deeper" trope theorists, like Meinong, turned to exact similarity, and, consistent to the end, took such a relation in terms of tropes themselves. The approach of Maurin and Campbell, simply assuming that all is well with tropes and their natures, is problematic at the very outset.

In a discussion of the particularity of tropes Maurin comes to the familiar and reasonable conclusion that particularity is primitive and not to be explained in terms of occupying spatio-temporal positions—as Moore characterized numerical diversity long ago. But the discussion raises another question about the rich nature of tropes. Unlike ordinary particulars that we assume do not occupy the same place at the same time, various tropes are "compresent" at a place at the same time. To avoid unnecessary complications let us think in terms of a time slice, as they used to say, which allows us to focus on space—whether in terms of places or spatial relations is not material at this point. Diverse tropes of the same kind are held not to be compresent at the same place at a given time. So in a time slice we cannot have two red tropes in a particular red circle—an object that, for simplicity, we can take to be an after-image. It would of course be redundant to have two red tropes compresent, but why is it not possible? Well, again, that is just the way tropes are. No two tropes that are exactly similar can be compresent. Assume that is necessarily true. Since Maurin makes use of "truth-maker" talk, what makes it true? I am not asking for the evidence, just taking it as an assumption, but just what is assumed—certainly not a general fact involving the relations of exact similarity and compresence—for as we will see there is no relation of exact similarity—just the predicate. In any case we have something else packed into the nature of a trope, for we deal with a necessary truth about the tropes—based on their nature as tropes. This is also the case with respect

to taking particularity as primitive—for what that really means here is that tropes are not shareable—they cannot belong to more than one ordinary particular object. Universals, by contrast, are shareable. Thus what Maurin does is take Russell's old, and not always explicit, two-fold characterization of a universal (obviously derived from Aristotle) as being what is predicable and predicable of many—and modify it to take a trope to be a particular in the sense of being a predicable, but not being predicable of many—that was the point of Stout's introducing the notion of an "abstract particular." This is also what gives tropes yet another name—"unit attributes" as some now call them.

The final term of the trio of *simple, particular*, and *abstract* that Maurin focuses on is "abstract." Due to the wide influence of Quine, philosophers have tended to lump together "things" like sets, numbers, properties, concepts, propositions, functions and so forth as "abstract" entities. The tendency has been, as in the case of talk of "particulars," to contrast concrete spatio-temporal objects with non-localizable abstract entities. It has been further aided by the familiar tendency, influenced by Carnap and others, to treat predicates, taken in extension, as standing for classes while, taken in "intension," as standing for properties or concepts. But clearly, classes, normally construed, are not predicable and neither are numbers, though on certain logistic constructions numbers have been taken as properties, properties of sets or other properties, for example. Then there is the tradition of taking properties to be separated in thought from the objects that instantiate them—thus one is said to "abstract" or remove them in thought. The idea here often being that what one then does "falsifies" the way things actually are. For properties do not, supposedly, exist apart from the things that they are properties of. Thus the phrase "abstract particular" is employed simply to suggest that tropes are both qualities and particulars—such as the red trope in virtue of which the sphere is red—as opposed to particulars that are not qualities, such as the sphere itself.

Truth-Makers and The Truth-Making Relation

Talk of truth-makers in the English speaking philosophical realm goes back, as far as I know, to Russell's now legendary Logical Atomism lectures, though Russell spoke of what "makes true" and of "making true" and did not use the catchy phrase "truth-maker." However, he used the term "verifier," rather than "truth-maker," in 1912 and 1921, and he used it precisely in the same sense in which many now use "truth-maker"—as that whose existence is the ground for a statement being true, and not, as the word may misleadingly suggest, in an epistemological sense. Much of the current fuss about truth-makers amounts to quibbles that result from trying to fit accounts of truth with familiar trivial features of elementary logic, such as a tautology being a logical consequence of any statement. There is, however, a quite legitimate reason for emphasizing facts as things that "make" sentences true or "ground" their truth. This is to contrast, and emphasize, the difference between offering a theory of truth and dealing with the role of a truth predicate in a calculus in such ways as to avoid the familiar paradoxes—the liar and its cousins being the most notorious. For the focus on language and predicates has led to a revival of Ramsey's teen-age views about truth that are now paraded under the rubric of "deflation." Armed with Tarski's semantic conception of truth, some now "deflate" truth. Deflation has even spread to reference as P. Horwich has picked up a footnote in Tarski's original paper and turned it into a deflational theory of reference. Talk of truth-makers, considered in such a context, is a welcome antidote, for it amounts to taking metaphysics seriously, just as trope theories, unlike Davidson and his mentor Quine, take properties seriously.

Not surprisingly, many of the disputes and supposed problems faced by so-called "truth-maker theory" were taken up briefly by Russell. The serious problems he dealt with have to do with questions about whether atomic facts will suffice as truth grounds or whether one needs to acknowledge logically complex facts—especially negative and universally general facts. Both of the latter go back to Plato—the question about negation quite explicitly, the one about generality less so. In her defense of trope theory, Maurin sets out a number of "theses" concerning truth-making. They center on the notion of entailment. One can see what is

involved by simply considering a line Russell took. Let “p” and “q” be atomic sentences and F and F* the respective, existent atomic facts that ground their truth. “p **&** q” is then also true. Is there then a conjunctive fact? For Russell, the answer is no, since “p **&** q” is a logical consequence of the (set of the) two true atomic statements: p, q entails p **&** q. Whether one chooses to then say that the facts that make “p” true and make “q” true also make “p **&** q” true or not bother to talk of truth-makers in the case of the conjunction is a matter of taste. I think it suffices to note that the reason the conjunction is true is that both conjuncts are true. Talk about facts comes in when one asks about the truths of the atomic sentences and whether the facts that ground their truth suffice to “ground” the truth of other forms of statement—negations, universal generalizations, conjunctions, etc. In the context of such an analysis one might even suggest that to speak of a conjunction being true simply reduces to speaking of the conjuncts being true. But while there is no point in fussing about that, there is a point in fussing about whether the appeal to logical entailment involves recognizing a ground of truth for the logical truths and/or rules themselves—the truths and rules employed in taking the conjunction to be a logical consequence of the pair of atomic components. This is what is odd about papers concerned with the purported truth-maker, say the existent fact F, for a true atomic statement also being the truth-maker for any logical truth, say “ p **v** ¬ p,” since the latter is a logical consequence of the atomic statement. That is plainly silly. What makes the elementary tautology true, if anything does, is a law of logic—a logical form, one can say—that is fittingly and traditionally called the law of excluded middle. Or at least this is an issue that must be addressed, but is not. At best, one can point out that a disjunctive fact, say Fa **v** ¬ Fa, of the form p v ¬ p is not needed. The ontological issue concerns the form itself—or the law—(p)(p **v** ¬ p)—i. e. the ontological ground of logical truths and rules. The rest is pointless. And, as one would expect, we come across empty suggestions for modifying supposed “axioms” about truth makers, such as, for example, “ if x makes p or q true then x makes p true or x makes q true.”

Just think how absurd recent talk of truth makers gets, if you follow the discussions by the individuals Maurin considers. Assume Gödels

completeness and incompleteness theorems are taken as logical truths—assume also that the truths of elementary arithmetic, for simplicity construed as logicists do or, even if not taken as logicists do, are simply taken as logical truths. Would one then seriously say that the existence of the sun is the (or a) truth maker for Gödel's theorems or the truths of elementary arithmetic? What could this possibly mean, aside from the repetition of trivialities about entailment or derivation? Yet there are serious problems regarding truth-making as a relation and its connection to entailment. Such questions arise aside from those about the truth grounds for the truths of logic itself, where there clearly are issues. (As regards the latter, all. one need recall is the influence of M. Dummett's and P. Martin-Lof's writings about inference rules and the meaning of the logical signs.)

First, there is the use of "entailment" as a non-logical relation—for Maurin speaks, as do other figures she deals with, Armstrong for example, about the existence of entities "necessitating" something. Yet it is not logical entailment that is involved. This is clear from a recent paper by Barry Smith where, like Maurin, he conceives of a truth making relation (via *necessitation*) as a real "ontological tie."[6] Whatever he means by that, it is apparently contrasted with a "logical tie"—and he tries to define necessitation in terms of the modal hook of strict implication—which remains unexplicated, as do crucial concepts in Maurin's presentation. Perhaps they can't be explicated—but that becomes an interesting fact about the account and, again, it is always a question of how and why one has to take certain things as basic—as well as a question about just what things one so takes.

A second problem concerns the truth grounds of true negated atomic statements (propositions). She apparently finds a familiar attempt to avoid negative facts plausible and holds, limiting the discussion to atomic facts, that such a negative statement is true "simply in virtue of the fact that there exists no truth maker for the negative proposition's positive counterpart. This takes care of negative propositions." Well it doesn't, in any interesting way. Taken one way all she says is that the negative proposition

[6] B. Smith, "Truthmaker Realism, " *Australasian Journal of Philosophy*, 77, 3, 1999, p. 276.

is true if the positive counterpart is not. True enough, but not enough to resolve the issue. Taken another way what she says is that the negative statement is true "in virtue of the fact"—what fact?—that something does not exist! Put simply, '¬ Fa' is true if nothing makes 'Fa' true. In this simple case what would make 'Fa' true is the fact that a is F. So what seems to be asserted is that no such fact exists. And the obvious question is—Is that a way of talking about negative facts? There is a long story here that has been argued in detail in recent articles, and I will not repeat the argument. The simple point is that there is no way of getting to "¬ Fa" from the presumed generality—that *no* fact is the fact that a is F, without begging the question or at least appealing to certain claims about diversity, and views about the truth grounds for statements of diversity—issues that are reminiscent of Plato's discussion of negation in the *Sophist*. Moreover, one requires the generality involving "no fact" or "every fact is such that it is other than ..., " as well as a way of referring to a non-existent fact (or a detailed account of how to avoid doing so). Contrast the case of negation with that of purported conjunctive facts where we do have "p, q entails p **&** q" as a standard logical pattern. There is nothing corresponding to that in the case of negation.

This brings us to universally general facts. Maurin cites P. Simons on Russell's rather well known argument regarding the need for universally general facts, and assumes with Simons that Russell's argument is based on a mistaken assumption. As far as I can see, what Simons says is totally irrelevant to the issue. I will put matters closer to Simons' way of putting it as he speaks of facts making propositions true, as does Russell, and does not speak here of truth-makers, as does Maurin. I see absolutely no reason to take Russell to say, to put it in the general terms about propositions—as Simons does—that a number of facts that make a certain collection of propositions true cannot together make a further proposition true unless that proposition follows from the conjunction of the members of the collection of propositions. Russell is talking solely about atomic facts, atomic propositions and a true general proposition. What he assumes, to take a specific and relevant case in Simons' terms, is the following. If the facts Fa and Fb make "Fa" and "Fb" true then Fa and Fb make "(x)Fx" true only if "(x)Fx" follows from "Fa **&** Fb." Now, given that, as assumed, the

atomic facts Fa and Fb are the truth grounds for the atomic sentences “Fa” and “Fb,” the somewhat complex conditional sentence is true if and only if it is false that Fa and Fb make “(x)Fx” true. And that, of course, is what is at issue.

Russell’s view is that they do not make it true, since the generalization does not validly follow from the set of premises {“Fa”, “Fb”}. Simons says that he thinks Russell’s view is wrong, but he gives no reason—he simply endorses Wittgenstein’s purported *Tractarian* view—roughly that having the list—a, b, c, ... gives you “all”—the view Russell was arguing against. Russell is clearly right, for the simple reason, as Simons notes in passing, that “Fa” and “Fb” could both be true and the generality be false—if a and b were not all the individuals. And that of course is Russell’s point—for to say they are *all* is to employ a general proposition. Moreover, it is easy to see that Simons’ “argument” is weak.

Consider the following case. The truth makers are the atomic facts, T1= a is F and T2= c is G. They can be taken to make true the propositions, P1= “Fa or Fb” and P2= “Gc.” Then, if we take Simons literally, Russell is holding that another proposition, Q, is not to be “made true” by the truth makers a being F and c being G unless it logically follows from the conjunction of P1 and P2. Of course this is false. Just take Q to be “Fa.” It does not follow from “P1 **&** P2” but it is made true by T1. What Simons leaves out is the condition on the propositions being atomic, which is really what Russell’s argument is all about—the list of the “objects” or atomic facts does not suffice unless it lists “all” of them—but to *state* that you need a universal proposition (or understanding—i. e. assuming, without making explicit, that they are all, as Campbell takes for granted that certain collections of tropes are “all” of a “kind”.)

Resemblance as a Relation

Maurin seeks to solve two basic problems for trope theory—one of universalization, one of thing-construction. This involves: first, defending some aspects of other accounts of tropes—those of Stout, Williams and Campbell, for example—while criticizing other aspects, mainly of Simons’

version; second, rebutting critics of trope theory, such as Armstrong; and, finally, developing her own views out of her discussions of others.

She starts by characterizing the problem of universalization as the problem of constructing "universality" from tropes. This involves making what she takes to be an important distinction that Campbell has made—between what he and she call the A and the B questions regarding the classic problem of universals. Consider some object, a, that is an F. The A question is—What makes it an F? (What makes it true that a is F?) The B question is—What makes it true that two objects, a and b, are the same F? That way of putting matters is a bit awkward—for it makes matters clearer if one asks what makes them the same in a respect or what makes them both Fs. In any case, she tells us the classic problem of universals is not the problem of universalization. Of course it isn't—especially if you don't believe in tropes, or even if you do, as Plato apparently did, it was not the problem of how to construct Forms out of tropes—but of accounting for certain tropes being of a common kind—or as she puts it: How can distinct particulars all have what appears to be the same nature? She claims that classical theories of properties, including realism about universals, have assumed that the A and the B questions must receive the same answer, and, what is worse, sometimes assumed that the questions are the same. That is too simple a story, or, perhaps better, it is too contentiously put in the form of making a debating point. The questions go together because one naturally develops arguments for universals by starting with two things of the same kind. Or even starting with two things in a relation and focusing on the difference between a relation and its terms, or, perhaps, starting with predication in language and focusing on the different roles of subject and predicate terms. If one just looks at the history, perhaps from a different perspective than Maurin's, one finds her attempt—which follows a common strategy in philosophical disputes—to show that the realist isn't clear about the difference between different questions—is misguided. For the moment, consider Plato's *Phaedo* where, by a kind of consensus, one takes a fairly clear Platonic theory of Forms to first be set out. There, you already have the distinction, not only of the two questions, but of the difference between a trope (quality instance), an object (something that has a quality) and a universal form (the quality *itself*). For Plato raises

questions concerning the "tallness" *in* or *of* an individual, Theaetetus say, and the "Tallness" itself—which is not in or of an ordinary individual. One often also forgets that the classic problem of individuation erupts in the early phase of the golden age of medieval philosophy with William of Champeaux starting from the common universal nature of Socrates and Plato—humanity say— and asking what makes them different. His answer was that one set of accidents modifying that common nature gave us Socrates and the other gave us Plato. Abelard first enters the history books, so to speak, by supposedly arguing that such a view is absurd—as the same thing would then have both sets of accidents. The point of relevance here is that, as a standard account goes, for William it was supposedly the universal that was the subject of predications, and not what was predicated. William clearly took what makes Socrates human and what makes Plato and Socrates both human to be the same "thing"—but it was not the same thing that made Socrates short and Plato short. If we jump to more modern times, say Frege at the end of the 19th century, it is clear that it is the difference between argument and function (and object and "concept")—subject type entity and predicate type entity if you will—that is crucial. It is not the common feature suggested by predicates—that makes for the difference between objects and concepts. Though more than one thing may fall under the same concept, it was the incomplete nature of the concept (function) that struck him—as well as the failure of mathematicians to recognize the need to acknowledge functions as well as numbers. He was also concerned to solve what has become known as "the Bradley problem"—but then so did Aristotle, and it is there, if only implicitly, in Plato's concern with "participation." But take the classic case—classic because it is the classic argument for universals that Russell lays out in 1911 that is based on, as Russell acknowledges, Moore's 1901 paper.

He starts out with the trope view as his target and proceeds to argue that it will not do—by means of the well known argument about the similarity relation. Of course, to phrase the argument as he does, he starts with a case of two things of the same quality, since, for his argument, one thing will not do (actually he starts with four things, yielding two cases of similarity). But then, assume he is right for the moment, once you have universals—and as he holds via his argument, perhaps all you need is

similarity (whether exact similarity or similarity in a respect, color say, need not detain us) as a universal—what is the point of bothering to consider one thing? Moreover, even if we consider a case of only one thing having a quality—Russell's line of argument would be the following—consider the possible case of having another one or more—i.e. two or more things with a common quality. Philosophical views deal with such matters—and have to—that is why so many arguments depend on "philosophical thought experiments." (Though perhaps it is also because philosophers have no real experiments to conduct.) Thus the charge against the *universalist*, of not distinguishing two simple questions, is hardly compelling—no more so, in fact, than Campbell's suggestion about universals being promiscuous. But that aside, forget the terms "universal" and "particular" and focus on Frege's discussion. It was the difference in the kind of entity that he saw as important and the need to distinguish between objects and concepts—between objects like 2 and 4, on the one hand, and functions like *square of* on the other—that he saw as crucial—and that has nothing, as such, to do with whether one deals with a common or a unique "concept"—square of or being even and prime or being even and prime and greater than 2. For the point is that one needs two kinds of entities. This has an ironic twist that will emerge when Maurin takes up a purported relation of compresence—for her question will be whether she must recognize something of a kind other than that of being a trope. What drives her to that is the need for compresence to link tropes—so one apparently ends with two different kinds of entities—tropes and what links tropes—a connector of some sort. Her problem is then to construe that as a trope. But the issue is there independently of dealing with one or two cases of such "linking"—that was what Frege had focused on over a century ago, and Russell was quite aware of, as was Aristotle in his famous definition of what is universal—it is what is predicable of many. To be sure the mention of "many" is there—but the point of emphasis is on "predicable"—on what is possibly predicated of many, and not on what is in fact had by many or is *truly* predicable of many. (Here "predicable" is not simply taken in terms of "what can be asserted" in a linguistic sense—which leads to the absurdities of taking "is red or square" and "is to the left of Peter" as indicating properties.)

Maurin says that she will make it clear that quite a few of the objections to trope theory stem from a "refusal to accept and acknowledge that the problem of universalization arises as soon as one attempts to answer the B-question, but *not* when one attempts to answer the A-question." (p. 63) In the course of arriving at that statement, it is important to note that the talk about particulars has shifted from talking about an ordinary particular, some red object or other, say, to a particular being a trope. If one thinks about it, given what she has said about the problem of universalization—the problem of how to construct universality from tropes—that problem can only arise for a trope theorist. At this point Maurin will speak of making this shift, after making the claim about the purported confusion of questions—and she does so in order to raise the question about what makes two tropes of the same kind being such that they are of the same kind. The way it is all put is really not quite fair to her opponent. For in claiming that the opponents of tropes confuse the A and B questions, she holds that the A question, which has become— Why is some particular trope a red trope or a wisdom trope?—rather than a question about what it is in virtue of that this ball is red or Socrates is wise—can now be simply answered: it is a red trope, for example, because it is a red trope. That is it. But we must note two things. First, we have simply returned to the themes of the early discussion of tropes being abstract particulars. And the issue is, again, the distinction between a trope and its nature. But, second, it should be obvious why proponents of universals focus on what she, following Campbell's lead, distinguishes as the B question. For one makes the universalist's point about the nature of the trope by considering two things of the same kind. To put it simply—her problem of "universalization"—the construction of the universal or kind from the tropes sets a question begging task, from the universalist's point of view. For one has to have the right kind of tropes to build with. But how do you get the right kind of tropes?—well you just do—they just are what they are and that is that. Sartre, I think, has put the type of view most spectacularly and, given his linguistic skills, most accurately in speaking about acts of consciousness forming a "synthetic unity": they unify

themselves.[7] Tropes are really quite miraculous simple things, aside from being virtuous, as opposed to promiscuous—though if they are continuants they are promiscuous with respect to time. True virtue, I suppose, is to be found solely in the momentary bare particulars of someone like Gustav Bergmann (and possibly of Russell). But Sartre recognizes what trope theorists like Campbell do not—that there is more to the issue of universals. Thus, unlike Stout, who talks of "distributive unities," recalling Plato's discussion of whether a universal can be a "whole," like a piece of cloth, whose pieces or parts are present here and there, Sartre speaks of "transcendent unities." However, his notion of a transcendent unity is no clearer than that of a distributive unity—a notion we will shortly return to in considering Maurin's defense of Stout. Aside from that, the question will remain in terms of just what is a universal on her view—it may be constructed from tropes but is it nothing more than the tropes it is constructed from? In current fashionable parlance: does it supervene? But such talk would be as puzzling as David Lewis' mereological fusions that are nothing more than the parts that are fused. Of course the idea is that there is nothing more since there is no real connection or relation combining the elements—but then what is it that is composed of exactly similar tropes—nothing? But then the universals red and green are the same thing, namely nothing—though they are composed of different elements. Be that as it may, the focusing on the A and B questions being different is misleading. For, if one is serious about the problem of universals, one faces the B question as soon as one answers the A question.

[7] J. P. Sartre, *The Transcendence of the Ego* (New York: 1988), pp. 38-39. Sartre there is discussing individual conscious acts unifying themselves, but the same pattern applies to the color blue, as a transcendent object that is a synthetic unity of things like "the blue of the blotter." Thus he writes: "…to say 'I hate' or 'I love' on the occasion of a particular consciousness of attraction or repugnance is to effect a veritable passage to infinity, rather analogous to that which we effect when we perceive *an* inkstand or *the blue* of the blotter." pp. 63-64. The passage to infinity is to the color blue as the "synthetic unity" of the instances of blue (both actual and possible, as I read him). While he holds that we effect this passage, as he "explains" in a later work, one can "...seize Red through his impression of red. By Red is meant the principle of the series—the electric current through the electrolysis, etc..... in order to be grasped as an appearance-of-that-which-appears, it requires that it be surpassed toward infinity."J. P. Sartre, *Being and Nothingess* (New York: 1956), p. xlvii.

That is why we cannot forget that Russell assumed the tropist's answer to the A question—that qualities were particulars—in order to argue against the tropist's view by then raising the B question.

Maurin carefully discusses Stout's tropist view, in connection with Armstrong's arguments against what he calls "class nominalism," as a form of class nominalism. Though defending Stout in various ways against Armstrong, she concludes Stout's view is not "good enough." (Actually it is not good enough as it stands, as she sees it, for she will in effect end up with a variant of it—by introducing the "pseudo" relation of exact resemblance (similarity) to form the "classes" that will be "necessitated" by the existence of their member tropes.) The reason it is not good enough as it stands, to put it in my terms and not hers, is that classes can be arbitrary objects. Thus we distinguish between classes given in extension, as one says—the class whose members are my shirt and this room—and classes specified by elements satisfying a condition—or, to put it another way, having a certain property. The second way will not do in this context; the first way does not separate classes that can serve as universals, to solve the problem of universalization, from those that can not. Personally, in spite of his use of the term "class" at places, I doubt if Stout's distributive unities are classes in the sense we, including Goodman and Quine, speak of classes and sets. I think what he has in mind is actually not much different than what Maurin has in mind—and she notes that at the very end of the discussion. She also suggests that in one of her responses to Armstrong—by defending Stout along lines that suggest he is what she calls a "primitivist"—i.e. holding that the connection of the elements into a unity is not to be further explained—they just form such a universal. And it is, in fact, the basis for her own view. Except Stout seems to recognize that something more needs to be said, or at least emphasized, than saying that tropes are what they are—and thus attempting, as Maurin will suggest, to speak of exact similarity as a "pseudo-addition" to trope theory. I think Stout has a real addition—but it is hard to specify just what it is. Unlike Maurin, he seems to recognize that you don't get very far by appealing to the nature of tropes—whether you take the tropes to be identified with their natures or not.

An interesting problem arises, suggested by the analogy with classes that is, in a way, the opposite of the problem of the arbitrary nature of some classes—an objection Maurin overlooks. If you have a universal being a distributive unity—whatever you call it—of exactly similar tropes—why is there not also such a unity of any subset of tropes that are exactly similar (whether *exactly similar* is a pseudo-relation or not)? You have to make another stipulation or "axiom" about tropes to avoid that. The alternative is a view that is ontologically promiscuous, at least as regards the problem of universals. For, oddly enough, you then have more universals than you have particular tropes, whenever you have four or more tropes of the same kind. Of course, one can say that just as tropes being what they are suffices to form a universal, and thus solve the problem of universalization, so their being what they are means that only the totality forms such a required unity. (Can one trope form a total unity?)

Maurin proceeds to argue that exact similarity (resemblance) is an internal relation. She reiterates that tropes do not have their natures—they are their natures. Thus, given her understanding of an internal relation, it is essential to exactly similar tropes being what they are—the tropes that they are—that they be exactly similar. And this brings us to its status as a "pseudo-addition" to her ontology of tropes—for that is the one of three alternative ways of taking that relation that she finds the most attractive.

She does however explore the other two alternatives, one of which is to accept a primitive relation of exact similarity, taken in terms of tropes themselves, and argue that Russell's classic argument that appealing to such a relation involves a vicious regress does not hold. This is a well-traveled road. Properly stated, Russell's argument is correct—but I have spelled out why elsewhere.[8] Here I merely note two things. First, even if a vicious regress is not involved, merely a trip to infinity, the same objection arises that Russell raised against Frege's account of sense and reference. To account for the sense of one term, the theory is forced to accept indefinitely many entities. In this case, to avoid a single promiscuous universal, the theory introduces indefinitely or infinitely many tropes

[8] See "Russell's Proof of Universals Reproved," originally in *Philosophical Studies* 37, 1980, reprinted in revised form in H. Hochberg *Russell, Moore and Wittgenstein: The Revival of Realism* (Frankfurt: 2001a).

generated by one simple fact. And one must not be misled by the analogy with the series: p, p is true, p is true is true, etc. In that case one generates, with an appropriate apparatus, infinitely many sentences, just as in p, p **&** p, p **&** (p **&** p), etc. Here we deal with entities, not language.

Second, there are further arguments, which I just mention without supporting them. The relation of exact similarity, being transitive and symmetrical, which it needs to be to be the basis for a similarity circle or "universal," no longer can be naturally characterized as being of those logical kinds. For being taken in terms of tropes, the same exact similarity trope cannot be taken to hold of diverse pairs of tropes. But then the (relational) exact similarity tropes are, paradoxically, not symmetrical and transitive. It would be the similarity circle of relational exact similarity tropes that is transitive and symmetrical, though it, of course, and oddly, does not stand between any terms—its elements do. But then we have another problem. Tropes t and t*, for example, will stand in the exact similarity trope es—in that order, and t* and t will stand in es*, in that order. So now we have to account for the order in such facts, for they are different facts as they have a different constituent, the relational trope, and differ as to order of terms. How a trope theorist does that becomes a curious matter. Moreover, a question arises about the status of the tropes t and t*, as natures, grounding the truth of both relational statements and thus guaranteeing that the relation is symmetrical—and hence grounding the obtaining of the relation with diverse orderings of terms. Their natures get richer and richer it seems, but perhaps not promiscuous. But a real problem arises in specifying the similarity circle of exact similarity relational tropes. For membership in it must be specified in terms of reference to it. It is one similarity circle that cannot be specified by employing exact similarity. A similarity circle would then really be circular. And this, by the way, has nothing to do with whether or not you take exact similarity to be a genuine relation or a "pseudo" entity. That is why this point is not simply a way of rephrasing Russell's argument.

But, in any case, Maurin does not prefer to appeal to relational tropes of exact similarity. Instead she construes the purported relation as a "pseudo-addition." This type of move has appeared under different names in the literature. In earlier days one heard of "distinctions of reason" as

opposed to distinctions in being—in more recent times one hears of formal relations, non-entity relations, internal relations (as some use that notion), supervenient relations, fusions that are nothing more than what they fuse, and ontological "free lunches." The quick response is simple. In rigorous ontology, nothing is free—if it is a "pseudo-entity" then one should either not talk about it or not employ it in one's analysis. Regarding the idea of a formal relation, more can be said. Basically what goes on is, again, that since the tropes t and t* are the truth-makers for the statement that they are exactly similar, given that it is true, nothing further is needed. So while one may make use of exact similarity to characterize similarity circles, one does not thereby really employ a relation of exact similarity.—just exact similarity talk, so to speak. Thus Maurin says "For two tropes to exactly resemble one another it is enough that they exist." (p. 109)

There is, I believe, a formidable argument against her view. She takes it up, but, as I see it, fails to deal with it. The argument is this. Let a basic proposition be one that is either atomic or the negation of an atomic proposition. Then consider tropes t and t* where "t is different from t*" and "t is exactly similar to t*" are both true. Assume you take either "diversity" or "identity" as primitive. Then both propositions are basic propositions. But they are logically independent. Hence they cannot have the same truth makers. Yet, for a trope theory of the type Maurin espouses, they do and must have the same truth makers. Thus the theory fails.

One response Maurin makes is to hold that logically independent sentences may have the same truth makers. She claims the theoretical foundations for this have already been set down earlier in her book. What that amounts to is simply repeating her view of tropes—but that is no answer to the problem. In fact it is demonstrably false on a standard use of "logically." Given basic two propositions having the same truth makers, it is not logically possible for one to be true and the other false. Therefore they are not logically independent.

Maurin also says their is another response to the argument that she will not pursue. They are not logically independent because they are not both atomic. But that is not relevant. The issue is about basic propositions, not just atomic propositions. This is where she is led to consider denying that exact similarity is reflexive. For she holds it might be possible to claim

that a exactly resembles b entails that they are distinct. However, she can't hold this. Given that it is transitive, symmetric and not an empty relation, it is reflexive. (Also, it is worth asking what the sense of "entails" is in such a claim since it is not "implication." The claim would have to express an "axiom" about tropes and exact similarity.) Finally, she adds that it is a verbal question as to whether the sentences are logically independent, suggesting that it is a matter of deciding whether "being logically independent" means "having different truth-makers." That is simply false. The simple argument I gave above is not merely a matter of making a decision about the use of the words. "logically independent"—there is a history and a context that we operate within and which connect "x entails y" to "y is true in any model in which x is true" (or one can speak in terms of possible worlds if one prefers). Maurin's dismissal of objections as due to merely verbal disputes comes out again in the immediately following summary section where she criticizes an argument of Armstrong's against the trope theorist's appeal to exact resemblance. Given that the relation is taken as primitive, Armstrong has argued that the trope theorist requires axioms about that relation and about identity. The realist about universals, construing resemblance in terms of sharing universals, and hence as not primitive, only requires axioms about identity. Maurin responds by stating that "whether or not primitive axioms of identity are preferable to primitive axioms of resemblance is surely a matter of taste." (p. 116) That, as I see it, totally ignores Armstrong's argument. It is not a question of whether one prefers one set of axioms or another. His argument is that both theories require identity, and the axioms about it, but the trope theory requires further axioms employing its further primitive relational predicate. Whatever the merit of his argument, it cannot be dismissed as easily as Maurin dismisses it.

Seeing a major problem that a successful trope theory must deal with to be how to construct or construe ordinary things, a red ball, the moon, etc., in terms of tropes, she begins by discussing the notion of a *thing* in reference to classical figures like Husserl as well as contemporary figures (Campbell, Simons). Before considering what she has to contribute to that issue it is worth noting another, general issue for trope theorists. That concerns the problems posed by relations, taken as tropes. For

relations are absurd candidates for location in space and in time—just consider temporal and spatial relations themselves. A familiar would-be "solution" goes back to the days before, as one now puts it, philosophers understood how to handle relations—think of Aristotle's logic for example or the medieval discussions. Some sought to ground talk of relations between things in terms of so-called "fundaments" in things. In effect one takes, or tries to take, dyadic relations, for example, in terms of something like a pair of monadic relational properties—the internal foundation of the relation. Where John kisses Mary or Mary kicks John, you have a kisser and a kissee or a kicker and a kickee—and not relations of "kisses" and "kicks." The apparent relation is said to be founded on such internal foundations—a foundational pair of tropes, so to speak, as the truth makers for relational statements.

To make a point, consider the natural numbers as objects. Then, following the pattern of employing fundaments, in place of relations, 7 and 5 are the truth makers for "7 > 5" while 7, 5 and 12 play that role for "7 +5 = 12." But one can just as easily, given the Dedekind-Peano achievement, take 0, (or any one natural number), to be the foundation or truth-maker for all such truths, the truths of elementary arithmetic, just by taking the familiar postulates to express the nature of 0. In short, given the existence of 0, we have the "foundation" for the existence of 5 and 7 and 12. So, we can say that the nature of 0 is such that all of the truths of elementary arithmetic are made true by the existence of 0. Such a view is totally hopeless, but it is worth noting that something like that view was what was behind Bradley's talk about the paradoxes that beset relations, including, or especially, exemplification. For, as he saw it, everything would somehow be internal to everything else, as everything was "related" to everything else, by diversity if nothing more—and thus we were on the road to the ONE in the form of THE ABSOLUTE.

Maurin adopts a version of such a view to dismiss the problems relations pose for trope theory (as do others and as Armstrong did for "internal" relations, and as we will shortly see, lately suggests doing for all relations). But she finds, even in her own terms, that she must provide some further discussion when it comes to the compresence of tropes to form a thing—a relation to hold the constituent tropes together to form the

thing. Before turning to that relation, it is worth noting that serial order, such as time involves, depends on relations of certain logical kinds. Such logical characteristics of relations (transitivity, symmetry, etc.) must then be packed into fundaments, as there are supposedly no relations to provide the order for a series or the grounds for relational truths. Instead, there are supposedly places that objects are at and times that events occur at. Thus one speaks in terms of objects being *at places* and events taking place *at times*. But then, aside from other problems posed by recognizing *places* and *times*, one introduces the relations of *being at* and *occurring at*. Moreover, if you try to specify such situations in terms of places and moments, questions about relations arise that are similar to those about the numbers. We will return to these questions shortly.

Space and time aside, Maurin's compresence relation cannot be construed in terms of fundaments internal to the thing, but must be taken as external to the entities it relates, if constituent tropes are not taken to necessarily go together, given that they exist. Furthermore, such a relation must be taken in terms of tropes—as qualities are. Compresence differs from other tropes, however, in being recognized by Maurin as a relation-trope. We are then told that as a relation-trope it differs from other tropes in that, given that it exists, it must relate exactly the tropes that it does in fact relate. It is "specifically dependent" on them. It is thus, as those in a somewhat Husserlian tradition speak, *dependent*—where the dependency is "one way" or "one sided." It is also, supposedly, external to the tropes, in that they can exist without being in that relation, but they are "internal" to it in that it cannot exist without relating the tropes it relates. Its doing so is "its nature."

Maurin discusses the Bradley regress at considerable length. Recognizing a relational trope, she feels obliged to show that the regress doesn't apply to her view. I do not think her analysis or attempt to show that she avoids it succeeds, but that is a well worn trail and I will only note that what she does is adopt a familiar pattern that she cites R. Grossmann as defending. It is the basic pattern Frege took to resolve the problem. (I assume it is clear that Frege was not merely concerned with how the constituents of a "thought" or proposition are united, but with the threat of a regress if one introduces a relational connection among such

constituents.) That is the point of his concepts being incomplete. It is a pattern Russell adopted for relations, and sometimes for properties. And it is the Russellian variant that she and Grossmann advocate. Relations don't need to be related to what they relate. The pattern also appears in Johnson and later in Strawson, Bergmann and others—taking the predicative tie (not using "predicative" in a linguistic sense, but in an ontological one) to be special, i. e. not a relation but a tie, for what makes it special is that ties do not require further ties, while relations require ties. Russell didn't bother with the additional step, he simply stopped the regress with the exemplification relation—and Frege didn't even bother with the step from monadic concepts to relational concepts that Russell sometimes took. What they all do is simply proclaim there is no Bradley problem. In Maurin's version, it is a "brute fact about relations" that no further additional connection is needed. (p. 165) But that is not an answer to Bradley. It is an interesting historical note that Quine, some time ago, took an alternative line that others have recently repeated, holding that the resulting Bradley regress is no problem—you just have an abundance of additional, but harmless, relational predications.[9]

In contrasting compresence with exact resemblance Maurin notes that the relation, in the case of exact resemblance, "follows necessarily"—since what the related tropes are "is intimately connected to the relation in which they stand." (p. 165) I find this odd, for if I have understood her, there is no such relation, and hence no relational tropes of exact similarity, so what are the related tropes intimately connected to—besides each other—and what does the talk of being "connected" really amount to here? Be that as it may, she proceeds to tell us that though the connection is not as apparent in the case of the compresence relation (relational tropes), something along similar lines can be argued. Compresence is a relation, but, as for any other trope, being what it is exhausts its being—it is its nature, recall.

But other questions arise about her recognition of different kinds of tropes by introducing compresence tropes as different kinds of tropes that unify ordinary tropes into complexes. One question is the one raised earlier

[9] In a letter to C. Hartshorne written between 1952 and 1960.

in connection with Stout. Given that you have a compresence trope tying a variety of tropes, do you also have a subset of those unified tropes also unified by another compresence trope of a smaller adicity? Whatever you say, unless you stipulate that all complexes of tropes are of the same adicity, you will have compresence tropes of different adicities. Do they all form a similarity circle? Or do only those of the same adicity do so? Or are trope relations what Quine called "multi-grade"? A notion that itself is problematic, but has recently been given new attention in the revival by F. MacBride of Ramsey's celebrated attack on the distinction between particulars and universals.[10] In any case, given that diverse compresence tropes will be internally dependent on the different ordinary tropes that they combine—by their very nature—doesn't that mean that they are essentially different in that respect? Hence, how can they be exactly similar? Recall red tropes don't need to combine with the tropes they combine with. So why are compresence tropes tropes? Or do we ignore such differences?

There are further obvious questions that bring us back to problems I touched on earlier. How does a trope theorist deal with time and space in terms of tropes? Take it at its simplest—with places in space and moments of time. Two obvious problems arise (and variants of them will arise whatever your treatment of space and time is). How can one treat moments and places (say points in space) as tropes? Even with such points and moments one does not avoid spatial and temporal relations, as Maurin seems to think you do. Recall the point about the natural numbers. You require relations like > to serially order them. To simply say "7>5" is made true by 7 and 5—by their "natures"—without recourse to the relation > is simply to reiterate the old theme that internal relations are not relations and to pack true relational statements into the "meaning" of the signs for the terms. As noted earlier, one can, on that pattern, pack all of elementary arithmetic into 0. And the crucial points remain—to have a serial order you need relations of a certain logical kind—while, as we also noted earlier,

[10] F. MacBride, "Whence the Particular-Universal Distinction?" *Grazer Philosophische Studien,* 2004, 67. See also H. Hochberg, "Russell and Ramsey on Distinguishing Between Universals and Particulars," *Grazer Philosophische Studien,* 2004, 67.

one faces the issues raised by the relational "being at" and "occupying. " Aside from other problems, if you try to construe things occurring prior to others in terms of their occurring at moments—then, as with the numbers, are not the moments temporally ordered by temporal relations? Or is it the, or in the, nature of a moment to be related to all the other moments—prior to and after it? Moreover, even if you do maintain that moments and places "found" the relations by their natures—are not their natures then sufficiently different so that the tropes being identical with the natures, become tropes of different kinds, and hence not "exactly" similar? So how can we have a similarity circle of moments or one of places—without separating diverse aspects of such moments and places—and thus acknowledging they are complex? Tropes will clearly not do to resolve the problems of predication and, in particular, relational predication. But, if tropes will not do and if "bare substrata" are problematic, how then are we to construe particulars, predication and, in particular, relational predication on a view recognizing universal properties and relations?

Particulars as Relational Facts and the Purported Necessity of Predication

Traditionally particulars serve, via the connection of exemplification, to unite with several properties and thereby form the core of unity of an object, say a red square. The ordinary object is construed in terms of a basic particular exemplifying the color and shape properties—red and square. Such a basic particular, as in Descartes' well known example of the wax provides for the basis of "identity" or persistence through change of properties over time. In addition such a type of entity purportedly resolves the problem of individuation, since it is presumed that two objects can have all non-relational properties in common and therefore cannot be construed as *collections* or *complexes* of properties. (One also presumes, or argues, that relations cannot serve to resolve problems regarding individuation.) Trivially, basic particulars are not needed as a basis for the unity of an ordinary object, **o**—the red square. One can take **o** to be a relational fact—a fact involving all of its "elements" in a basic relation—compresence, say, following Russell's terminology—and described as

follows: the relational fact with R and S and ....as the terms of the fact and CO (compresence) as the attribute (relation in this case) of the fact.

(1) **o** = (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** .....).

One can trivially add that if there is a problem of individuation and it requires a "pure individuator"—or "thisness" of Scotus—such an entity can be added as an additional term of the fact—the fact that the object is taken to be. Giving "bare" or "thin" particulars such a role in such a way graphically shows how trivial they are, along with the problem of individuation. One simply adds a clause "T(ß, p)," with "ß" as a sign for such an "individuator," stating that ß is a term of p.

Standard predications, such as the statement that the object **o** is red can now, in a sense, be said to be necessary, since the property red can be said to be a constituent of **o**. What that means, if carefully expressed, is that:

(2) E ! (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p)) **iff**
R((ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p)))

is a logical truth. That is, it follows from "the fact" that **o** exists that it is red, given (1). That (1) expresses the analysis of the object **o** as a fact with certain terms is, of course, also part of the story. In a crucial sense, however, what is stated is clearly not necessary—for standard predications have, in a way, been "replaced" by existential claims like "E ! (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p))." And those are in no sense "necessary" or logical truths.[11] Actually what this reflects is a feature of "bundle" ontologies, whereby it is, in an imprecise sense, taken to be necessary that the bundle composed of R, S, etc. contains R. [One may also say that the truth ground for a statement of class membership is not a relation between

[11] H. Hochberg, *The Positivist and The Ontologist: Bergmann, Carnap and Logical Realism* (Amsterdam: 2001b), pp. 128-32.

an element and a class, but the class itself. That involves a particular ontological analysis of what a class "is."][12]

Such an analysis of particulars and their connection to properties allows one to dissolve the notorious Bradley-problem. For, suppose one raises that problem by suggesting, for example, that employing (1) and (2) forces the acknowledgment of an additional fact, the fact that R is a term of the fact (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p))—i. e. the fact that grounds the truth of "T(R, (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p)))." The regress is blocked by noting that such a statement, by Russell's theory of definite descriptions, simply reduces to the claim that the fact (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p)) exists—the fact that is the truth ground for "R**o**, " i. e. for "E ! (ιp) (A(CO, p) **&** T(R, p) **&** T(S, p) **&** T(ß, p)). " No further fact is forced upon one, and the same holds for "CO" and "A. " This is one major point behind the present analysis of atomic facts and the specification of the truth grounds for atomic sentences.[13]

Armstrong has recently resurrected what appears to be a variant of the "bundle" analysis of particulars. He takes the particular objects to be "partially identical" with the properties they instantiate—but not, as in a bundle view, reducible to them, since "the factor of particularity is not analyzed away as it is in bundle theories." Moreover, properties are "partially identical" with the particulars they "run through"[14] since partial identity is symmetrical. In virtue of this partial identity, he holds all predications to be necessary. For, if a case of exemplification that holds did not hold, the particular and the property would not be the respective particular and property that they are. This will purportedly allow one to avoid the familiar Bradley-type problems associated with a purported relation or nexus or connection of *exemplification*. In the familiar fashion

[12] On classes sufficing as the ontological ground for true statements of class membership, without recourse to a membership relation, see H. Hochberg, "Facts and Classes as Complexes and as Truth Makers," *The Monist*, 77, 2, 1994; "From Carnap's Vienna to Meinong's Graz: Gustav Bergmann's Ontological Odyssey, "*Grazer Philosophische Studien*, Summer/Fall, 48, 1995; 2001b, pp. 256 ff.

[13] For the details see H. Hochberg, 2001a, pp. 83-84 and 2001b, pp. 123-132.

[14] D. M. Armstrong "Particulars Have Their Properties of Necessity," in P. F. Strawson & A. Chakrabarti (ed.) *Universals, Concepts, and Qualities* (to appear—page numbers are to the manuscript text).

that has become a crutch for trope theories, the idea is that "internal" relations—involving necessary predications—are not "there." The terms of the relation suffice as "truth-makers" for the relational statements. But Armstrong's variant of the pattern involves him in the use of metaphorical use of key phrases, like "runs through" and "partial identity," to obtain the necessity he seeks. In that sense, his new analysis is unclear and, in a way *ad hoc*, as he simply postulates that, in unexplicated senses, the properties are "constituents" of the particulars that "instantiate" them, and thus partially identical with them—as the one is a part of the other. Then, by the symmetry, of the quite mysterious and unclear notion of "partial identity," the universal is partially identical with, but does not contain as a constituent (or perhaps it does?), the particular that instantiates it. Thus he purportedly arrives at the necessity of predication that some take to be characteristic of a bundle view, while supposedly avoiding adopting a bundle view of properties (as Stout may be said to have such a view with "general" properties being composed of tropes—as particular "instances") or particulars (as Russell once held to such a bundle view and as the view sketched above, taking particulars as facts of compresence, is a kind of bundle view in Russell's style). Clearly, if we take (1) above to contain a description of a particular then we could hardly hold that a property, say R, was such that it was composed of **o**, along with other particulars that instantiate it. Suppose we think in terms of a relational fact that parallels (2) for the attribute R—all the particulars that instantiate R being the terms of a co-instantiation relation, in place of compresence in (2), thus yielding, with "CI" for such a relation:

(3) $R = (\iota p)\,(A(CI, p)\ \mathbf{\&}\ T(\mathbf{o}, p)\ \mathbf{\&}\ T(x, p)\ \mathbf{\&}\ .....)$.

The incoherence of such a view becomes manifest if we replace '**o**' by the description in (1) that employs 'R'. Such a view is not, of course, what Armstrong offers. His view faces a different problem.

The problem with Armstrong's alternative view is easily seen if we follow what he says:

> ...if you accept universals and have particulars instantiating them, then you will have to recognize facts or states of affairs, such as a's being F. A and F form a unity of some sort with a and F as parts. A and F are linked in some special way, they form a fact or state of affairs. But what is this link? Baxter's suggestion that I have embraced is this: what you have here is a partial identity of the particular and the universal. (Armstrong, p. 10)

But, we have to ask, what is this "partial identity"? Consider how he proceeds.

> Consider, first, that a particular in some way embraces its properties: the latter are in some sense parts of the particular, at least if we confine ourselves to non-relational properties. (A term that I find convenient for these special sorts of parts is 'constituents' although I don't think of this bit of terminology as solving any ontological problems.) I think then of the particular as one running through the many properties, a 'one in the many', a uniting factor in virtue of which they are all properties of the same particular. This is not a bundle theory, however. The factor of particularity is not analyzed away as it is in bundle theories. (p. 11)

So what he does is this. As in the case of a bundle theory like Russell's or the pattern of (1) he takes an object like **o** to have its properties as parts ("in some sense"), hence, *and in that sense*, as partially identical. But there is, as with the addition of an individuating element in the case of the view employing (1) above, something else that is involved in the analysis of the object—the "factor of particularity." Then, since partial identity is held to be symmetrical the universal is held to be such that it would not be the universal it is if it were not instantiated by that particular. But the universal is not partially identical with the particular in the sense that the particular is a constituent of it—that would clearly be incoherent in the sense that combining (1) and (3) would be. Yet, he borrows the necessity from a bundle view–as a class would not be the same class if an element were "withdrawn" or "added" to "it." For what is the basis for the claim that a universal would not be the universal it is if it were not instantiated by a particular that in fact instantiates it? There is no basis at all aside from the attribution of "partial identity" that is derived from the universal being a constituent of the particular. The purported "symmetry" of partial identity

covers up a basically incoherent pattern. For there is *no symmetry at all with respect to the one thing being a constituent of the other*. Thus the claim that the universal would not be the same universal simply reduces to a proclamation. Moreover, the analogy with classes that he uses is completely inappropriate. Consider **o** and the class {**o**, **m**}. One can hold that the statement that **o** is an element of {**o**, **m**} is made true by the existence of the class {**o**, **m**}. For, given the element and the class, and hence classes as entities, the class "must" contain the element to be "the class that it is." In short, the element must belong to the class, given that classes are taken to exist, with appropriate conditions for class existence. But properties are not at all like classes—the property R is not taken to be an object of a certain category formed from elements like **o** and a "form" or "operator." Armstrong has simply ensnared himself in web of terms he has woven. He further complicates matters by applying the pattern to relations. All that amounts to, for "external" relations, is a variant of an old theme taking relations as a form of monadic property—something on the order of the set theorist's taking a relation as a class of (ordered or unordered) pairs. What he does is form the mereological sum of **o** and **m**, **o + m**, and take it as the term for a "structural" property—i. e. one that by its "structure" will provide places "in" the relation for the right number of terms. But as a mereological sum does not involve order, he faces the hopeless task of getting the right term in the right place. Hence he is tempted to think that all basic relations might be symmetrical. But even in the unlikely event that that should be true, when we examine what he has in mind as a structural monadic property of a mereological sum, we discover that relations are involved in specifying the purported monadic property—in examples like the monadic structural property of a knife (as a mereological sum of a blade and a handle) "having a blade and a handle standing to each other in this way." (Armstrong, p. 15) Here one clearly plays with forms of expression as one's grammatical manipulations dictate one's ontological conclusions. As for internal relations, Armstrong follows the by now familiar line of the trope theorists and takes the terms to suffice as truth makers for the appropriate statements with relational predicates. This, involves the problems, discussed earlier, that all such views face.

It is interesting that what Armstrong does in a way follows a pattern Bergmann developed in the 1970s and became a significant part of his posthumously published 1992 book. Bergmann, however, designed his version of putting relations and monadic properties "on a par" so that it employs set theoretical style devices rather than mereological ones. That enables him to offer an at least apparent solution to the problem posed by order in relational facts. Bergmann took any two "things," where thing is used in a broad sense to include particulars, properties and relations, to form what he called a *diversity* or *diad*. Thus, a particular, say **p**, and a universal, say **U**, formed a diad—(**p**, **U**)—as did any two particulars. In the case of a relation **S** exemplified by two particulars, **p** and **p***, there were two relevant diads to start from: (**p**, (**p**, **p***)) and (**p***, (**p**, **p***)). Those gave us the ordered pairs, < **p**, **p***> and < **p***, **p**>, respectively. With γ as the exemplification nexus, we then had the states-of-affairs (either actual or potential)—γ (**p**, **U**), γ (**S**, <**p**, **p***>), γ (**S**, <**p***, **p**>)—being, respectively, **p** exemplifying **U**, **p** standing in **S** to **p***, and **p*** standing in **S** to **p**. Thus relations were treated, in a sense, on the order of monadic properties—just as relations and properties, in effect, both become sets in set theory, albeit sets with different "types" of elements.

Taking particulars as facts of compresence, as in (1), one can recognize an additional term/factor that is compresent to "individuate" the ordinary particular. Such a "pure individuator" could be taken either as a special kind of property, or as Bradley's "abominable bare particular" that Bergmann consistently argued for or, as in Bergmann's ontology of his later years, the individuating "item" that even a bare particular "contained"—as did universal properties and relations. What that amounts to is simply an ontological correlate of each simple thing (objects, properties, and relations) being what it is and not another thing. But there is an irony in the recognition of such particulars, an irony that an analysis employing the pattern of (1) clearly brings out.

By now the rational adherents of bare particulars have come to recognize that they cannot claim that when they are presented with (directly acquainted with, directly apprehend) an object, say the red square **o**, they are (are also) presented with the individuating item it purportedly "contains." One argues for there being such an item—dialectically as

Bergmann put it. In so doing one employs principles such as the claim that diverse complex entities cannot share all constituents. Thus, suppose we label such an individuating item in **o** by the sign "**i**." It is clear that we think of **i** as the individuating item in **o**—while **o** is the object we are presented with. So what we really do is offer a description of **i** by referring to **o**, which itself is now described in terms of containing **i**. Thus in addition to seeing the utter triviality of the introduction of *entities* like **i**—as pure individuators whose task is to individuate—we see an odd feature of such purported entities. They are identified in terms of what they supposedly individuate. This is not a real paradox of identification, since we are presented with **o**, without having to know its "analysis," as Moore might once have put it. We don't identify **o** by means of **i**. Nevertheless, it is odd and there is nothing corresponding to that in the case of taking the property R to be a universal, rather than a trope, or offering an "analysis" of R. But there is a final point worth noting about this.

As he finally acknowledged in his 1967 book *Realism* that his arguments for bare particulars required a principle or premise that two complex entities could not share all constituents,[15] Bergmann eventually came to recognize that all his bare particulars shared a common logical property—they were such particulars, as tropes are all of a common kind, being tropes or instantiating "tropiness," as one might say. He was thus led to hold that bare particulars were composites of an individuating *item* and a *nature*, which he called an "ultimate sort."[16] Simple universals were also held to be composites, in that sense, of an item and a sort. He declared that the obvious regress of entities stopped there. We need not consider his pattern further here. One might, however, take **i** to be just such an individuating item and not his "bare particular." For **i** is not the basis for either uniting the properties of **o**, as a common substratum, nor even the

[15] G. Bergmann, *Realism: A Critique of Brentano and Meinong* (Madison: 1967), p. 22. On the pesent view facts have term etc., but they are not reducible to them.
[16] G. Bergmann, *New Foundations of Ontology* (Madison: 1992), pp. 56-58.

sort of thing that exemplifies them. It would simply play the role of individuating one ordinary object from another—a mere "marker" as it were or "factor of particularity." That is why the problem of individuation or particularity becomes trivialized. It does not become that trivial on Armstrong's view—for, recall, **o** is not reduced to a bundle of properties for him since it retains its "factor of particularity." His "factor of particularity" thus uses the notion of *particularity* in a two-fold way: it grounds the "fact" that **o** is a particular and the individuation of **o** as diverse from other particulars. Thus he has particulars as well as "factors of particularity"—though his particulars, like **o**, are suggestive of a bundle comprising universals along with a "factor," like **i**. On the view presented here, employing (1), particulars like **o** explicitly become facts or states of affairs—only "individuators" like **i**, if needed, remain *basic particulars*—i. e. basic entities that are neither facts nor universals.

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PREDICATION THEORY: CLASSICAL VS MODERN

Abstract

This essay aims, first, at describing the conflict between the theory of predication (classical, Aristotelian) prevailing in philosophy until the end of the 19th century, and the theory arisen with the new logic (modern, Fregean). Three features characterize the pre- Fregean period: 1) conflation of predication and subordination (extensionally: membership and class-inclusion), 2) conflation of identity and predication, 3) the view of quantificational phrases (e.g. "some men") as denoting phrases. A possible fourth feature is suggested by the consideration of the so-called Locke's "general triangle". Most of the paper is devoted to the first feature, also called the "principal" one, stated by Aristotle. Frege seems to be the first, in 1884, to reject the first feature; he also rejected, not less vehemently, the second and the third features. Fregean predication theory became standard, and just taken for granted in the subsequent developments of logic as well as in the mainstream of philosophy. The second aim of this paper is to evaluate— relative to the notion of predication submitted in section 1 — the conflict between the two traditions, and to determine if both are somehow right, or one is right and the other wrong. The main result is that the Fregean revolution in predication theory is, at least with regard to the first and second features of the classical view, a clarification that would probably be welcomed by the classical authors themselves (*pace* Hintikka's "logic of being").[1]

[1] Part of the material included in this essay was presented as a "Bradley Medieval Lecture", Boston College, 1996, and in seminars at the Universidad Nacional de La Plata, Argentina, 1998, and Universidad Católica de Chile, 2003. I am grateful to the participants in those meetings, as well as to L. Cates, N. Cocchiarella, A. d'Ors, E. García Belsunce, J. Gracia, H. Hochberg, A. Martinich, and T. Seung, for very helpful remarks.

1. What is predication?[2]

In a first, rather external approach, the phenomenon of predication can be described as follows. There is a user of language who produces an oral or written linguistic expression — the predicate— in order to *declare* (just as in going through customs: Aristotle says that a predicate *δηλοί*, declares a thing, 1949, 2b, 31) a feature or even the nature of the object. Two items are required: the predicate and the object. Normally, however, the object is not present and must be referred to by a singular term, which becomes the third item. In this preliminary approach predication appears as a relation between a linguistic expression, the predicate, and the object in question. This is predication in the external, *linguistic* sense, described by Quine: "Predication joins a general term and a singular term to form a sentence that is true or false according as the general term is true or false of the object, if any , to which the singular term refers" (1960, p. 96). It is quickly seen, however, that such a linguistic analysis of predication falls short of highlighting what is really important. In a customs declaration what matters is not the attaching or "joining" (Quine) the label (predicate) to the object, but the *meaning* of the label. The linguistic predicate means something, namely a property of the object, and this property is what one really says, or predicates of the object— the property, a non-linguistic entity, is the predicate in the relevant sense. This is the *ontological* sense of "predication". (My distinction seems to correspond to that between "linguistic" and "metaphysic" predication in Bogen, *Introduction*, in Bogen 1985). It is in the ontological sense that one may say, with Cocchiarella, that "predication has been a central, if not the central, issue in philosophy since at least the time of Plato and Aristotle" (1989 p. 253).

2. The first (principal) feature of classical predication theory

The following Aristotelian passage is paradigmatic for classical predication theory[3]:

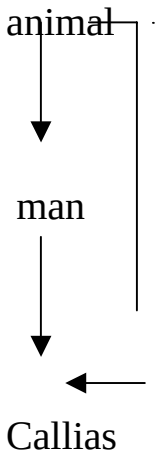
> Of all the things which exist some are such that they cannot be predicated of

[2] The approach of this paper is philosophical and historical; a recent, increasing interest in predication from the standpoint of linguistics is shown, for example, in Blight 1997.

[3] All texts are given in English translation. When the reference is made to a non-English source, the translation is mine.

> anything else truly and universally, e.g. Cleon and Callias, i.e. the individual and sensible, but other things may be predicated of them (for each of these is both man and animal); and some things are themselves predicated of others, but nothing prior is predicated of them; and some are predicated of others, and yet others of them, e.g. man of Callias and animal of man. It is clear then that some things are naturally not stated of anything: for as a rule each sensible thing is such that it cannot be predicated of anything, save incidentally : for we sometimes say that that white object is Socrates, or that that which approaches is Callias. We shall explain in another place that there is an upward limit also to the process of predicating : for the present we must assume this. Of these ultimate predicates it is not possible to demonstrate another predicate, save as a matter of opinion, but these may be predicated of other things. Neither can individuals be predicated of other things, though other things can be predicated of them. Whatever lies between these limits can be spoken of in both ways: they may be stated of others, and others stated of them. And as a rule arguments and inquiries are concerned with these things. (1971, *Analytica Priora* I, 27.)

In two waves, the passage offers an inventory "of all the things which exist". All entities are divided into universals (animal, man) and individuals (Callias), and are, moreover, ordered by the relation of predication. Universals are predicates, individuals are not. All universals, except the "ultimate" ones, "may be stated of others, and others stated of them". Consider for example the universal man, which is predicated of Callias. What are the "others stated of" man? What can be said of the universal man? A modern reader would expect that, for example, the universal "universal" is predicated of man— not so. Instead, Aristotle thinks of "animal" as something predicated of the universal man. Since "animal" is also predicated of Callias, the following diagram results:



On the basis of this example, the first or principal feature of classical predication theory can be generally described as follows. Consider the universals P, Q, and suppose all Qs are P. Then P is predicated of Q (just as P is predicated of each individual that is Q).

3 The principal feature systematized and strenghtened— but with a rival

There are endless texts showing that the "principal feature" of classical predication theory dominates logical thought till Frege's 1884 revolution. Two marvellous examples are from Porphyry's *Isagoge* and from Aquinas' commentary on *De Interpretatione*:

> 1) *Porphyry*: Having discussed all that were proposed, I mean, genus, species, difference, property, accident, we must declare what things are common, and what peculiar to them. Now it is common to them all to be predicated, as we have said, of many things, but genus (is predicated) of the species and individuals under it, and difference in like manner; but species, of the individuals under it; and property, both of the species, of which it is the property, and of the individuals under that species; again, accident (is predicated) both of species, and individuals. For animal is predicated of horse and ox, being species, also of this particular horse and ox, which are individuals, but irrational is predicated of horse and ox, and of particulars. Species, however, as man, is predicated of particulars alone, but property both of the species, of which it is the property, and of the individuals under that species; as risibility both of man, and of particular men, but blackness of the species of crows, and of particulars, being an inseparable accident; and to be moved of man and horse, being a separable accident. Notwithstanding, it is pre-eminently (predicated) of individuals, but secondarily of those things which comprehend individuals. (*The Introduction of Porphyry*, ch. 6, in Aristotle 1853, p. 624).

> 2) *Aquinas*: It should be observed that something is said of a universal in four ways. [...] Sometimes we attribute to the universal [...] somethint that pertains only to the operation of the intellect, as when we say "man is predicable of many", or that it is "universal", or that it is "species". The intellect in fact forms these notions and attributes them to the intellected nature insofar as it compares the nature with the things that exist outside the mind. Sometimes something is attributed to the universal considered, again, as apprehended by the intellect as one, still what is attributed to it does not pertain to the act of the intellect but to the being that the apprehended nature has in the things outside the soul, such as for instance when we say that "man is the worthiest of creatures". For this belongs to the human nature also insofar as it is in the singulars. Each man indeed is worthier than all the irrational creatures; but all singular men are not

> one man outside the soul, but only in the intellect; and in this way the predicate is attributed to the universal as to one thing. In another way something is attributed to the universal, insofar as it is in the singulars, and this is done in two ways. Sometimes by reason of the universal nature itself, such as for example when something that belongs to its essence or that follows its essential principles is attributed to it; as when we say "man is animal", "man is risible". Sometimes something is attributed to the universal by reason of the singular in which the universal nature is found, such as for example when something is attributed to it that belongs to the action of the individual, as when we say "man walks". (Aquinas 1955, *In Perihermeneias Lectio X*, n. 126).

Texts such as these strongly *systematize* the principal feature of classical predication. There is no doubt: a predicate or universal P is said of any predicate or universal Q such that all objects that are Q are P. In the words of a later philosopher: "the genus may be affirmed of every species, and both genus and species of every individual to which it extends." (Reid 1843 V, 1,7). The extreme case in which P = Q must be regarded as included: "a proposition is identical (*identica*) if its extremes are the same words...such as man is man" (Gasconius 1576 f. 12).

Aquinas distinguishes four types of statements about a universal. A predicate P can be said of a predicate Q, not only when (1) all Qs are P (principal feature) but also (2) when an individual Q has a property P even if not all Qs are P, as well as in two more cases exemplified by: (3) P = worthiest of all creatures, Q = man, and (4) P = one of the following: "predicable of many", "universal", "species" and Q = man.

The Aristotelian ontological ("of all the things which exist") inventory offered in the text quoted in section (2) presents only predicates of predicates of type (1). Now three more varieties of predicates of predicates emerge. These new (relative to the quoted Aristotle's passage) varieties cannot be simply "added" to the Aristotelian inventory; for one thing, only in type (1) predication appears to be a transitive relation. Even iconographically, if one imagines the Aristotelian inventory, typically, with the more universal predicates above the less universal ones, and the individuals at the bottom, *à la* Porphyrian tree, it seems hard to find an appropriate place for the predicates of predicates of types (3) and (4). Once "animal" is a predicate of the predicate man, put in a position higher than the latter, *where* should the predicates "worthiest of all creatures", "universal" be placed? For type (2) there is no problem; the Aristotelian ontological inventory exhibits only the category of substance, so that

predicates like "walks" can be accomodated in parallel Porphyrian trees, for the accidental categories.

However, the number of the varieties of predicates of predicates displayed in Aquinas' text can be reduced. With regard to type (3), "being the worthiest of all creatures" may be dissolved into (3a) a statement about any individual man relative to any non- man, or can be viewed as (3b) a property of the property man, like "universal"; (3a) involves no longer predicates of predicates but predicates of individuals, and (3b) can be seen as of type (4). With regard to type (2), predicates of predicates like "walks" are surely well established (in Trendelenburg's paraphrasis of *Categoriae*: "In the same sense, in which the predicate "proficient in languages" is said of the individual man, it can also be said of man in general", 1846 p. 59). At the same time, however, what these predicates say about a universal is construed, at best, in the spirit of Aquinas' quoted text, as what happens to the universal insofar as instantiated in one or other individual; thus, only "secondarily" those predicates can be said of the universal (cf. Porphyry's text). Aside from this charitable treatment, predicates of type (2) are clearly to be viewed as a mere *façon de parler*. Only the predicates of predicates of type (4) appear as irreducible; they express what one really wants to say about a universal (e.g. that it is a universal).

The reduction from four to two varieties does not make, however, the task of "enlarging" the Aristotelian inventory any easier. In type (4) predication is not transitive, in type (1) it is. Beyond this formal discrepancy there is a profound conceptual difference, obviously, between predicating "animal" of the universal man and predicating "universal" of the universal man. Short of taking the radical course of revising the very notion of predication, pre-Fregean authors must be content with acknowledging that *praedicari de praedicato contingit dupliciter* ("to be predicated of a predicate is twofold", Cajetan 1934, p. 117-8).

Henceforth, the phrases "predicate of predicate" and "higher predicate", possibly with "property" instead of "predicate", will be used equivalently. Predicates of predicates of type (4) will be occasionally referred to as the "new" higher predicates.

4. Two groups of pre- Fregean logicians with regard to the new higher predicates

Not everybody among the pre- Fregean logicians has been interested in the new higher predicates; the latter are not, after all, the predicates with which "as a rule arguments and inquiries are concerned" (cf. the end of Aristotle's text quoted in section 2). The most distinguished member of the uninterested group is Aristotle himself; the interested group includes several ancient Greek commentators and above all the scholastics.

For the uninterested group it is not urgent to take a deeper look at the nature of predication and at the issue of whether it is transitive or not. Aristotle states the transitivity of predication in his *Categoriae*: "for all we affirm of the predicate will also be affirmed of the subject" (1949, 5, 3b, 5). To be fair, in the first "antepredicamental rule" the transitivity is stated *with a qualification*: "When you predicate this thing or that of another thing *as of a subject* the predicates of the predicate will also hold good of the subject" (1949, l, l1b, 10, emphasis mine). There is some ambiguity in this rule. Consider the chain: X is predicated of Y, Y is predicated of W. In order to infer that X is predicated of W should "X is predicated of Y" be as of a subject, or rather "Y is predicated of W", or both? Examples and ancient commentators suggest that "X is predicated of Y" should be as of a subject. Next, the question arises of what is the nature of the restriction. Again, from examples and ancient commentators, the phrase limits the application of the rule of transitivity to "essential" predicates (cf. Philoponus 1887, p. 39). Thus, from : X is predicated of Y, Y is predicated of W, it is correct to infer that X is predicated of W only if X is "essentially" predicated of Y. This fits well with the example "animal-man-Callias": "animal" is essentially predicated of man, so that with "man is said of Callias" one may infer "animal is predicated of Callias". Anyway, the restriction is hardly necessary for Aristotle and the pure Aristotelians, who are not too interested in predications like "man is universal". This explains a number of minor textual, editorial, or translational oversights found in the literature, in connection with the first antepredicamental rule and the restriction it contains. Here are some of them: a) Waitz in his *Commentarius* briefly presents the rule as follows, as if the restriction did not exist: "if B is predicated of C, and A of B, A is predicated of C" (Aristotle 1844, vl. 1, p. 277). b) Also C.F. Owen omits the qualification in his *Analysis of Aristotle's Organon*: "Whatever is said of the predicate may

be said of the subject of which it is predicated", Aristotle 1853, p. 635; the qualification is found only in the translation. c) The qualification "as of a subject", omitted in the Oxford translation of *Categoriae* (Aristotle 1971), was inserted only recently, in the"revised Oxford translation", Aristotle 1991. d) The Loeb edition- translation of the *Categories*, in the *Summary of the principal themes* (Aristotle 1967, p. 9), describes the content of chapter 3 as follows: "Predicates of the predicate are predicable also of the subject". e) Ackrill, in his translation, preserves the restrictive clause but in his commentary he forgets it: "Aristotle affirms here the transitivity of the 'said of' relation" (Aristotle 1963, p. 76).

Authors interested in the new higher predicates, contrary to Aristotle himself and the pure Aristotelian commentators or translators, cannot afford being unclear about transitivity. On the other hand, insofar as they continue to take for granted the principal feature, all they can do is impose restrictions on transitivity when predication has to do with the new higher predicates, to which end all they have at hand, in Aristotle's writings, is the little restriction inserted in the first antepredicamental rule. This means that a predicate like "universal" will have to be regarded as "non- essential" relative to, for example, man— an odd view indeed.

5 The pre- Fregean response to the new higher predicates

The above quoted Cajetan's phrase: "to be predicated of a predicate is twofold" may appear, in itself, as a jewel in the history of predication theory, but the way in which it was understood is disappointing. The pre-Fregean authors skipped the debate on the notion of predication, which is what the conflict between old and new higher predicates required, and transferred the ambiguity to the *content* of the predicates involved.

Consider "universal is predicated of man" and "animal is predicated of man". For the scholastic Aristotelians it is not the term predication but the word man that is ambiguous: in the first case it signifies *man-in-the-mind*, in the second case it denotes *man-in-itself*. In the sentence "walking is predicated of man" the word man refers to *man-in-the-individual*. These are the three ways in which essences (natures, properties, predicates, universals...) can be considered: as existing in the mind, as existing in the individuals, as in themselves. Such is the scholastic doctrine of the threefold consideration of essences, visible in the Aquinas text quoted in

section 3. The doctrine (neglected by historians of medieval logic) provides three channels through which the three competing kinds of "predicates of predicates" flow separately without colliding (cf. my 1991).

Now, what is exactly man- in- itself? Universals are traditionally conceived as sets of other universals; e.g. man = {animal, rational}. Each component is called in Latin a *nota* of the universal, in German a *Merkmal*, my preferred English translation being *mark*. Man -in- itself is exactly man with all its marks *but without anything else*, i.e. without any of the properties that man has insofar as it is intellected (universal, etc.) and without any of the properties that man has insofar as it is in the individuals (white, walking, asleep). It does not take much to realize that the strategy of considering a universal "in-itself" is an abstraction that has one purpose: to get rid of —"to abstract from"—any predicate of the predicate man for which transitivity does not hold, i.e. to retain only the higher predicates of type (1).

The *pax Aristotelica* seems to be preserved: the three competing crowds of predicates of a predicate Q are disciplined into the appropriate channels. The user of language is just required to know, for each candidate P to be said of Q, whether Q is to be taken as in the mind, or as in itself, or as in the individuals. If, for example, P = universal, then one knows that P is predicated of Q-in-the-mind, neither of Q-in-itself nor of Q-in-the-individuals. And one knows that for such a P predication is not transitive, and no further problems seem to arise.

6. The pre-Fregean response is both inadequate and ineffective

There is, to be sure, a philosophical cost to this peace. Let us ask ourselves how the higher predicates of type (4) can have originated, relative to Aristotle's text quoted in section (2) as a starting point. This text offers an ontological inventory with two main sorts of entities: individuals (Callias) and universals (man, animal). The latter are *predicated of* the former. Even if the principal feature makes us view most predicates as said of other predicates (animal of man), it is common to all the predicates in the given inventory that they are said *of individuals*. It is only natural, at this point, that a reader takes distance from, *reflects* on the landscape offered by the Aristotelian text, and starts thinking of statements that can be made *about the predicates of individuals*: they are "universal", "predicable of

many", "genus", "species", etc. Higher predicates of type (4) can have emerged only thus in the history of logic. Now, the intention of those who discovered the new predicates could not have been to attribute them to new, strange entities called, for example, "man-in-the-mind", but *to the same* old predicates, for example "man" which are, in Aristotle's fundamental text, predicated of the individual Callias. The pre-Fregean doctrine fails to be adequate to this original intention, or insight, concerning higher predicates of type (4).

Aside from the criterion of conceptual adequacy, one may judge the pre-Fregean doctrine in practical terms: does it really succeed in keeping the higher predicates for which predication is transitive away from those where predication is not transitive? The two following remarks suggest that the answer is rather negative.

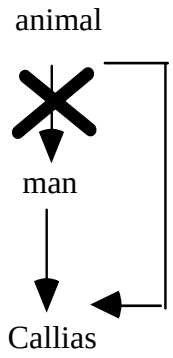
1) Even in making statements about the nature-in-the-mind, Aristotelian - scholastic authors hesitate, and feel that, in order to make absolutely clear that the predicate ascribed to the nature-in-the-mind *does not become a mark* of that nature, special caution and explicit warnings are needed. Whenever a predicate P emerges as a predicate of a predicate, Aristotelian authors instinctively tend to think of it as a *mark* of the predicate. If it is *not* a mark, then they feel that this must be explicitly stated, just to avoid misunderstandings. Thus a sort of preliminary ritual becomes customary, normally consisting of a *negative* statement saying that the predicate we ascribe to another predicate is *not* a mark (*nota*, etc.) of the latter, or equivalently: not a part or component of its essence. In Gilson's commentary on Duns Scotus the following intriguing statement is found: "even if one takes it [the nature] such as it exists in the mind, it does not possess immediately and per se the universality" (1952, p. 450). The neo-scholastic Tonquedec says "The essence *man* is affirmable of many individuals", which sounds, to our modern ears, as innocently true, but not to the neo-scholastic author's ears. He feels that it is necessary to warn the reader that the property of being affirmable of many individuals "belongs only to it [the essence], not to the individuals in which it is realized. One affirms of the individuals the essence, not the affirmability" (1929, p. 163 fn.). Such a behavior is understandable in someone who takes for granted the transitivity of predication: "All that is said of the attribute will be asserted of the subject" (1929, p. 546).

2) One may construe the pre-Fregean plan of focussing on the nature-in-itself as an attempt to abstract, in talking about a predicate Q, from any predicate P (possibly true of Q) such that P is not true of every individual Q. One will just say "man is animal", "man is rational", but will "hide" (abstract from) other true statements ("man is universal", "man walks"). The problem with abstraction is that it generates *abstracta*, and philosophers cannot refrain from talking *about* them (not of course *while* doing the abstraction, but at some other time). Here the abstractum is the universal-in-itself, man-in- itself. Now, philosophers quickly start thinking of many properties that the universal-in-itself has: "to be a nature in itself", "to be distinguished from the nature- in- the- mind and from the nature- in- the- singulars", etc. The advent of these new predications reiterates the problem that Aristotelian logicians faced when they first encountered "universal", "species", and the like. Should one now say that, for example, "to be man- in- itself" applies not to man-in-itself but to... "man-in-itself-in-the-mind", thereby expanding the doctrine of the threefold consideration of essences into an endless multiplication of considerations of essences? In fact, a further distinction among the predicates true of a nature absolutely considered has been actually introduced in the history of scholasticism: (i) the marks of the nature, (ii) all the others: "to be a nature in itself", "to be common", etc. The danger of such a "fourth" way of considering essences is allegedly removed by claiming that group (ii) "coincides" (Suárez: "coincidit") with the predicates true of the nature as existing in the mind (Suárez 1965. VI, III, 6; for earlier references to the "fourth status", cf. also De Wulf 1895, p 207). Such a "coincidence", however, may lead to the destruction of the original distinction between nature-in-itself and nature-in-the-mind. It is also said that one can make certain statements about the nature-in-itself, such as that it is "common" only "negatively", not "positively" — a strange distinction indeed (John of St. Thomas 1930, I, p. 315; Pesch 1888, II, n. 719, p. 209).

7 Frege's rejection of the principal feature.

Frege, outside the Aristotelian magnetic field, took the bold course of rejecting the principal feature. This was accomplished in Frege 1884 § 53: "By properties which are predicated of a concept I naturally do not mean the marks which make up the concept. The latter are properties of the things which fall under the concept, not of the concept.". The concepts

animal, rational are marks of the concept *man*, they are properties of Callias, they are predicated of Callias, not of *man*. In the diagram illustrating the classical predication theory one predication arrow has to be removed:



While in Frege's momentous text the adverb "naturally" is amusing and should be deleted (until 1884 it was "natural" to say that marks of a concept were properties predicated of the concept), another adverb should be inserted: "The latter are properties of the things which fall under the concept, not *necessarily* of the concept ". In fact, a mark of a concept *may* be a property of the concept: *being predicated* is a mark of the concept *genus* as well as a property of it.

Frege seems to be really the first in rejecting the principal feature. In this connection it is important to observe that it is not enough that a distinction between the predications "man is universal" and "man is animal" be acknowledged. While the terms "Merkmal" and "Eigenschaft" were much used in the 19th century and earlier, it seems, however, that nobody said, before Frege, that marks of a concept are not properties said or predicated of the concept. The contrary is found: Mauthner (one of the few proper names in Wittgenstein's *Tractatus*) writes: "each mark of a concept may be predicated of it" (1923, III, p. 360).

The relation from man to animal was called, by Frege, *subordination* (*Unterordnung*). The converse of predication is called by Frege *subsumption* (*Subsumption*) or *falling under*. Frege tends to avoid the terminology "predication", "predicate" precisely because of its having been so much misused, but he would keep it, provided it is corrected: "One should either get rid of "subject-predicate" in logic, or one should restrict these words to the relation of the falling of an object under a concept (subsumption). The relation of subordination of one concept under another

is so different from it that it is not admissible to speak here too of subject and predicate." (1976, p. 103).

As a corollary of Frege's revolution, the phrases "higher predicate" and "predicate of predicate" lose the ambiguity Cajetan claimed for them. From "universal" and "animal" only the former is a predicate of a predicate, a higher predicate or a higher property. If needed, one may speak of the *genuine* meaning as opposed to the old, *spurious* sense.

8 Evaluation of the conflict with regard to the principal feature

Relative to the notion of predication submitted in section (1), it is clear that, for example, "animal" cannot be truly predicated of the universal man, since the latter is not an animal, or does not have the property of being an animal. Thus, simply enough, it follows that Frege is right: the principal feature has to be rejected (*pace* recent critics, such as Sommers).

Against this conclusion three sorts of objections can be considered. 1) "Predication" in the classical theory does not mean the notion presented in section (1) but something else. (2) Frege's rejection of the principal feature is both an anachronistic and a foreign imposition on the classical, essentially metaphysical, philosophical tradition, of ideas stemming from modern mathematics. (3) Frege's rejection of the principal feature is an intrusion of modern symbolic logic into the sacred preserve of natural languages in which pre-Fregean logic was expressed.

The reply to the first objection is that, if a different notion of predication is assumed then, of course, the problem disappears, or is shifted. So, for example, in Mignucci 1996, where "x is predicated of y" is read as "x is a part of the whole y". With regard to the second objection, Frege's removal of the principal feature is not a mathematical surgery "external", or foreign to classical philosophy and metaphysics. In fact, it could not be more "internal" to the latter. In fact, Frege achieves what Cajetan did not accomplish, in spite of his promisingly beautiful statement *praedicari de praedicato contingit dupliciter* ("to be predicated of a predicate is twofold"). When we say both "animal is predicated of man" and "universal is predicated of man", we are not using "man" in different senses (as Cajetan and Aristotelian-scholasticism end up claiming) but we are using "predication" in two different senses, only one of which is genuine.

Whereas Cajetan avoids the real issue —the nature of predication— and shifts the ambiguity from the word "predication" to the content of the predicates, Frege attacks straightforwardly the heart of the problem, and boldly decides that the nature of predication is not compatible with the principal feature. The reply to the third objection will be given in the last section of this essay.

The presence of the principal feature in pre-Fregean philosophy has not been innocuous. Here are two examples of inconveniences stemming from it (cf. also my 1967 4.5). The first concerns self- predication. Because of the principal feature, the "identical" propositions, such as "homo est homo", look like self-predications —they are not: the universal man is surely not a man. On the other hand, subtle philosophers, since Antiquity, have detected the interesting phenomenon of (genuine) self- predication. In the 16th century, Gasconius points out that the predicate universal, among other predicates, is itself a universal, since it is predicated of other items, or in perhaps more appealing words: the property universal has the property of being universal. Such a nice start is ruined, alas, by a qualification: the property of being universal has the property of being universal... "by accident though" *(ex accidenti tamen*, 1576, f. 13). Such a qualification is unnecessary, and only due to the obsessive trend towards keeping properties of a property P "outside" the set of marks making up P. Another example is the notion of extension, popularized by Port Royal (Arnauld 1683, I, ch. 6). If the extension of an idea is "the subjects to which this idea applies", i.e. all that of which the idea is truly predicated, it turns out that, for example, the extension of "animal" is not, as we understand today, the set of all individual animals, but the set of subsets of the set of animals as well.

There are also iconographical oddities, if not conceptual inconveniences, stemming from the principal feature, such as its impact on the spatial representation of individuals and universals. The typical traditional spatial representation puts the individuals at the bottom, and the universals at the top. Within universals, the more universal are placed above the less universal; for example, animal is above man, just as man is above the individuals. The scores of Porphyrian trees produced through the medieval and post-medieval centuries exemplify such a spatial arrangement. (The 18th c. Sulzer considers universals extensionally, i.e. as classes, and divides the latter into classes of first order, second order, etc. Higher order

classes are not, contrary to our expectations, classes of classes in the modern sense but more inclusive classes, cf. my 1974). When the new higher predicates, such as "universal" arrive, there is no room left for them in the ontological building. To add one storey at the top would be confusing. The only solution is to build a new house, side by side with the old one, or to plant a new Porphyrian tree next to the ten or so already existing (one for each category). This became known as the *eleventh category* (a meticulous description of which is found, for example, in the post-medieval Gasconius). The inhabitants of the eleventh category are often called "second intentions", and are globally classified as "mental being", opposed to the "real being" of the other categories. (The "second" in "second intention" wrongly suggests that the hierarchy of higher predicates stops at the second level, with just predicates of predicates of individuals, whereas it actually goes upwards indefinitely.)

Once the merits of Frege's revolution have been acknowledged, a critical historian of logic should be open to the understanding of what went on in the classical predication theory. It is an exaggeration to write (as in my 1967) that the latter is "another" theory, but its peculiarities must be respected. Two of them are the following.

First, it is suggestively intriguing that the principal feature is not an isolated phenomenon affecting only predication: it also occurs in connection with the other fundamental relation of classical ontology: inherence of accidents in substances. As Pacius tells us: "both primary and secondary substances [both this man Callias and his essence man] are subjects of accidents", 1600, cap. 3, n.3. This fact may point to some deeper phenomenon, to which historians of logic should be alert.

Secondly, the formidable notion of essence has surely contributed to the strength of the principal feature. The popular Port Royal logic textbook describes essence, echoing Aristotle's *Metaphysics* Z, 6, in a way that suggests it is identical with the individual: "the essential attribute, which is the thing itself" (Arnauld 1683, I, ch. II), a Latin translation of which sounds even more emphatic: "essentiale attributum, quod ipsissima res est": the essential attribute is the very thing itself (Arnauld 1765). It must be granted that, within such a perspective, the Fregean insistence upon a sharp distinction between concepts (universals, predicates, for example man) and objects (individuals, for example Callias) loses much of its force.

In fact, in the foreground of classical metaphysics (not however in the text from *Analytica Priora* quoted in section 2) it is not the contrast between individuals and universals that is prominent. Rather, the scene is dominated by one single kind of entity (*ousia*, *res*, *Ding*, *chose*, thing, essence, nature) to which it "happens", as it were kaleidoscopically, to be sometimes universal and some other times individual. The nature in itself is "indifferent" to such universal or individual states (here we recognize the threefold doctrine). Against such a background, to discuss whether "animal" is predicated of man or of Callias is rather eccentric. Indeed, it may even appear that "animal" is predicated primarily of man, and secondarily of the individual man. For example, Callias is risible (can laugh) *because* man is risible (Aquinas 1949, 8, 1, resp.; also 1950a, n. 845: "for such accidental predicates are primarily said of the individuals, and secondarily of the universals, whereas the contrary holds for essential predicates"; a similar view in the text quoted above in section 3), and Callias is rational *because* man is rational (Suárez 1965, V, 2, 2). To be sure, nothing therein is enough to justify the principal feature. The essence cannot be really identified with the individual (if it is assumed that more than one individual share the same essence!), and even if the essence is viewed as a source of properties, the latter are in any case properties of the individuals, not of the essence.

Finally, a historiographical comment. The principal feature of classical predication theory has not been paid adequate attention by historians of logic, especially of medieval logic. Generally, under the heading "predication", they refer to other aspects of this notion, for instance, and most frequently, to a distinction between predication understood as inherence and predication understood as identity (cf Pinborg 1972). However, the principal feature is far more central and significant for the history of philosophy as a whole than the much repeated inherence - identity contrast. It is equally regrettable, indeed annoying, that some translators, for the sake of readability in modern languages, prefix indefinite or definite articles to the general terms in question ("homo est animal" becomes "a man is an animal"), the effect of which is to conceal, to the eyes of modern readers, the peculiarities of the principal feature. A readable modern text is surely obtained, but the fact remains hidden that the Aristotelian predication theory officially views, or construes "S is P" as a statement in which P is said of S— sometimes even primarily said of S, and only secondarily of the individuals falling under S. A readable text

can be produced, without distorting the content, by enclosing the article(s) in special brackets.

9 A second feature of the classical theory: conflation of identity and predication

In the history of philosophy, identity has been viewed as somehow the underlying *truth-maker* of predication, or of propositions in general. Aquinas writes: "Predication is something achieved by the intellect in its act of combining and dividing, having for its foundation [*fundamentum*] in reality the unity of those things, one of which is attributed to the other (1948 *Cap. quartum*, p. 29). Also: "In every true affirmative proposition the subject and the predicate must signify somehow the same thing in reality, but given under different aspects" (1950b, I 13 12 c). The view that the identity of subject and predicate is the truth-maker of propositions continues through the history; one finds it in obscure writings, such as an early modern disputation: "the unity or identity of predicate and subject is the cause and the foundation of an affirmative proposition being true and good" (Vogl 1629), as well as at the basis of philosophical peaks, such as Kant's *Critique of Pure Reason* (notion of *Schema*).

Now, the view of identity as truth-maker of true predications should not necessarily lead to a confusion of identity and predication. In fact, Aquinas, as pointed out by Weidemann, "is well aware of the difference between the "is" of predication and the "is" of identity": Aquinas distinguishes between a predication "in the way of an identity" (*per modum identitatis*) and a predication "in the manner in which a universal thing is predicated of a particular one" (*sicut universale de particulari*) which is predication "more properly" (1986, 183).

However, Aquinas' awareness of the distinction is the exception relative to the scores of logic textbooks produced before Frege; even the supposedly Thomist ones tend to conflate the two notions. For example, Fonseca views the sentences "this philosopher is Plato", or "this city near the river Mondego is Coimbra" as predications in which, respectively, "Plato" is predicated of attributes of Plato and "Coimbra" is predicated of attributes of Coimbra (1611, *Lib. Primus, Cap.* XXVI).

Frege states the distinction much more vehemently and prominently than

Aquinas. From the many Fregean texts on this issue a relatively less known one occurs in a letter to Wittgenstein. Frege complains that the first proposition of the *Tractatus*: "Die Welt ist alles, was der Fall ist", is unclear because of the ambiguity of the first "is". Frege explains: "The 'is' is used either as a sheer copula, or as the identity sign in the fuller sense of 'is the same as'" (Frege 1989. letter to Wittgenstein, March 2 1920).

It follows from the above that the conflict between Frege and the previous tradition, with regard to identity and predication, is not total as in the case of the principal feature. There is surely a conflict between Frege and the scores of logic books produced before him, but not between Frege and at least one important author: Aquinas. Frege goes beyond Aquinas simply in requiring that the distinction be not merely conceptual but also expressed notationally. Fonseca's examples should not merely be *thought* as identities but even *rewritten* as identities, for instance:"this philosopher = Plato" instead of "this philosopher is Plato".

Frege's move towards a full, even notational acknowledgment of the distinction seen by Aquinas is, in my view, to be evaluated positively. It is, in the first place, a clarification, to be welcomed as such. Secondly, it should be observed that making individuals into predicates is contrary to the intuition underlying the ontological inventory offered by Aristotle in the passage quoted in section 2. Thirdly, the conflation of identity and predication generates one more kind of "predicates of predicates" to the already confusing varieties listed, for example, in the Aquinas' text quoted in section 3. The presence of this (fifth!) type of predicates of predicates derails the study of the issues pertaining to the validity of the rule of substitutivity of identicals from its proper context into a strange discussion involving pseudo-properties of properties, as is obvious in Aristotle's, as well as traditional discussions of the fallacy of accident. Consider, for instance, the argument: "the man who is approaching is Coriscus, you know Coriscus, hence you know the man who is approaching". From within the confusion of identity and predication the diagnose of what is wrong in the argument is not worded, as it should be, in terms of the failure of the substitutivity of identicals but in terms of a failure of the transitivity of predication (cf. my 1976).

10. Third feature: denoting quantificational phrases

Feature 1 makes "man" subject in indefinite sentences (i.e. sentences without quantifier) such as "man is animal", "man walks", and leads to viewing "men" as the "subject term" in categorical sentences such as "all men are rational", "some men walk". Feature 3 perversely goes further in that it views the *entire* phrases of the form "all P", "some P", or their supposed meanings, as *subjects*: "all men" becomes the subject of "all men are rational", "some men" becomes the subject of "some men are walking". Such a view of predication is, if not classical (a scholastic antecedent might be found in the notion of *individuum vagum*, vague individual), at any rate very much in vogue among algebraic, pre-Fregean logicians such as Boole and Schröder. Boole, for instance, writes: "In the proposition ,"All fixed stars are suns", the term "all fixed stars" would be called the subject, and "suns" the predicate" (1951, p. 59). The expression "all P" denotes, in this vein, the class of objects that are P, whereas "some P" refers to an indefinite subclass thereof. Frege rejects this view, cf. for example 1967. The issue is less dramatic than in the case of the principal feature, or even of the second feature. Nonetheless, Frege's intervention should be welcomed, also here, as a convenient clarification.

11. Locke's triangle: a fourth feature?

Locke writes, in a non-obvious place of the *Essay* (1959, IV, 7, 9):

> For example, does it not require some pains and skill to form the general idea of a triangle, (which is yet none of the most abstract, comprehensive, and difficult) for it must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon; but all and none of these at once. In effect, it is something imperfect, that cannot exist; an idea wherein some parts of several different and inconsistent ideas are put together.

In traditional jargon, and leaving aside the predicates "oblique" and "rectangle", we have in the Lockean triangle a genus (triangle) with three species (equilateral triangle, isosceles [=equicrural] triangle, scalenon triangle) each of which results by adding a differentia (equilateral, isosceles, scalenon) to the genus. There is a *negative* and a *positive sequence* of statements about the triangle: 1) the triangle is equilateral, the triangle is isosceles, the triangle is scalenon; 2) the triangle is not equilateral, the triangle is not isosceles, the triangle is not scalenon. In the

positive sequence, each of the differentiae is affirmed, *predicated* of the genus, only to be denied of it in the negative sequence.

The negative sequence is not surprising, and should not be troublesome. The triangle, insofar as general and abstract, cannot be scalenon, isosceles or equilateral, and there is no problem in this, *pace* Locke: abstract entities are precisely that: abstract, truncated , imperfect entities. The negative sequence can be disturbing only for those who continue to presuppose the classical predication theory and its principal feature, including the extreme case of pseudo-self-predications (cf. sections 3 and 8), which in this case would include "*triangulum est triangulum*". If the triangle is (a?) triangle, and every triangle is either scalenon or isosceles or equilateral, then the triangle is either scalenon or isosceles or equilateral, which contradicts the negative sequence.

The really interesting puzzle is created by the positive sequence. It offers, in a way, the converse of the principal feature. By the latter, the universal "triangle" is predicated of any of its species, say of "isosceles (triangle)". Now Locke claims that "isosceles" is predicated of triangle. While Aristotle says that "animal" is predicated of man, Locke's famous text adds the converse: "man", or at any rate the differentia "rational", is predicated of animal. Needless to add, the positive sequence is the source of inconsistency, not only by combining it with the negative sequence but also by some simple reasoning: if the triangle is isosceles, and no isosceles is scalenon, then the triangle is not scalenon, whereas in the positive sequence we have that it is.

Is Locke's assertion that the species are said of the genus just the result of a hasty, sloppy writing, or does it reflect something serious, either in Locke himself or in the previous philosophical tradition? In Porphyry's *Isagoge* we read:

> *Nor does animal possess all the contradictory differences*, for the same thing at the same time would have contradictory properties, but, as they believe, animal possesses *potentially*, not *actually*, all the differences of the subordinate species. Thus, nothing arises from not-being, nor will contradictories exist at the same time in the same thing (my emphasis, 1887, 11,1)

Porphyry would say that the triangle possesses the contradictory differences, but potentially, not actually as in Locke. In a treatise from the early 17th c the author goes one step further in the direction of the

contradiction:

> It is the case that the genus contains under itself both the species and the differentiae subordinated to it, *at least in potency*, for this appears to belong to the nature of the potential or universal whole, otherwise one cannot understand how [that universal whole] could be predicated of them [the species and differentiae] (Eustachius a Sto. Paulo 1616, p. 37, emphasis mine).

The "at least" (*saltem*) leaves the door open for actuality instead of mere potentiality. In fact, Eustachius walks through the open door and affirms that the differences *are* in act, not just in mere potency, in the genus...although the explicit contradiction is avoided by making an agonizing distinction between "confused" and "distinct" act. Thus, the positive sequence becomes: 1*) the triangle is *in confused act* equilateral, the triangle is *in confused act* isosceles, the triangle is *in confused act* scalenon. To be sure, the full Lockian contradiction is avoided by Eustachius only if the phrase "confused act" has any meaning at all.

This intriguing phenomenon of the fourth feature has a motive obviously in the view that the genus must be somehow the source of the differences (cf. Porphyry's above quoted passage: "nothing arises from non-being"). One may also speculate that the requirement of some identity in order to make a predication true (cf. section 9), in conjunction with the principal feature, generates some sort of identity between a universal and its inferior universals, for example between animal and man (given that the former is predicated of the latter). Of course, identity works both ways, and in addition to "man is animal" the converse "animal is man" quickly emerges for consideration.

In conclusion, classical predication theory comes very close to having a fourth feature— in fact, one may say that it is a "potential" fourth feature (actual in Locke probably because of careless writing, and short of actual in Eustachius just because of a smart phrase). Many authors, from Berkeley to Husserl and Beth, because of their unawareness of the historical roots of Locke's general triangle, have taken the latter too seriously, and contributed to its undeserved fame.

12 The return (not of classical philosophy but) of classical predication theory

In recent decades a revolt has developed against the distinctions made by the modern theory of predication, as pioneered by Frege, and one may speak somehow of a return of the three (hopefully not four) features of classical predication theory. Prominent in the rebellion has been J. Hintikka, who blames Frege for "corrupting" the logical mind of the 20th century (1984, p. 28). Hintikka, focussing on the "being" side of the coin rather than on the "predication" side, attacks Frege's claim that "is" is ambiguous (predication, subordination of concepts, existence, identity, assertion), and develops a "logic of being", which is a campaign with two fronts: a theoretical one (ordinary language fares well without any distinctions in the meaning of "is"), and a historiographical one (Fregean distinctions in the meaning of "is" were not needed by the pre-Fregean philosophers and are not needed for our better understanding of them). I have stated my criticism of Hintikka's "logic of being" in my 2003. The "logic of being" reflects the linguistic phenomenalism that replaced, in recent decades, the opposite extreme, namely the "symbolic logic" euphoria of the first part of the last century— from formalism to naturalism. Two errors affect Hintikka's logic of being. Theoretically, it is forgotten that language is not nature, governed by physical laws, but culture, governed by norms; the very expression "natural language" is as preposterous as "natural aircraft carrier". Tools (for instance the verb "to be") can be improved— "sharpened", like a pencil— or discarded if beyond repair. Historiographically the error is to think of pre-Fregean logic as if it was "nature", in contrast with the artificiality of a *Begriffsschrift*; the truth is that both the *Organon* and the *Begriffsschrift* are expressions of culture, both belong in the realm of norms, and both are, if compared with what is natural, equally artificial. Frege's work just furthers (whether rightly or wrongly is another issue) the traditional normative view of language.

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FRED WILSON

Bareness, as in '"Bare" Particulars': Its Ubiquity

Many philosophers have argued that ordinary things are bundles of properties, where these properties are universals, entities able to be properties of more than thing. Consider, for the sake of simplicity, two red spots or images. The red in the one spot is, let us also suppose, the same as the red in the other spot. Thus, the two spots share a common property. This would seem to imply that they are the same entity. But they are two. It is therefore concluded that there must be other entities present, two of them, one in each spot. This accounts for there being two different things.[1] This further entity is a particular, and, since in itself it has no properties, it is said to be, in itself, in its own being, "bare": in so far as it is anything, that is, anything other than itself, it is so by virtue of its being with the properties that, together with it, constitute the ordinary thing. In itself, it never ceases to be bare, but at the same time it never is naked – it always comes clothed, if you wish, by properties.

Now, many philosophers have objected to bare particulars. Russell, for example, once argued that "One is tempted to regard 'This is red' as a subject-predicate proposition, but if one does so, one finds that 'this' becomes a substance, an unknowable something in which predicates inhere ...".[2] How, Russell and others ask, could a good empiricist ever admit into his or her ontology these horrid little things? How could one actually believe that these little things populate our world? After all, you can't even see them!

What I wish to argue is that, after all, a bare particular is not such a horrid thing – that particulars are there in things, that they are bare but that such bareness both is to be expected and is innocuous, that such bareness is in fact ubiquitous, and that it not only harmless, but a central feature of the

[1]Cf. E. B. Allaire, *Bare Particulars*, in M. J. Loux, ed., *Universals and Particulars* (Notre Dame, Ill.: University of Notre Dame Press, 1976), pp. 281-290. For discussion of particulars, objecting to them on account of their bareness, see H. Hochberg, *The Positivist and the Ontologist*: *Bergmann, Carnap, and Logical Realism* (Amsterdam, The Netherlands, and Atlanta, GA: Rudopi, 2001), Ch. 2.

[2]Bertrand Russell, *An Inquiry into Meaning and Truth* (London: Allen and Unwin, 1948), p. 97.

world of the empiricist.

I

Begin with ordinary sensible things, red images, for example, and the properties of and relations among these things.

William James was characteristically perceptive on these things. He carefully distinguished the properties of things and the relations among them. With an apt metaphor he likened the world of which we are conscious to the world of a bird's life. "Like a bird's life, it [the world as experienced] seems to be made of an alternation of flights and perchings," where the resting-places are "usually occupied by sensorial imaginations of some sort."[3] The flights are relations, the perchings are properties – relations among and properties of sensible things.

As for the resting-places, James observes that "In the sensations of hearing, touch, sight, and pain, we are accustomed to distinguish from among the other elements the element of voluminousness."[4] He refers to the discussion found in James Ward, who refers to this element as "extensity."[5] James notes that "this element [extensity] [is] discernible in each and every sensation"; and comments that "extensity, being an entirely peculiar kind of feeling indescribable except in terms of itself, and inseparable in actual experience from some sensational quality which it must accompany, can itself receive no other name than that of *sensational element*."[6]

Extensity is, it is clear, a distinguishable part of the things we experience. Each ordinary thing has, as an element within it, its extensity. It is there, upon the extensities, that perchings perch; and it is among these elements that flights take off and come to rest. Let us refer to the extensity of a thing like a red image as its "area." The quality of redness as a property of the thing is a perching upon the area in the thing. And if one red image is to the left of another, then the relation of being to the left of is a flight that takes off from the area of the one thing and comes to rest on the area of the other.

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[3]William James, *Principles of Psychology* 2 volumes (New York: Henry Holt, 1890), vol. 1, p. 243.
[4]Ibid., vol. 1, 134.
[5]"Encyclopedia Britannica", 9th edition, article "Psychology," p. 46, p. 53.
[6]James, *Principles of Psychology*, vol. 2, pp. 135-136.

II

Ontology is not, or ought not to be, at least for the empiricist, all dialectical. As Locke and Hume and Russell and William James argued, it ought to be rooted in ordinary concrete things, the sensible things with which we are acquainted in ordinary experience. But it is often stated, even by those with empiricist leanings, that bare particulars are introduced for dialectical reasons, by way of argument and not because they are presented in experience. Bergmann, who says he accepts the Principle of Acquaintance, once wrote that "I, of course, have convinced myself that I am actually presented with two things [two particulars in two images]. Yet I am loath to rest the case on this conviction, for I am convinced that a very major part of it is dialectical."[7] Just how has he convinced himself? If it is by looking, by virtue of his being aware of them in experience, then 'convince' is surely not correct: one accepts that red exists because it is given in experience, and for the same reason, it would seem, one should accept that (bare) particulars exist because they are given in experience. Being convinced consists of being given an argument that moves one from ignorance to justified belief. Of the obvious one need not be convinced. If you are confronted with one who does not know these entities, one who is not acquainted with them, then, one does not offer an argument but rather, as William James puts it, all I can do is "...say to my friends, Go to certain places and act in certain ways and these objects will probably come."[8] Bergmann's way of putting his point suggests that (bare) particulars are introduced into one's ontology on dialectical grounds rather than the fact of acquaintance. But that is not what is demanded by the empiricist stance.

Consider again our two red concrete objects, the two red images. We have this fact: the red in this image is indistinguishable from the red in that image. In this sense, there are two references to, two definite descriptions for, the same entity, that is, an entity which indistinguishably itself in two things. It is for this reason that we can refer to this property and properties in general as "universals". That the property in the one image is indistinguishable from the property in the other image is what is meant when we speak of them as the same property. That properties in things are in this sense the same accounts for why we apply the same predicate,

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[7]G. Bergmann, "Strawson's Ontology," in his *Logic and Reality* (Madison, Wisc.: University of Wisconsin Press, 1964), pp. 171-192, at p. 185.
[8]James, *Principles*, vol. 1, p. 221.

namely ‘red’, to the two things. Given the traditional usage, this implies that properties are universals. As G. E. Moore once put it (as usual, in his somewhat convoluted way),

> In the case of two sense-data, A and B, both of which appear to me to be red, I often cannot tell that the most specific shade of red which A presents to me is not exactly the same as the most specific shade which B presents to me. I also cannot tell that the most specific shade which A presents to me is not an absolutely specific shade. And I think I can see quite clearly that it is logically possible both that it is an absolutely specific shade, and that it does in fact characterize A and B.[9]

There is no argument to the effect that we need to construe properties as universals in order to account for why we apply the same predicate to different things. To the contrary, we do apply the same predicate to different things, and we do so on the basis of the commonsense fact that the property in the one is the same as the property in the other. It is this commonsense fact that leads us to say that properties are universals. Again, as Moore puts it,

> ... it is quite certain that many characters of concrete things are common characters, and also that many are not. And if ... we use the phrase ‘is a universal’ in a sense which logically implies ‘is a common character’, it follows, of course, that ... we shall have to say that many of the characters of concrete things are universals... [10]

At the same time, the colour property of a green spot is clearly distinguishable from the red which is the property of another spot. The property in this case in the one spot is different from the property in the other spot.

In this sense of ‘different,’ the area upon which the property red perches in the one image is distinguishable from and therefore different from the property red which is perched upon the other image. Moore notes the role of areas in determining the differing of things.

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[9]G. E. Moore, “Are the Characteristics of Particular Things Universal or Particular?” in his *Philosophical Papers* (London: George Allen and Unwin, 1959), pp. 17-29, at p. 24.

[10]Ibid., p. 31.

> ... there are cases in which I can distinguish between two concrete things, A and B (as, for instance, when I distinguish between two different parts of a sheet of white paper), although I cannot perceive that A is *qualitatively unlike* B in any respect whatsoever – either in shape, or size or colour.[11]

As we saw James, following Ward, making the point, every sensible thing comes as a piece as it were of extension; there is an area which defines each thing. Thus, we have *one image - one area*, or *one concrete thing - one area*.

Now, ordinary concrete things, images for example, are individual things, we have *this* image and *that*. A concrete thing, a this or a that, is something complex. It has properties and these properties are *with* each other. An ordinary thing is thus a group of properties that are with one another. But it is *not just* a group of properties that are with one another: there is also the *area* that is in the thing. An ordinary concrete thing is thus a group of properties together with an area; and these entities are with one another forming the thing..

Furthermore, an ordinary thing is not just a thing: as a group of entities that are with each other, the ordinary thing is a *fact*. An ordinary thing is a particular, but it is a particular fact. The qualities in the fact do not make it a particular fact, it is not by virtue of the qualities in that fact that it is distinguished from other facts. For, after all, the qualities in the fact, the properties of the thing, are universals. That which distinguishes the fact from other such facts is the *area* in the fact. *It is the area which is the entity which makes an ordinary thing a particular*. In that sense, the area itself may be called *the particular* which is in the particular fact which is the ordinary thing. Since things are wholes of which areas and properties are parts, and the properties are universal, the only entity that is unique in each concrete thing is the area. *Areas are particulars*, and as such they *individuate concrete things.*[12]

The case is not dialectical. The case is made in terms of that with which we are acquainted. Areas are there and these are the reasons why we take the two concrete things to be different, different particular things. Allaire turns it around: we make two references and therefore the

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[11]*Ibid*., p. 28.

[12]Cf. G. Bergmann, "Synthetic *A Priori*," in his *Logic and Reality*, pp.272-301, at p. 288.

particulars must be there – at least, so he argues. Allaire's way of putting it makes it seem as if the dialectics are central. He asks us to consider two red discs. He then argues that

> To claim that both discs are but collections of literarily the same universals does not account for the *thisness* and *thatness* which are implicitly referred to in speaking of them as *two* collections. That is, the two collections of characters ... are, as presented, numerically different. Clearly, therefore, something other than a character must be presented.[13]

Not: *something other **is** presented* but: *something other **must be** presented*. But for one who accepts a Principle of Acquaintance what counts is what is presented. The dialectics are not there to convince one that one must be presented with certain things, but rather to convince one that entities which are in fact there, entities which are in fact presented to us, provide a solution to the traditional ontological problem of individuation.

They *are* presented, and these entities *do in fact, we subsequently argue*, solve/dissolve the traditional problem. Their role relative to the traditional problems *is* a matter of dialectics: they are presented in our sensible experience of the world, and because they do in fact exist we can appeal to them to solve/dissolve the traditional problems: they are not there because they must be.[14]

But areas, particulars, are never naked: they are always presented as with some quality or other. Here, we clearly have to distinguish an entity from facts involving that entity. In stating a fact about an entity one is saying something about that entity: one is stating what that entity is like, how it is characterized. These facts about the entity are things that can be said.

However, the area really is just an area. We can say things about it;

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[13]See E B. Allaire, "Bare Particulars," p. 288.

[14]H. Hochberg, *The Positivist and the Ontologist*, p. 50, suggests that the identification of the areas in things with particulars is a "desperate" attempt to convince oneself that particulars are presented to one in ordinary experience. Perhaps. Hochberg suggests that the move is wrong-headed, but in fact he does not say why the identification ought not be made. Hochberg does note that Bergmann, having once made the identification (see fn. 12, above), later more or less dropped the point and relied upon dialectics to make the case for bare particulars. But that is not to establish that the earlier identification is wrong. For myself, I, like James (whom Hochberg does not mention) and Bergmann (on occasion), find the identification persuasive.

specifically, we can state what qualities are with it. But in itself it has no characteristics, and nothing can therefore be said about it, that is, said about it as it is in itself. In this sense, *the particular is bare*: it cannot be described, since there is about it, as it is in itself, nothing to describe. In itself, it cannot be described, it can only be named.

If "to say something" is taken to mean "to assert a proposition", then nothing can be said about the areas in things; that is why they are said to be "bare." They are presented to us in our experience of things, and they can be referred to, but there is nothing sayable about them.

To make the point again, however: while areas are bare, in the sense just explained, they do not come to us in experience as unclothed: they are not naked. They all occur as parts of ordinary things, that is, as having qualities and as standing in relations. As James put it,

> In minds able to speak at all there is, it is true, some knowledge about everything. Things can at least be classed, and the times of their appearance told. But in general, the less we analyze a thing, and the fewer of the relations we perceive, the less we know about it ... [15]

Areas always occur as, and are always presented as, parts of facts.

III

The empiricist admits entities into his or her ontology provided that they conform to the *Principle of Acquaintance*: admit no entity unless one is acquainted with it. What we must recognize about the basic entities of the world is that they are in themselves wholly, or logically, or ontologically, self-contained. Acquaintance with them is thus *mere* acquaintance. Acquaintance with a quality or a relation or an area is thus *not knowledge about*. To be sure, we are acquainted with facts, with the bundles that are ordinary things. This provides us with knowledge about the entities in the facts that are thus presented. But mere acquaintance with the basic entities is dumb.

James put the point in his usual telling way:

> I know the color blue when I see it, and the flavor of a pear when I taste it; I know an inch when I move my finger

[15] James, *Principles*, vol. 1, p.221.

> through it; a second of time, when I feel it pass; an effort of attention when I make it; a difference between two things when I notice it; but *about* the inner nature of these facts or what makes them what they are, I can say nothing at all.[16]

But there are philosophers who argue that our experience of sensible things is not in this way dumb. The point can be made in a simple way. It is argued that in order to know what the quality red is we must also know that it is *not* the quality green, and, more strongly, that red's qualifying something is incompatible with green's qualifying that thing. Thus, in knowing *red* one also knows that

(I) (x)[red (x) ~green (x)]

So, on this view, when we know *red* in itself, we also know something about *red*, namely, that being red is incompatible with being green. (I) describes (part of) the being of red, and so is part of the meaning of 'red'.: it is a metaphysical necessity. Acquaintance, then, always is, or involves, knowledge about.

The pattern goes back to Aristotle. His metaphysical scheme is designed to provide a way of explaining sensible events. On his view, an ordinary thing is a *substance*. A substance has qualities present in it. Sensible events are the being in a substance of a sensible quality. Change consists in one quality ceasing to be in a substance followed by the coming to be in that substance of a different, and incompatible sensible quality.

A substance is an individual, and, more particularly, an individual that endures through change. Upon the metaphysics of explanation that Aristotle proposes, every substance, that is, every ordinary object, has a *nature*. This nature is *metaphysically necessary* to the being of the object; it defines what it is in its *essence*. This nature is a *power*, an *active disposition*, that moves the object in certain defined ways.[17]

Thus, for example, it is the nature of a stone to *gravitate*. To be *grave* is an *active power*. In exercising this power, the object *moves itself*.[18] This power is such that if the object is unsupported then it moves towards

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[16]James, *Psychology*, vol. 1, p. 221.

[17]For greater detail, see F. Wilson, *The Logic and Methodology of Science in Early Modern Thought: Seven Studies* (Toronto: University of Toronto Press, 1999), Study One. Also F. Wilson, *The Logic and Methodology of Science and Pseudoscience* (Toronto: Canadian Scholars Press, 2000), Ch. 3.

[18]Note the contrast to our, more recent and scientific, notion of gravity; in the latter there is no notion of *self movement*.

the centre of the universe.

More generally, let "N" be the nature, "F" the occasion of its exercise, and "G" the end of its exercise. Then we have

(D) $(x)[Nx \underline{=} (Fx \quad Gx)]$

We explain the behaviour of an object by appeal to its nature. This nature is *active*: the model is that of human volition. Thus, for Aristotle, all objects are active in the sense in which human beings are active, though some, e.g., human beings or dogs, are more active than others, e.g., stones. To say that they are more active is to say that they have more powers, more complex natures. Since the powers are active, modelled on human activities, they are *powers* the exercise of which is *towards an end*. The pre-scientific explanations of Aristotle and his successors such as Ptolemy are thus *purposive*; every explanation is a *teleological explanation*. In the case of stones, the purpose or end at which the stone's activity is aimed at achieving is being at the centre of the universe.

The activity is as it were constant. But it is not always exercised. The stone is constantly striving to be at the centre of the universe. But sometimes it is *prevented* from moving towards that end. Thus, if I hold the stone up at the top of the tower, I am preventing it from moving towards the centre of the universe. That tendency I feel as the weight of the stone. If the impediment is removed, if the stone becomes unsupported, then the tendency will manifest itself in the properties of the stone, it will in fact change places as it moves itself systematically towards the centre of the universe. In an Aristotelian world the patterns among sensible appearances that derive from the underlying natures of things are not universal: they are gappy.

The nature, that is, the "N" of **(D)**, is not given to us in sense experience. It is rather, Aristotle argued, given to us in a *rational intuition*. For Aristotle, reason is what grasps the reasons for things, and the reasons for things behaving as they do are their natures. Reason, then, for Aristotle, provides us with special insight into the metaphysical structure of the world. This notion of "reason" is very different from that of the empiricists, according to whom reason aims to discover genuine matter of fact regularities, universal and exceptionless patterns of behaviour. Reason, on this empiricist alternative, does not aim at insight into metaphysical structures but is a human instrument that restricts itself to the world of sense experience, endeavouring to discover exceptionless patterns of behaviour of objects.[19]

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[19]Cf. F. Wilson, *The Logic and Methodology of Science in Early Modern Thought:*

In **(D)**, the "F" and "G" are features of the object known in sense experience. Since **(D)** relates the nature N to these features of sense experience, where N is *not* given in sense experience, it follows that **(D)** is not itself an empirical truth, something the truth of which can be discovered in sense experience. We discover its truth not by observation but by reason, that is, the reason that grasps the natures or reasons of things. A statement such as **(D)** which relates a nature to the empirically observable occasion and end of its exercise is *metaphysically necessary*.

As for understanding the natures of things, this is done, according to Aristotle, by giving a *real definition* of the nature. The nature is a *species*, and the species is defined by giving its *genus* and *specific difference*. Thus, in the case of human beings, the nature is "humanity" and the real definition is given by "rational animal", where "animal" is the genus and "rational" is the specific difference. The real definition is exhibited in a *syllogism*:

All M are P
<u>All S are M</u>
All S are P

"S" and "P" are the subject and predicate of the conclusion, and "M" is the middle term that joins them in the premises. When the syllogism exhibits a real definition, "S" is the species, "P" is the genus, and "M" is the specific difference. Thus, the real definition

human is rational animal

is exhibited in the syllogism

All rational are animal
All human are rational
All human are animal

In the case of stones we would have

All centre loving objects are material
All stones are centre loving objects
All stones are material

Syllogism is thus not only a form of argument but also a logical structure that exhibits the metaphysical structure of the world. It reveals the complex structure of the active dispositions or nature of an object. It reveals, in the genus, those dispositions which the nature shares with other objects, and, in the specific difference, it reveals those dispositions which distinguish it from other sorts or species of object. Thus, for Aristotle and his successors,

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Seven Studies, Study One. Also F. Wilson, *Hume's Defence of Causal Inference* (Toronto: University of Toronto Press, 1997).

understanding the natures of things consists in grasping the ways in which they are similar to and differ from other sorts of things. Explanation consists in grasping similarities and differences among things.[20]

That is not, however, the point that here needs to be emphasized. When we know an Aristotelean nature we not only know it as it is in itself but in knowing it as it is itself we have knowledge about it: **(D)** gives the meaning of the term 'N'. Knowledge is always knowledge about: substances are not bare entities.

IV

Aristotle makes the ontological structure of the world a matter of necessity. This was taken further by idealists such as F. H. Bradley.

According to Bradley all knowledge is knowledge about. Like the empiricists, Bradley argues that knowledge is rooted in experience. But, because all knowledge is knowledge about, the role of *feeling* in Bradley's philosophy, specifically that feeling in Bradley's ontology/epistemology, has a very different status and role from that of the feeling=sensation of the empiricists.[21] The latter is indeed "mere" feeling, from Bradley's point of view, and from the empiricist position too: such knowledge of the properties in things is dumb, it involves no knowledge about those things, nothing that can be said. However, that *feeling* which plays a central role in Bradley's philosophy is anything but *mere*.

On Bradley's view, a content is ideal if it falls short of perfect reality. Now, the real is the fully individual or particular; as he puts it, "Nothing in the end is real but the individual...".[22] This doctrine, that in order to be real an entity must be individual or particular, is applied in particular to relations: his account of relations must fulfil the condition of construing them as particulars. "A relation, to be experienced and to be

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[20]It is worth noting that when one ascribes, in the Aristotelian system, a nature or essence to a substance, one is not merely describing it but also making a normative claim about how it *ought to be*. On this scheme the ontological structure of the universe is also a normative structure. See F. Wilson, *The Logic and Methodology of Science in Early Modern Thought: Seven Studies*, Study One. Also F. Wilson, *Socrates, Lucretius, Camus – Two Philosophical Traditions on Death* (Lewiston NY and Queenston ON: Edwin Mellen Press, 2001), Ch. 3, and *passim*.

[21]Compare P. Ferreira, *Bradley and the Structure of Knowledge* (Albany, NY: State University of New York Press, 1999).

[22]F. H. Bradley, "Relations," in his *Collected Essays* (Oxford: Oxford University Press, 1935), pp. 635-6.

actual, must be more than a mere abstraction. It must be an individual or particular fact, and, if less than this, it cannot be taken as itself".[23] Thus, an ideal content that falls short of full reality falls short of individuality or particularity. It is therefore abstract rather than concrete, general rather than singular or individual or particular. Further, the particularity of a thing derives from its relations to other things. The *this* – this physical object, this sensation, this red, this colour – is what it is only because it is *not that*. This thing itself is a particular only to the extent, then, that is an aspect of a larger relational whole. In itself it has less particularity, less reality, than the relational whole of which it is an aspect. The fully real is the relational whole that includes all other things as aspects of its own reality. The judgment that "This is a such" brings together the subject "this" and the predicate "such". This "this" is isolated from other things, but when the "such" is brought over against it and affirmed of it, that is, said to be part of the whole which is the "this", we in fact particularize the thing by bringing it into relations with other things: the "such" carries within itself relations, at least those of similarity and dissimilarity. And, with those relations, the judgment points to other things, other "thats" which are also such "suches".

Bradley's account of judgment is not terribly different from that of the Aristotelian. A judgment of the form S is P can be justified, according to Bradley, by forming an argument or, rather, inference

M is P
S is M
S is P

S implying M, implies P.[24] The middle term M links together the S on the one hand and the P on the other. It as it were fills out the copula in "S is P". The judgment itself refers to a reality that links S and P, but in the judgment taken alone that reality is ignored. In the inference that background context becomes explicit: the conditions that were previously external to the judgment are internalized. The connection between S and P which was external to the judgment is internal to the inference. Where S and P were unconnected, they are now connected: the being of the one becomes implicated with the being of the other. They are now no longer simply external to one another; they are connected in their very being, internally. In this internalization, the ideality of the judgment is decreased.

[23].*Ibid*., pp. 635-6.
[24]Cf. F. H. Bradley, "Terminal Essays: On Judgment," p. 634ff; in his *Principles of Logic*, Second revised edition, vol. II, (London: Oxford University Press, 1922).

At the same time, the contingency of the judgment is decreased. In the judgment the terms are separate, their connection (or, rather, "connection") is contingent. As the inference fills out the judgment the separateness of the terms is decreased, and therefore the contingency. In the inference we begin to grasp the structure that constitutes the necessary ties that link the terms of the judgment into a unified Whole. As ideality is decreased in the inference, so is the contingency; or, conversely, as the inference more closely approaches reality, so does it approach a complete necessity.

In perception we isolate a portion of reality: "Lo! an S".[25] In judgment we locate the perceived S as a P. In such a judgment we separate the P from the S. In inference we proceed to fill in the context in which the S which is a P is located. The result is the location of the S which is P in the larger part of reality constituted by the M which links them. Now, one of the criticisms of the claim that coherence is the criterion of truth is that coherence, like consistency, is as compatible with falsehood as it is with truth. This is so even if one begins with perception, which must be an isolation of part of the total reality. Bradley avoids this problem by insisting that beyond perception there is primitive experience or feeling: in feeling we encounter Reality, or, rather, in feeling Reality is fully present, not present to us, but including us within the whole.

In the mere isolating sensation of the empiricists, we separate parts of this whole. As the empiricists see it, James among them, sensation, feeling, is indeed isolating, but, moreover, the entities known in such acquaintance are what they are, independently of any other entity. For Bradley, in contrast, sensation is indeed isolating, but that is not the end of the story. What is separated is also in itself connected to other entities. Thought moves from sensation through inference, into perception and then into judgment, and in so moving, it moves from the full reality present in feeling to ideality. In inference we gradually move to restore the lost unity. As we fill in the structures in inference, we gradually lessen the separateness of the things that are first given to us in sensation, perception and judgment. And in the ultimate judgment, or, what amounts to the same, the ultimate inference, we discover the whole truth that we previously felt but lost in sensation, perception and judgment. Only, it is not "previously": the feeling is there, with us, all the while. All the while in feeling we encounter the reality that includes us and to which we are in thought striving to return. Thus, "judgement, on our view, transcends and must transcend that immediate unity of feeling upon which it cannot cease to

[25]Cf. F. H. Bradley, "Terminal Essays: The 'This'," *ibid*.

depend."[26]

Reality is thus both the origin of the movement of thought – reality as feeling – and the goal towards which thought moves – reality as self-conscious awareness of the manifold of structures which are implicit within itself. And more: reality is the structure that guides thought as it moves from feeling to the total self-conscious awareness which is its *telos*. We accept the idealizations in judgment not because they are true – for they are not wholly true – but because we have a sense that they can be made true, and, indeed, that they can ultimately be made true. In feeling consciousness already implicitly recognizes its goal, the complete structured unity of which it is a part and which is at once the end and the guide towards that end. If at any point there were a genuine separation of knower from known or of entity from entity, or of this from such, of this from that, then there an ultimate re-union could not be achieved: no re-union without union.

Bradley's argument for this position consists in the claim that it can, where empiricism cannot, account for the soundness of inference. Upon the empiricist account of inference as defended by Locke, Hume, the Mills, and James, what we know is what is given in sensation, and what is given in sensation are entities that are intrinsically separate and isolated, in their being not related to other things. Or rather, insofar as they are related, it is only psychologically. What unity that is there is provided by the mind that judges them; objectively, however, in the entities themselves there are no connections.[27] This is what Russell was later to refer to as the monadistic account of relations.[28] James characterizes it as "sensationalism". These philosophers "deny the reality of relations," and "the upshot of this view" is that what we experience is a world consisting of

> ...sensations and their copies and derivatives, juxtaposed like dominoes in a game, but really separate, everything

[26]F. H. Bradley, *Essays on Truth and Reality* (London: Oxford University Press, 1914), p. 231.

[27]Cf. J. Weinberg, "Relation," in his *Abstraction, Relation and Induction* (Madison, Wisc.: University of Wisconsin Press, 1965); and also F. Wilson, "Burgersdijck, Bradley, Russell, Bergmann: Four Philosophers on the Ontology of Relations," *The Modern Schoolman*, 72 (1995), pp. 283-310. For some criticism of the latter, see H. Hochberg, *The Positivist and the Ontologist: Bergmann, Carnap, and Logical Realism* (Amsterdam, The Netherlands, and Atlanta, GA: Rudopi, 2001), p. 176ff.

[28]Cf. B. Russell, *Principles of Mathematics*, Second Edition (London: Allen and Unwin, 1938), Ch. XXVI.

> else verbal illusion.[29]

Bradley proposes that genuine relations are incompatible with the independence that is a consequence of monadistic view. "...a mode of togetherness such as we can verify in feeling," he tells us, "destroys the independence of our reals."[30] Conversely, if we do make the relata independent or absolute, then we destroy their relatedness: "Relations are unmeaning except within and on the basis of a substantial whole, and related terms, if made absolute, are forthwith destroyed."[31] The point that Bradley makes is that in the absence of any objective connections among entities there is no objective ground for the soundness of inference. Judgments are justified by inferences, and the latter can do their job only if they are grounded in objective necessary connections among things.

Judgments are clearly not themselves primitive feeling. They are not even the feeling that initially, in the growth of knowledge, isolates from the whole sensible parts. Perception unifies these sensible entities into larger wholes, and judgment develops that process further. There is a continuity of thought from primitive feeling, through isolating sensation, through perception, through judgment, to the cognitive end where the Whole is wholly conscious of itself as a unity of diversity.

For our purposes, the point is that Bradleyan judgments, the inferences that trace out necessary connection, are not sensations, or, at least, not just sensations in the empiricist sense. Nor, according to Bradley, are relations given in sensible experience. Bradley is thus among those whom James characterizes as "intellectualists". These philosophers are

> ...unable to give up reality of relations *extra mentem*, but equally unable to point to any distinct substantive feelings in which they were known, have made the same admission [as the sensationalists] that the feelings do not exist. The relations must be known, they say, in something that is no feeling, no mental modification, continuous and consubstantial with the subjective tissue out of which sensations and other substantive states are made. They are known, these relations, by something that lies on an entirely different plane, by an actus purus of thought, Intellect, or Reason, all written with capitals and

[29]James, *Principles*, vol. 1, p. 244.
[30]F. H. Bradley, *Appearance and Reality*, Second Edition (Oxford: Oxford University Press, 1897), p. 125.
[31]Ibid., p. 125.

> considered to mean something unutterably superior to any fact fo sensibility whatever.[32]

James agrees with the intellectualists that the sensationalists are wrong in holding that reality consists of unrelated sensible elements. Besides perchings, there are also flights. James disagrees with the empiricists, the sensationalists, in holding, contrary to the latter, that reality consists of sensible elements which are *related one to another in sensible experience*. These relations are given in our ordinary experience of things, rather than being all of them necessary connections that are known only by acts of thought – Thought – that is a form of knowing higher than, and different from, our ordinary sensible experience of things.

V

Bradley was not the first so to argue that the structure of things is given in non-empirical judgments of necessary connection.. The pattern is Aristotelian. Thus, the 17th century English Aristotelian John Sergeant argued, in his *Method to Science*,[33] that science, understood in empiricist fashion, as based in sensation, cannot achieve a genuine unity, and therefore leaves things unexplained.

> ...Matter of Fact shows evidently, that this Method [that of experiment], alone, and Unassisted by Principles, is utterly Incompetent or Unable to beget Science. For, what one Universal conclusion in Natural Philosophy, (in knowing which kind of Truths Science consists) has been demonstrated by Experiments.
>
> ...it is ... merely Historical, and Narrative of Particular Observations; from which to deduce Universal Conclusions is against plain Logick, and Common Sense (unpaginated, d4).

Genuine science, in contrast, requires the grasp of objective necessities that tie things together into wholes. In order genuinely to understand things, this objective structure must be grasped.

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[32]James, *Principles*, vol. 1, p. 245.
[33]London: W. Redmayne, 1696.

> ...'tis Connexion of Terms which I onlely esteem as Proper to advance Science. Where I find not such Connexion, and the Discourse grounded on Self-evident Principles, or (which is the same) on the metaphysical Verity of the Subject, which engages the Nature of the Thing, I neither expect Science can be gain'd, nor Method to Science Estalbish'd (*ibid*.).

In fact, Sergeant, like Bradley, argues that judgment ultimately refers to a reality implicitly mentioned in the copula. Sergeant argued that "There is but one onely Notion that is perfectly Absolute, viz. that of Existence, and all the rest are in some manner or other, Respective..." (p. 15). We begin with the notion of being or existence and subdivide it according to species and difference, as Porphyry showed. Differences are successively added to genera to create ever more inferior species. The species most inferior to the supreme genus are individual things.

> ... every individual Man is but One Ens or thing; since he descends Lineally from that Common Head by intrinsecal Differences of more or less, which constitute him truly One in that Line; that is, one Ens, or one Thing (p. 32).

At the other end of the scale, the supreme genus is that of being, which admits of no definition in terms of genus and difference.

> ...the Notion of <u>is</u>, or Actual Being, is impossible to admit any Explication... (p. 120).

But if *being* is the supreme genus it is also that which contains within itself as the source the being of all inferiors. If it is the supreme genus it is also the most determinate being, the most "fixed". As the source of all being, of all reality, being is that which links its own determinations into determinate wholes.

> The Notion of <u>is</u> is the Determinate of its own Nature, and so most Fixt of it's self; and, therefore, most proper to fix the Judgment (p. 120).

Being "fixes" judgments by providing the linkage represented by the copula:

> ...the meaning of the word <u>is</u> which is the Copula, is this,

> that those Words are Fundamentally Connected in the same Thing and Identify'd with it Materially; however those Notions themselves be Formally different, provided they be not Incompossible...As when we say *a Stone is Hard* the Truth of that Proposition consists in this, that the Nature of *hard* is found in that Thing or Suppositum call'd a *Stone*, and is in part Identify'd with it; however the Notions of *Stone* and *Hard* be Formally Distinct. Or, (which is the same) it is as much as to say, that that Thing which is Stone is the same thing that is Hard (p. 119).

Thus, "This Proposition *Self-Existence is Self-existence* is, of it self, most Supremely Self-Evident.." (p. 133). This proposition, which is the same as the propositions that "what is is" and "existence is existence", contains within itself all other predications: "...not only the Notion of the Copula, but of the Subject and Predicate too, is Existence" (p. 134). Being, of course, is God Himself. As Sergeant puts it, "...God himself has expressed his own Supreme Essence by this Identical Proposition, *Ego Sum qui Sum*..." (p. 145).

Our primary awareness is an awareness of being: "...the Notion of Existence is imprinted in the Soul before any other in priority of Nature" (p. 15). But this being of which one is aware is the being which constitutes the objective order of things. Thus, the connection between things is on the one hand an act of judgment while, on the other hand, is an objective connection in things.

> There being ... a Real Relation between those Notions which are the Subject and Predicate, the latter being really in the understanding and That which is said of the Former, and the Former that of which 'tis said; and Relation being necessarily compleated and actually such, but the Act of a Comparing Power; it follows, that every Judgment is a Referring or Comparing one of those Notions to the other, and (by means of the Copula) of both of them to the same Stock of Being on which they are engrafted, or the same Ens; where they are Entatatively Connected (or the same Materially) before they are Seen or Judg'd to be so by our understanding (p. 121).

This awareness of being is, of course, much of a piece with the primitive feeling of Bradley's metapyhysics, the primitive feeling which has incorporated within itself Reality.

VI

Locke, in his *Essay concerning Human Understanding*,[34] argued against Sergeant's account of knowledge. The necessary connections that Sergeant supposed to be there are in fact simply not to be seen. It is evident, Locke says, that we no not know the necessary connections required for an Aristotelian understanding of why parts of things cohere (Bk. IV, Ch. iii, sec. 26, p. 526ff). But even if we knew why the parts cohere, we still would not know everything necessary for a grasp of the notion of the thing in Sergeant's sense. For the notion must account for all the causal activities of the substance of which it is the notion, insofar as these activities are not merely occasional. Now, the *regular* activities of external substances include the production of the ideas of the secondary qualities, that is, the production of the simple ideas red, sweet, and so on. For these activities to be knowable scientifically, in Sergeant's Aristotelian sense, regularities revealed by sense about such activities must be demonstrable by syllogisms grounded in notions. But for that to be possible, there must be necessary connections between red, sweet, etc., and the notions or natures of the substances that cause these qualities to appear. These necessary connections must be both ontological, in the entities themselves, and epistemological, giving us, when in the mind, scientific knowledge of those entities. But, Locke argues, we grasp no such connections:

> 'Tis evident that the bulk, figure, and motion of several Bodies about us, produce in us several Sensations, as of Colours, Sounds, Tastes, Smells, Pleasure and Pain, etc. These mechanical Affections of Bodies, having no affinity at all with those *Ideas*, they produce in us, (there being no conceivable connexion between any impulse of any sort of Body, and any perception of a Colour, or Smell, which we find in our Minds) we can have no distinct knowledge of such Operations beyond our Experience; and can reason no otherwise about them, than as effects produced by the appointment of an infinitely Wise Agent, which perfectly surpasses our Comprehensions.... (IV, iii, 28, pp. 558-9; see also IV, vi, 10, pp. 384-5).

Properties are perceived to be just as they are, in themselves; to know them as they are we need not know any of the relations in which they stand to

[34]John Locke, *Essay concerning Human Understanding*, ed. P. H. Nidditch (Oxford: Clarendon Press, 1979).

other entities.

> ... the immediate perception of the agreement or disagreement of identity being founded in the mind's having distinct ideas ... affords us as many self-evident propositions, as we have distinct ideas. Every one that has any knowledge at all, has as the foundation of it, various and distinct ideas: And it is the first act of the mind (without which it can never be capable of any knowledge) to know every one of its ideas by itself, and distinguish it from others. Every one finds in himself, that he knows the ideas he has; that he knows also, when any one is in his understanding, and what it is; and that when more than one are there, he knows them distinctly and unconfusedly one from another (IV, viii, 2).

Locke's appeal to an empiricist's Principle of Acquaintance is clear.[35]

The conclusion that Locke draws is that account of knowledge and of syllogism that Sergeant developed is not sound: we cannot erect the edifice of knowledge on the proposition that "what is, is":

> ... all purely identical propositions.... obviously, and at first blush, appear to contain no instruction in them. For when we affirm the said term of itself, whether it be barely verbal, or whether it contains any clear and real idea, it shows us nothing but what we must certainly know before, whether such a proposition be either made by or proposed to us. Indeed that most general one, "what is, is," may serve sometimes to show a man the absurdity he is guilty of, when by circumlocution, or equivocal terms, he would, in particular instances, deny the same thing of itself; because nobody will so openly bid defiance to common sense, as to affirm visible and direct contradictions in plain words; or if he does, a man is excused if he breaks off any farther discourse with him. But yet, I think, I may say, that neither that received maxim, nor any other identical proposition teaches us any thing: And though in such kind of propositions, this great and magnified maxim, boasted to be the foundation of demonstration, may be and often is made use of to confirm them; yet all it proves amounts to

[35]Cf. F. Wilson, "Acquaintance, Ontology and Knowledge," *The New Scholasticism*, 54 (1970), pp. 1_48; and also "Moore's Refutation of Idealism," in P. Coates and D. Hutto, eds., *Current Issues in Idealism* (Bristol: Thoemmes Press, 1996), pp. 23-58.

> no more than this, that the same word may with great certainty be affirmed of itself, without any doubt of the truth of any such proposition; and let me add also, without any real knowledge (IV, vii, 4).

So much the worse for the sort of reason that Sergeant defends: the world in which we live is simply not one in which there are any of the objective necessities that that account of reason supposes are there.[36]

VII

Russell made the same point against Bradley as Locke made against Sergeant. Bradley's account of relations requires the introduction of a third particular, the Whole, over and above the two entities that stand in relation to each other.[37] This relation is such that the one entity so related cannot be distinguished as itself independently of its necessary connections to other entities – connections which are necessary because they define the very being of the entities related. But Russell argues, with Locke and James, that entities – "thises" and "suches" – can in fact be identified as themselves without reference to the relations in which they stand to other qualities and other things. As Russell puts it:

> To say that two terms which are different if they were not related, is to say something perfectly barren; for if they were different, they would be other, and it would not be the terms in question, but a different pair, that would be unrelated. The notion that a term can be modified arises from neglect to observe the eternal self-identity of all terms and all logical concepts, which alone form the constituents of propositions. What is called modification consists merely in having at one time, but not at another, some specific relation to some specific term; but the term which sometimes has and sometimes has not the relation in question must be unchanged, otherwise it would not be <u>that</u>

[36]Cf. F. Wilson, "The Lockean Revolution in the Theory of Science," in S. Tweyman and G. Moyal, eds., *Early Modern Philosophy: Epistemology, Metaphysics and Politics* (New York: Caravan Press), pp. 65-97

[37]Cf. F. Wilson, "Burgersdijck, Bradley, Russell, Bergmann: Four Philosophers on the Ontology of Relations." See also F. Wilson, "The Ultimate Unifying Principle of Coleridge's Metaphysics of Relations and Our Knowledge of Them," *Ultimate Reality and Meaning*, 21 (1999), pp. 243-61.

> term which has ceased to have the relation.[38]

Note that here Russell is allowing Bradley's point against the monadistic account of relations. On the latter, the predication of one term of a relation would not change if the other relatum ceased to exist.[39] Russell accepts this criticism; he accepts that the monadistic account of relations is mistaken, and that there are, objectively, genuine relational unities. What he is denying is the implication of Bradley's own account of relations that there is something about properties or qualities as presented that requires us when we are identifying them to refer as a matter of necessity to other properties, those to which they are necessarily tied. In order to know the property red it is *not* necessary to know the principle (I) that red differs from and excludes green. Russell is holding that *properties are presented to us as logically self-contained rather than as necessarily tied to one another; he concludes that there are no such necessary connections*. But such connections are required by Bradley's account of relations. The falsity of the latter view follows. Russell's rejection of Bradley's account of relations on the basis of an appeal to Locke's empiricist Principle of Acquaintance is evident.

James makes much the same point as Russell. He argues that

> All the elementary natures of the world, its highest genera, the simple qualities of matter and mind, together with the kinds of relation that subsist between them, must either be not known at all, or known in this dumb way of acquaintance without *knowledge-about*.[40]

The basic entities are what they are independently of their relations to other things: all knowledge about presupposes knowledge by acquaintance.

Michael J. Loux[41] is among those who have objected to the doctrine that there are among the constituents of things, entities whose only role in one's ontology is that of individuating, grounding the particularity of ordinary things. This, he suggests, is what it means to say that these entities

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[38]Russell, *Principles of Mathematics*, p. 448.

[39]Cf. F. Wilson, "Bradley's Impact on Empiricism," in J. Bradley, ed., *Philosophy after F. H. Bradley* (Bristol: Thoemmes Press, 1996), pp. 251-82. Also F. Wilson, "Bradley's Critique of Associationism," *Bradley Studies*, 4 (1998), pp. 5-60.

[40]James, *Principles*, p. 221.

[41]M. J. Loux, "Kinds and the Dilemma of Individuation," *Review of Metaphysics*, 27 (1973-4), pp. 773-784.

are bare. Loux objects to such entities: "in themselves, they have no properties at all, so that they cannot be the object of any kind of cognitive act,"[42] and elsewhere he says that "the notion of a bare particular is epistemologically suspect":

> Since bare particulars ... are essentially unknowable, since they are lacking in all characteristics, they cannot be experienced, nor can they even be conceived.[43]

On this doctrine, an entity can be the object of a cognitive act only if we cognize it through its properties. This is the doctrine of Sergeant, that to know a thing is to know its definition. For Sergeant, this is to know its species, and to know that in turn requires us to know the genus and specific difference. To know its genus and specific difference is to know how it is the same and different from other entities. Bradley argues the same thesis as Sergeant: to know a thing one must know its relations to other things, and in particular the relations of sameness and difference. Locke and Russell and James argue otherwise: when we are presented with a thing we thereby know it as it is, and in particular to know it we do not need to know its relations to other things.

Thus, in order to know we do not need to know its species or its genus or any other property that it might have or to which it might be tied. An entity for which this is true is, as Loux says, *bare*. Locke and Russell and James are thus arguing on the basis of the empiricist's Principle of Acquaintance that all presented entities are bare. In other words, it is not just particulars, individuators, that are bare. So are properties. And so are relations. *For the empiricist, all basic entities are bare: bareness is ubiquitous*.

The same point can be put another way. If, as we have suggested, *to say* something is taken to mean *to assert a proposition*, then with regard to the basic entities of the world, be they particulars in things or the qualities of things or the relations among things, *we cannot say what they are*. Their being, what they are in themselves, cannot be expressed in a proposition. They can only be named, not said. Or, rather, as Locke saw, if it be said, as in, for example, "this is this", the proposition in which it is said is trivial

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[42]Loux, "Kinds," p. 771.

[43]M. J. Loux, "Particulars and their Individuation," in Loux, ed., *Universals and Particulars: Readings in Ontology* (Notre Dame, Indiana: University of Notre Dame Press, 1976), pp. 235-249, at p. 239.

and verbal.[44] Russell could make the same point. So could James. Since the being of the basic entities, what they are in themselves, can only be grasped in perception and not said, it is evident that such entities are *ineffable*. Bradley, too, has ineffable entities, or, rather, *an* ineffable entity. This is Reality as such, the Whole or the Absolute. To say something is to express a judgment, and a judgment S-P is always ideal, partially false, at least insofar as it requires us to separate the subject S and the predicate P. We achieve the truth, the whole truth, when we abolish the distinction between subject and predicate, when we grasp the ultimate unity which, precisely because it is a unity, cannot be said but only felt or experienced. It is the ineffable.

The difference between the ineffable in Locke (or Russell or James) and the ineffable in Bradley is that for Locke (and Russell and James) the ineffable is located in ordinary experience, whereas for Bradley it is located either as it were below ordinary experience, in *mere* feeling, or above ordinary experience, ordinary perception, in Absolute consciousness, the consciousness which the Whole, the Absolute, has of itself.

Furthermore, even though for Locke and Russell and James the basic entities that constitute ordinary things are ineffable, it does not follow that nothing can be said about them. To the contrary. To say that the entities are bare and to say that they are ineffable is to make the same point. But to say that they are bare is not to say that they are presented devoid of properties, and devoid of relations. It is clear from Locke and Russell and James, and from acquaintance itself, that we are always presented with complexes, with facts, and not with solitary entities, entities somehow in total isolation from each other. To the extent that these entities do stand in various relations to other entities, things *can* be *said* about them, namely, such things as that this is next to that or that this has such and such a property. Bradley's ineffable entity, however, stands in relation to nothing: all other entities lose their own being within its enfolding totality, its smothering wholeness. For Bradley, nothing can be said that is wholly true. For Locke and Russell and James, in contrast, there are many things that can be said that are not just true but wholly true. What can be said, and truly said, is that things stand in various relations to each other. It is just that the intrinsic being of these entities, what they are *in themselves*, is not

[44]On this point, which is in effect about the nature or ontological status of logic, see. F. Wilson, *The Logic and Methodology of Science in Early Modern Thought: Seven Studies*, Study Two.

constituted by those relations to other entities.

As we saw, Russell and James allow, with Bradley and against Hume and the Mills, that there are objective relational structures. What they reject is that these objective connections are necessary to the intrinsic being of the entities that they relate. To put it another way, what Russell and James are arguing is that there are connections in the world of the empiricist but these are not *essential*. In this sense, the entities of Locke's world are all separable, though not in fact separate. This is in contrast to the monadistic account of relations on the one hand and Bradley's account on the other. On the former account, things are not only separable but separate. On Bradley's account, things are not only not separate but also not separable: the relations that structure them into unities are necessary, defining the intrinsic being of the entities related. For Russell, however, while entities are indeed structured by relations into unities, the related entities are separable in the sense that the relations are not necessary, not essential to the being of the things related.

It follows that for empiricism, and specifically empiricism as developed by Russell and James, because none of the relations in which things stand are essential, reason cannot consist in the grasp of essential truths. In this respect, then, Russell agrees with Locke and the other empiricists such as James that the soundness of inference does not consist in the grasp of objective necessary connections.

Thus, understanding is no longer the grasping an *entity* that provides an underlying unity to the apparently separable. It is, rather, the recognition of things as falling under certain general patterns, universal and exceptionless but contingent regularities, that hold among the logically and ontologically separable entities of experience.[45] And reason, reason that grasps the reasons of things, is no longer the grasping of an entity that unifies things understood within itself, but is rather the judging that certain universal but contingent patterns obtain among things.

[45]Cf. F. Wilson, "The Rationalist Response to Aristotle in Descartes and Arnauld," in *The Great Arnauld and Some of His Philosophical Contemporaries*, ed. E. Kremer (Toronto: University of Toronto Press), pp. 28-68.

VIII

Having just argued that all basic entities are bare, it needs to be qualified. Bare they may be, but they are not quite naked.

Thus, in experience qualities are qualities and not relations, while relations are relations and not qualities. These are two different forms of being. Those who do not begin clearly with the empiricist Principle of Acquaintance are sometimes inclined to deny this fact. Such a one was Frege. Properties, he argues, are indeed among the objects ("things") in the world.[46] But he also construes predication on the model of functions in mathematics.[47] His basic model for predication is given by mathematical formulae like

(1) $2^2 = 4$

On this model, the sentence

a is red

that is,

(2) red(a)

is not in itself complete. "a is red" is an instance of the function

red (x)

just as

(3) 2^2

is an instance of the function

(4) x^2

This has two difficulties. First, if sentences like (1) are basic, then, as we said, expressions like (2) are not complete, no more than expressions like (3) are complete sentences. Sentences like (1) represent a particular mapping by the function "x^2" of the number 2 onto the number 4. On this model, expressions like (2) are incomplete in the sense of representing a mapping of one thing, a, onto something, without indicating what that something is onto which the object a is mapped. The complete sentence would have a form similar to the form of (1):

red(a) = ...

But what is it that the function "red(x)" maps the thing a onto? Frege

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[46]G. Frege, "On Concept and Object," in his P. Geach and M. Black, trans., *Translations from the Philosophical Writings of Gotlob Frege* (Oxford: Blackwell, 1952), pp. 42-51, at p. 51.

[47]G. Frege, "Function and Concept," in Geach and Black, *Philosophical Writings of Gotlob Frege*, pp. 21-41, at p. 31.

argues that it is the True:[48]

red(a) = T

Or, perhaps, it is the False. The problem here is that the True and the False are two monsters, at least from the empiricist perspective: they are certainly not given in any way in any sensible experience of the world. This is one difficulty of Frege's position.

The other is the fact that a mapping is a *relation*. The function (4), for example, represents a relation that connects the number 2 on the one side to the number 4 on the other side. As a function it is a relation with particular properties. Specifically, it is one-one or bi-unique, and is therefore a definite description, or, rather, expressions such as (3) are definite descriptions. But for all that a function is still a relation. This makes qualities like *red* into relations. In our experience of things, however, we clearly distinguish qualities like *red*, on the one hand, and relations like, for example, *next to* on the other hand. Any language which would perspicuously represent differences in the world would therefore represent relations in one way and qualities in another way: the different objective forms of these entities would be represented by different logical or grammatical forms in language. In this way, if we take Frege to be constructing a perspicuous language – and what else could a *Begriffschrift* be? – then to the extent that he assimilates qualities to relations, ignoring the difference of these things in the world, – to that extent his proposed language fails to be perspicuous – fails, in other words, to be adequate as a *Begriffschrift*.

If our argument is correct, then any (basic) relation is bare, but it always has the property of being a relation. This is a property shared by all relations: it is the highest genus among relations. As the highest genus it is represented in a perspicuous language by the grammatical or logical form of the expressions used to refer to specific relations. For that reason each relation is said to have the *logical form* of being a relation.

Now, the same point applies to areas. Areas, that is, the entities that we have decided are particulars which, since the rule is one area - one image, individuate concrete things. Each area is a particular or individual, and has the property of being an area. In a perspicuous language we customarily represent the presence of a particular in a fact by labelling it with the subject term of the sentence expressing that fact. Names of individuals or particulars share the grammatical or logical form of being subject terms. This is usually represented in a perspicuous language by

[48]Frege, "Function and Concept," p. 28, p. 30, p. 32.

having a common form, e.g., lower case letters from the beginning of the alphabet. This grammatical or logical form of the name of an area represents that the thing so named has the property of being an area.

Since an area is a particular, this grammatical or logical form is said to represent that each particular has the logical from of *particularity*. G. Bergmann is such a one. On the one hand, he specifically identifies areas as particulars – bare particulars.[49] On the other hand, he argues that particulars have the logical form of *particularity*.[50] What we are arguing, then, is that there is nothing particularly mysterious about the notion of particularity: it is simply the property of being an area.

Areas – particulars – are in facts, ordinary things, together with the properties that are with them. These properties come in various genera – red is a colour, B-flat is a tone, etc. They are all, however, to be contrasted to particulars: they can occur in more than one concrete thing. Since each property is a universal, Bergmann refers to the common property that picks them out as *universality*.[51] This is represented in language by making the terms which refer to properties have the grammatical or logical form of occurring in the predicate spot – pictorially, these names of properties are taken from the set, say, F, G, H, ...

There is indeed such a common property. It is not, however, a property parallel to the property of particularity. The latter is an affirmative concept. In contrast, that which all properties have in common is that they are *not particular*. Red is a colour, but what makes it a universal is that fact that it is not a particular, that is, not an area: colour is a positive concept, universality is negative.[52] Bergmann makes particularity and universality as logical forms with much the same status – he misses the point that one is positive and the other negative.

It has also been claimed that universals have the property of being recognizable or re-identifiable and that this property is lacking for particulars. Thus, Allaire has suggested that "individuals [bare particulars] are *merely* numerically different from each other and thus not re-

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[49]G. Bergmann, "Realistic Postscript," in his *Logic and Reality* (Madison, Wisc.: University of Wisconsin Press, 1964), pp. 302-340, at p.288. Compare F. Wilson, "Effability, Ontology and Method," *Philosophy Research Archives*, 9 (1983), pp. 419_470.

[50]G. Bergmann, "Ineffability, Ontology, and Method," in his *Logic and Reality*, pp 45-63.

[51]Bergmann, "Ineffability, Ontology and Method," *passim*. Compare Wilson, "Effability, Ontology and Method."

[52]Cf. F. Wilson, "Effability, Ontology and Method."

identifiable as such."[53] This is supposed to mark a difference in kind between universals and particulars. "The fundamental difference *in kind* between particulars and characters is that the former are bare, the latter are not. That is, particulars cannot be recognized ('re-recognized' would be better perhaps), characters can be. This is brought out that (at least some) characters are re-identifiable without criteria, things [particulars] are not."[54] Allaire speculates that the fact that particulars are not and characters are re-identifiable "explains why they [particulars] have been overlooked so often."[55] Let us leave the latter as it may be, and ask ourselves whether Allaire's way of distinguishing characters, i. e., universals, from (bare) particulars is one that makes sense. Certainly, given that particulars and universals are equally bare, it cannot be a way of distinguishing bare entities from those that are somehow not bare. Yet this way of separating particulars and universals is not without its point. Only, it does not point to an *intrinsic* difference between the two kinds of entities.

The point is that to speak of things being "re-identifiable" is to make a comment more about our cognitive capacities than it is about the nature of the things cognized.

To say that things are re-identifiable is to say that we can recognize

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[53]Allaire, "Bare Particulars," p. 289. Compare Bergmann, "Strawson's Ontology," p. 174.

[54]E. B. Allaire, "Another Look at Bare Particulars," in M. J. Loux, *Universals and Particulars*, pp. 297-303, at p. 301. Allaire is responding to V. C. Chappell, "Particulars Re-clothed," in Loux, *Universals and Particulars*, pp. 290-295. Chappell is commenting on Allaire's "Bare Particulars." Chappell argues that Allaire's case in "Bare Particulars" does not establish on phenomenological grounds that there are bare particulars, but in the end makes the case on dialectical grounds. Allaire's "Another Look" responds.

[55]Allaire, "Bare Particulars," p. 289. Bergmann makes the same point, "Strawson's Ontology," p. 174.

not only difference but also sameness among characters. In contrast, to say that things are not re-identifiable is to say that we can recognize difference but not sameness.

Now, we have agreed that for areas the rule is: one image - one area, or *one concrete thing - one area*. Particulars do not as it were repeat themselves in more than one thing. It follows that what is significant about them for our getting on in the world is that we recognize difference. But since there is no repetition, there is no need for us to recognize sameness. This is not to say that there is no sameness – that, surely, is there – but we have no occasion to notice it. Characters, in contrast, do repeat themselves – that is why they turn out to be universals. Being in more than one thing, they are locally separate from themselves, as Moore put it: "... with this sense of 'locally separate' [that is, that something can 'be in two different places at the same time'] it seems to me perfectly obvious that a quality can be 'locally separate' from itself: one and the same quality *can* be in two different places at the same time."[56] Since qualities or characteristics of things can be in two different places at the same time while they are the same quality, if we are to get on in the world, if we are to find our about it and amongst the things in it, then we have need not only to recognize difference among characters but also on many an occasion to recognize sameness, recognize that this is the same characteristic here as over there.

Thus, characters are indeed re-identifiable, particulars are not. But this is not an intrinsic difference, one that is built into the natures of the things. It is rather a reflection of, on the one hand, the fact that each ordinary concrete thing such as an image has within it one particular and that that particular is unique to it, and, on the other hand, the cognitive ends that we have as creatures trying to make our way about in the world.

Conclusion: Bareness is often cited as an objection to a category of entities – particulars – whose ontological role is to individuate. This is what makes them such horrid little creatures. But in fact, it ought not to be shocking. Certainly, it ought not to thought by an empiricist to be an objection to particulars. For, bareness turns out to be ubiquitous in the empiricist's world: when the latter is clearly thought through it becomes evident that the properties of things, which no one seems to find horrid, just as much as particulars, are bare. So, just as the empiricist can admit universals as

[56]Moore, "Are the Characteristics of Particular Things Universal or Particular?" p. 25.

licensed by the Principle of Acquaintance, so he or she can also admit particulars as licensed by that Principle.

D. W. MERTZ

Objects as Hierarchical Structures: A Comprehensive Ontology

I. Introduction

It is a given of both everyday observation as well as of scientific experimentation and theory that ordinary three-dimensional objects we encounter in daily experience—apples, chairs, computers, trees, humans, etc.—are without exception composites consisting in *parts organized in specific ways*. That is, ordinary objects are *systems, complexes, structures, or networks,* where the various kinds of inter-relations—e.g., spatial and physical/causal, static and dynamic—among the parts are as essential to the nature of the resultant whole as are the related parts. And, in the systematic extension of these observations by instrumentation and theory, our scientific knowledge of material objects is of vastly complex hierarchical structures of structures, where at each level a given structure is itself the single subject for properties and relations that together form structures subsuming it. A chair, for example, consists of parts in certain static spatial and physical-causal relationships (e.g., mechanical or molecular forces at the structural level of artifact), parts that without some of the latter would reduce to a heap of fragments and not a chair. In turn and in wooden chairs, for example, the composing cellulose molecules contribute rigidity and strength to the wood due to their being each a polymerized chain-like structure of glucose molecules, each glucose molecule itself defined by a certain structure between its carbon, hydrogen, and oxygen atoms, and at a lower level still, each of these atoms having definitive characteristics because of various kinds of sub-atomic entities related in certain ways. Living organisms are even more spectacular examples of iterated structuring of static and dynamic systems, e.g., of bones and organs functioning in mutually beneficial ways, where each organ consists of a particular structure among specialized cells, the latter in turn specified by a particular set of molecules interrelated in certain ways. Perception itself is both possible due to certain types of neural systems and veridical precisely because these systems effect chains of homomorphic signal structures. Emerging at increased levels of living complexity are new ‘powers’, i.e., the possibility of *sui generis* properties and relations not available at the lower levels, e.g., as

in those distinguishing vegetative from sensible life, and as illustrated in the emergences of consciousness and then abstract thinking as functions of certain complexities of brains and nervous systems. This is an important generalizable explanatory point: at some levels of some structures there are emergent and *sui generis* properties and relations, e.g., the dispositional property of Is-a-Chair is an ontic predicate of certain macro-structures but not their molecular micro-structures, or, in the abstract, True and False are emergent properties on (what are conceptual) propositions but not on their subparts, say, individual concepts for subject terms.

Universally, then, analysis reveals ordinary objects to be hierarchies of structures of structures, higher levels having physical properties and relations non-existent at lower levels of structure. This downward iteration of subsumed sub-structures is extended by science all the way to the primary level of quantum entities. Significantly, however, quantum entities represent an apparent lower limit on structure as naively understood. For as realistically interpreted, quantum theory is said to imply that objects or 'substances' at its level dissipate completely into physical systems of *only properties and relations*—pure structures (e.g., French 2001; French and Ladyman 2003). The proposed proto-ontology, termed 'Structural Realism', is in regard to traditional ontic categories immediately stymied with the problem of how there can be properties and relations without supporting objects as subjects or relata? In the following I shall show how this question is necessitated on ontological grounds alone, and how it can be answered. It will follow that physical micro-reality can be purely structural, as must be all reality at some foundational level. This account is also offered as possibly shedding light on the 'underdetermination' of quantum particles insofar as it provides a perspicuous re-conceptualization of identity and indiscernibility in purely structural terms, one explaining how such entities can have a unique identity (be 'individuals') and can likewise be distinct but indiscernible without a simply posited individuator (be 'non-individuals') (Ibid.; Hilborn and Yuca 2002). In all these ways and others to be considered, the account given will have advantages over related trope theory sometimes appealed to in this context (e.g., Simons 1994; Wayne forthcoming).

Now, equally significant for ontology generally but in the opposite direction, this structural characterization extends upward from ordinary mid-size physical objects isolated in our attention for practical reasons to

also include more ‘scattered’ local, global, and cosmically subsuming spatial/physical systems. Moreover and meshing with these systems are abstract cognitive structures, including both contingent relations making up particular psyches as well as necessary relations composing the formal hierarchical systems of mathematics and logic, systems instrumentally essential to our scientific knowledge. There are also ethical and social structures, e.g., the complex and varied systems of relationships that constitute family, corporation, or citizenry. Succinctly then, structure is the ubiquitous given, and ordinary objects are examples of and metaphor for this universal feature. Crucial in this is the fact that relations of various intensions, contingent or necessary, as they exist among subject things are as fundamental in composing the resulting wholes as are the things themselves. What is required, then, to explain this ubiquitous given is a developed and comprehensive *ontology of structure* that as such will include, principally: a) an account of the defining and composing inter-subject/multi-relata ontic predicates—*polyadic relations*—as they each effect an intensional unification among the yet diverse, i.e., an account of relational facts or states of affairs, monadic properties being the easily distorted limiting case; b) an account of how facts are compounded to form both same-level and hierarchical molecular structural lattices or networks; and c) in order to avoid either intractable problems of traditional ontology or a vicious regress, an account of how at some atomic ontic level there can be pure structures composed exclusively of ontic predicates. I shall give herein what I argue are the principles of such an ontology. It is derived from an analysis of ontic predicates that shows them to have an irreducible substantiality and a primary ontic status not recognized in traditional ontology. Described in Aristotelian terms, ontic predicates are analyzed herein as: 1) each having a particularity or ‘thisness’, i.e., individuated as relation instance; 2) like traditional ‘forms’, they act to intensionally or qualitatively structure their subjects (though this structuring is *inter*-subject, not *intra*-subject as in the tradition); 3) at some atomic ontic level they can be ultimate subject substrata for other instances predicable of them, i.e., have the role of ‘prime matter’; and 4) mutually sustaining systems of the latter can found hierarchies of emergent structures that as single subjects endure through the ‘accidental’ change of certain property and relation instances, and can have ‘substantial’ change when composing instances of defining properties and relations are destroyed, leaving substructures, ‘matter’, that collectively are not then organized in these defining ways. So described, relation instances answer various criteria for ‘sub-

stance' Aristotle specified in the *Metaphysics* but could not find one type of entity to satisfy.

As a context motivating the principles of structural ontology, or what I have elsewhere termed more descriptively *network instance realism* (Mertz 1996, 2002), I shall first delineate key historical errors concerning the nature of ontic predication. Ontic predication is what the Scholastics explicitly referred to as 'material' predication and distinguished from 'formal' or linguistic predication, a distinction going back to but implicit in Aristotle. Linguistic or grammatical predication is itself a type of ontic or material predication, it being generic for a number of syntactic and semantic relations including those among grammatical units forming declarative sentences, or, relatedly, those among conceptual components forming propositions. In general, ontic predication is the qualitatively or intension controlled unifying agency among the yet distinct, what is the unity of facts or states of affairs, and is to be primarily contrasted with the arbitrary and nature-indifferent unity of elements in 'heaps', lists, sets, or mereological sums (all the latter being, I propose, formal fictions, useful for modeling but specious when identified with the modeled). Exactly contrary to the tradition, polyadic relations are the instructive paradigm case of ontic predication, monadic properties being the less determined and so easily misinterpreted limiting case. In particular, a proper understanding of ontic predication is as a unifying cause or agent—a combinator—controlled/determined in its unifying act to specific (but not necessarily distinct) subjects a_1, a_2, .., a_n, by a constituent intension or qualitative content R^n and effecting as a structured whole a fact $:R^n_i(a_1,a_2,..,a_n)$. (The colon locution is used herein to distinguish facts from corresponding propositions.) The unifying act of an ontic predicate is conditioned on a qualitative match or relevancy between intension R^n and the natures of each of a_1, a_2, .., a_n, what makes the resulting fact more than a mere list, and is what answers the classic Bradley's Regress argument (Mertz 1996, 2002). So understood, properties and relations as qualifying or characterizing their subjects join themselves to their subjects *externally*—they do not enter into the composition of each or any of their subjects. In contrast and classically, when monadic properties are considered primary and then easily mis-identified with their constituent and abstracted inert intensions, it becomes speciously plausible that these intensions, or their individuated versions (tropes), are *internal components* of their subjects. This is precisely the case with all the alternatives that follow from what I shall identify be-

low as the tradition's Inert Substrata Thesis. As we shall see, among the failures of these alternatives is the fact that they assign the essential ontic jobs of intensionally determined plural unification and the ordering among entities unified to anemic symmetric 'relations' that, in the case of the 'Compresence' (literally 'Present-Together') relation of trope theory is indifferent to any ordering among their relata, and in the case of the 'Tied-to' relation of bare particular theories is completely indifferent to the natures or intensions of these subjects and thus to any mutual relevance based upon this, i.e., the nature of the Tied-to 'relation' is contrary to the subject(s)-characterization or subject(s)-qualification definitive of all ontic predication. The Tied-to relation is necessarily a completely arbitrary linking of properties to a shared bare particular, and the Compresence relation is likewise arbitrary except perhaps for excluding the linking of contrary and contradictory properties. It is to be noted that, as such, both of these relations are distinct from the formal and once-removed relation of Exemplification (or Instantiation), e.g., Exemplification(*a*,Red), that is itself sometimes mistakenly used as the surrogate for what is the combinatorial aspect of *every ontic predicate*, not just for the Exemplification relation as needed to fulfill its role. Yet, even Exemplification implies a union between its subjects, e.g., *a* and Red, qualitatively controlled by a specific intension now as one of the subjects, e.g., Red. The arbitrariness of the Tied-to unifier and the near-arbitrariness of the Compresence unifier will be part of the following developed critiques against the alternatives implied by the Inert Substrata Thesis, and so the thesis itself.

II. Historical Errors

In the historically influential Aristotelian/Scholastic substance/attribute ontology structure or complexity was both recognized as essential to the very natures of ordinary objects, whether 'substances' or 'artifacts', and yet by the same theory the concept of structure was doomed to obscurity. This obscurity, which persists more or less into contemporary times, was and is a function of the myopic focus on monadic ontic predication, reinforced at times by the false reductive elimination of polyadic relations (Mertz 2003). In the Aristotelian/Scholastic hylomorphic tradition structures were differentiated, on the one hand, into those of artifacts (e.g., a statue, a house), and, on the other, into the more spectacular dynamic and internally driven event structures that are the lives of 'natural' substances (e.g., Socrates, a tree). The latter structures were thought to each represent in its enduring

totality the fulfillment of an end (*telos*) for that substance, what is an inherent fixed 'program' or nature for that type of entity. To account for the structure of composite wholes (present in every composite except what was considered unstructured 'heaps'), Aristotle and the subsequent tradition posited the two correlative and exhaustive 'principles' of *form* and *matter*. Form, either substantial or accidental, gives structure to a resultant whole by being an *ontic predicate* of a subject or subjects where the latter *precisely in having this role* is matter relative to the former. This matter is either, for substantial forms, ultimate and absolutely undetermined and amorphous prime matter, or, for accidental forms, subjects already informed (i.e., substances as subjects of monadic accidents, e.g., Socrates as being white, or parts ('secondary matter') that a form structures into an artifact.) Importantly, the underlying but hazed insight here is that structure is a function of ontic predication, where an ontic predicate is the duality of an act of unification determined as to its subjects and their mutual 'ordering' by a correlative specific intension or qualitative content, e.g., Man or House. In the words of Aquinas, for example, "Each individual thing is actually a being through a form, whether in the case of actual substantial being or in the case of actual accidental being. And hence every form is an act, and as a consequence it is the reason for the unity whereby a given thing is one."(*De Spirit. Creat.*, Art. 3 (Aquinas 1949: 46)) The two aspects of act and intension are of a single entity—the form—that joins itself to a subject or subjects in such a way as to characterize or qualify it or them, essentially or accidentally, and this for multiple subjects in the manner of a structuring among them (See Aristotle, *Meta*. 1041b1-33; 10435-14). The view was that when the subject is prime matter, the single ontic predicate, e.g., Is-a-Man, causes a hierarchical emergence of the substructural parts, e.g., bones, organs, tissues, and among these a mutual structural ordering and functioning that is the resultant substance. When the subjects are already informed, as with the parts of a house, the ontic predication of an accidental form, e.g., a form with the intension House, among these ontically prior parts effects a structured artifact, e.g., a house. Now, it is precisely these examples that show a primary error of the hylomorphic tradition: that the nature of ontic predication so understood requires that all acts of characterizing union and thus structural formation be controlled by *monadic intensions*, e.g., Man, Tree, Statue, House, including those acts that require multiple subjects and that establish an order among them. In this latter and crucial multi-subject case, a monadic property is held to not only attach in a characterizing way to a single subject as

an already formed composite, e.g., a man or a house, but also and magically somehow it is to be the immediate cause/agent of the prior structural inter-connections among yet diverse parts that results in this composite as a single subject. In fact, however, the latter inter-connections require multiple intensionally determined ontic combinators each existing simultaneously among multiple subjects, and these are *polyadic relations*, e.g., in the case of a house the static relations such as Supports, Between, Covers, Entrance-to, or, in the case of a human body, dynamic relations such as Moves, Digests, Circulates, Purifies. The error here is abetted by the two further classic errors of the eliminative property reduction of relations and the maxim that all unity is by a shared one (i.e., a single entity). As seen below, the correction of the unity-by-the-one maxim is via observing the unity effected by chains of relation instances pair-wise sharing common relata, or complexes of the latter being single relata for further relations. And, I take it to be definitive on arguments by Russell (Russell 1938: 221ff.) and others (Hochberg 1981, 1988; Mertz 1996: 163-73) and based upon the non-reducible ordering inherent to certain relations (e.g., asymmetric and non-symmetric relations) that polyadic relations are not eliminable in favor of monadic properties of their relata or certain kinds of sets of their relata. More locally, Paul Teller (1986) has argued that the apparent fact of superposition or 'entanglement' in quantum mechanics implies the existence of 'inherent' or 'non-supervenient', i.e., irreducible, relations. Indeed, exactly contrary to the insidious reductionism of the tradition where relations dissolve into their relata things, on the analysis herein all things whatsoever dissolve ultimately and without remainder into their composing relations (including properties). The result is a precise and perspicuous *relational holism*, what is often called for as an ontology for micro-physics.

A second error of hylomorphism, though one not peculiar to it, and indeed one deeply ingrained and persistent up into contemporary ontology (e.g., found in the debates over quantum ontology (see French and Ladyman 2003)), is the thesis that ontic predicates ('forms') always require non-ontic-predicates (non-'forms') as subjects ('matter'). The pre-critical intuition here is that ontic predicates as intension-determined-combinators are incomplete and dependent entities in that they presuppose for their existences recipients or 'patients' of their unifying acts (each an '*ens ad aliud*' (a being-toward-something-else) or Fregean 'unsaturated'), *and* that these presupposed subjects cannot be further such acts, but rather must be com-

plete in the sense of combinatorially inert, e.g., 'substances' (each an '*ens in se*' (a being-in-itself) and '*ens per se*' (a being-through-itself)), or substance-like entities (e.g., prime matter or Fregean 'objects'). Otherwise stated, the second conjunct asserts that what is inherently dependent requires something inherently independent to sustain it in its being. Figuratively, the situation is thought to be that without the analog of *terra firma* we will have the explanatory failure of 'stacked turtles all the way down'. This view is false, and profoundly so: It is the case that at an atomic level ontic predicates as individuated relation (including property) instances, R^{n}_{i}, can have other relation instances as relata in the manner of a closed circle of combinatorial dependence, and where the resultant structural wholes are themselves non-dependent as non-predicable (each an '*ens in se*', though literally not an '*ens per se*'—not 'a being in virtue of itself'). How this is possible will be reviewed below. Denied this fact, the tradition concluded that in order to avoid an explanatory vicious infinite regress there must be for every structured entity, when subjected to a downwardly iterated analysis of structure into sub-structure, some bottommost level of absolutely unstructured and non-dependent entities, i.e., entities not themselves, or any of their constituents, having the natures of agent combinators, and hence, in this way, not themselves essentially dependent for their existences upon other entities. Or in short: Ontic predicates presuppose for their existence non-ontic-predicates as their subjects. This is the previously referenced *Inert Substrata Thesis*. Logically and in the literature these foundational non-predicable subjects divide according to possible combinations of (at least apparent) repeatability and unrepeatability treated as aspects of them. These possible self-sufficient substrata are accordingly: a) repeatable intensions i.e., abstracted universals, taken as non-combinatorial; b) individuated intensions in the form of substance-like, particularized (and necessarily) non-predicable and *monadic* 'qualities' or tropes, e.g., t-Red_{i}, t-Round_{j}, etc. ('t' for trope); or c) posited unrepeatable but internally non-qualitatively determined or natureless particulars known as 'bare particulars'. A physical object, or 'thick particular', is analyzed under a) and b) as *a compresent bundle* of either universals or tropes, respectively, and under c) as a plurality of universals *'tied-to' but not ontically predicated of* a bare particular, as such collected into and rendered unrepeatable as a single resultant 'thick' particular. Against each of these theories are serious challenges found in the literature (e.g., Loux 1998: 87, 93ff.; relevant essays in Laurence and Macdonald 1998; Stjernberg 2003), and though I shall mention some of them briefly in the course of the following, I shall offer other

arguments not generally exploited. The point will be that the Inert Substrata Thesis is untenable, making the alternative theory of only atomic mutually sustaining ontic predicates as urgent as I will show it is possible.

Consider first bare particulars and what I take to be the standard analysis leading to their posit (e.g., Moreland and Pickavance 2003). This analysis will also serve as context for eliminating option a) and the setting up of means for eliminating option b). The underlying theses are as follows (using 'B' to designate their introduction in the context of bare particulars).

Thesis B1: (Pure) monadic ontic predicates F(*x*), G(*x*), H(*x*),…, characterizing an unrepeatable subject individual *a* (i.e., such that propositions F(*a*), G(*a*), H(*a*),… are true) are or have intensions, respectively, F, G, H, …, that are *constituents of subject a*.

This is the classic containment or inherence model of ontic predication; *praedicatum inest subjecto*.

Thesis B2: An individual *a* exists if and only if *a* has at least one monadic ontic predicate P(*x*), i.e., *a* exemplifies P, and thus the proposition that P(*a*) is true.

Thesis B2 is a version of the common assertion that entities cannot exist without being subjects of characterizing properties (and relations) any more than properties (and relations) can exist without subjects to characterize (though the dependencies are of different types).

Thesis B3: Intensions in themselves are repeatable, i.e., universals, in being numerically the same constituents of numerically distinct subjects and thereby accounting for these subjects being of the same kind, and, any collection or bundle of them is likewise repeatable.

Here we have the simple and decisive reason why an ordinary thick *particular* cannot be simply a bundle of universals, and hence the standard observation that option a) must reduce to option c). I note also the arguments against option a) that it would make the Principle of the Identity of Indiscernibles a necessary truth, which it is not, and that intensions in themselves and therefore their bundles are causally inert—they cannot enter into

causal relations with other bundles, i.e., there would be no causal relations among thick particulars. It must be the case, then, that:

Thesis B4: If an unrepeatable entity *a* is composed in part of repeatable intensions, then it must have in addition at least one constituent that is unrepeatable so as to account for the unrepeatability of resultant whole *a*.

The most economical way to satisfy these theses and to account for the unity into a whole of all the constituents is with:

Thesis B5: An ordinary individual *a*, e.g., an apple, consists solely and essentially in—has as its sole identity-bestowing constituents—the repeatable intensions of its monadic ontic predicates *and* a single individuator p_a that unifies the former intensions by each being in some manner tied-to it.

Now, the problem with these theses taken jointly and as is is that they lead to a vicious infinite regress. On the assumption that particular p_a exists, then by Thesis B2 there is some ontic predicate P(*x*) such that P(p_a). In the literature these properties have been given to include Is-Unrepeatable, Is-Simple, Is-Constitutive-of-One-Object-at-a-Time, Has-No-Other-Properties-than-These. Then, by Thesis B1, repeatable intension P is a proper constituent of unrepeatable p_a, and this requires by Thesis B4 at least one additional individuator as a proper constituent of p_a itself, p_a'. Clearly this is the beginning of a vicious infinite regress, i.e., p_a' must succumb to the same analysis as did p_a, requiring that p_a' have a further constituent individuator p_a'', which in turn must succumb to the same analysis, and so on.

Advocates of individuating substrata p_a must avoid this regress, and they do so by limiting Thesis B2 so as to exclude them. That is, as sole and saving (*ad hoc*?) exceptions, individuating substrata p_a are held to exist without any *exemplifying* properties in the proper sense—they are *characterizable* by no properties and hence the designation 'bare' particulars. Trading on the intuitiveness of Thesis B2, advocates likewise insist that bare particulars cannot exist without associated properties, but, crucially, the 'association' here must be just that: a nature/intension-irrelevant conjunction or blank association, e.g., by a 'Tied-to' relation. In the words of J. P. Moreland, "It is open to an advocate of bare particulars to claim that it is a primitive fact that properties are tied to them and this does not need to

be grounded in some further capacity or property within them", the latter as "contained within the inner nature of the bare particular."(Moreland 1998: 258) This character of 'having' properties only by non-descriptive arbitrary association is, as we shall emphasize, a principal nemesis to bare particulars. Preliminary to this, however, note the standard challenges that, first, if a bare particular exemplifies no intensions and so has no properties then it can not be a relatum for any causal relation whatsoever, and, in particular, we could have no epistemic access to it, i.e., nothing individual *qua* individual would be given in experience, which is counter-factual. Moreover, an entity that does not enter into causal relations is neither destructible nor creatable, and this not only gives bare particulars a metaphysical status that should give one pause but also presents the following problem: What happens to a bare particular p_a when its thick particular *a* goes out of existence? Can it be recycled? It could not by any subsequent thick particular *b* having all the same properties as *a*, for in this case *a* would be numerically identical to *b*. This means that p_a's 'experience' with the set of properties as they jointly went into the making of *a* had to leave a positive mark on p_a preventing it from being associated with these properties again, as in *b*. But such a mark can only be a property of p_a and this contradicts its propertyless status as a bare particular.

Secondly, a bare particular would have to be a natureless entity, a status openly admitted by, for example, Gustav Bergmann: "Bare particulars neither are nor have natures."(Bergmann 1967: 24) If it were otherwise a bare particular would be the subject of ontic predicates characterizing its nature and so resulting in the above regress. Yet, something without a nature is *no*-thing—it can not be the 'nature of' a entity to be a natureless entity. Indeed, the intuition behind Thesis B2 would seem to be that an entity exists if and only if it is a *specific something*, and this specificity is a qualitatively determinate nature, relevant as such to intensions of certain ontic predicates (and not others) and because of which these properties (and relations) are combinatorial of and descriptive of it. To have no ontic predicates is to have no nature and so not to exist. Even a bare particular would have to have a specific essence or nature that makes it to be what it is and distinguishes it not only from, say, a tree, an intension, the number three, etc., but also from other bare particulars—what makes p_a's 'thisness' distinct from p_b´'s 'thisness'. Without these differentiating constituting essences all bare particulars would reduce to a single one and hence, absurdly, there would be but one extant thick particular. Thirdly, if a bare

particular can exemplify no properties it cannot have what are nevertheless its apparent *prima facie* essential properties of Is-Unrepeatable, Is-Simple, etc. Recently, J. Moreland and T. Pickavance have attempted to account for this counter-intuition by arguing that, in fact, expressions 'Is-Unrepeatable', 'Is-Simple', etc., are linguistic predicates that do not correspond to any genuine ontic predicates (Moreland and Pickavance 2003). The argument is that these are all less perspicuous versions of negative linguistic predicates, e.g., 'Is-Unrepeatable' is the same as 'Is-not-Repeatable', and as such they mark the extra-linguistic absence of the mentioned positive property. The true proposition Is-not-Repeatable(*a*) asserts that subject *a lacks* the property with intension Repeatable, and hence this proposition and negative propositions generally do not require commitment to any nature of *a*. I have argued to the contrary, that true negative propositions require as grounds or 'truth-makers' specific essences for the subjects referenced. Specifically, the properties or relations referenced in these propositions do not obtain among the referenced subjects because the latter have combinatorial of them ontic predicates that exclude the denied attributes, and to have these positive attributes presupposes their subjects have inherent determinate natures founding them. Both of the propositions: that Apple *a* is green, and, that Apple *a* is not green, have true-values determined in part by the nature of *a*. Apple *a* is not green because it has a contrary property, say, of being red, and, for spatial entities *a* and *b*, *a* is not to the left of *b* because *a* and *b* have some other contrary spatial relations, the latter obtaining on at least the condition that *a* and *b* have the natures of extended/spatial-relevant entities. Even the true negative proposition that 2 is not left of 3 turns on the specific natures of 2 and 3, putting them in a category distinct from that of spatial entities. If all of this were otherwise then all negative assertions would be neither true nor false but simply arbitrary denial independent and non-descriptive of reality.

Finally, in addition to these mostly familiar arguments against bare particulars, there are two further arguments, the first being the promised simple and, I propose, more obviously fatal argument that turns on the fact that a bare particular has intensions attached to it, not by characterizing ontic predication, but only by nature-irrelevant arbitrary conjunction, e.g., the Tied-to relation. This undiscriminating unification is the type of unity found among the elements of a list, set, or mereological fusion where the essences of the elements is irrelevant to their being linked. The key propositions at issue here are: A bare particular p_a is characterized by no proper-

ties, or alternately, exemplifies no intensions whatsoever; and, a thick particular *a* has properties exemplifying intensions F, G, H, ..., if and only if F, G, H, ..., are tied-to *a*'s underlying bare particular p_a. Now, what the completely arbitrary nature of the Tied-to relation implies is that any intensions *whatsoever* can be equally linked to a bare particular p_a, *including contrary or contradictory intensions*, e.g., it could be true that Tied-to(Round,p_a) and Tied-to(Square,p_a). That is, there is nothing inherent to a set of intensions tied to a bare particular that would preclude it from containing contrary or contradictory intensions, anymore that it can be held impossible that intensions Round and Square could be jointly associated with some entity *x* in a set: {Round,*x*,Square}. In order for the linking of an intension P with an entity *x* to preclude the linking with *x* of intensions contrary or contradictory to P, this linking must be that of nature-relevant ontic predication, not that of free association as with the Tied-to relation. Alternately said, for an intension P of *x* to be exclusionary of other intensions of *x*, P must be a component of a property as it is characterizingly predicable of ('says something about the nature of') *x*, and not just arbitrarily juxtaposed with (and so indifferent to the nature of) *x*. Now, what this means is that there is no non-arbitrary reason why in this ontology of bare particulars there could not exist a thick particular *a* resulting from the bundling of contrary or contradictory properties with a unifying bare particular, or more explicitly on the second proposition above, why a thick particular could not exemplify contrary or contradictory properties, and this is absurd. Finally, there is the related argument that if an ordinary thick particular *a* reduces to intensions each arbitrarily tied to bare particular p_a then the distinction between accidental and essential properties of *a* cannot be explained. In sum, the concept of a bare particular is incoherent. Moreover, on the analysis advanced herein the necessity of positing a substratum bare particular to account for either the collective unity of the properties of an ordinary particular or for its individuation disappears.

This leaves us to consider briefly entities under option b)—tropes—as the last of the alternatives required under the Inert Substrata Thesis. Trope nominalists reject repeatable intensions and all *monadic* (note!) ontic predicates as subject-dependent entities, and in this reject as stated all of the prior Theses B1-B5. The strategy of trope theorists is to explicitly admit the qualitative aspect of entities but in such a way that it is consistent with their nominalism; that it avoids the necessity of positing an underlying bare particular; and that it conforms to the Inert Substrata Thesis. This

is done by construing *monadic* properties as unrepeatable, non-composite, non-ontic-predicates, i.e., by positing the collapsing together of an apparently repeatable qualitative aspect of single entities, e.g., the quality Red, with an individuating aspect so as to form an absolutely simple, non-composite individuated property that is substance-like in being itself non-combinatorial of any subject. The theses characterizing trope theory are then as follows (using 'T' to designate the relevance to trope theory):

Thesis T1: Given monadic linguistic predicates F, G, H, …, of a prescribed class (usually phenomenal or physicalistic) such that for a particular *a* propositions F(*a*), G(*a*), H(*a*), … , are true, then there exist corresponding to each a non-composite natured individual or trope, t-F_i, t-G_j, t-H_k, …(e.g., t-Red_i, t-$Round_j$, t-$Mass_k$), that are each constituents of *a*.

Thesis T2: A set of tropes each compose a thick particular *a* by being pairwise joined via a Compresence (or similar) relation.

Thesis T3: Tropes may enter into a (exact) Resemblance relation with other tropes, e.g., t-Red_i exactly resembles t-Red_j, where, though the obtaining of the relation is a function of the qualitative content of its relata, it is primitive in the sense that there is nothing numerically identical in each relata that founds the relation.

For trope theory, then, an ordinary thick particular is a compresent bundle of 'non-bare' yet 'very thin' particulars—each with a single qualitative, though not numerically repeatable, aspect that determines it to fall within a certain resemblance equivalence class, the latter being nominalism's surrogate for an intension universal. Now, as was noted, there are a number of objections to trope theory found in the literature. I will mention two of these. First, equivalence classes or sets of resembling tropes, e.g., the set of all red-resembling tropes or the set of mass-resembling tropes, are claimed to do the work of the realists' shared universals, e.g., Red or Mass, in explaining non-arbitrary classifications. In other words, the commonality that makes, say, a group of tropes to be red-tropes is not explained intensionally by a shared universal, Red, composing each, but rather, in the opposite direction and extensionally, by just these tropes composing a fixed whole—the equivalence class. This class is the single feature that all these and only these tropes have in common, and it defines their 'kind', e.g., their being red. But this tack fails, and it fails even under

the ontically more accurate analysis where the whole is identified with the structure consisting jointly of tropes interrelated by the Resemblance relation. This is so because the whole as either a set or resemblance structure has its constituents necessarily, and would not be the same whole if it had more or less constituents. Hence, the sets or structures that are surrogates for Red or Mass could not have different mutually resembling tropes than they do. In other words, there could not have been more or less red things, or, indeed, more or less physical objects having mass. Of course, this generalizes to all such equivalence classes or structures: there could not have been more or less of any kind whatsoever. And, this is false. For, just as there is nothing inherent in a contingently exemplified intension, e.g., Red or Mass, that fixes its extension, there is nothing inherent in tropes (each an 'individuated intension'), whether individually or collectively in resemblance classes or structures, that precludes there being more or less of them resembling in the same way, and thus no single such whole could serve as an account of why certain tropes are classified as the 'same kind', e.g., as red. In short, there is no fixed class that could act as a surrogate for contingently exemplified universals, or, alternately, intensionality cannot be explained in terms of extensionality. Nominalism in whatever guise cannot escape the recognition of shared intension universals. A second common argument against tropes starts with the observation that tropes themselves have (pure) properties, e.g., trope t-Square$_i$ has the properties Is-Polygonal, Is-a-Shape, Is-Concrete (i.e., is in space and time), Is-Unrepeatable, Is-Qualitatively-Determined (i.e., is a non-'bare' particular). On the same analysis trope theory gives properties of ordinary particulars, viz., construing them as tropes bundled to compose the particulars, likewise properties of tropes would have to be construed as further tropes bundled to compose their subject tropes, and hence, contrary to T1, tropes would be composite. Indeed, with iterations of properties like Is-Unrepeatable, a given trope, e.g., t-Red$_i$, would be composed of a downward infinite regression of contained t-Unrepeatable$_j$ containing t-Unrepeatable$_k$ containing t-Unrepeatable$_l$ containing… To avoid all of this proponents would have to generate some tortured theory as to why these linguistic predicates, despite all appearances, have no corresponding properties or tropes. The underlying problem here is the assumption that what characterizes an entity must be a constituent of it, as specified in T1.

In addition to these arguments against trope theory, I offer the following: First, as broached above, the Compresence relation cannot be

simply arbitrary or blank association, or we would have the same difficulties as with the Tied-to relation above. The Compresence relation must have as part of its minimal content or 'meaning' a precluding of contraries as relata, e.g., it is necessarily false that Compresence(t-Red_i,t-$Yellow_j$). If it were otherwise then, as with the Tied-to relation, it would be possible for the same complex entity to be, say, both red and yellow. But now there exist complex entities that have contrary properties in the sense of, for example, a metal bar with what here would be trope t-Red_i composing part of one end and trope t-$Yellow_j$ composing part of the other. Now, if tropes and the Compresence relation are the only ontic ingredients making up complex entities in this ontology, and if the bar is such an entity, then, because the Compresence relation is transitive, we would have as true the proposition Compresence(t-Red_i,t-$Yellow_j$). So the alternatives are that we either give up the vast class of entities of which the bar is representative as only illusionally single entities, or admit that such entities are composed of additional things—what could only be relations other than and not reducible to Compresence or other tropes. Secondly and relatedly, trope bundles, whether unified by the standard Compresence relation or a relation expressing some further intension-relevance between its subjects, such as Peter Simons' Husserl-type 'mutual founding' relation (Simons 1994), are, because either composing relation is symmetric, virtually without internal order, system or structure. Yet, our initiating point in this essay was that robust internal structure and this at each level in emerging hierarchies is precisely the ubiquitous ontological given and what must be explained. Compresence or Mutual-Founding take only tropes as relata, not other bundles and so cannot generate from the bottom up hierarchies of nested entities. Moreover, it is a given that distinct complexes can have the same parts differently structured, i.e., differently related (either by relations with different intensions or by the same other-than-symmetric relation but in different relata positions), but this is not possible when the only unifying cause of a complex entity is a symmetric relation. What are required are ordering asymmetric and non-symmetric relations, and this ordering generalized to 3-adic, 4-adic, etc., relations (a point made without specifics by Simons (1998)). However, once such polyadic relations are admitted into trope theory, we have the following cobbled bifurcated ontology. First, we are reminded that such *n*-adic relations are irreducible to monadic properties of their relata, and so must be admitted as existing fully 'between' and combinatorial of ('actually relating') their *n*-subjects as they qualify these subjects jointly (hence the error of the inherence model of predication).

That is, definitionally a relation is an intension-determined-linking of multiple subjects, and as there can be no linking without something linked, there can be no polyadic relation without subjects standing in this relation. A relation in the full sense depends for existence upon the simultaneous existences of other entities and its unifying agency among them—it is a dependent *ens ad aliud* that cannot exist outside of a fact. Assisted by language it is possible to cognitively abstract from a relation in a fact, e.g., :Is-Between(*a*,*b*,*c*) or :Loves(*a*,*b*), a combinatorialless/inert intension, e.g., Between/Betweenness or Love, that when compared to the former are clearly derivative and would be called relations only in a secondary sense. So now in regard to countenancing trope theory we have the following situation: Intrinsic to both properties and relations is the uniform fact of intensions involved in qualitatively characterizing/being-attributable-of one or more subjects, with the only difference being the accidental one of the number of subjects characterized. Further and reinforcing the latter, both properties and relations are seamlessly formalized in our standard logics as equally in the category of predicates. Yet contrary to both this ontic and logical continuity, we have intrinsic to trope theory the ontological bifurcation of monadic predicates treated as non-combinatorial, non-dependent, atomic 'little substances' (i.e., 'subjects' or 'objects' only—each an *ens per se*), and polyadic predicates treated as just the opposite. This bifurcation should strike us as not only suspiciously artificial, but at this point as an error based upon confusing a derivative inert monadic intension, e.g., Red or Mass, with a predicable-of/subject-qualifying and so subject-dependent property, e.g., Is-Red or Has-Mass, and further as an error motivated by—indeed required by—what is the background assumption of the Inert Substrata Thesis. The Thesis applied to an ontology exclusively of attributes requires some class of non-dependent/non-combinatorial entities to support all other dependent/combinatorial entities, and since polyadic relations are clearly the latter, this leaves monadic properties so construed (what are easily misconstrued as the limiting 1-adic case) to fit the bill, viz., predicable properties turned into non-predicable tropes.

In sum, the argument thus far is that all the options a)-c) under the Inert Substrata Thesis, i.e., theories advocating either intensions, tropes, or bare particulars as required ultimate non-predicable substrata, are equally defective. What is needed in response to this negative necessity is an ontology that actually displays the positive possibility of an alternative to the

Thesis. We shall now observe how this is provided in an ontology of network instance realism.

III. Ontic predicates as Individuated Substrata, and Their Compounds

The errors of the Inert Substrata Thesis and the various theories attempting to enforce it are abetted by the naïve assumption that monadic ontic predicates—properties—are paradigm and fundamental. Theses B1 and T1 are plausible only on this assumption. As in the tradition the assumption requires that polyadic relations be given either some 'quasi-real' status (Aristotle, *Meta*. 1088a22), e.g., they 'supervene' on their relata or properties thereof but represent no ontic addition, or they reduce without remainder to properties of their relata. Both of these strategies are unsuccessful upon analysis, to say nothing of being *prima facie* contrived and forced. Indeed, when polyadic relations are recognized full and unreduced, with monadic properties the limiting though easily distorted case, there are liberating and profound implications for ontology, implications that correct the above theses and provide an alternative to the Inert Substrata Thesis. I have given a full analysis of polyadic ontic predicates elsewhere (Mertz 2002, 2003, 2004) and shall here mostly summarize the results. Summarizing general points made above, the perspicuous feature of relations is that they are externally 'between' or 'among' their relata (in medieval terms, each an '*intervallum*' = 'interval'), and, historically less perspicuous (principally because of the distorting bias of the inherence model of predication) though crucial, each is an agent unifier of ('actually relates') its relata, effecting as such a plural whole that is a fact or state of affairs. The latter is the lesson of the classic Bradley's Regress argument. When fully analyzed we have the following detailed principles characterizing ontic predicates:

Principle I: Constitutive of every fact :$R^n_i(a_1,a_2,\ldots,a_n)$, for $n \geq 1$, is an ontic predicate, $R^n_i(x_1,x_2,\ldots,x_n)$, that is the external agent/cause of the characterizing predicable unity of itself with its relata, a_1, a_2,…, a_n, a unification whose type is to result in a fact, as opposed to a list, set, or mereological sum.

Principle II: Every ontic predicate $R^n_i(x_1,x_2,\ldots,x_n)$ has as a constituent a single universal intension R^n whose ontic role is that of delimiting or determining non-arbitrarily the possible *n*-tuples of relata, $<a_1,a_2,\ldots,a_n>$, that predicate $R^n_i(x_1, x_2,\ldots, x_n)$ can unify into a fact. However, an intension R^n

of itself has no causal agency whatsoever as a unifier (it is 'predicably inert' or 'substance-like').

Principle III: In addition to and distinct from intension R^n, there is constitutive of ontic predicate $R^n_i(x_1,x_2,\ldots,x_n)$ its actual mode of union, its combinatorial or linking agency, among and to its particular *n*-tuple of subjects. The linking aspect of predicate $R^n_i(x_1,x_2,\ldots,x_n)$ is itself not a further intension in addition to R^n, but a *causal act of unification* that is 'joined' with intension R^n that controls its effects. This joining is the unity of a *continuous composite*, i.e., a union of two distinct entities without the agency of a further interposing ontic predicate or act of unification. Of fundamental importance, the unifying act of an ontic predicate is unrepeatable and particular, rendering the containing predicate an individual, i.e., a unit attribute (hence the subscripts, e.g., 'i').

Principle IV: The unifying act among an *n*-tuple of subjects is unique to than *n*-tuple. Hence, an instance ontic predicate subsuming this act is unique to this *n*-tuple of subjects, i.e., if $R^n_i(a_1,a_2,..,a_n)$ and $R^n_i(b_1,b_2,..,b_n)$, then $a_1 = b_1$, $a_2 = b_2$, … , $a_n = b_n$. In the opposite way, ontic economy requires that no *n*-tuple of subjects have more than one instance of the same intension R^n, i.e., if $R^n_i(a_1,a_2,..,a_n)$ and $R^n_j(a_1,a_2,..,a_n)$, then $R^n_i = R^n_j$. Also, because it is intrinsic to an instance ontic predicate to be an agent unifier of an *n*-tuple of subjects, it cannot exist independent of this *n*-tuple except cognitively in selective abstraction.

Henceforth I shall abbreviate individuated ontic predicates or relation instances by dropping the variables designating the subject places, e.g., '$R^n_i(x_1,x_2,\ldots,x_n)$' will simply be '$R^n_i$', this being sufficiently distinguished from 'R^n' (i.e., without the subscript) used to refer to instance R^n_i's contained and determining intension. Now profound in its consequences, that ontic predicates are individuated to particular *n*-tuples of subjects follows immediately from their natures as unifying acts, and is perspicuous in the case of contingent relations. Assume, for example, that facts $:Loves^2(a,b)$ and $:Loves^2(c,d)$ both obtain, for pair-wise non-identical *a*, *b*, *c*, and *d*. The combinatorial act linking $<a,b>$ under the intension $Love^2$ cannot be numerically the same as the unifying act under intension $Love^2$ for $<c,d>$, though the intension is numerically the same. This is so because fact $:Loves^2(a,b)$ can go out of existence, i.e., *a* can cease to love *b*, without fact $:Loves^2(c,d)$ ceasing to exist. If it were exactly and numerically the

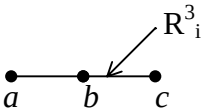
same unifying act for both facts they would have to come into and go out of existence together. It is more appropriate, then, that our facts given as ':Loves^2(*a*,*b*)' and ':Loves^2(*c*,*d*)' be designated as ':Loves^2_i(*a*,*b*)' and ':Loves^2_j(*c*,*d*)', where, as instance constituents of these facts, Loves^2_i ≠ Loves^2_j. In general, fact-effecting acts of predicable unification are as individual and unrepeatable as any other acts, e.g., events. Importantly, what this means is that the combinatorial agency of ontic predicates is ontology's *principium individuationis*—an insight that completely reverses the historical metaphysical role and status of ontic predicates. With this ontology we have a straightforward *account* of individuation without having to resort to simply positing either primitive 'thisness' (*haecceitas*) or incoherent bare particulars.

As an introduction to the implications of Principles I-IV let us contrast them with previous Theses B1-B5 and T1-T3. All of trope theory's T1-T3 are rejected, as are B1 and B5, but with B3 and B4 retained. Thesis B2 is independent of the above principles, yet is, I propose, true when extended as: An individual *a* exits if and only if *a* has at least one ontic predicate P^n_i, i.e., *a* as a subject exemplifies intension P^n, and thus the proposition that P^n_i(..,*a*,..) is true. Crucially and contrary to the misleading inherence model of predication inspiring theses B1 and T1, Principles I and II do not require that an ontic predicate or its contained intension enter into the composition of the subject(s) of the predicate, but rather in characterizing its subjects attaches itself externally to it (or them). The combinatorial act of attachment is a function of a qualitative relevance between the intension of the agent instance and the nature(s) of the instance's subject(s). In general, ontic predicates are not downwardly subsumed parts of their subjects, but rather are the instruments for themselves and their subjects to form upwardly emergent and subsuming wholes. It is the thesis of containment of ontic predicates by their subject individuals that necessitates their being construed either as individual non-combinatorial and only monadic tropes, or as repeatable intensions requiring the posit as a further constituent of an absolutely qualityless individuator. Principle II agrees with B3 and contradicts T1 in admitting intension universals. Principle III details the requirement of Thesis B4 applied to ontic predicates, i.e., a repeatable intension R^n is joined in a non-predicable way with an unrepeatable combinatorial act that determines the particularity of resultant instance R^n_i. Neither intension nor unifying act are aspects or modes of the other, but are each abstractable aspects of the simple instance R^n_i, existing as

separate only in the intellect (see Mertz 2004). Likewise, by Principle IV, an instance R^n_i exists separated from its *n*-tuple of subjects, and so from the fact they jointly compose, only in abstraction. Principle IV places conditions on how instances exist relative to *n*-tuples of subjects, conditions essential to the following further principles explicating the ontology of network instance realism.

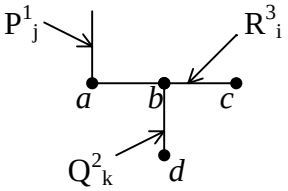
Let us now turn to the central issues of how relation instances characterized by Principles I-IV above can compose hierarchies of structures that are ordinary particulars, e.g., Socrates or a computer, and can at some atomic level be mutually sustaining and collectively complete and non-dependent. Consider first as an example of the simplest type of complex or structure, i.e., single facts, the fact :$R^3_i(a,b,c)$ as modeled with the following diagram:

Complex A:



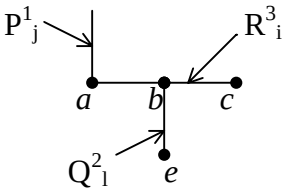
The horizontal line segment represents the instance R^3_i as the shared unifier among subjects *a*, *b*, and *c*. Now consider two further facts, $P^1_j(a)$ and $Q^2_k(b,d)$, where monadic instance P^1_j shares its only subject *a* (hence a line segment with one subject dot) with triadic instance R^3_i, and dyadic instance Q^2_k shares subject relata *b* with R^3_i. This would be diagrammed as:

Complex B:



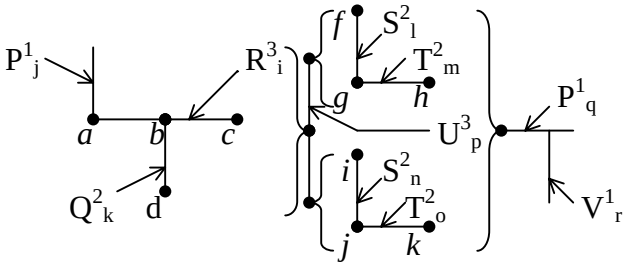
Complex B is a compound or molecular structure, and it is so by what can be called 'horizontal composition', i.e., a 'chain' of connectedness across pairs of relation instances sharing one or more relata, and a transitivity across such pairs via the sharing of an instance, e.g., R^3_i is the shared instance and so common link between relata-sharing pairs P^1_j and R^3_i, and, R^3_i and Q^2_k. Note that, because instances are unique to their ordered *n*-tuples of subjects, if a relata is changed then a relation instance of the same intension combinatorial of the replacement and the remaining relata will be numerically different. For example, if *d* is replaced by *e*, $e \neq d$, then instance Q^2_k changes to Q^2_l, where $Q^2_k \neq Q^2_l$. Consider such a change made in the Complex B yielding the following distinct structure.

Complex C:

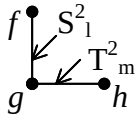


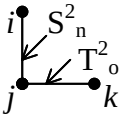
There are two important points to note in comparing Complexes B and C. First and intuitively, though B and C are not identical, they have *exactly the same structure*, i.e., they are isomorphic. Secondly, though a change of one relata, *d*, to a non-identical relata, *e*, necessitated a change of instance Q^2_k to Q^2_l, there are no other 'reverberations', i.e., changes, caused within the larger complex. This is not the case for the second type of structural composition, what is hierarchical or 'vertical composition'. Here entire structures get treated as themselves single relata for further properties and relations, what can be indicated diagrammatically with the use of braces. Consider the following diagram utilizing B as a sub-structure.

Complex D:



Complex D illustrates both horizontal and vertical composition, with two levels of vertical composition. The left-most brace indicates that Complex B on the left of it is, as a whole, a single relata for relation instance U^3_p, as are each of the isomorphic structures

Complex E: 

and **Complex F**: 

The right-most brace of Complex D indicates that the entire vertical compound to its left is itself a single subject for the property instance P^1_q. One could think of Complex D as representing, for example, the structure resulting from three molecules—Complex B and the two 'identical', i.e., isomorphic, Complexes E and F—structured among themselves by an instance of a triadic inter-molecular relation U^3, this compound in turn and as a whole having an instance of, say, causal property, P^1. Now, it is easy to conceive how this vertical compounding could be continued indefinitely up

through further and further levels, and how at certain levels there could be properties and relations, say U^3, whose instances emerge *sui generis*, i.e., do not occur at lower levels and presuppose as at least some of their relata certain types of sub-structures. This fits the bill precisely for an ontology of ordinary objects set as the desideratum in the introduction: ordinary objects are immense though finite hierarchies of horizontally and vertically composed structures generated upwardly from what science determines are the ultimate sub-atomic entities. Similarly, once alerted to these two forms of composition one can see their iterations exemplified in cognitive, mathematical, logical, social, etc., structures. Vertical composition and its distinction from horizontal composition are the conditions *sine qua non* for a proper understanding of emergent properties and relations.

What is now required is that we make precise these intuitive notions of horizontal and vertical composition. This is done iteratively in the following principle, one asserted to characterize all forms of plural unity, starting with and built up from facts as atomic complexes. This in turn will afford refined and differentiated definitions of identity and indiscernibility, that for indiscernibility being particularly promising for solving philosophical problems concerning persistence through change of composition, e.g., the Ship of Theseus problem, and the problem of 'metaphysical underdetermination' for quantum objects.

Principle V: All plural unity—and thus plural wholes (complexes or structures)—is by the following:

(a) A relation instance R^n_i predicable of an *n*-tuple of relata, $<a_1,a_2,..,a_n>$, is the cause of an individual plural whole, viz., a fact $:R^n_i(a_1,a_2,..,a_n)$, having R^n_i, a_1, a_2, .., a_n, as its only constituents.

(b) If R^n_i is a constituent of a plural whole *x* and S^n_j is a constituent of a plural whole *y*, and R^n_i and S^n_j, share one or more relata, then there is an individual plural whole *z* that has as constituents all and only the combined constituents of *x* and *y* (horizontal composition).

(c) For any fact $:R^n_i(a_1,a_2,..,a_n)$, if for $1 \leq j \leq n$, a_j is a plural whole, then there exists an individual plural whole whose constituents are all and only the constituents of the fact and constituents of a_j (vertical composition).

Principle V is the account of all forms of composition and so of plural wholes whatsoever, and in this regard corrects the erroneous and anemic Theses B5 and T2 above. It likewise serves to highlight what is the debilitating misanalogy of sets or mereological sums used as models for complex entities. Consider next the instance analog of the standard definition of identity:

Principle VI: Entities *a* and *b* are identical, $a = b$, if and only if, for every monadic property P^1 and every instance P^1_i of P^1, $P^1_i(a)$ if and only if $P^1_i(b)$.

The more specific identity condition on complexes is given by:

Principle VII: For complexes *x* and *y*, $x = y$ if and only if, for every intension R^n and every instance R^n_i of R^n, R^n_i is a constituent of *x* if and only if R^n_i is a constituent of *y*.

This is so because predicate instances do not exist independently of their relata and, by Principle IV, numerically the same instances have numerically the same relata, combined with the central thesis of this ontology that the being of a complex entity consists solely in its constituent ontic predicates and their relata. Principle VII explicates accurately the intuition that 'constitution is identity', and corrects the common but crude version of 'mereological extensionality' that ignores component (individuated) ontic predicates that are nevertheless essential to every plural whole.

The final principle makes perspicuous the traditionally obscure notion of indiscernibility and how it is derived from the primitive but transparent indiscernibility of relation instances of the same type. For if, as we are about to see, at some atomic ontic level relation (including property) instances can be horizontally mutually combinatorial and that all other extants are built up by vertical and horizontal composition on these atomic structures as relata, then indiscernibility can be specified *universally* and iteratively as:

Principle VIII: Entities *x* and *y* are indiscernible if and only if
(a) $x = R^n_i$ and $y = R^n_j$, where R^n_i and R^n_j are instances of the same intension R^n.

b) $x = :R^n_i(a_1,a_2,..,a_n)$ and $y = :R^n_j(b_1,b_2,..,b_n)$ and a_k and b_k are indiscernible for $1 \leq k \leq n$.

c) x and y are complexes such that there is a one-to-one correspondence ϕ between their constituent facts where $\phi(:R^n_i(a_1,a_2,..,a_n)) = :R^n_j(b_1,b_2,..,b_n)$ and where $:R^n_i(a_1,a_2,..,a_n)$ and $:R^n_j(b_1,b_2,..,b_n)$ are indiscernible.

Foundational section VIII-a asserts relation instances to be what I propose are the unambiguous counter-examples to the Leibnizean Principle of the Identity of Indiscernibles, viz., instances R^n_i and R^n_j (e.g., Is-Between^2_i and Is-Between^2_j) can differ only numerically in that the sole remaining aspect of their beings, qualitative content R^n (e.g., Between^2), is numerically identical across both. And recall that instances with the same intension differ, not by each having some simply posited and inscrutable *haecceitas* or bare individuator, but by their unrepeatable combinatorial agencies, what is both the intuitive nature of ontic predicates and the requisite *ontoglial* for a plural reality. If other entities are built up from indiscernible atomic instances in accordance with VIII-b and –c, then we would have structures with complexity to any degree that are *numerically distinct but qualitatively identical*. This is so in the full sense that such structures would be both composed exclusively of corresponding internal component instances differing only in number but not in intension, as well as, as wholes, would be the subjects of corresponding external ontic predicates of the same (pure) monadic intensions but differing only numerically. That is in regard to the latter, indiscernible complexes will themselves have all the 'same properties' in the now precise sense of indiscernible instances of the same monadic intensions. In this we have for indiscernibility the analog of the formal specification in Principle VI for identity: Entities a and b are indiscernible, $a \equiv b$, if and only if, for every monadic property P^1, there is an instance P^1_i such that $P^1_i(a)$ if and only if there is an instance P^1_j such that $P^1_j(b)$ (Mertz 1999: 92). Indiscernible complexes may, of course, also share indiscernible instances of some polyadic intensions. We can illustrate and extend these points but in reverse direction by considering isomorphic complexes E and F above. They would be indiscernible if under VIII-c and the one-to-one correspondence ϕ where $\phi(:S^2_l(f,g)) = :S^2_n(i,j)$, and $\phi(:T^2_m(g,h)) = :T^2_o(j,k)$, the facts in the pairs $:S^2_l(f,g)$ and $:S^2_n(i,j)$, and, $:T^2_m(g,h)$ and $:T^2_o(j,k)$, are indiscernible. The latter would be the case under VIII-b if corresponding relata f and i, g and j, and h and k are, as paired, indiscernible. The latter would obtain, in turn, if the relata in each

pair were again either complexes indiscernible under VIII-c or facts indiscernible under VIII-b. Now this regress for determining indiscernibility would stop if in the downward analysis we reach in each case a bottom level of compound complexes where the composing facts of each have only property or relation instances of its other composing facts as relata—the same demonstration needed to negate the Inert Substrata Thesis and what will be given below. In this situation VIII-a would apply and no entity would be left outside of the scope of the applicability of VIII as a criterion for indiscernibility. Hence, built exclusively of relation instances that differ only numerically, indiscernible complexes so specified would differ only numerically, in whole and in every corresponding part. These complexes would be intrinsically and objectively indiscernible prior to epistemological considerations of re-identification by a knower.

Consider the issue from the opposite side of discernibility. Instances differ other than only numerically in two ways: either by having non-synonymous intensions, or, having the same intension, they have different relata *n*-tuples, the exception to the latter being when the *n*-tuples differ only in order of relata and this is irrelevant to the intension (e.g., for facts :Next-To^2_i(*a*,*b*) and :Next-To^2_j(*b*,*a*), the distinction in *n*-tuples <*a*,*b*> and <*b*,*a*> is irrelevant to symmetric intension Next-To^2, i.e., the facts are identical, but not so if the intension had been, say, the non-symmetric Love^2). Consequently, two hierarchical complexes, say two leaves, differ other than numerically by having at some level sub-complexes that are not indiscernible, which means formally that for every possible one-to-one correspondence of composing facts of these sub-complexes there exists one or more corresponding composing instances that differ in one of the above ways. In practice, discernible complexes are known to be such because they are known as wholes to be subjects of contrary properties or relations.

Significantly then, including the possibly of resolving current problems of ‘particle identity’ in quantum mechanics, indiscernible complexes so specified would be epistemically differentiated—known as numerically not the same—only when known as jointly embedded in a further meta-structure composed of them as relata for instances of differentiating irreflexive or non-reflexive relations, e.g., spatial or causal relations. Now consider the following situation. If, say, these indiscernible sub-structures, *a* and *b*, were permuted back and forth several times in the context of a meta-structure that ‘remained constant’ throughout, i.e., resulting in a tem-

porally extended meta-meta-structure consisting in a connected sequence of these meta-structures chronicling the permutations, then a knower cognizant of the full unbroken sequence, and in this the 'continuous spatio-temporal trajectories' of both *a* and *b*, would, of course, be able to re-identify in the last permutation meta-structure of the sequence which of the permuted indiscernible sub-structures was *a* and which was *b*. That is, *a* would be known as *a* and *b* would be known as *b* throughout and so each would retain its 'identity', or more accurately, its identification, throughout the sequence known in its continuity. However, if for a knower knowledge of the complete sequence of permutations were 'broken'—incomplete or unavailable (e.g., spatio-temporal trajectories from quantum particles are not precisely defined)—then cognizance of the last permutation meta-structure would still be sufficient to discern the *numerical differentiation* of *a* from *b* but not sufficient for their particular identifications, i.e., not sufficient to re-identify which one was which. Now, this would seem to describe the apparent and ontologically challenging situation with the 'vague' entities of micro-physics. Under the 'Indistinguishability Postulate' of quantum statistics, permutations of quantum particles are not counted as representing new arrangements, there being no observational means for distinguishing the permutations (French 1988; 1998; 2003: Hilborn and Yuca 2002). In this way quantum mechanics describes states of indistinguishable but numerically distinct particles, particles said to be cardinally but not ordinally distinct. Now, the instance ontology outlined here would seem to account for this nicely: if indiscernible complexes specified by VIII (say E and F where their corresponding relata are indiscernible, which rests ultimately on the proof below) are permuted an unknown number of times in a subsuming 'constant' meta-structure-type (including experimental context), then the first meta-structure, say D above, and the last meta-structure, D′, would themselves be numerically distinct but indiscernible, and in this sense there would be no qualitative 'observational difference', i.e., intensionally different composing properties or relations, distinguishing the subsuming contexts, D and D′. Relative to these alterations we could say that the complex type of D and D′ is 'permutation invariant'. Just as it can be said of quantum particles, it is true here of two or more indiscernible entities in the same fixed context/meta-structure, and without a knowable continuous 'trajectory' for each entity, that relative to any possible permutation 'no measurement whatsoever could serve in principle to determine which of the indiscernible entities are which'. In such contexts indiscernible complexes E and F could not be 'named individually', i.e.,

re-identified, and so in jointly composing the D-type structure would have a cardinality of two but no ordinality.

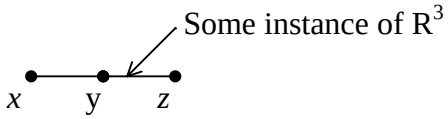
More generally, quantum particles are said to violate even the weakest form of the Principle of the Identity of Indiscernibles, and thus in not differing by repeatable properties (i.e., construed as intension universals) these particles either differ by some other non-property, non-universal constituent individuators (the options cited being *haecceitas* or bare particulars—known in this context as 'transcendental individuators'), or they differ neither by uniquely possessed intensions nor individuators and are thus some sort of strange 'non-individuals' or 'quanta'. It has been proposed but has remained undeveloped how a 'Structural Realism' might reconcile the individual/non-individual dichotomy by providing a precise formulation of the relational holism characterizing quantum particles and fields (e.g., French 2001; French and Ladyman 2003). The ontology presented herein—what I have called network instance realism—details what has promise as such a synthesizing structuralism. It provides a precise specification of indiscernibility showing perspicuously how entities of any degree of complexity can be numerically distinct but qualitatively the same, this for qualities of any polyacities and without the need to simply posit a thus suspicious 'transcendental individuator'. It answers the question of how from a level of quantum entities that violate the Principle of the Identity of Indiscernibles there can be built up at some levels entities for which the Principle holds, i.e., entities whose differences are marked by different monadic properties (Hilborn and Yuca 2002: 368). This is so simply by the fact that the same kinds of indiscernible structures inter-related in different ways, e.g., by relations with distinct intensions, make for emergent structures themselves with different properties. The instance structuralism given herein demonstrates in what manner an individual can be composed exclusively of attributes, and in this it makes precise the often-made characterization of the quantum world as a realm 'where all is structure'(Ibid.). That is, the analysis takes a Kantian-like view expressed by Cassirer that quantum entities are to be construed exclusively as '"points of intersection" of certain relations' and renders it explanatorily precise and potent by demonstrating in what manner they can be 'mutual intersections of individuated relations'(Cassirer 1956: 180; see French 2001). And in regard to the purely structural nature of quantum entities, a relational hybrid of trope theory is often proposed as a candidate ontology (e.g., Simons 1994; Wayne forthcoming). In contrast to trope theory, however, the above in-

stance ontology retains uniformly the combinatorial nature of ontic predicates of every *n*-adicity, thus providing an account for individuation across the board, and does so without the need for positing non-combinatorial underlying subjects, disarming in this way a persistent objection to Structural Realism—the Inert Substrata Thesis that we cannot have ontic predicates without non-ontic-predicates as subjects. Further, instance ontology has a concomitant formalizable logic that has promise as the sought after more metaphysically accurate *organon* for describing micro-reality than current group theory or set theory (French and Ladyman 2003; for the logic see Mertz 1999). To what extent these promises have substance for microphysics I must leave to the experts.

Along this structuralist line it is important to also point briefly to the promise the above instance ontology has for solving more traditional problems of composition, e.g., the Ship of Theseus problem (Rea 1995). All physical entities, though enduring, nevertheless change more or less continually, parts being added, removed, or replaced (e.g., the repair of a ship by replacing one plank by another, or of a body by replacing one cell by another). Intuitively, though an entity before such a change of part and the entity resulting from the change are not materially the same—not numerically identical—they can be, depending upon the change, in some legitimate and essential sense 'the same' entity, e.g., the Ship of Theseus before and after every plank in the hull and every other part is successively replaced with one exactly like it. Loosely, the distinction here is between sameness as 'continuity of matter' and sameness as 'continuity of form', where the ship, for example, loses the former but retains the latter. Rea identifies five assumptions involved in classic puzzles over composition and that are jointly contradictory. Central to these and what the above instance ontology rectifies is the assumption that 'sameness' must be numerically identity and this under the 'identity assumption': $(x)(t)[(x$ is a constituent of a at time t & x is a constituent of b at time $t) \supset a = b]$. In the postulate the variable x is taken to either range over only non-structural/non-predicable entities that would compose a and b (the mereological interpretation), or, if including these structuring elements they are taken to be numerically the same (i.e., universals) in all the entities of which they are parts, e.g., a and b. In either case we have trouble. For under either interpretation, the Ship of Theseus, for example, with all the parts systematically replaced by exactly similar parts, what would seem to be the 'same ship' before and throughout the replacements, and a distinct

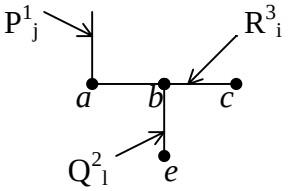
second ship reconstructed from exactly the replaced parts and in exactly the 'same order', would have to be identical. The refined precision of instance predicates allows us not only to differentiate composition identity, Principle VII, from indiscernibility, Principle VIII, as two forms of sameness, but also to specify a looser form of sameness: isomorphism. Though I will not give the details of a precise formal definition here it can be put inaccurately but instructively as: $(R^n)(R^n_i)(R^n_j)[(R^n_i$ an instance of R^n is a structuring element of $a \equiv R^n_j$ an instance of R^n is a structuring element of $b) \equiv a$ is isomorphic to $b]$. I.e., isomorphism is a corresponding exact similarity of structural components (the 'roads') without the structured relata (the 'nodes') being necessarily similar. Indiscernibility is the strictest form of isomorphism, as is identity the strictest form of indiscernibility. It is, I propose, isomorphism as one-to-one correspondence between instances of identical intensions that is essential to solving at least some of the key problems of composition. Specifically, what I am suggesting is that ordinary objects are definitionally carved out of the dynamic total-structure that is reality by specifying for each a delimited sub-structure that is itself a temporally extended continuous sequence of isomorphic structures, A1-A2-A3-…, and where what endures across all of them is the same isomorphic structure-type A. Let, for example, the form of Complex A above applied to an initial Complex C above be a simplistic model for the specification of the Ship of Theseus. For unrepeatable Complex A its repeatable general form is:

Form A:



where *x*, *y*, and *z* are variables ranging over the categories that intension R^3 delimits, respectively, for each of them. Reproducing Complex C for convenience,

Complex C:



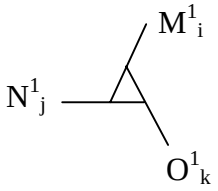
Complex C is the first state, A1, of the ship's existence as here defined, e.g., when, say, Theseus takes ownership (in at least this way there is a conventional element in the identity of the Ship *of Theseus*). Importantly,

Complex C has more complexity in its general form than Form A in having properties and relations with relata-places which Form A does not. As parts of C, *a* and *c* might be particular hull-halves, *b* a particular deck of a particular shape, and relation instance R^3_i an instance of a specific spatial configuration among entities of just these kinds. These parts properly ordered by intension R^3 conform to what is definitionally essential under Form A. However, remaining parts of Complex C outside the defining structural form A are as such accidental to the Ship of Theseus; say here, *e* a particular mast and sail, Q^2_l a relation instance relating positionally this mast and sail *e* to deck *b*, and property instance P^1_j could be the property of a particular defect of particular hull-half *a*. If as the ship changes over time, e.g., hull-halves *a* and *c* are successively replaced, and the deck is replaced in a manner like *b*, each time the replacement and remaining parts are so configured as to conform to intension R^3's delimiting and ordering, then there will result a sequence of A-isomorphic structures starting with A1, i.e., A1-A2-A3-…, and this will be the defined Ship of Theseus—a continuity of form-type of the whole over time. Accidental entities (e.g., *e*), and instances of accidental properties (e.g., P^1) and relations 'attached' to a particular A-form complex in the sequence A1-A2-A3-… may be absent in other complexes in the sequence without rendering the sequence no longer the Ship of Theseus. This would not, or course, be the only form of definitional identity for continuously changing structures. For example, what gives identity to a continuous sequence of particular structures may not be a persistent structural form had by the whole, but rather a structural form had by every sub-structure at some level, and these as related to a subsuming meta-structural form that sustains the formers' existences, e.g., the particular genetic code in every cell making up the body of Socrates, together with this body's metabolic structure that sustains these cells and their contained DNA molecules. Socrates, at least as a biological/physical being, is then the continuous sequence of structures starting with the zygote initiated by his parents and evolving from the dictates of the genetic code of every subsequent cell collectively forming his body and its sustaining metabolic system, a body that in macro-structural form is not constant over time. If Socrates loses a limb, then this sub-structure would no longer be part of *Socrates* since its cells would no longer be part of the subsuming metabolic structure keeping the remaining part of Socrates' body alive. Though introductory, this is, I propose, sufficient to show the promise of this ontology in regard to the traditional problems of composition.

IV. Conclusion: No Inert Substrata, No Regress

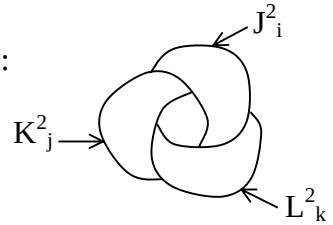
This brings us to the final but ontologically crucial obligation of demonstrating that, contrary to the Inert Substrata Thesis, instance ontology can rest on a base of only mutually dependent property and relation instances. Contrary to the general tradition, and specifically to some parties in the debate over an ontology for quantum particles (see French and Ladyman 2003), the absence of a base of non-dependent entities does not precipitate an infinite regress of dependent entities—as it were, 'turtles all the way down'. Relations (including properties) do not need non-relational relata. The demonstration is at this point in the analysis obvious and simple: Consider first that predicate instances can have as relata other predicate instances, e.g., an instance of a causal relation may be a relata for instances of spatial relations, or, an instance of Is-Prime^1 would be the subject of an instance of Is-Abstract^1. This is diagrammed, for example, on the right side of Complex D above where instance V^1_r intersects at its end point instance P^1_q, doing so without a shared relata dot indicating that the former is a property directly of the latter, i.e., that fact $:V^1_r(P^1_q)$ obtains. Based upon this it is then possible that there can be closed chains or networks of instances of any polyacities having only other instances in the whole as relata. A diagram of one of the simplest such 'closed systems' would be:

Complex G:



This diagram represents the closed chain of horizontally composed monadic facts $:M^1_i(N^1_j)$, $:N^1_j(O^1_k)$, and $:O^1_k(M^1_i)$. Each of the composing instances are dependent predicable entities but jointly they form a non-predicable and in this way an independent whole, a 'substance', an *ens in se*. The same mutual support can be seen among dyadic relations in following diagram:

Complex H:



Here we have the closed chain of dyadic facts $:J^2_i(K^2_j,L^2_k)$, $:K^2_j(L^2_k,J^2_i)$, $:L^2_k(J^2_i,K^2_j)$. It is easily seen that this scheme of mutually sustaining instances can be extended logically to networks composed of any number of relation instances and of any mixture of *n*-adicities, as long as each instance has as subjects in its relata *n*-tuple only other instances of the network. The only constraints in these regards would be via the intension of each composing instance and what it allows as to the natures of and the ordering among its relata. With these observations, then, we prove the falsity of the Inert Substrata Thesis. Concerning absolute indiscernibility, numerically distinct instances of, say, intensions M^1, N^1, and O^1, organized in the same way as those composing Complex G, would compose complexes numerically distinct but indiscernible from G: G′, G″, … Similarly for the intensions involved in the instances composing Complex H, and generally for all other atomic complexes of mutually sustaining instances. Now, if such indiscernible complexes were the respective bottom-most relata for isomorphic meta-structures on them, then the latter would be in a total and absolute sense numerically distinct but qualitatively indiscernible. In this way indiscernibility and its distinction from identity is rendered ontologically precise, and made more perspicuously explanatory of the 'indiscernibility problem' of quantum particles widely described as systems of properties and relations.

In sum, combinatorial ontic predicates, each a dependent *ens ad aliud*, do not presuppose an ultimate substratum of inert non-ontic-predicates, each an independent *ens per se*. The key insight of the agent unifier nature of ontic predicates establishes this and so founds the subsequent and universal ontology of hierarchically structured entities. The unsuccessful theories that would attempt to build structured entities from a base of either intensions, tropes, or bare particulars, become simply irrelevant. Indeed, mutually sustaining relation instance and the networks that emerge from them invert the philosophical tradition: 'substance' is derivative of attributes. We have, then, with the above ontology of individuated ontic predicates not only solutions to traditional problems of substance and a clarification of the logical and ontological concepts of identity and indiscernibility, but also an ontology specifically relevant to micro-physics. In this way the ontology of ultimate entities and their derivatives, and the science of ultimate physical entities and their derivatives, would seem to converge and reinforce each other—plural reality of every kind and at every level, even at its lowest, is structural. In all these ways the network in-

stance realism specified by Principles I-VIII recommends itself as a powerful and economic one-category ontology.

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ERWIN TEGTMEIER

The Ontological Problem of Order

1. Three Views of Relations and the Problem of Order

The ontological problem of order arises with relations. If there were only properties and no relations it would not arise. While a property belongs in each case to one thing only, a relation has in each case more than one relatum and these relata come or, at least, seem to come in various orders. Hence a relation can be said always to hold in a certain direction or sense, as Russell calls it. The two-term relation ‘earlier than’ (simple quotes refer to things, properties and relations, not to words) e.g. holds between an event a and an event b, which is different from the case of b occurring earlier than a. In the first case the relation holds from a to b, in the second from b to a. Now, the problem of order in ontology is to account for that difference of direction. The problem is most pressing if one compares relational cases which differ merely in direction, i.e. in which the same relation holds between the same relata as in our example.

The problem of order is no traditional problem. It was not discovered before Russell. And even Russell paid attention to it only temporarily in a manuscript published only posthumously in 1984. So, Gustav Bergmann had to rediscover it and independently the present writer. It is no accident that the problem was noticed in ontologies with facts as complexes and relational universals. We will see that after we have distinguished and compared three ontological views of relations.

The first, held by Aristotle and the later Brentano, is that relations are properties belonging to one thing only though with respect to another thing. The second, held by Ockham, Locke and Meinong, is that relations are internal to the relata and grounded on qualities, i.e. non-relational properties of them. The relata are taken as consisting of qualities. The third view to be considered is the Russellian of relations as many-placed universals which are not derived from properties and are not internal but external to the relata. Russellian relations are connected with things by facts, i.e. by complexes with relations and relata as constituents.

What solution does each view offer to the problem of order in our example? The solution of the property-view is very easy. In the first case, a certain property (‘earlier’) belongs to event a with respect to event b and in the second it belongs to event b with respect to event a. Thus, this view implies that in reality there is no direction from one relatum to the other and no order of the relata, if only because in both cases no more than one thing, one relatum is involved. The ontological analysis of our example offered by the internality view is a bit more complicated. Things are assumed to have temporal qualities. Then the temporal relation ‘earlier’ between the two events is founded on these qualities. If events a and b had occurred in a different order they would have had different temporal qualities but the relation between those would not change. Since a relation is grounded on and determined uniquely by the qualities, there is ontologically only one possibility. Given two qualities, e.g. temporal qualities, there can be only one relation. From the standpoint of the internality view, this holds not merely for relations which seem symmetrical like proximity or similarity but also of seemingly asymmetrical relations like the spatial part-whole-relation. Since the latter relation is grounded on the places of the part and the places of the whole, another relation or the holding of the relation in another direction is *ontologically* impossible. But the possibility of different cases of the same relation and the same relata is a precondition for order and direction and also for the symmetry and asymmetry of relations. This is not realised by those who speak of the asymmetry of the connection between thing and property or subject and predicate while conceiving of it in such a way that it is fundamentally impossible for a property to have a thing or a predicate to have a subject. Asymmetry presupposes that a reversal of the relata is possible though not actual. The asymmetry of a relation is defined by the general condition that it must never hold in both directions. Hence the opposite of a given relational case must make sense, must be thinkable and ontologically possible. If there can be only one case with respect to a given two-place relation, given two relata there is no direction and no order. Hence, the internality as well as the property view imply the denial of direction and order of relations. Therefore, advocates of those views rightly saw no problem here. Whether their views of relation are problematic in other respects is another matter. Also, how they will account for graded and quantitative dimensions and series without assuming order?

2. Russell's Solution

With Russellian relations and facts as complexes the problem of order arises as soon as one tries to unpack ontologically the metaphorical talk of places of relata and directions and as soon as one adheres to the principle that a phenomenological difference such as that between event a coming before event b and event b being before event a must be reflected in the ontological analysis. In the example, the ontological analysis starts from two relational facts with prima facie the same constituents, the same relational universal and the same relata. Hence, to account for the difference, additional entities have to be assumed. Russell assumes positions which relata occupy in relational complexes (Russell 1913, Part III Chap.1). While earlier (in the *Principles of Mathematics* e.g.) he did not go beyond metaphorical talk, this time he does and the first step is to categorise the entities introduced. Positions are categorised as relations which hold between each relatum and the respective relational complex. The second step is to describe the content of the introduced entities. Russell takes the positions of relata not to be general order positions but to be specific to the relation relating the relata in the complex. In the case of Russell's example, the temporal sequence of two tones a and b, the relation of a to the relational complex is not that it is the first relatum but that it has the earlier-position and the relation in which b stands to the complex is not that it is the second relatum but the it has the later-position. Russell stresses "that these relations do not essentially put one term *before* the other, as though the relation went *from* one term *to* another." And he adds that "this only appears to be the case owing to the misleading suggestions of the order of words in speech or writing." (Russell 1913, p.88).

Russell thus retracts earlier statements mentioned at the beginning, though it is not very clear what entities he retracts because those statements were rather metaphorical. However, he is convinced now that order does not exist in relational facts, that there is no order of the relata in them. The reason given (and this is also the point where his later view clearly and definitely differs from his earlier view) is that he now takes it to be "so obvious as to be undeniable" that there are no inverse relations and no respective facts, that e.g. the sentences "x is before y" and "y is after x" refer to the same fact (Russell 1913, p.87). Earlier he had assumed that they stand for two different facts which merely imply one another (Russell 1903, §219). Russell's argumentation against an order of relata now seems to be that to the order of relata signs there does not correspond anything in

reality since the sentences with the opposite order of relata signs, “R(x,y)” and “R'(y,x),” where R' is the inverse of R, refer nevertheless to the same fact. An accompanying conclusion would be, of course, that “R” and “R'” do not represent either. Moreover, even in Russell's view the order of the relata symbols in “R(x,y)” represent something, though not the order of relata, namely in comparison with “R(y,x)” the holding of certain positional relations.

As against Russell I do not take it to be obvious that “x before y” and “y after x” mean the same fact. I agree that in this case there are not two different facts. But I suppose, without claiming obviousness for it, that only the first sentence represents a fact while the second is based on a fictitious inverse relation and its truth conditions are parasitic on the first fact. Thus it is possible to hold that the order of the relata signs represents the order of the relata without having to admit inverse relations. And the odd conclusion, that whether the order of the relata signs in a sentence does or does not have a referent depends on the sentence it is compared with, is avoided.

Russell's later solution to the order problem seems to me fundamentally to be a return to the property view of relations (reducing a relation to two properties), which Russell meant to overcome. Officially, his relational facts continue to consist of an n-place relational universal, such as temporal succession and n relata, to which are added now n facts connecting each relatum by a different positional relation with the main relational fact. But the positional relations contribute what should be the content of the relation in the main relational fact. For x to have the before-position in a certain relational fact and y the after-position amounts to y succeeding x temporally. Hence, the positional relations make the relation which they allegedly merely accompany in fact superfluous. A two-place relation e.g. is thus substituted by a pair of relations which turn out on closer inspection to be nothing but properties.

According to the property view "x before y" stands for x having the before-property with respect to y and "y after x" for y having the after-property with respect to x. Russell relates the before- and after-positions to a relational complex containing x and y. But wouldn't it be more meaningful to say that x has the before-position with respect to y and y the after-position with respect to x rather than relating these positions to the relational fact? Russell's relapse to an older view of relations is, I think, an inevitable consequence of his rejecting a general ordering of relata and his

attempt to solve the problem of order by specific relations of the same content as the relation of which the relata are relata, adding that the order problem requires a distribution of the entity intended to solve it over the relata.

In connection with Russell Herbert Hochberg (Hochberg 1987, p.440ff.) offered a solution of the problem of order which assumes two ordering relations between each relatum and the respective relational fact. These relations are represented linguistically by "being the first relatum of", "being the second relatum of" etc. Russell's solution is very unsatisfactory also insofar as it bases the difference between two facts on facts which have the facts to be differentiated and analysed already as constituents. Hochberg avoids that difficulty and offers an analysis in which the relata do not stand in the ordering relations to the finished complex but to a complex having the same constituents but no order. This solution seems to me unacceptable, too, since it introduces complexes which cannot be facts (having the same constituents as certain relational facts, but not being completed to form such facts) and whose nature and category is unclear. Moreover, the presumed facts of which these unordered complexes are constituents cannot be facts either. It is no fact, it is simply not true that a certain relatum is first or second etc. relatum of a complex if that complex is not ordered. Besides, both solutions open an infinite regress basing order on relational facts which also need an order of the relata. The regress is to be seen as a difficulty though it need not be vicious.

3. Set Theory and Bergmann's Solution

For many philosophers set theory is some kind of ontology. They will wonder what the ontological problem of order is all about. From an ontological point of view to think of relations as sets of ordered n-tuples may not be very convincing (it is part of what Bergmann called „dead end nominalism“) but it may, nevertheless, be promising to include n-tuples in relational facts to ground the order of relata. Hochberg (Hochberg 1981, p.233ff.), for a time, took this to be a satisfactory ground. To see whether they furnish a satisfactory solution, let us look at the n-tuples more closely. The usual identity conditions for them presuppose order rather than defining it or indicating its source. Apparently, there is neither a constituent of the n-tuple nor an entity connected with it in another way to

order them. Hence,the alleged order of it has no ground and simply is not there. It is a mere fiction permissible to the mathematician but not to the ontologist. The mathematician represents and symbolises the n-tuple as ordered without being concerned with the nature or ground of that order.

Now, set theorists themselves felt uneasy about the n-tuples because they are complex yet no sets. Thus they have been replaced or rather shown to be replaceable in principle by certain sets which serve the same purposes. These so-called definitions of ordered n-tuples by Wiener and Kuratowski introduce entities which are unordered and normal sets. The ordered pair <a,b> e.g. is replaced in Kuratowski's definition by the pair-set {{a},{a,b}}.

While it would have made sense to take ordered n-tuples to be constituents of relational facts and relations as attributes of them, the corresponding unordered pair sets (according to Wiener or Kuratowski) would certainly be misplaced as constituents. It seems impossible to think of a two-place relation as holding between its first relatum and the class of both its relata. Similarly for relations with more than two places. It would also be obviously wrong to think of the relation as an attribute of the Kuratowski-Set of its relata. There seems to be no way to make sense of a relational fact with a Kuratowski-Set as one and a relation as the other constituent.

Thus, the ideas of Wiener and Kuratowski offer no immediate solution to the ontological problem of order. Only if they are transposed ontologically is there a chance that they will. That is what Gustav Bergmann did (Bergmann 1992, Chap.III). In his late ontology he adds to his categorial inventory the category of diads. Diads are similar to facts in being complex and corresponding to sentences. Yet, the sentences corresponding to diads all express diversities between two entities. In Bergmann's middle ontology diversity is no entity at all. In his late ontology it has neither become a relation nor a fundamental connector like exemplification, though he advocated the latter alternative temporarily. Rather, diversity is a complex consisting of the two diverse entities and of nothing else. When one grants ontological status to diversity, one has to face the consequence that diversity is iterating infinitely, that there are diversities of diversities etc. (this is one of the objections against ontologising diversity). However, Bergmann takes advantage of the iteration of diversity to solve the problem of order. The diversities of diversities furnish entities structurally similar to Kuratowski-Sets. Instead of the pair set {{a}, {a,b}} Bergmann has the diversity between a and the

diversity of a and b. He symbolises the latter thus: <a,<a,b>>, employing the corner which set theory uses to represent ordered n-tuples, though he points out that diads are not ordered. Applying Bergmann's analysis to our example of the two events a and b, we get on the one hand a relational fact with the diversity between a and the diversity of a and b as constituents and on the other hand a relational fact with the diversity between b and the diversity of a and b as constituents. Insofar as the task was to account by ontological analysis for the phenomenological difference between the two cases, the problem is solved by Bergmann's analysis. But does this analysis make sense? Bergmann is aware of the phenomenological distance, as he calls it, i.e. the distance of his analysis to the phenomenological data. While phenomenological presentation may indeed not be the indisputable criterion of adequacy, an ontological analysis has at least to make sense. It does not suffice to have a perspicuous and syntactically well-organised symbolisation. I can make sense of the exemplification of a property by an individual thing as building on the diversity of property and thing (i.e. I can make sense of Bergmann's late analysis of nonrelational facts) and also of diversity as connecting entities into a complex (because something is stated about the diverse entities together and the conception of diversity as separating is based merely on a spatial metaphor). But I cannot make sense of the suggestion that the exemplification of a two-place relation is built on the diversity between it and the diversity between its first relatum and the diversity of both its relata. Only the diversity between the relata and between them and the relation seems to me to be involved at all.

4. A Solution with Ordering Forms

The solution which I regard as the most satisfactory and which is my own (Tegtmeier 1992, Chap.V) draws its inspiration not from set theory but like Russell's from the phenomenological data. Unlike Russell, however, I do not solve the problem by additional entities of the category thing (namely by relational universals), rather I assume additional entities of the category form (which are to be distinguished from literal forms of bodies). Forms are much more dependent entities than things (i.e. either individuals or universals) and facts. They depend on things, if they are forms of things, and on facts, if they are forms of facts. Forms of facts are e.g. exemplification, which forms atomic facts, or conjunction, which forms molecular facts. Forms of things are e.g. individuality and two-place

universality of the first order. They determine the subcategory of a thing. Like literal forms of bodies, members of the ontological category of form are not constituents of what they form. Their connection with what they form is closer than that between constituent and complex and analogous to what the mathematicians call idempotency. A thing together with its form is the thing and nothing else. Now, there is a kind of forms which I would call secondary forms because they form an entity already formed as a whole. Negation is such a secondary form since it forms form with respect to atomic facts, which have already the form of exemplification. The entities grounding the order in relational facts (but also the order of the constituents of molecular facts), the ordinators, as I named them, belong to the secondary forms. In relational facts they form things which are preformed as individuals or as universals of a certain type. Ordinators are firstness, secondness, thirdness and fourthness. I assume that there are not more ordinators since it seems to me that there are no underived relations with more than four places. My ontological analysis of our example would be this: there are two relational facts with the same constituents, the relation `earlier' and the event a and the event b falling under the category of individual. The difference between the two cases grounds on a having the form of firstness in the first relational fact and not having it in the second or on b having the form of secondness in the first and not in the second relational fact. I would claim that the ordinators are presented to us in perception, that we see e.g. in the first case a as first relatum and the b as second relatum (this is no idealistic but a realistic seeing-as). Naturally, ordinators are not perceived separately but in connection with the fact as a whole. If order thus presents itself in the relational facts it follows that it cannot be derivative. It cannot derive from an ordering of ordinators in a series. One has to see that ordinators themselves are not ordered, rather they are order.

Ordinators are not familiar and not particularly plausible, indeed, they seem somewhat ad hoc. To assess and appreciate them one has to consider the alternatives in an ontology with the categories of things, facts, and forms (because this is the theory into which the concept of ordinator belongs). Things divide into particulars, properties, and relations. Correspondingly, there are the alternatives of assuming ordering particulars, ordering properties, and ordering relations. According to the first alternative our example E(ab) (the event a occurring earlier than the event b) would be analysed by assuming ordering particulars p_1 and p_2,

which could be called relata-places. A relation T (takes the place) would have to connect these places with the relata in the relational facts $T(a,p_1)$ and $T(b,p_2)$. The T-facts are either inside or outside the E-fact. If the former holds E(a,b) is actually $E(T(a,p_1)),(T(b,p_2))$. If the latter holds E(a,b) forms a conjunction with $T(a,p_1)$ and $T(b,p_2)$. The assumption of T-facts inside the E-fact has two grave difficulties: first, the relation E (earlier) would not have a and b as relata but the two T-facts, which is discordant with the phenomenon E(a,b) given to us in perception. And second, if T-facts are taken to have ordered relata, it leads into an infinite regress since each T-fact needs another T-fact to base the order of its relata. To assume unordered T-facts would be rather ad hoc and would make it *ontologically* necessary, i.e. very fundamental, that T connects places to particulars of other kinds but not to other places. The alternative assumption that T-facts are outside the E-fact leads to grave difficulties, too. First, in addition to the infinite regress for T-facts, the question arises what fact E(a,b) is in the conjunction $E(a,b)\&T(a,p_1)\&T(b,p_2)$, since the order of its relata grounds on additional facts. Can E(a,b) be a relational fact if it has no order of itself? The second difficulty is logical. The conjunctive analysis of the order of relata permits false conclusions from true premises. By the law of adjunction the true premises $E(a,b)\&T(a,p_1)\&T(b,p_2)$ and $R(a,b)\&T(a,p_2)\&T(b,p_1)$, where R be some relation which holds between a and b in the opposite direction, logically imply $E(a,b)\&T(a,p_2)\&T(b,p_1)$, i.e. that b is earlier than a, which, naturally, is not the case.

The analysis of our temporal example with ordering properties is analogous to that with ordering particulars. It is simpler because it requires no relation connecting the particulars and the relata. The ordering properties would be exemplified by the relata immediately. But the analogous difficulties, which arise, are a strong evidence against this alternative, too. There remains the relational alternative to which the solution of the order problem belongs which Hochberg proposed starting from Russell. The ordering relations hold either between the relata and their relation or the respective relational fact. In the former case the analogues of the difficulties of ordering particulars and properties arise. There remains the possibility that the relata stand in the ordering relations to the respective relational fact. Let the relations `first relatum of' and `second relatum of' be symbolised by C_1 and C_2, then a being earlier than b is analysed thus: $C_1(a,(E(a,b))\&C_2(b,(E(a,b))\&E(a,b)$. The last conjunct is the fact that a is before b. And if its relata are ordered, this order must be

contained in it. Otherwise it would not be that fact. Hence, the other conjuncts are superfluous as grounds of the order of the relata. If one follows Hochberg's suggestion and substitutes "E(a,b)" in the C-facts by unordered complexes of E, a and b, it will no longer be the case that a is first relatum and b second relatum. The insuperable difficulty is that C-facts stand in the dilemma pointed out already with respect to Hochberg's analysis. They are either useless or non-existent. One can conclude that the alternatives to orderings forms must be ruled out because of grave difficulties. With ordinators one does not get into the difficulties discussed because they are inside the relational facts and yet do not require entities other than the usual relata.

5. Order and Time

The order of relata is easily mixed up with the temporal succession of relata signs in speaking or reading the sentence representing the relational fact of which the relata are constituents (see Tegtmeier 1995). Yet, a temporal succession of two signs is just another relational fact whose relata need a ground of their order, too. Hence, temporal succession cannot be the ground of all order in the world. Nevertheless, order and series, which bases on the order of relata in relational facts, was equated by many philosophers (e.g. Leibniz and Kant) with temporal succession. When we try to apprehend the order of relata we usually fall back on temporal facts, due to our rules of linguistic representation and our stepwise way of more careful apprehension, though we could attend to it in any relational fact. The point to be noted is that we apparently cannot grasp order separately, which, by the way, supports my categorising ordinators as mere forms. To get an idea of order as such we turn to temporal successions because these are used to represent order. Since we cannot get hold of the reality, we put up with the sign. And it is not nearly as easy to keep sign and reality apart as one would think.

Russell takes the standpoint, as was reported already, that we actually confuse language and reality or rather, that we project a structure of language into reality, if we assume an order of relata. But this standpoint undermines itself. It presupposes that relata in facts of temporal succession are ordered or at least in linguistic temporal facts. Yet, linguistic and temporal facts are facts among facts. Russell implies that some relata in

relational facts are ordered. Why shouldn't all other relational fact be ordered in that way, too ?

Russell's and Bergmann's ontological analyses eliminate order from relational facts. And I would not want to appeal to phenomenological data to argue that order is there. It is not a starting point but a result, if my analysis of relational facts is right, that order is basic and neither eliminable nor reducible. I am convinced that this has far-reaching consequences (first of all, for the ontology of time; see Tegtmeier) and that the problem of order has been greatly underestimated.

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INGVAR JOHANSSON

On the Transitivity of the Parthood Relations

1. The Problem: Are Parthood Relations Always Transitive?

If x is a spatial part of y, and y is a spatial part of z, then necessarily x is a spatial part of z. If x is a temporal part of y, and y is a temporal part of z, then necessarily x is a temporal part of z. Both spatial and temporal parthood are transitive relations. But what about parthood in general? Are the transitivities of spatial and temporal parthood merely special cases of the transitivity of parthood in general? Among philosophers interested in axiomatic mereology, there is an almost complete consensus to the effect that the answer is: 'Yes, all parthood relations are transitive'. But some critical voices have been heard, and I think they are worth re-considering. Below, I have listed a dozen of examples of cases where it has been seen as being problematic whether the conjunction of 'x < y' and 'y < z' really implies 'x < z'.

1. A handle, x, can be part of a door, y, and a door can be part of a house, z, but yet the handle need not be (is not) a part of the house. That is, 'x < y' and 'y < z' but '¬(x < z)'. (Of course, 'part' cannot here and elsewhere in the list be synonymous with 'spatial part'.)
2. A platoon is part of a company, and a company is part of a battalion, but yet a platoon is not part of a battalion.
3. A cell's nucleus is part of a cell, and a cell is part of an organ, but yet the nucleus is not part of an organ.
4. Heart cells are parts of the heart, and the heart is part of the circulatory system, but yet the cells are not parts of the circulatory system.
5. Person P is part (member) of the football club FC, and FC is part (member) of the National Association of Football Clubs, NAFC, but yet P is not a part (member) of NAFC.

6. Simpson's finger is part of Simpson, and Simpson is part of the Philosophy Department, but yet Simpson's finger is not part of the Philosophy Department.
7. Hydrogen is part of water, and water is part of our cooling system, but yet hydrogen is not part of our cooling system.
8. Cellulose is part of trees, and trees are parts of forests, but yet cellulose is not part of forests.
9. A handle is part of a spoon, and a spoon is part of eating soup, but yet a handle is not part of eating soup.
10. This shard was part of a plate, and the plate was part of a dinner service, but yet the shard was not part of the dinner service.
11. This tree is part of the Black forest, and the Black forest is part of Germany, but yet this tree is not part of Germany.
12. These grains of sand are part of the beach, and the beach is part of the island, but yet these grains of sand are not part of the island.[1]

If one finds at least one of these examples convincing, then one has to face the problem I have pointed to, will discuss, and (I think) solve: Are parthood relations always transitive? In the first two sections, two familiar proposed solutions will be presented and rejected – though not without admitting that both of them contain quite a kernel of truth. In ensuing sections, I will put forward my own solution. I will claim that there are both intransitive and non-transitive parthood predicates, but that, when examined more closely, these predicates are at least as complex as so-called relative products of other binary relational predicates or as ternary predicates. Only truly *binary* parthood relations are necessarily transitive.

A ternary predicate is a predicate that has the form Rxyz, but what is a relative product? Complying with Patrick Suppes, I will define it as follows: "If R and S are binary relations, then by the *relative product* of R and S (in symbols R/S) we mean the relation which holds between x and y

[1] The first example comes originally from D. A. Cruse, "On the Transitivity of the Part-Whole Relation," *Journal of Linguistics* 15 (1979), 29-38, and the second and third have their origin in N. Rescher, "Axioms for the Part Relation," *Philosophical Studies* 6 (1955), 8-11. Number four and five are variations of well known themes, and the rest are taken from Morton E. Winston, Roger Chaffin, and Douglas Herrmann, "A Taxonomy of Part-Whole Relations," *Cognitive Science* 11 (1987), 417-444.

if and only if there exists a z such that R holds between x and z, and S holds between z and y. Symbolically, xR/Sy ↔ (∃z)(xRz & zSy)."[2] The formula for relative products contains, just like the form for ternary predicates, three individual variables.

2. Proposed Solutions: (A) Specified parthood need not be transitive

The first three examples in my list have been discussed both by Peter Simons' in his classic book *Parts*, and by Roberto Casati and Achille C. Varzi in their *Parts and Places*.[3] Each claims that these examples trade on an ambiguity between, on the one hand, a basic and broad sense of 'part' that denotes a relation that is necessarily transitive and is the object of mereology and, on the other hand, a narrow sense of 'part' (ϕ-part) that is non-transitive and is not the object of mereology. Casati and Varzi write:

> One can argue that a handle is a functional part of a door, the door is a functional part of the house, and yet the handle is not a functional part of the house. But this involves a departure from the broader notion of parthood that mereology is meant to capture. To put it differently, if the general intended interpretation of 'part' is narrowed by additional conditions (e.g., by requiring that parts make a direct contribution to the functioning of the whole), then obviously transitivity may fail. In general, if x is a ϕ-part of y and y is a ϕ-part of z, it may well be true that x is not a ϕ-part of z: the predicate modifier 'ϕ' may not distribute over parthood. But that shows the non-transitivity of 'ϕ-part' (e.g., of *direct* part, or *functional* part), not of 'part'. And within a sufficiently general framework this can easily be expressed with the help of explicit predicate modifiers.[4]

According to this view, there are ϕs which are such that the conjunction of 'x is a ϕ-part of y' and 'y is a ϕ-part of z' does not imply 'x is a ϕ-part of z'; the conjunction may even imply 'x is *not* a ϕ-part of z'.

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[2] Suppes, *Introduction to Logic*, Van Nostrand: Toronto 1957, p. 226. I will in what follows use Suppes' symbol '/' for this kind of relative product.

[3] See Simons, *Parts. A study in Ontology*, Clarendon: Oxford 1987, pp. 107-108, and Casati and Varzi, *Parts and Places. The Structures of Spatial Representation*, Bradford: London 1999, pp. 33-34.

[4] Casati and Varzi, ibid., p. 34.

In the quotation, Casati and Varzi provide two explicit examples of ϕ-parts, ‘direct part’ and ‘functional part’, but each is unclear. First, ‘functional part’ can mean both *direct* and *indirect* functional part, but the context makes it clear that what is intended is ‘direct functional part’. The predicate ‘indirect functional part’ can lay a much stronger claim on being transitive. Second, ‘direct part’ is an incomplete expression; a direct part has to be direct in a certain respect. Therefore, I will reformulate the first five examples as follows:

1. A handle can be a *direct functional* part of a door, and the door can be a *direct functional* part of a house, but yet the handle need not be (is not) a *direct functional* part of the house.
2. A platoon is a *direct organizational* part of a company, and a company is a *direct organizational* part of a battalion, but yet a platoon is not a *direct organizational* part of a battalion.
3. A cell’s nucleus is a *direct functional* part of a cell, and a cell is a *direct functional* part of an organ, but yet the nucleus is not a *direct functional* part of an organ.
4. Heart cells are *direct functional* parts of the heart,[5] and the heart is a *direct functional* part of the circulatory system, but yet the heart cells are not *direct functional* parts of the circulatory system.
5. I am a *direct organizational* part of the organization X, and X is a *direct organizational* part of the organization Y, but yet I am not a *direct organizational* part of Y.

The instantiations of ‘ϕ-part’ in the above are intransitive, but since for some values of ϕ such as ‘*spatial* part’ and ‘*temporal* part’, it is transitive, too, the general predicate ‘ϕ-part’ is neither transitive nor intransitive but rather non-transitive.[6]

Now what is wrong with this account? The answer is that it gives rise to an extremely curious subsumption relation between the predicates ‘<’ and

[5] In fact, I consider this to be false. There are intermediate functional unities; but the example will fulfil its argumentative function nonetheless.

[6] There seems to be no reason to distinguish between direct and indirect spatial (or temporal) parts. Probably, this fact mirrors the fact that spatial (and temporal) parthood is transitive.

$<^{\phi}$ (‘ϕ-part’) and cannot explain why some specific ϕ-parts are transitive and some are intransitive. According to Simons, Casati, and Varzi, while it is in general true that:

‘x < y’ and ‘y < z’ necessarily implies ‘x < z’,

for some ϕ-parts it is true that:

‘x $<^{\phi}$ y’ and ‘y $<^{\phi}$ z’ and ‘¬(x $<^{\phi}$ z)’.

All the ϕs in question are said to specify (Simons) or modify (Casati and Varzi) a “broader notion of parthood.” Therefore, the relational predicate ‘$<^{\phi}$’ ought to be to the relational predicate ‘<’ what property predicates such as ‘light red’ and ‘quickly running’ are to the more general property predicates ‘red’ and ‘running’, respectively.[7] What is true of ‘red’ is necessarily also true of the ‘light red’ which it subsumes, what is true of ‘running’ is necessarily also true of ‘running quickly’, and what is true of ‘x < y’ ought necessarily be true of ‘x $<^{\phi}$ y’.[8] Since ‘x < y’ is transitive, ‘x $<^{\phi}$ y’ ought to be so as well. But according to the Simons-Casati-Varzi analysis, the latter predicate is non-transitive. I do not think one can make sense of such an odd subsumption relation, and nor have the philosophers mentioned tried to. They seem simply not to have noted the issue that I have raised. However, as will become clear later on, they are quite right in claiming that ‘x ϕ-part y’ is non-transitive, but they give the very false impression that ‘x ϕ-part y’ always denotes a binary relation.

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[7] If, instead, Simons, Casati, and Varzi had intended ‘$<^{\phi}$’ to be to ‘<’ what ‘stuffed animal’ is to ‘animal’, then they ought not to have spoken of “specification” or “modification.” The predicate ‘stuffed animal’ is neither a specification nor a modification of ‘animal’.

[8] This view follows from the nature of subsumption. It is, by the way, an integral part of so-called description logic in computer science: “when a concept is more specific than some other concept, it inherits the properties of the more general one.” The quotation is from F. Baader, *et al*. (eds.), *The Description Logic Handbook*, Cambridge University Press: Cambridge 2003, p. 5.

3. Proposed Solutions: (B) Seeming parthood non-transitivities are due to equivocations

In their paper "A Taxonomy of Part-Whole Relations," Winston, Chaffin, and Herrmann claim that the "apparent failures of transitivity [of parthood] occur when different types of meronymy occur in the two premises of a syllogism."[9] They claim that all seeming violations of the mereological inference from 'x < y' and 'y < z' to 'x < z' are due to equivocations between six different kinds of meronymic relations (in the terminology here introduced: six kinds of ϕ-parts).[10] According to these authors, to be a part can mean six different things:

(i) to be a component of an integral object;
(ii) to be a member of a collection;
(iii) to be a portion of a mass;
(iv) to be a stuff of an object;
(v) to be a feature of an activity;
(vi) to be a place within an area.

When the conjunction of 'x < y' and 'y < z' does not seem to imply 'y < z', this is due, they say, to the fact that the two premises really have the form 'x ϕ_1-part y' and 'y ϕ_2-part z', respectively.

In my opinion, the authors give their second sense of 'part', "being a member of a collection," too wide a sense. Contrary to their claim,[11] the sense in which a tree is part of a forest (collection) is generically distinct from the sense in which a juror is part of a jury (social unit). A jury is not a collection. I will therefore add a seventh sense of 'to be a part':

(vii) to be a direct organizational part (or: to be a subunit of a group or an organization).

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[9] Winston, Chaffin, and Herrmann, "A Taxonomy of Part-Whole Relations," *Cognitive Science* 11 (1987), p. 438.

[10] They are talking about equivocations between meronymic and non-meronymic relations, too. But I will leave that out of account.

[11] Winston, Chaffin, and Herrmann, "A Taxonomy of Part-Whole Relations," *Cognitive Science* 11 (1987), p. 423.

The term ‘organization’ should here be understood as relating to all social units (human groups and collectivities) that are regulated by formal or informal rules, and the term ‘subunit’ should be understood in such a broad sense that it subsumes both what is normally termed ‘member of an organization’ and ‘part of an organization’, respectively. With this amendment, which will be explained in more detail in section six, the essence of the examples 6 to 12 can be distilled in the following true statements:

6. The fact that Simpson’s finger is a *component-part-of-the-integral-object* Simpson and that Simpson is a *direct-organizational-part-of-the-organization* the Philosophy Department, does not imply that Simpson’s finger is in any of these senses part of the Philosophy Department.
7. The fact that hydrogen is a *stuff-part-of-object* water and that water is a *component-part-of-the-integral-object* our cooling system, does not imply that hydrogen is in any of these senses part of our cooling system.
8. The fact that cellulose is a *stuff-part-of-object* trees and that trees are *member-parts-of-the-collections* forests, does not imply that cellulose is in any of these senses part of forests.
9. The fact that a handle is a *component-part-of-the-integral-object* spoon and a spoon is a *feature-part-of-the-activity* eating soup, does not imply that a handle is in any of these senses part of eating soup.
10. The fact that this shard was a *portion-part-of-the-mass* the plate and that the plate was a *component-part-of-the-collection* a dinner service, does not imply that the shard was in any of these senses part of the dinner service.
11. The fact that this tree is a *member-part-of-the-collection* the Black forest and that the Black forest is a *place-part-of-the-area* Germany, does not imply that this tree is in any of these senses part of Germany.
12. The fact that these grains of sand are *portion-parts-of-the-mass* the beach and that the beach is *place-part-of-the-area* the island, does not imply that these grains of sand are in any of these senses parts of the island.

More generally: The conjunction of 'x ϕ_1-part y' and 'y ϕ_2-part z' implies neither 'x ϕ_1-part z' nor 'x ϕ_2-part z'. However, and as is not explicitly noted by the authors, the very same conjunction does imply 'x < z' if '<' is a determinable that subsumes 'ϕ_1-part' and 'ϕ_2-part'.[12] For instance, the fact that Simpson's finger is a *component-part-of-the-integral-object* Simpson and that Simpson is a *direct-organizational-part-of-the-organization* the Philosophy Department, does really imply that Simpson's finger is, in the *determinable* sense of 'part', part of the Philosophy Department. Another such example: If 'x is a spatial part of y' and 'y is a temporal part of z', then necessarily 'x is a part of z'.

So far so good. In all probability, the equivocations spotted have sometimes fooled some people. But Winston *et al*. also claim that "meronymy is transitive when the same kind of meronymic relation occurs in both premises of a syllogism."[13] In other words, they claim that the conjunction of 'x ϕ_1-part y' and 'y ϕ_1-part z' necessarily implies 'x ϕ_1-part z'. This view contradicts not only my own view but also that of Simons, Casati, and Varzi. If Winston *et al*. were right, then the term 'direct functional part' would be used in two different senses in examples one, three, and four above. Similarly, 'direct organizational part' would have to mean different things in examples two and five. This seems not to be the case.

The concept of "component-part," as introduced by Winston *et al*., suffers from the same ambiguity which I have pointed out in relation to 'functional part'. It can mean either direct component-part or indirect component-part. Here, it ought to mean direct component-part. Examples one to five can now be rewritten as follows:

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[12] One may also, as A. Artale, E. Franconi, N. Guarino, and L. Pazzi do, say that "the WCH approach seems to exclude the existence of a single, very general *part-of* relation assumed to be transitive;" see p. 350 of their paper "Part-whole relations in object-centered systems: An overview," *Data & Knowledge Engineering* 20 (1996), 347-383.

[13] Winston, Chaffin, and Herrmann, "A Taxonomy of Part-Whole Relations," *Cognitive Science* 11 (1987), p. 438.

1. A handle can be a *direct-component-part-of-the-integral-object* a door, and the door can be a *direct-component-part-of-the-integral-object* a house, but yet the handle need not be (is not) a *direct-component-part-of-the-integral-object* a house.
2. A platoon is a *direct-organizational-part-of-the-organization* a company, and a company is a *direct-organizational-part-of-the-organization* a battalion, but yet a platoon is not a *direct-organizational-part-of-the-organization* a battalion.
3. A nucleus is a *direct-component-part-of-the-integral-object* a cell, and a cell is a *direct-component-part-of-the-integral-object* an organ, but yet the nucleus is not a *direct-component-part-of-the-integral-object* an organ.
4. The heart cells are *direct-component-parts-of-the-integral-object* the heart, and the heart is a *direct-component-part-of-the-integral-object* the circulatory system, but yet the heart cells are not *direct-component-parts-of-the-integral-object* the circulatory system.
5. I am a *direct-organizational-part-of-the-organization* X, and X is a *direct-organizational-part-of-the-organization* Y, but yet I am not a *direct-organizational-part-of-the-organization* Y.

In this list, the non-transitivity cannot be due to different senses of ‘part’. Winston *et al*. have greatly over-generalized their very useful insight. However, my strongest reasons for the view that ‘ϕ-part’ need not always denote a binary transitive relation are presented in the next two sections.

4. The Solution: (C) Intransitive parthood predicates are not binary predicates

Let us now look at two new examples of ϕ-parts; one where the predicate in question is non-transitive (13), and one where it is intransitive (14):

13. x can be a large spatial part of y and y can be a large spatial part of z, but yet x need not necessarily be a large spatial part of z.

14. If the part x is a spatial 60%-part of y and y is a spatial 60%-part of z, then x cannot possibly be a spatial 60%-part of z (x is necessarily a spatial 36%-part of z).

Obviously, in these two examples the relational predicates ('large spatial part of' and 'spatial 60%-part of') have exactly the same sense in all their occurrences. Therefore contra Winston *et al*., there are surely some ϕ-part-predicates that are non-transitive and some that are intransitive. How to explain this fact without, like Simons, Casati, and Varzi, doing violence to the ordinary logic of subsumption? The answer, to be worked out and explained in this and the next two sections, is that, for many values of ϕ, 'ϕ-part' is not a binary relational predicate subsumable under '<'. Instead it is either a relative product of two binary relations 'ϕ' and '<' (so that it ought to be written 'ϕ/< ') or it is an implicitly ternary relation (and so ought to be written 'Rxyz'). In both cases, although in different ways, there are at least three relata involved; not just two, as in the parthood relation of mereology.[14] And both relative products and ternary relations may well be non-transitive or intransitive.

The predicate 'is an aunt of' is a relative product. If 'a is the aunt of b' (aAb), then necessarily there is a w such that 'a is the sibling of w' (aSw) and 'w is the parent of b' (wPb). We can write: 'A = S/P' as shorthand for:

$$xAy \leftrightarrow (\exists w)(xSw \,\&\, wPy).$$

Similarly, if 'a is a large spatial part of b', then necessarily there is at least one object of size comparison (Cw) such that 'a is larger than w' (aLw). The relational predicate 'is a large spatial part of' contains, apart from its reference to some comparison object(s), the relative product of the binary relations 'L' and 'a is a spatial part of b' ($a <^S b$), i.e., it should be symbolized 'L/<', not '$<^L$ ' as if it (like the '$<^S$ ' for spatial part) were subsumable under '<'. In other words:

$$x \text{ is a large spatial part of } y \leftrightarrow (\exists w)(Cw \,\&\, xLw \,\&\, (x <^S y)).$$

[14] The view that the predicates in the examples (13) and (14) might not denote binary relations was first suggested to me by Kevin Mulligan.

Necessarily, the predicate ‘is a large spatial part of’ involves three individual variables. The seeming monadic predicate ‘is spatially large’ does not, like the monadic predicate ‘is round’, denote only a monadic property. Shapes like roundness inhere in things, and, of course, so do sizes. But the predicate ‘is large’ does not just denote a size. It also denotes a relation between the thing to which it is primarily attributed and certain other, smaller things. This fact seldom creates a problem in everyday communication since the context implicitly affords us the necessary (but vaguely delimited) contrasting sizes. However, when discussing parthood in relation to mereology, it is important to make this implicit relationship explicit.

It should, though, be noted that the predicate ‘L/<’ is not a relative product in exactly the same sense as this concept is defined by Suppes, and according to which ‘is an aunt’ is a relative product of S and P in our example above. It is more complex. The explicit structure of ‘x L/< y’ contains three conjuncts whereas the explicit structure of ‘x S/P y’ contains only two. We have:

$$x\,S/Py \leftrightarrow (\exists w)(xSw \,\&\, wPy), \text{ and}$$

$$x\,L/< y \leftrightarrow (\exists w)(Cw \,\&\, xLw \,\&\, (x <^{S} y)), \text{ respectively.}$$

This difference does not make the term ‘relative product’ inapplicable to a case like L/<; but ‘qualified relative product’ would be more to the point. Both ‘xL/< y’ and ‘xS/Py’ share the feature that whereas only two relata are explicitly mentioned there is nonetheless a hidden and indefinite reference to a third relatum, w, which appears explicitly in the definiens. Clearly, mereological axioms for binary parthood cannot be applied to xL/< y.

I guess and hope that no further arguments are now needed to show that, just like the predicate ‘large spatial part of’, the predicate ‘spatial 60%-part of’ designates a relative product to which mereological axioms cannot be applied. In this case, it is even more obvious that there is an indefinite reference to one or several comparison objects. It is the specific numerical relationship mentioned in ‘spatial 60%-part of’ that makes this predicate

intransitive in contradistinction to the merely non-transitive predicate ‘large spatial part of’.

At the beginning of this section I claimed that the (seemingly two-place) predicate ‘large spatial part of’ is non-transitive. I have now claimed that the very same predicate is in fact a relative product and a kind of three-term relation. Are these claims consistent with each other? The answer is: Yes, they are, once we have isolated a natural definition of transitivity for relative products. The definitional statement

L/< is transitive if and only if necessarily:
if xL/< y & yL/< z
then xL/< z

can be explicated more fully as

L/< is transitive if and only if necessarily:
if [(∃w)(Cw & xLw & (x $<^S$ y)) & (∃v)(Cv & yLv & (y $<^S$ z))]
then (∃u)(u=v & Cu & xLu & (x $<^S$ y)).

If there are no restrictions on w and v, then the consequent need not be true. If, however, one introduces a constraint to the effect that w is larger than or equal to v, then the consequent becomes true. In short, for some values of the variables there is transitivity and for some others there is not. The general predicate and relative product ‘large spatial part of’ is non-transitive. Q.E.D.

5. The solution (C) applied to functional parthood

Let us next look at the seemingly binary predicate ‘is a direct functional part of’, or ‘is a *direct-component-part-of-the-integral-object*’. I regard these expressions as more or less synonymous. Consider, first, artefactual-functional parthood. What to be said, in light of section four, about the sentence: ‘This handle is a *direct functional* part of this door, and this door is a *direct functional* part of this house, but yet the handle is not a *direct functional* part of the house’?

If a handle is a functional part of a door, then the handle has to be a spatial part of the door, and the door has to be a functional unity. However, there is a third requirement as well. The handle has to be able to act on something else that is of relevance for its function in relation to the door;

and in order to have this ability it has to be in spatial contact with this other thing. Of course, this thing is the panel of the door. The function of the handle, in relation to the door, is to make it easier to move the panel. Leaving as an open question whether the handle is mono- or multifunctional, and at the same introducing variables, we can write:

- In the artefactual-functional unit (A) of a door (y),
- one function of the handle (x) is
- to make it easy to move (M) the panel (w).

Next, if a door is a functional part of a house, then the house has to be a functional unity, the door has to be a spatial part of the house, and the door has to be able to act on (and therefore be in contact with) something else that is of relevance for its function in relation to the house. Such a thing is the wall in which it is placed. The function of a door is to make it easy to have a part of a wall sometimes contain a hole and sometimes not.

- In the artefactual-functional unit (A) of a house (y),
- one function of the door (x) is
- to make it easy to open and close (M) a hole in the wall (w).

Something x is a functional part of something else y (xFy) if and only if, y is a functional unity or integral object of some kind (Ay), and there is a w such that x makes something happen (M) to w that is relevant for Ay. If, in this sentence, the clause ‘that is relevant for Ay’ is left out of account, the formal structure of the right hand side can be written ‘$(\exists w)(Ay \,\&\, xMw \,\&\, (x <^{S} y))$’. Since it is a relative product, it can be symbolized ‘$xM/< y$’. Formally, therefore, we get:

‘$xFy \rightarrow xM/< y$’ and ‘$xM/< y \leftrightarrow (\exists w)(Ay \,\&\, xMw \,\&\, (x <^{S} y))$’.

Note that some clause like ‘Ay’ is necessary in the formula. If it were absent, one could let the value of ‘x’ be the handle, the value of ‘w’ be the panel, and the value of ‘y’ be not the door, but our solar system, and so get the odd result that the handle has the relation M/< to the solar system.

When we claim that a handle (x) is a functional part of a door (y), we seem to be using a binary relational predicate. In fact, however, we are using a predicate that contains a relative product and that, therefore, involves at least three relata (x, y, and w). And the same kind of reasoning

applies to the door-to-house case, too. Since the mereological axioms for binary parthood cannot be applied to ‘xM/< y’, neither can they be applied to ‘xFy’. The sentences ‘The handle is a functional part of the door’ and ‘The door is a functional part of the house’ fall outside mereology as the theory of the binary parthood relation.

In spite of this result, however, we can still of course ask whether the three-term relative product ‘xM/< y’ is transitive or not. Using the definition put forward in section four we get:

> x M/< y is transitive if and only if necessarily:
> *if* [(∃w)(Ay & xMw & (x $<^S$ y)) & (∃v)(Av & yMv & (y $<^S$ z))]
> *then* (∃u)(u=v & Au & xMu & (x $<^S$ y)).

If, here, we let the value of x be the handle, that of w the panel, of y the door, of v the wall, and of z be the house, then it is easily seen that the only expression in the consequent whose truth might be questioned is ‘xMu’. This says “the handle makes it directly easy to open and close a hole in a wall,” and it is false. Why? Answer: since the handle is not directly connected to the wall it cannot directly act on it. Conclusion: the general relative product predicate ‘direct artefactual-functional parthood’ cannot be transitive.

What, then, about biological-functional parthood?[15] Examples three and four on our list can be brought out as follows:

[15] In the philosophy of biology, some authors have explicitly made claims like “relationships between phenomena at different levels will in general be taken to be nontransitive,” “while we may take the gene to be part of a cell, it is *not* part of the organism of which that cell is a part,” and “nontransitivity is not really a separately imposed constraint but an implication of the triadic system itself;” quotations from Stanley N. Salthe, *Evolving Hierarchical Systems*, Columbia University Press: New York 1985, p. 118.

(a)

- In the biological-functional unit (B) of a cell (y),
- one function of the cell nucleus (x) is
- to store information (M) about cellular proteins (w);

(b)

- In the biological-functional unit (B) of the heart (y),
- one function of the heart cells (x) is
- to make possible the contractions and expansions (M) of the heart tissue (w);

(c)

- In the biological-functional unit (B) the circulatory system (y),
- one function of the heart (x) is
- to pump (M) blood (w).

This means, that instead of the two-term relation ‘the nucleus is a direct functional part of the cell’, we have something that involves the three relata ‘nucleus-proteins-cell’; instead of the two term relation ‘the heart cells are direct functional parts of the heart’, we have something that involves the three relata ‘cell-tissue-heart’; and instead of the two-term relation ‘the heart is a direct functional part of the circulatory system’ we have something that involves the three relata ‘heart-blood-circulatory system’. Logically speaking, these biological-functional parthood predicates contain relative products in the same way as artefactual-functional parthood predicates do. Therefore, even biological-functional parthood predicates fall outside mereology. Formally, we now have as before (but with ‘By’ instead of ‘Ay’):

‘$xFy \rightarrow xM/< y$’ and ‘$xM/< y \leftrightarrow (\exists w)(By \,\&\, xMw \,\&\, (x <^{S} y))$’.

In order to investigate whether the relative product predicate ‘biological-functional parthood’ is transitive or not, we can proceed exactly as in the case of artefacts. If, in the definition of transitivity for relative products, we insert the values that (a) and (b) afford us, then the problematic consequent-sentence becomes: ‘Cell nuclei make possible the contractions and expansions of the heart tissue’. If, instead, we insert values from (b)

and (c), then the questionable sentence becomes: ‘Heart cells pump blood’. Both these sentences are false, and this being so, the expression ‘direct biological-functional part of’ cannot be a transitive predicate.

6. The solution (C) applied to organizational parthood

The two remaining examples, (2) and (5), describe parthood relations between social units: ‘platoon-company-battalion’ and ‘person(P)-organization(FC)-organization(NAFC)’, respectively. In everyday language, a platoon is part of a company, a company is part of a battalion, a person can be part of a club, and a club can be part of an association. In my terminology, all these four parthood cases contain a relation of direct organizational parthood. There are, though, differences. Whereas P can stop being a member of FC and still exist, and FC can leave NAFC without ceasing to exist, a platoon cannot leave its company (and a company cannot leave its battalion) without losing its identity.

In the sense that I am here using the term ‘organization’, there can be no organizational parthood relations without consciousness and language. But this might be possible with respect to functional parthood (see the concluding section). This is one reason for keeping these parthood relations separate. Another indication of their generic difference is the fact that, whereas x cannot be a functional part of y without also being a spatial part of y, x can very well be an organizational part of y without being a spatial part of y. Many organizations such as clubs, associations, platoons, companies, and battalions simply lack a definite spatial delimitation.

When there is an organization, there are both persons and rules. First, even though all the persons of an organization may be exchanged and nonetheless the organization remain the same, there must at any specific moment at which the organization exists be some existing persons that can perform functions related to the organization. Normally, such persons are members, but they need not necessarily be; some kinds of organizations can survive a total death of members. Second, if a unit of some kind is a direct subunit of an organization, then necessarily it is regulated by rules, be they formally stated or merely informally imposed. Mostly, such rules are constraining in certain respects and enabling in others. As a member of

FC, P has both rights and duties; and as a member of NAFC, FC, too, has both rights and duties. Even military units have both rights and duties in relation to their direct superordinated units. With respect to some organizations, such rules cannot only be changed, they can be completely exchanged for other rules without affecting the identity of the organization.

Every organization necessarily combines one concrete aspect (the persons involved) and one abstract aspect (the rules involved). Let us now look at the direct organizational parthood relations involved in 'P-FC-NAFC'.

It is beyond doubt that 'P is a member of FC' and 'FC is a member of NAFC' need not imply 'P is a member of NAFC'. Why? Both FC and NAFC have explicit rules for membership, and these rules can very well (but need not necessarily) be such that, although P is a member of FC, he cannot possibly become a member of NAFC. In the regulations of many clubs and associations, the second paragraph reads something like this:

"§2. A person is a member of X if he or she supports the purpose of X as stated in §1, and if this person pays the annual membership fee."

Let us assume that the membership rules of FC and NAFC contain such a paragraph. That is, we have:

"§2. A *person* is a member of FC if he or she supports the purpose of the club as stated in §1, and if this person regularly pays the membership fee," and

"§2. A *football club* is a member of NAFC if it supports the purpose of the association as stated in §1, and if the club fulfils its economic and representative duties as stated in §§ ..."

In these regulations it is explicitly stated what kind of entities are allowed as members, i.e., persons and football clubs, respectively; and since persons cannot be members of NAFC, P cannot possibly be a member and direct organizational part of this organization. And similar remarks can be made in relation to platoon-(member/part of)-company-(member/part of)-battalion. Because of this, 'direct organizational part' cannot be a transitive predicate.

Regulations like §2 above have two specific features. They are themselves a kind of part of the organization in question, and they connect the organization to its members. At first, it might be tempting to claim that 'x is a direct organizational part of y' contains a relative product, 'O/< ',

because if this predicate is applicable then this implies “There is a rule z such that x has an organization relation O to z (xOz) and z is part of y (z < y).” We would then have the structure: xO/< y ↔ (∃z)(xOz & (z < y)).

If this were true, I would have no qualms. To the contrary. I could then say: “Fine, direct organizational parthood has essentially the same formal structure as direct functional parthood.” However, I do not think that it is true. For in a relative product, it is taken for granted that the two connected binary relations are logically independent of each other. That is, in the case at hand, ‘xOz’ should be able to be true when both ‘z < y ’ and ‘xO/< y’ are false. What is denoted by ‘x’ should be able to have the relation O to z without thereby becoming part of the organization y. But this is impossible, since the rule z (§2) explicitly mentions both possible members and the organization y. The unit x cannot conform to z without being part of y. To be a direct organizational part is to be one relatum in a relation that is at least ternary and holds between members (x) and an organization (y) because of some membership rules (z); in symbols, Oxyz. Just like the ternary relation ‘x is more similar to y than to z’, the ternary relation ‘x is an organizational part of y by means of z’ cannot possibly be reduced to a conjunction or a combination of binary relations.

The expression ‘x is a direct organizational part of y’, which contains two individual variables, has to be regarded as shorthand for an expression that contains at least three such variables. As in the case of predicates for functional parthood, but in another way, even predicates for organizational parthood contain a hidden third relatum. And the conclusion is the same: binary mereology cannot be applied.

I have already informally explained why ‘direct organizational part’ cannot be a transitive predicate; but it may be worthwhile to take a more formal look at this truth, too. First, we need a definition of transitivity for ternary predicates. In my opinion, it has to take the form of two complementary definitions that I will call left-transitivity and right-transitivity, respectively:

‘Rxyz’ is left-transitive if and only if,
necessarily: *if* Rxyz & Ryzw *then* Rxzw;

‘Rxyz’ is right-transitive if and only if,
necessarily: *if* Rxyz & Rwxy *then* Rwyz.

The ternary relation ‘x lies on a line between y and z’ is transitive in both senses, but whether or not the two definitions are always extensionally equivalent is of no concern for our purposes here. Rather it is another aspect that is of interest. Both the definitions have an implicit requirement built into them, namely that all the variables have to be variables for the same kind of entities. Why? Because in left-transitivity the y-variable figures both as the second and as the first relatum, and the z-variable figures both as the third and as the second; and in right-transitivity the x-variable figures both as the first and as the second relatum, and the y-variable figures both as the second and as the third. This requirement of categorial homogeneity of the variables cannot be fulfilled in the case of Oxyz. The values of its first variable have to be either persons or organizations, the values of its second should be organizations, and the values of its third variable are sets of rules. That is, the first and the second relata are always categorially distinct from the third relatum. Strictly speaking, therefore, transitivity is not defined for Oxyz (meaning ‘x is a direct organizational part of y by means of z’). Loosely speaking, however, one might still say that Oxyz cannot be a transitive relation.

I have now argued that direct functional and direct organizational parthood lack transitivity for quite other reasons than those put forward by Winston, Chaffin, and Herrmann. But I will end this section by stressing that an equivocation between functional parthood (in the first premises) and organizational parthood (in the second premises) is involved in the following two fallacies:

- (6) Simpson’s finger is part of Simpson and Simpson is part of the Philosophy Department, therefore Simpson’s finger is part of the Philosophy Department.
- (15) The arm is part of the musician and the musician is part of the orchestra, therefore the arm is part of the orchestra.

7. Three conclusions

The first conclusion of this paper is simple and not in any way astonishing: All binary parthood relations are transitive.[16] The second conclusion is, as far as I know, quite new: Seemingly intransitive and non-transitive binary parthood predicates, both in everyday and in scientific language, are in every case hiding a reference to a third relatum, which explains their lack of transitivity. In appearance these predicates are binary predicates, in reality they are at least as complex as either relative-product-predicates or as ternary predicates. Together, these two conclusions imply a third, which can be phrased as a warning: be careful if you try to apply the transitivity axiom of binary mereology to parthood predicates found in areas outside mereology proper. Such predicates might very well be intransitive, non-transitive or fall outside the scope of any natural definition of transitivity.

Coda on constituent functions

What has been said in this paper about functional parthood is worth exploring a bit further. The two schemas used for artefactual-functional and biological-functional parts, respectively, have a common form:

- In the (artefactual or biological) functional unit of y,
- one function of the spatial part x is
- to M in relation to w.

In both cases the functionality of x has as one of its presuppositions the functionality of y; x is a derived kind of functionality. The function of x is a *part-(to-)whole* or *constituent* function relative to y.

Such a kind of functionality does of course contain an infinite regress problem: If x can have a constituent function, F, only if it is itself part of a larger functional whole, y, what about the function of y? Where should we end our constituent function talk? In the case of artefactual functionality, one might with good reasons say that we end in a functional unit whose

[16] If there were intransitive binary parthood relations, it ought, in analogy with non-Euclidean (non-Classical) geometry, to be possible to construe an axiomatic "non-Classical mereology."

function is a purpose merely ascribed to it by human beings. With respect to biological functionality things are not so simple. There are here two conflicting intuitions. On the one hand is the common sense view that there really are units that are intrinsically functional, so that functionality inheres in the unities in the way a monadic property like mass is assumed to inhere in Newtonian corpuscles or the way human intentions are assumed to inhere in individual persons. On the other hand, there is the post-Darwinian view of science that to think in such terms of biological function is to anthropomorphize nature. I will not try to resolve this issue here. Rather, I will content myself with making the following two claims, the first of which has already been explained:

1. Where there is a constituent function, xFy, there is also necessarily either (a) an infinite regress of constituent functions, or (b) an intrinsic function, or (c) a merely man-made and conventionally ascribed function/purpose.
2. Independently of whether (a), (b), or (c) is the case, the constituent function predicate 'xFy' can describe objectively existing features of the world.

With respect to the second claim, the most controversial part is case (c). However, think briefly of the following.[17] If, counterfactually, one regards a certain house as lacking functionality and being just a material structure, then the doors seem to lose their functionality, too. But if the house as a whole has its normal house-function, then it is an empirical question whether or not the doors have a function.

The fact that there can be objectively existing constituent functions even where the function of the whole is merely an ascribed purpose is, at bottom, no more curious than the fact that there can be an objective means-end rationality even in relation to completely irrational ends.[18]

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[17] For a much fuller argumentation see my "Functions, Function Concepts, and Scales," *The Monist* 87 (2004), 96-115.

[18] I wish to thank Barry Smith, Kevin Mulligan, Stefano Borgo, Pierre Grenon, and Luc Schneider for discussions about the intransitivity axiom of mereology and for comments on earlier versions of the paper. The work was supported by the Alexander von Humboldt Foundation under the auspices of its Wolfgang Paul Program.

CHRISTIAN KANZIAN

Warum es die Früher-Später Beziehung nicht gibt[1]

1. Der Kontext

In der ontologischen Deutung der Zeit bzw. der Existenz von Dingen in der Zeit gibt es zwei grundlegend verschiedene Positionen. Nach der einen, dem *Präsentismus,* ist nur der gegenwärtige Zeitpunkt real, bzw. ist die Existenz der Dinge an diesen gegenwärtigen Zeitpunkt gebunden. Vergangene Zeitpunkte existieren nicht mehr, zukünftige noch nicht. Napoleon existiert nicht (mehr), George W. Bush hingegen existiert (jetzt), dessen Nachfahren im 22. Jahrhundert existieren (noch) nicht. Demgegenüber steht der *Äternalismus* dafür, dass jeder Zeitpunkt gleich real, dementsprechend die Existenz der Dinge nicht an den gegenwärtigen Zeitpunkt gebunden ist. Der kriegerische Imperialist existiert genauso wie George W. Bush und dessen sicher zahlreichen politischen Epigonen im 22. Jahrhundert[2].

Der Streit zwischen Präsentismus und Äternalismus aber ist keine Binnendebatte in der Theorie der Zeit. Um durch die Zeit mit sich identische Dinge („*Substanzen*“) annehmen zu können, muss man notwendigerweise einen präsentistischen Standpunkt voraussetzen. Identisch in einem strikten Sinne durch die Zeit können nämlich nur Entitäten sein, die keine zeitliche Ausdehnung haben, die m.a.W. zu jedem Zeitpunkt ihrer Existenz als Ganze da sind. (Entitäten, die eine zeitliche Ausdehnung haben, müssen aus numerisch verschiedenen zeitlichen Teilen bestehen, was ihre diachrone Identität in einem strikten Sinn negiert.) Zu einem Zeitpunkt als Ganzes da sein kann etwas aber nur, wenn zusätzlich zum aktuellen Zeitpunkt nicht auch noch andere Zeitpunkte real sind – man also annimmt, dass der Prä-

[1] Der vorliegende Beitrag geht auf einen Vortrag zurück, den ich auf dem VII. Kongress der Österreichischen Gesellschaft für Philosophie, 1. - 4. 2. 2004 in Salzburg, gehalten habe. Bei allen Zuhörern möchte ich mich bedanken. Besonders bei jenen, deren Hinweise zu konkreten inhaltlichen Korrekturen geführt haben, das sind A. Chrudzimski, R. Hüntelmann und R. Kleinknecht.

[2] Zur allgemeinen Charakterisierung der Präsentismus – Äternalismus Debatte siehe Runggaldier / Kanzian 1998, u.a. 100-104; sowie Loux 1998, 203-207.

sentismus wahr ist[3]. Prozess-Ontologien oder vergleichbare Auffassungen implizieren hingegen ein äternalistisches Zeitverständnis. *Prozesse* sind, wie auch immer man sie im Detail bestimmen mag, zeitlich ausgedehnt. (Sie bestehen aus numerisch verschiedenen zeitlichen Teilen und sind somit nicht diachron identisch.) Sind sie zeitlich ausgedehnt, erstreckt sich ihre Existenz über verschiedene Zeiten. Das aber setzt voraus, dass nicht nur der gegenwärtige Zeitpunkt real ist, sondern andere Zeitpunkte auch, und zwar in gleicher Weise wie der gegenwärtige. M.a.W. es wird vorausgesetzt, dass der Äternalismus stimmt.[4] Ob jemand aber Substanz-Ontologin oder ob sie Prozess-Ontologin ist, trifft ihr Weltverständnis im Kern. Also tut das auch die von ihr angenommene Deutung der Zeit.

Als wichtigsten Einwand gegen den Präsentismus sehe ich an, dass er in der Deutung der *Früher-Später Beziehung* (FSB) versagte[5]. Ich verstehe diesen Einwand so, dass präsentistisch gesehen immer nur ein Zeitpunkt existieren kann, nicht aber gleichermaßen zwei. Da die FSB nicht an einem Zeitpunkt vorkommen kann, sondern immer zwischen zweien bestehen muss, kann der Präsentismus mit FSB nicht zurechtkommen. Da aber FSB grundlegend ist für jedes Verständnis von Zeit bzw. von zeitlichen Verhältnissen, müsse der Präsentismus abgelehnt werden.[6]

Ziel dieses Beitrags ist es nun, diesem Einwand gegen den Präsentismus, in der Folge auch gegen die Substanz-Ontologie, entgegenzutreten.

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[3] Zum hier behaupteten Zusammenhang zwischen Substanzontologie und Präsentismus siehe auch Lowe 1998, 102, bzw. Merricks 1999.

[4] Vgl. Quine 1960, § 36 „Time".

[5] Vgl. Tegtmeier 1997, 109, wo der Autor Brentanos Präsentismus erörtert; aber auch Tegtmeier 1992, 148. Zur Präsentismus-Problematik im Hinblick auf die Existenz-Frage siehe auch Hüntelmann 2002, u.a. 85.

[6] Ohne das hier ausführen zu können, befürworte ich jene Auffassung, nach der Zeit bzw. zeitliche Verhältnisse auf FSB aufbauen. In diesem Punkt komme ich Erwin Tegtmeier nahe, wenn er (etwa gegen McTaggert) das Phänomen der zeitlichen Abfolge anhand der FSB analysiert (ders. 1997, u.a. 125), und er sich gegen einen „Hyperdynamismus in der Zeit" wendet. Keith Seddon vertritt einen vergleichbaren Standpunkt, den er selbst „static view of time" nennt, um ihn einer „dynamic view" gegenüberzustellen. Auch Seddon führt Zeit und zeitliche Verhältnisse auf FSB zurück. Vgl. Seddon 1987, part I. Geht es mir hier darum, die Nicht-Existenz von FSB zu erweisen, gestehe ich aber zu, dass alle anderen zeitlichen Verhältnisse auf FSB beruhen, muss ich daraus die Konsequenz zu ziehen, dass es mir insgesamt um den Aufweis der Irrealität von Zeit und von zeitlichen Verhältnissen geht.

2. FSB gibt es nicht – das Argumentationsziel und mein Weg dorthin

In der Entgegnung wider besagten Einwand gegen Präsentismus und Substanz-Ontologie konzentriere ich mich auf seine entscheidende Voraussetzung. Diese besteht darin, dass man FSB für eine *Relation*, d.h. für eine zweistellige Eigenschaft hält und somit für eine *Entität* im strikten ontologischen Sinn. Nur so bedingt ihre Annahme die Existenz zweier Relata, sprich zweier verschiedener Zeitpunkte. Im folgenden argumentiere ich dafür, dass das falsch ist. FSB ist keine Entität. Sie existiert nicht. Somit muss es in einer konsistenten Ontologie auch nicht zwei verschiedene, gleichermaßen existierende Zeitpunkte geben, wie sie nur der Äternalismus vorsehen kann.

Zur Begründung dieser These möchte ich hier keine allgemeine Diskussion über Relationen führen[7]. Ich möchte mich ungeachtet der Frage nach der Existenz anderer Relationen auf die eine spezielle, nämlich FSB konzentrieren. Keine Rolle wird es außerdem spielen, ob man geneigt ist, FSB als Universalie oder als Trope, als allgemeine abstrakte oder als individuelle konkrete zweistellige Eigenschaft aufzufassen. Sind meine Überlegungen wahr, kann FSB weder als das eine, noch als das andere existieren.

Als erstes Argument gegen die Existenz von FSB führe ich an, dass man jede Rede über „früher-später“ von Ereignissen vollständig in eine Rede über Beginn, Ablauf und Ende („Verläufe“) von Ereignissen bzw. von verschiedenen zeitlichen Ereignisteile übersetzen kann, die nicht wieder die Rede über „früher-später“ voraussetzt (Abschnitt 3.)[8]. Eine vollständige Übersetzbarkeit der Rede über einen Bereich A in eine solche über einen Bereich B besagt aber, dass man A auf B *reduzieren* kann, in unserem Fall FSB auf Verläufe von Ereignissen.[9] Dass man FSB auf Verläufe

[7] Siehe dazu u.a. Mulligan 1998, einen Artikel, auf den ich auch im Laufe meiner speziellen Argumentation im Abschnitt 4.2 zurückgreifen werde.

[8] Ich verwende übrigens „Ereignis“ in einem derart liberalen (Kimschen) Sinne, dass nicht nur Änderungen, sondern auch Zustände darunter subsummiert werden können. Zur Unterscheidung zwischen den verschiedenen nicht-dinghaften Partikularien verweise ich auf Kanzian 2001.

[9] Vorausgesetzt wird, dass die Übersetzbarkeit einer Aussagegruppe in eine andere impliziert, dass die Aussagen der einen Gruppe *bedeutungsgleich* sind mit Aussagen der anderen. Bedeutungsgleichheit von Aussagen aber besagt, dass es, um sie *wahr zu machen*, nicht zwei verschiedene Gruppen von Entitäten, sondern eben nur eine braucht, und das sind die Wahrmacher der Aussagen, *in die* übersetzt wird.

von Ereignissen reduzieren kann, ist aber ein Argument gegen die Existenz von FSB.

Dieses Argument möchte ich durch weitere, genuin ontologische Analysen ergänzen (Abschnitt 4). Der erste Teil meiner Analyse (4.1) besteht in einer Erläuterung dessen, was es m.E. genauerhin ontologisch gesehen bedeutet, wenn man im Alltag davon spricht, dass etwas früher, etwas anderes aber später vorkommt. Die beiden weiteren Teile der Analyse beinhalten je ein Argument. Das erste Argument (4.2) besagt, dass FSB in besonderer Weise geeignet ist, auf jener „slippery sloap towards either conceptualism or eliminativism about relations" zu Fall zu kommen, welche Kevin Mulligan - trotz großer Freundschaft zu ihnen - befürchtet, allen Relationen in Aussicht stellen zu müssen[10]. Ich möchte zeigen, dass FSB eine „*dünne* Beziehung" ist, deren ontologischer Status (deshalb) meines Erachtens mit guten Gründen negiert werden kann. Mein zweites Argument (4.3) beruht auf der Problematik der Angabe von Identitätsbedingungen für FSB. Man kann Ereignisse *und* FSB nicht individuieren, ohne in einen Zirkel zu geraten. Da aber Ereignisse ontologisch unverzichtbar sind, ist der Zirkel fatal für FSB. Zusammengenommen sollen diese Überlegungen zum Ergebnis führen, dass FSB rein epiphänomenalen Charakter hat und somit nicht als Entität angenommen werden kann.

3. Ein erstes Argument: Die Übersetzbarkeit der Rede über FSB

(3.1) Bleiben wir bei der Untersuchung der Übersetzbarkeit der „früher-später"-Rede zunächst beim einfachsten Fall, nämlich der Behauptung, dass ein zeitlicher Ereignisteil e1 eines Ereignisses *früher* stattfindet als ein anderer Ereignisteil e2 desselben Ereignisses[11], z.B.

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[10] Mulligan 1998, 350. Mulligans Rutschbahn ist freilich eine, die er Relationen - wie gesagt - lediglich *in Aussicht stellt*, ohne sie dieselbe hinabgleiten zu lassen. Hier werde ich also, zumindest mit FSB, einen Schritt weiter als Mulligan gehen.

[11] In seiner sich an Tarski orientierenden Terminologie unterscheidet Lothar Ridder in ders. 2003, hier 30, auch FN 4, zwischen den Beziehungen „x ist früher als y" und „ x ist ganz früher als y". Letztere schließt aus, dass das Endstück von x mit dem Anfangsstück von y koinzidiert, erstere nicht. Da ich zeitlich unterbrochene Ereignisse zulasse, kann ich sowohl zeitliche Ereignisteile innerhalb eines Ereignisses annehmen, die „früher sind" als auch solche, die „ganz früher sind" als ihre Nachfolger. Ich verwende FSB bei Ereignisteilen im Sinne von Ridders Relation xTy, die beide Alternativen zulässt. Das Bestehen von FSB schließt bei zeitlichen Teilen ein und desselben

(1) Der erste Satz der Symphonie wird früher gespielt als ihr zweiter Satz.

1.Satz	2.Satz	3.Satz	4.Satz
e1	e2	e3	e4

Nach meinem Verständnis besagt das nichts anderes, als dass der *Verlauf* von e1 *endet* und der *Verlauf* von e2 *beginnt*[12]. Dementsprechend kann Satz (1) übersetzt werden in Satz

(1*) Der erste Satz der Symphonie endet und der zweite Satz beginnt.

Was heißt es aber, dass ein ganzes Ereignis *früher* vorkommt als ein anderes[13]? Z.B.:

(2) Das Grünsein der Tafel kommt früher vor als ihr Blausein.

Ereignis A: Grünsein der Tafel	Ereignis B: Blausein der Tafel

M.E. meint das schlicht und einfach, dass der *Verlauf* des einen Ereignisses *endet* und der *Verlauf* des anderen Ereignisses *beginnt*. Dementsprechend lautet die Übersetzung von Satz (2)

(2*) Das Grünsein der Tafel endet und das Blausein der Tafel beginnt.

Ereignisses aber aus, dass über die Koinzidenz von End- und Anfangspunkt hinausgehende Überlappungen stattfinden.

[12] In Analogie zum in der letzten Fußnote Gesagten verstehe ich die Übersetzung so, dass auch sie beide Möglichkeiten einschließt: Das Bestehen einer Koinzidenz von End- und Anfangspunkt von zeitlichem Teil und seinem Nachfolger, und das Nicht-Bestehen einer solchen.

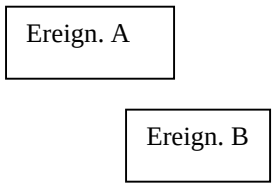
[13] Im Falle von verschiedenen ganzen Ereignissen, wie den hier beispielhaft angezeigten, welche im Zukommen von verschiedenen „determinates“ desselben „determinables“ zu einem Ding bestehen, ist FSB im Sinne von „ganz früher“ zu verstehen, da punktuelle Übergänge ausgeschlossen sind.

(3.2) Gegen diese, zugegebenermaßen sehr einfache Analyse scheinen mir zwei Einwände auf der Hand zu liegen: So könnte man im Hinblick auf die, meiner Analyse entsprechende Übertragung eines Satzes

(3) Ereignis A kommt früher vor als Ereignis B. in

(3*) Ereignis A endet und Ereignis B beginnt.

zunächst einwenden, dass Satz 3* wahr, Satz 3 aber falsch sein könne. Und zwar dann, wenn es wahr ist, dass Ereignis A endet, und wahr ist, dass Ereignis B beginnt, es aber nicht wahr ist, dass Ereignis A endet, *bevor* Ereignis B beginnt. Das ist zum Beispiel, wie auf folgender Skizze zu ersehen, der Fall, wenn Ereignis B vor dem Ende von Ereignis A, also während des Verlaufs von Ereignis A, beginnt.



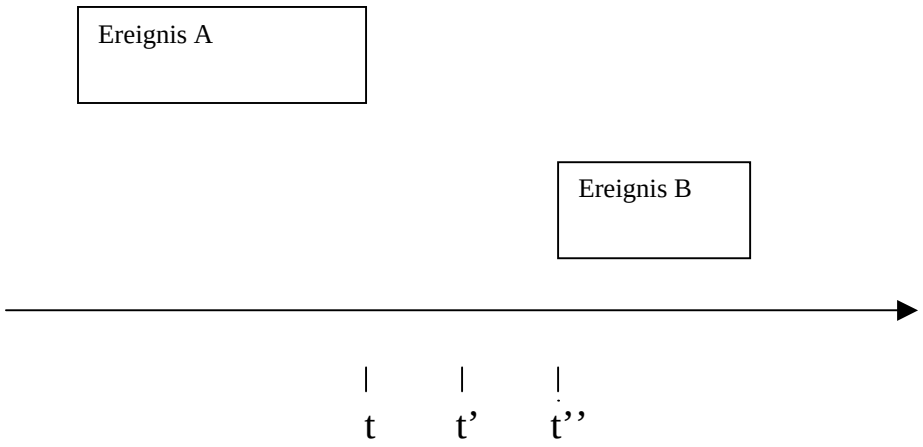
Allein durch die Formulierung von Satz 3* könne nicht einmal ausgeschlossen werden, so der Einwand, dass B gleichzeitig mit A, möglicherweise sogar schon vor A beginnt. Und zwar deshalb nicht, weil das Bindewort „und“ in der Übersetzung keineswegs die durch FSB geleistete zeitliche Ordnung gewährleisten kann.

Ein weiterer Einwand gegen meine Übersetzung in Abschnitt (3.1) ist, dass sie im Unterschied zu an FSB orientierten Analysen die Beziehung der Gleichzeitigkeit und der zeitlichen Überlappung verschiedener Ereignisse nicht zu rekonstruieren vermag. - Im folgenden versuche ich, beide Einwände zu entkräften, zunächst (3.3) den ersten, dann den zweiten (3.4).

(3.3) Ich meine, dass dem ersten Einwand in seiner Stoßrichtung Recht zu geben ist. Das Bindewort „und“ in meinen Übersetzungen kann tatsächlich nicht jene Last zeitlicher Ordnung tragen, welche durch FSB gemeint ist. Ich möchte daher meinen Vorschlag ergänzen, und zwar dahingehend, dass nicht „und“ allein besagte Last auferlegt wird, sondern ihm und zu-

sätzlich der Anführung bestimmter Zeitpunkte. Unser Satz (3) bedeutet dann[14]:

> (3**) Ereignis A endet zu einem Zeitpunkt t, und es folgt mindestens ein Zeitpunkt t', zu dem Ereignis B weder beginnt, abläuft oder endet[15], und es folgt ein Zeitpunkt t'', zu dem Ereignis B beginnt.



Die Rede über Zeitpunkte aber ist für einen Anti-Äternalisten unproblematisch. Noch wichtiger aber ist, dass es keine Deutung gibt, die es erlaubt, Satz 3** als wahr, Satz 3 aber als falsch zu erweisen, oder umgekehrt: Satz 3** als wahr und Satz 3 als falsch. Das Bindewort „und" verbunden mit der Anführung von Zeitpunkten ermöglicht es somit, jene zeitliche Ordnung zu rekonstruieren, die in der zu übersetzenden Rede durch FSB zum Ausdruck gebracht wird.

Mein Kritiker könnte freilich nachsetzen und mich auffordern, die Rede über Zeitpunkte zu präzisieren, insbesondere hinsichtlich der Frage nach der ontologischen Verpflichtung, die man damit eingeht. Möchte ich anstelle der vielleicht dubiösen FSB – Entität eine sicher noch viel merkwürdigere Art von Entitäten, nämlich Punkte, noch dazu *Zeit*punkte einführen? – Ich würde hier darauf beharren, dass die Rede über Zeitpunkte ontologisch neutral ist. Sie ist nicht als Rede über *Entitäten* einer bestimmten Art

[14] Ich beschränke mich hier auf eine Übersetzung von FSB im Sinne der Beziehung „ganz früher", siehe Fußnote (11).

[15] Die Gliederung in „Beginn, Ablauf und Ende" ist hier wie im folgenden beigefügt, um auch punktuelle Ereignisse, bei denen der Beginn ja identisch ist mit Ablauf und Ende, mitberücksichtigen zu können.

zu verstehen. Die Rede über Zeitpunkte ist m.E. nichts anderes als die Rede über Stellen, welche durch das Ende von *Normereignissen* definiert sind. Ontologisch gesprochen *sind* Zeitpunkte somit *nichts anderes als* das Ende eben dieser Normereignisse. Und das Ende von Ereignissen anzunehmen, führt in keine inflationäre Ontologie. Für gewöhnlich fährt man übrigens gut, wenn man als Normereignisse zur Definition von Zeitpunkten das Vorrücken eines Zeigers auf bestimmte Positionen auf einer Uhr annimmt. Endet z.B. das Normereignis des Vorrückens des Zeigers auf die Position 15:00, kann man daraus einen Zeitpunkt genau definieren. Etwas komplizierter ist es, als Normereignis das Erreichen eines Planeten einer bestimmten Position auf seiner Umlaufbahn anzunehmen. Aber auch das funktioniert ganz passabel, um zum erklärten Ziel zu kommen, nämlich zur Rede über Zeitpunkte – ohne inflationäre Ontologie.

Zu sagen, ein Ereignis A beginnt um 15:00, besagt nichts anderes als dass sich A´s Beginn mit jenem Zeitpunkt schneidet oder mit ihm *koinzidiert*, welcher durch das Ende jenes Normereignisses definiert ist, das aus dem Vorrücken eines Uhrzeigers auf besagte Position auf der Uhr besteht. Zu sagen, ein Ereignis B findet um 15:00 statt, so dass sein Anfang vor, seine Ende aber nach 15:00 ist, heißt dass sich ein zeitlicher Teil von B´s Ablauf mit jenem Zeitpunkt schneidet, welcher durch das Ende besagten Normereignisses definiert ist. Dass ein Ereignis C aber um 15:00 aufhört, meint dass C´s Ende mit dem Ende unseres Normereignisses koinzidiert. Wenn wir im Alltag davon sprechen, dass ein Ereignis D früher stattfindet als ein Ereignis E, heißt das schließlich nichts anderes als dass das Ende von D mit dem Ende eines Normereignisses koinzidiert, und es folgt das Ende mindestens eines Normereignisses, zu dem E weder beginnt, abläuft oder endet, und es folgt das Ende eines dritten Normereignisses, welches mit dem Beginn von E koinzidiert. [16]

[16] In seinem Artikel „The Direction of Time: A Problem of Ontology, not of Physics“ (hier: Tegtmeier 1997) erörtert T. bereits vorliegende Versuche, FSB auf den Verlauf von Ereignissen oder Prozessen zu reduzieren, und zwar jene von Ernst Mach und Hans Reichenbach. Tegtmeier kritisiert diese Ansätze u.a. dahingehend, dass sie keine Lösung des Problems der Zeitrichtung hätten, sondern dem Problem einfach auswichen. Ohne hier die Versuche Machs und Reichenbachs als solche verteidigen zu wollen, möchte ich darauf hinweisen, dass Tegtmeiers Kritik gegen meinen Reduktionsansatz wohl nicht vorgebracht werden kann. Die Richtung der Zeit ist m.E. durch die Eigenart der Verläufe von Ereignissen bestimmt. Messbar ist sie anhand der Abfolge bestimmter Normereignisse. Auch wenn diese Lösung zweifelsohne weiter erläutert werden könnte, so sehe ich sie doch als eine Lösung an.

(3.4) Wenn man in der Übersetzung von FSB – Behauptungen die Rede über Zeitpunkte zulässt, lässt sich auch die Rede über die verschiedenen Verhältnisse der Gleichzeitigkeit und der zeitlichen Überlappung von Ereignissen gewinnen. Dies sei zur Erwiderung des zweiten oben angeführten Einwands gesagt.

Dass ein Ereignis A *gleichzeitig mit* einem Ereignis B verläuft, meint in meiner Diktion, dass A beginnt und abläuft und endet, und B beginnt und abläuft und endet, und es gilt, dass sowohl A´s und B´s Beginn als auch A´s und B´s Ende zum jeweils selben Zeitpunkt stattfinden, mit anderen Worten: mit dem Ende jeweils desselben Normereignisses koinzidieren.[17] Dass ein Ereignis A mit einem Ereignis B *zeitlich überlappt*, mag nun bedeuten, dass A beginnt und abläuft und endet, und zum Zeitpunkt von A´s Beginn verläuft B nicht, und zu einem Zeitpunkt von A´s Ablauf beginnt B, und zu einem Zeitpunkt von B´s Ablauf endet A, und zum Zeitpunkt von B´s Ende verläuft A nicht – wobei (hier und im folgenden) „zum Zeitpunkt" bzw. „zu einem Zeitpunkt" jeweils im Sinne der Normereignis-Ausführungen unter (3.3) zu verstehen ist. Natürlich kann es auch umgekehrt laufen, dass etwa B beginnt und abläuft und endet, und zum Zeitpunkt von B´s Beginn A nicht verläuft, und zu einem Zeitpunkt von B´s Ablauf A beginnt, etc.. Es kann auch so geschehen, dass A beginnt und abläuft und endet, und zum Zeitpunkt von A´s Beginn B nicht verläuft, zu einem Zeitpunkt von A´s Ablauf B beginnt und B zum selben Zeitpunkt wie A endet, und umgekehrt, etc.. - Der Leser wird es mir gestatten, hier nicht jedes Überlappungsszenario auszuführen.

Entscheidend ist, dass die Rede über jene zeitliche Ordnung, welche durch früher-später-Aussagen ausgedrückt wird, übersetzt werden kann in eine Rede über den Verlauf verschiedener Ereignisse bzw. deren zeitlicher Teile, und zwar so, das die letztere nicht wieder die früher-später-Rede voraussetzt.[18] Die zusätzliche Rede über Zeitpunkte steht dem nicht entgegen, weil Zeitpunkte ihrerseits nichts anderes sind als das Ende bestimmter (Norm-) Ereignisse. M.E. ist das ein Argument dafür, dass in den fragli-

[17] Die Möglichkeit, dass mindestens ein Ereignis zeitlich unterbrochen ist, blende ich hier der Einfachheit halber aus. Dies lässt sich aber ohne prinzipielle Schwierigkeiten in meiner Diktion rekonstruieren.

[18] Einem Kritiker, der meint, die Redeweise „und es folgt" setze wiederum FSB voraus, weil es ja doch eine zeitliche Ordnung implizierte, würde ich entgegnen, dass ich „und es folgt" rein kausal verstehe. Natürlich hat diese kausale Ordnung mit zeitlichen Verhältnissen zu tun, aber so, dass zeitliche Verhältnisse auf der kausalen Folge von Ereignissen beruhen; nicht umgekehrt: dass die kausale Folge zeitliche Verhältnisse voraussetzte.

chen Fällen ontologisch betrachtet nichts anderes vorliegt als Beginn, Ablauf und Ende verschiedener Ereignisse.

4. Ontologische Analyse

Dass es FSB nicht gibt, kann durch eine genuin ontologische Analyse zusätzlich aufgezeigt und begründet werden. Meine Analyse geschieht in zwei Schritten: In einem ersten (4.1) möchte ich erläutern, was es m.E. genauerhin ontologisch gesehen bedeutet, wenn man im Alltag davon spricht, dass etwas *früher*, etwas anderes aber *später* geschieht. In einem weiteren Schritt führe ich, wie bereits eingangs erwähnt, zwei ontologische Argumente für meine These an (4.2 und 4.3).

(4.1) Was bedeutet es, wenn wir im Alltag zum Beispiel davon sprechen, dass die Tafel früher grün, später aber blau ist? Es bedeutet, dass ein Ding, die Tafel, aus einem Ereignis, nämlich seinem Grünsein, austritt und in ein anderes, nämlich sein Blausein, eintritt. Ein Ereignis endet und ein anderes beginnt.[19] Wie kommt es aber, so können wir uns weiterfragen, dass wir *von der Tafel* sagen können, *sie* sei es, die *früher* grün, *später* aber blau ist? Warum können wir, um es allgemein zu formulieren, *von Dingen* aussagen, sie seien früher so und so, später aber so und so? Wir können das deshalb sagen, weil durch den Eintritt eines Dinges in Ereignisse das Ding in bestimmte zeitliche Verhältnisse gebracht wird; allen voran in jenes, über welches wir im Alltag als FSB reden.

Diese These setzt voraus, dass Dinge in ihrer Zeitlichkeit, d.h. in den von ihnen ausgesagten zeitlichen Verhältnissen, abhängen von jenen Ereignissen, in die sie involviert sind oder, um in der eben eingeführten Terminologie zu bleiben, in die Dinge im Laufe ihrer Existenz eintreten. Zum einen halten wir daran fest, dass Dinge an sich dreidimensional sind. D.h. sie sind selbst zwar räumlich, nicht aber zeitlich ausgedehnt. Zum anderen kommen wir nicht umhin anzuerkennen, dass man Dingen „zeitliche“ Merkmale (wie im Beispiel das Stehen in FSB) und „zeitlich“ Merkmale

[19] Zu sagen, dass ein Ding aus einem Ereignis austritt bzw. in ein anderes eintritt, ist m.E. die ontologisch adäquate Redeweise über den Vorgang des Verlustes bzw. des Gewinns einer Eigenschaft durch ein Ding. „Ontologisch adäquat“ deshalb, weil ich, ohne das hier ausführen zu können, die Rede über Eigenschaften nur verstehen kann als Rede über, wie Armstrong so schön sagt: „gutted states of affairs“ (Armstrong 1997, 29), wie ich mir erlaube zu sage, als Rede über Bestandteile von Ereignissen.

(dass sie etwa von diesem bis zu jenem Zeitpunkt diese oder jene Eigenschaften haben[20]) zuspricht. Dinge sind „in der Zeit“ und haben eine „zeitliche Gestalt“. Das eine und das andere zusammen kann man aber so deuten, dass der Bezug zu zeitlichen Verhältnissen für Dinge äußerlich oder akzidentell ist und nur durch nicht-dinghafte Vermittlungsinstanzen zustande kommt. Zahlreiche Autoren haben die *Geschichte* eines Dinges als eine solche Vermittlungsinstanz angesehen[21]. Die Geschichte aber ist nichts anderes als die Summe von *Ereignissen*, in die Dinge im Verlauf ihrer Existenz involviert sind. Also kann man auch auf diese Weise zu unserem Ergebnis kommen.

Wenn wir nun zu unserer Ausgangsfrage zurückkehren, was denn nun ontologisch gesehen vorliegt, wenn die grüne Tafel blau bemalt wird?, so können wir antworten: Es liegt ein Ding, nämlich die Tafel, vor, und dazu noch die zwei Ereignisse des Grünseins und des Blauseins der Tafel. Letztere, nämlich die Ereignisse, sind maßgeblich für jenes zeitliche Verhältnis, welches wir vom Ding aussagen, wenn wir davon reden, es sei früher grün, später aber blau. Im Sinne der Ausführungen in Abschnitt 3. könnten wir auch sagen, dass das Grünsein der Tafel endet und das Blausein der Tafel beginnt, wobei gilt, dass auf den Zeitpunkt t des Endes des Grünseins mindestens ein Zeitpunkt t’ folgt, zu dem das Blausein weder beginnt, abläuft oder endet, und es folgt ein Zeitpunkt t’’, zu dem das Blausein beginnt. – Und nichts anderes liegt vor, wenn wir vom Träger der Ereignisse, also der Tafel, sagen, sie sei früher grün, später aber blau, bzw. wenn wir sagen, dass die Ereignisse dem Ding ein zeitliches Verhältnis vermitteln.

Entscheidend aber ist, und damit komme ich wieder zum eigentlichen Thema, dass das hier involvierte zeitliche Verhältnis selbst keine eigene, zusätzliche Entität ist. Es handelt sich dabei vielmehr um ein, wie man früher gesagt hätte, „phaenomenon bene fundatum“. Heute spricht man eher von einem *Epiphänomen*, auf gut Australisch: von einem „ontological free lunch“. Und über ein solches reden wir im Alltag, wenn wir über FSB sprechen.

(4.2) Was, so mag ein Kritiker (v.a. einer, der mein Übersetzungsargument allein für nicht ausreichend hält) einwenden, macht mich hier so sicher? Der Kritiker könnte darauf hinweisen, dass manche, durchaus präsentistisch eingestellte Autoren die Ansicht vertreten, sämtliche zeitliche

[20] Die m.E. beste Analyse der zeitlichen Indexikalisierung des Zukommens von Eigenschaften zu Dingen stammt von P. Simons. Siehe ders. 1991.
[21] Siehe u.a. Chisholm 1990, 421 und Smith 1990, 154.

Verhältnisse von Dingen, allen voran FSB, würden durch Ereignisse *konstituiert*[22]. So könnten wir auch meine Analyse der „zeitlichen Gestalt“ der Dinge dahingehend interpretieren. Dass zeitliche Verhältnisse, allen voran FSB, durch Ereignisse konstituiert sind, ist allerdings kein Grund, erstere von der ontologischen Landkarte zu streichen. Es gibt ja wohl genug *Entitäten*, die durch Entitäten anderer Art konstituiert werden. Von Sachverhalten z.B. könnte man meinen, sie werden durch Dinge und deren Eigenschaften in gewisser Weise konstituiert. Daraus folgt aber nicht, wie wir u.a. von Armstrong lernen[23], dass Sachverhalte keine Entitäten wären. – Dieser Hinweis erfordert weitere Argumente für den epiphänomenalen Charakter von FSB. Ich führe als erstes an, dass FSB eine im Sinne Mulligans „dünne“ Beziehung ist. Ich schließe mich aber jenen Autoren an, die meinen, dass dies zuwenig ist, um auf der ontologischen Landkarte bestehen zu bleiben.

Was aber, so können wir uns zunächst fragen, ist überhaupt eine „dünne“ Beziehung? Inwiefern ist FSB eine solche? – Ich möchte Mulligans Versuche, dünne Beziehungen im allgemeinen im Anschluss an Ryle als „topic-neutral“ (d.h. hinsichtlich der Art ihrer Relata unbestimmt) bzw. als „formal“ (d.h. im Gegensatz zu „material“: nicht wahrnehmbar, nicht in „determinable“ – „determinate“ Verhältnissen vorkommend etc.) zu bestimmen, beiseite lassen. Mein Augenmerk richte ich vielmehr auf Mulligans Hauptkriterium für dünne Beziehungen, dass es sich dabei nämlich um *interne Relationen* handelt. Mulligan bestimmt interne Relationen auf eine Weise, die ich hier übernehmen möchte, und zwar folgendermaßen: „... we may say that a relation is internal with respect to objects, a, b, c etc., just if, given a, b, c etc. the relation must hold between and of these objects“.[24]Ich verstehe dies so, dass interne Relationen mit dem Vorliegen bestimmter Relata gegeben sind, und zwar so, dass es nicht möglich ist, dass die Relata, nicht aber die Relation, und es nicht möglich ist, dass die Relation, nicht aber die Relata, vorliegen.

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[22] Vgl. u.a. Lowe 1998, 121. Zur Stützung dieser Konstitutionsthese siehe u.a. auch Papa-Grimaldi 1998, v.a. chapter V und VI, wo die Autorin nicht nur philosophiehistorisch markante Vertreter der These bespricht, sondern sie auch gegen diverse Einwände (u.a. von S. Shoemaker) verteidigt. Zur Geschichte der These, v.a. unter der Rücksicht ihrer Funktion in Mc Taggerts Argumentation gegen die Realität der Zeit: Rochelle 1998, u.a. 33.

[23] Vgl. u.a. Armstrong 1989, 88f. Zur ontologischen Konstitution von Sachverhalten in diesem Sinne, sprich so, dass Sachverhalte Entitäten sind, die aus anderen Entitäten aufgebaut sind, siehe auch Hüntelmann 2002, u.a. 38, 100.

[24] Mulligan 1998, 344.

Im Fall von FSB scheint mir das offensichtlich der Fall zu sein. Es gibt keine zwei Ereignisse, für die gilt, dass das Ende des einen mit dem Ende eines bestimmten Normereignisses koinzidiert, und es folgt das Ende mindestens eines Normereignisses, zu dem das andere weder beginnt, abläuft oder endet, und es folgt das Ende eines dritten Normereignisses, welches mit dem Beginn des anderen koinzidiert, - und FSB liegt nicht vor. Und es kann keine FSB vorliegen, wenn nicht zwei Ereignisse verlaufen, für die das eben Gesagte gilt.

FSB ist also eine interne Relation, eine dünne Beziehung im Sinne Mulligans. Was aber spricht gegen das ontologische Überleben von internen Relationen, somit auch gegen das von FSB? Bei der Beantwortung der allgemeinen Frage schließe ich mich zunächst Armstrong an, wenn er in *A World of States of Affairs*[25] zu einem negativen Urteil bezüglich der Existenz interner Relationen gelangt. Um zu seinem Schluss zu kommen, nimmt Armstrong unter verschiedenen Formen von Existenzabhängigkeit eine ganz besondere an. Diese liegt genau dann vor, wenn es unmöglich ist, dass das existiert, wovon das Abhängige abhängt, nicht aber das Abhängige. Liegt diese Form von Existenzabhängigkeit vor, kann man, so Armstrong, nicht davon sprechen, dass es sich beim Abhängigen um etwas „ontologisch Zusätzliches" handelte[26]. Das Abhängige ist ein „ontological free lunch"[27]. Für Armstrong ist das Verhältnis zwischen internen Relationen und ihren Relata aber ein geradezu paradigmatischer Fall einer derart starken Existenzabhängigkeit. Somit kommt er zum Schluss: „internal relations are not ontologically additional to their terms".[28]

U.a. von Wachter kommt zum selben Ergebnis und führt es direkt gegen interne Relationen im Sinne von Mulligans dünnen Beziehungen an. Sein über Armstrong hinausgehendes Argument ist, dass wir, um Aussagen über interne Relationen *wahr zu machen*, lediglich die Relata bräuchten, nicht aber noch etwas Zusätzliches. V. Wachters Beispiel: „For this statement ['This stone a is heavier than that stone b'] to be true it is enough that the two stones have the masses they have. As far as I see we have no reason so far to accept that there are irreducible polyadic properties".[29]

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[25] Hier: Armstrong 1997.

[26] Armstrong bezeichnet diese Weise der Existenzabhängigkeit übrigens mit einem Begriff, den ich nicht verstehe. Siehe dazu meinen Aufsatz „Vergesst ‚Supervenienz'", hier: Kanzian 2002.

[27] Armstrong 1997, 12f.

[28] Armstrong 1997, 12.

[29] V. Wachter 1998, 358.

Meines Erachtens lässt sich das von Armstrong und von v. Wachter im allgemeinen Gesagte leicht auf FSB anwenden. FSB hängt so stark ab von ihren Relata, dass es unmöglich ist, dass zwei Ereignisse existieren, für die gilt, dass das Ende des einen mit dem Ende eines bestimmten Normereignisses koinzidiert, und es folgt das Ende mindestens eines Normereignisses, zu dem das andere weder beginnt, abläuft oder endet, und es folgt das Ende eines dritten Normereignisses, welches mit dem Beginn des anderen koinzidiert, - nicht aber FSB vorliegt. Genauso gilt, dass eine Behauptung „Ereignis A ist früher als Ereignis B“ genau dann wahr ist, wenn A und B vorliegen, und das Ende von A mit dem Ende eines bestimmten Normereignisses koinzidiert, und es folgt das Ende mindestens eines Normereignisses etc. etc. – alles Gegebenheiten, die eine ontologische Verkomplizierung der Wahrmacher unserer Aussage um „polyadische Eigenschaften“ (v. Wachter) im Sinne von FSB überflüssig machen.

Ich halte es, wie gesagt, für wahr, dass FSB eine dünne Beziehung im Sinne Mulligans, also eine interne Relation ist. Ich halte im Ergebnis auch die Argumente Armstrongs und v. Wachters für zutreffend. Sämtliche interne Relationen sind ontologisch verzichtbar. Da ich mich aber nicht in die Abhängigkeit der Voraussetzungen der beiden begeben möchte[30], will ich noch ein zusätzliches Argument gegen die Existenz von FSB vorbringen. Im Unterschied zum eben dargestellten Gang hat es nicht interne Relationen im allgemeinen, sondern ausschließlich FSB im Visier.

(4.3) Gegen die Existenz von FSB spricht, dass man durch die Annahme der Existenz von FSB in einen *Zirkel in der Angabe von Identitätsbedingungen* für FSB und von Identitätsbedingungen für Ereignisse käme. Und dieser Zirkel ist fatal für FSB. Warum das so ist, werde ich im folgenden zu zeigen versuchen.

Ich gehe davon aus, dass, wenn FSB als Entität existiert, es für FSB auch Identitätsbedingungen geben muss. Warum? - Weil nun einmal gilt, dass ohne Identität keine Entität denkbar ist. „No Entity Without Identity!“ - Und weil die Formulierung von Identitätsbedingungen unverzichtbar ist für die ontologische Angabe dessen, was es für Entitäten einer bestimmten Art bedeutet, identisch zu sein.

Was Identitätsbedingungen im Detail sind, ist wohl umstritten. Im Grunde, und darin dürfte ein gewisser Konsens bestehen, geht es um eine Beziehung, für die gilt, dass das Stehen in dieser Beziehung zueinander

[30] Siehe v.a. Fußnote (26).

notwendig und hinreichend für die Identität von Vorkommnissen einer bestimmten Art ist. *Die* klassische Identitätsbedingung ist bekanntlich das sogenannte Leibnizsche Prinzip, demzufolge die *Übereinstimmung* in *allen* Eigenschaften die gefragte Beziehung, zumindest für Dinge ist. Dinge sind genau dann identisch, wenn sie (in der Beziehung zueinander stehen,) *in allen Eigenschaften überein(zu)stimmen*.

Wenn wir aber Identitätsbedingungen für FSB suchen, müssen wir wohl das Leibnizsche Prinzip spezifizieren. Wie auch immer wir das anstellen, und darauf möchte ich im besonderen hinweisen, muss diese Spezifikation auf Ereignisse Bezug nehmen. Etwa derart, dass man als Identitätsbedingung für FSB angibt, dass FSB genau dann identisch sind, wenn sie zwischen denselben Ereignissen (bzw. Ereignisteilen – das mag hier wie im folgenden jeweils ergänzt werden) bestehen. Bestehen FSB zwischen verschiedenen Ereignispaaren, können diese nicht dieselben sein. Ebenso gilt: Liegen verschiedene FSB vor, können die Ereignisse, zwischen denen sie bestehen, nicht dieselben sein. Die fragliche Beziehung, für die gilt, dass das Stehen in dieser Beziehung notwendig und hinreichend für die Identität von FSB wäre, ist also Übereinstimmung in jenen Ereignissen, zwischen denen FSB bestehen. Wie sonst sollte man FSB α von FSB β unterscheiden können, wenn nicht α zwischen anderen Ereignissen bestünde als β? Wie sonst sollte man die Identität irgendeiner FSB bestimmen können, wenn nicht durch jene Relata, zwischen denen sie besteht? Und das sind nun einmal Ereignisse.

Ich gehe nun einen Schritt weiter: Ich nehme an, dass Ereignisse existieren. (Ich ersuche die Leserin höflichst, mir die Begründung dieser Annahme zu ersparen[31]. Geben Sie mir diese für den Gang meiner Argumentation hier bitte zu). Existieren aber Ereignisse, muss es auch für diese Identitätsbedingungen geben. Wie auch immer die im Detail aussehen mögen, sie müssen wohl auf zeitliche Verhältnisse, allen voran zeitliche Übereinstimmung, Bezug nehmen. Etwa derart, dass man als Identitätsbedingung für Ereignisse angibt, dass Ereignisse genau dann identisch sind, wenn sie zeitlich (natürlich auch räumlich) übereinstimmen. Die fragliche Beziehung, für die gilt, dass das Stehen in dieser Beziehung notwendig und hinreichend für die Identität von Ereignissen ist, ist also zeitliche (natürlich auch räumliche) Übereinstimmung.

[31] Eine umfassende Zurückweisung von „No-Event-Metaphysics“ habe ich versucht in Kanzian 2001, II – 2.

Zeitliche Übereinstimmung von Ereignissen hat aber notwendigerweise mit FSB zu tun. Eine Weise, sich das vor Augen zu stellen, zeigt Keith Seddon auf, wenn er sagt: „This relation [being simultaneous with] can be expressed in terms of ‚earlier than' because we can say that E1's being simultaneous with E2 entails both E1 and E2 being earlier than some third event, E3, to exactly the same degree."[32] Man könnte somit, frei nach Seddon, die vorhin angeführte Identitätsbedingung für Ereignisse ohne Bedeutungswandel derart umformulieren, dass Ereignis A und Ereignis B genau dann identisch sind, wenn sie räumlich übereinstimmen, und wenn es kein weiteres Ereignis C gibt, das zu A in einer FSB steht, in der es zu B nicht steht. Eine andere, etwas kompliziertere Möglichkeit, sich den Zusammenhang zwischen zeitlicher Übereinstimmung und FSB klar zu machen, ist, das vielfältige Verhältnis *zeitlicher Teile* von zeitlich übereinstimmenden Ereignissen zu berücksichtigen. Für zeitlich übereinstimmende Ereignisse A und B gilt nämlich: Der erste zeitliche Teil von A ist *früher als* alle zeitlichen Teile von B, mit Ausnahme des ersten zeitlichen Teiles von B. Der zweite zeitliche Teil von A ist *früher als* alle zeitlichen Teile von B, mit Ausnahme der ersten beiden zeitlichen Teile von B, wobei gilt, dass er *später als* der erste zeitliche Teil von B ist. ... Der vorletzte zeitliche Teil von A ist *früher als* der letzte zeitliche Teil von B, wobei gilt, dass er *später ist als* alle zeitlichen Teile von B mit Ausnahme des letzten und des vorletzten zeitlichen Teiles von B. Der letzte zeitliche Teil von A ist *später als* alle zeitlichen Teile von B, mit Ausnahme des letzten zeitlichen Teiles von B. Man könnte somit die vorhin angeführte Identitätsbedingung für Ereignisse, wieder ohne Bedeutungswandel, auch so umformulieren, dass Ereignisse genau dann identisch sind, wenn sämtliche ihrer räumlichen Teile übereinstimmen, und sich alle zeitlichen Teile so zueinander verhalten, wie eben aufgeführt. Da aber diese Aufführung in vielfältiger Weise auf FSB Bezug nimmt, können wir auch aus dieser Überlegung ersehen, dass die Identität keines Ereignisses ohne Verweis auf FSB zu bestimmen ist.

Existiert FSB als Entität, hätten wir somit den Fall, und damit bin ich auch schon bei meinem Ergebnis, dass man bei der Angabe der Identität von Entitäten einer Gruppe, nämlich FSB, nicht ohne eine andere, nämlich Ereignisse; bei der Angabe der Identität von Entitäten der anderen Gruppe aber nicht ohne die eine auskommen könnte. M.a.W. setzte die Individuation (d.h. die Konstitution als Individuum) von Entitäten der einen Gruppe bereits individuierte Entitäten der anderen Gruppe voraus, und umgekehrt!

[32] Seddon 1987, 25. FN 3.

Dies aber ist ein Zirkel. Und der ist offensichtlich nicht zu dulden.[33] M.E. kann man aber aus diesem Zirkel nur ausbrechen, wenn man die Existenz einer Gruppe negiert. Da Ereignisse dafür nicht in Frage kommen, muss es FSB und die durch sie konstruierten zeitlichen Verhältnisse treffen.

Ich möchte nur zwei Voraussetzungen meiner Argumentation nennen, ohne sie hier verteidigen zu können. Ich setze (neben der Annahme der Existenz von Ereignissen) voraus, dass die zeitliche Übereinstimmung gemeinsam mit der räumlichen tatsächlich eine notwendige und hinreichende Identitätsbedingung für Ereignisse ist. Und ich setze voraus, dass man in der Angabe von Identitätsbedingungen für Entitäten auf bestimmte Epiphänomene Bezug nehmen kann, nämlich jene, welche durch die fraglichen Entitäten bedingt sind. Nur so können wir nämlich an der zeitlichen Übereinstimmung als Identitätsbedingung für Ereignisse festhalten, feststellen, dass zeitliche Übereinstimmung und FSB notwendig miteinander verbunden sind, und die Existenz von FSB leugnen. Die Diskussion beider Voraussetzungen würde uns zu weit in die Debatte der Individuation von Ereignissen bringen, als dass sie hier ausgefaltet werden kann. Ich erlaube mir hier anstatt dessen darauf hinzuweisen, dass man auch auf dem Wege der Erörterung von Identitätsbedingungen zum selben Ergebnis kommen kann, wie zu jenem, in den zuvor dargelegten Argumentationsgängen: FSB gibt es schlicht und einfach nicht.

5. Ergebnis

Ich leugne nicht, dass uns die FSB - Redeweise manche gute Dienste leistet, etwa in alltäglichen Redekontexten sowie in der Logik zeitlicher Verhältnisse. Nimmt man aber FSB als *Existierendes* oder als *Entität* an, begeht man den Fehler, ihren Charakter als Epiphänomen zu missachten. Da aber der auf FSB aufbauende Einwand gegen den Präsentismus genau auf diesem Fehler beruht, ist er, und damit schließe ich den Bogen dieses Beitrags, zum Scheitern verurteilt.

Diese Festlegung hat Konsequenzen, die über die Spezialdiskussion der FSB hinausgehen. Wenn man die Existenz von FSB negiert, so wohl auch

[33] Ich möchte hier nur auf Quine verweisen, der auf einen vergleichbaren Zirkel in Davidsons Argumentation für die „kausale Rolle“ als Identitätsbedingung für Ereignisse hingewiesen hat. Siehe: Quine 1985. Quines Kritik hat Davidson veranlasst, diese Identitätsbedingung aufzugeben, zugunsten von jener Quines, welche übrigens der hier angenommenen entspricht.

die Existenz all jener zeitlichen Verhältnisse, die auf FSB aufbauen. Letztlich wird man zu einer Ablehnung jedes realistischen Verständnisses von Zeit überhaupt kommen müssen; vorausgesetzt natürlich, es ist, wie ich freilich annehme[34], tatsächlich so, dass sämtliche zeitliche Phänomene auf FSB aufbauen. Beruht jede Substanz-Ontologie auf dem Präsentismus in der Philosophie der Zeit, legt aber jeder Präsentismus in der Philosophie der Zeit darauf fest, dass es FSB nicht gibt, ergibt sich folglich, dass Substanz-Ontologie und realistische Zeitauffassung miteinander unverträglich sind. – Ob sich darüber die Gegner von Substanz-Ontologien nicht freuen sollten, das möchte ich ganz ihnen überlassen. Wenn sie nur die Güte hätten, FSB nicht weiter als Argument gegen die Freunde Aristoteles´ ins Treffen zu führen.

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[34] Siehe Fußnote (6).

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KÄTHE TRETTIN

Tropes and Relations

1. Introduction

From a commonsense point of view the world is full of relations. There is love and hate connecting individual people to each other. There are diplomatic advances and political conferences in order to establish harmonious relations between states. And, apart from the social and political sphere, everything studied in the natural sciences and in technology also seems to be connected in some way or other to something. If everything we encounter in our world seems to be related or combined, this state of affairs surely supplies a good reason for philosophers to find a place for relations in their ontologies.

A straightforward ontological account would be one which acknowledges relations as real beings, and that means**,** according to the scholastic tradition, as universals. This realist move which has been re-established within contemporary analytical ontology at least since Russell's early philosophy, is, however, not the only way to take relations seriously.

I shall argue that there is much room for the ontological reconstruction of relations, even if one does not accept universals. The background for this argument is a particularist *and* realist theory, based on *tropes* ("trope" being the short name for "property instance" or "individual quality"). One way of reconstructing relations is to construe them as particulars. They are supposed to be *relational* or *polyadic tropes* (J. Bacon, D. Mertz). The other way is to hold that relations are *internal* or *formal* and therefore do not require a category *sui generis* (K. Mulligan, P. Simons). I shall discuss these alternatives and opt for the second, i.e., the reconstruction of relations as internal to their relata. Moreover, I offer an argument for why basic relations such as existential dependence should be granted a transcategorial status within trope ontology. In the final sections I consider possible objections and discuss a recently proposed solution to the problem of trope composition.

2. Reconsidering Russell's Arguments

Russell had two different arguments in defence of relations. The first argument, presented as early as 1903 in his *Principles of Mathematics*, rests on the irreducibility of asymmetrical relations which are involved in theories of number, quantity, order, space, time, and motion. For example, "*a* is greater than *b*" and "*b* is greater than *a*" are propositions "containing precisely the same constituents, and giving rise therefore to precisely the same whole; their difference lies solely in the fact that *greater* is, in the first case, a relation of *a* to *b*, in the second, a relation of *b* to *a*." Since this difference "of sense" cannot be explained away by reducing it to the properties of the terms related, at least some "purely external" relations have to be acknowledged. Moreover, Russell claimed that "the so-called properties of a term are, in fact, only other terms to which it stands in some relation".[1]

The second argument, presented in different works around 1911, concerns the question whether a theory "which admits only particulars and dispenses altogether with universals" is tenable. If, using Russell's example, we concede that two instances of white are in a special way similar, namely with respect to colours, the colour-likeness itself will be *prima facie* a universal. And so we will have failed to avoid universals. The only way out would be to "apply the same analysis to colour-likeness", namely, to take a "standard particular case of colour-likeness, and say that anything else is to be called a colour-likeness if it is exactly like our standard case". But according to Russell**,** this procedure leads to an endless regress: "We explain the likeness of two terms as consisting in the likeness which their likeness bears to the likeness of two other terms, and such a regress is plainly vicious. Likeness at least, therefore, must be admitted as a universal, and, having admitted one universal, we have no longer any reason to reject others. Thus the whole complicated theory, which had no motive except to avoid universals, falls to the ground."[2]

So, in the first argument Russell defends relations as irreducible entities in virtue of their possible *asymmetry*, while in the second argument he tries to show that even if one admits only particulars, one must acknowledge at least one universal, namely, the similarity relation in order to avoid a *vicious regress*. Both arguments are a severe challenge, if

[1] B. Russell (1903), *Principles of Mathematics*, London: Allen & Unwin, Chapter XXVI, p. 225f.

[2] B. Russell (1911), "On the Relations of Universals and Particulars", reprinted in his *Logic and Knowledge*, London: Allen & Unwin, 1956, 111f. See also B. Russell (1912), *The Problems of Philosophy*, London: William & Norgate, 54f.

one's ontology is solely based on tropes, i.e. on individual qualities.[3] How then can a trope theorist counter these arguments?

3. The Asymmetry Problem

Let us start with the asymmetry problem. One strategy would simply be to construe the category of tropes in such a way that it comprises relation instances along with property instances. Some tropes are relational, some are not. As soon as relational tropes are admitted, an account of asymmetry will generate no special problems different from those germane to theories which admit universals or a genuine category of relations. If *a* is greater than *b*, then *a* is related to *b* (where *a* and *b* are particulars) by a particular *greater-than*-relation. This line of reasoning has been adopted by John Bacon and Donald Mertz.[4] While Bacon distinguishes irreducible polyadic tropes from monadic tropes and works out a system based on set theory, Mertz has one basic entity which he calls "relation instance", including monadic relations or properties. His claim is that only relation instances are predicative, whereas universal relations are not.

One might object that this procedure will lead to an unseemly inflation of particular relations. But this is not to the point; after all, the universe may be like that. More to the point, or so it seems to me, is another objection. What exactly is the ontological work relational tropes or relation instances are doing? Surely, they are supposed to relate or connect at least two entities, and against the background of trope theory, these entities can only be tropes or something constructed out of tropes. But are these purportedly relating tropes really needed? Consider the case of *a* having a mass of 3 kg and *b* having a mass of 1 kg, where *a* and *b* are trope complexes which differ at least in their respective tropes of mass or heaviness. If these tropes belong to the constituents of *a* and *b*, the statement "*a* is heavier than *b*" is true. Notice that no particular *heavier-than*-relation is needed in order to ground that fact. The whole work is done by the respective relata, i.e. the different tropes of heaviness. Nevertheless, there is an interesting lesson to be learned from this example or similar ones, a lesson which Ramsey already tried to teach Russell, namely, that the structure of a language should not be the overall guide in

[3] For a critical account see C. Daly (1994-95), "Tropes", *Proceedings of the Aristotelian Society* 94, 253-261.

[4] J. Bacon (1995), *Universals and Property Instances. The Alphabet of Being*, Oxford: Blackwell; D. W. Mertz (1996), *Moderate Realism and Its Logic*, New Haven: Yale University Press.

detecting the logical and ontological structure of reality.[5] It is the grammatical structure of our statements which seems to demand an appropriate entity as the reference or truth-maker of a comparative expression like "*x* is heavier than *y*". But the grammar of a language does not always tell us in a reliable way how to construe ontological categories.

This leaves us with the thesis that relations, be they symmetrical or asymmetrical, are internal or formal, and therefore do not require a category *sui generis*. Recently Kevin Mulligan has argued that all external or "thick" relations can be reduced to internal or "thin" relations and monadic properties.[6] The interesting point in Mulligan's treatment of relations is that he makes explicit what it means to be an internal relation. In his explication it is of the essence to distinguish between *inherence* and *dependence*. Consider, for instance, the statement "Mary hits Sam". On the inherence model, one might ask whether this particular hit is in Mary, in Sam or in both. It is obvious that none of the possible answers would be satisfactory. On the dependence model, in contrast, the particular hit is existentially or ontologically dependent on Mary and Sam. "Thus, a particular greater than relation, or a particular relation of numerical difference, if a trope, depends on its terms, just as they necessitate it" (Mulligan 1998, 345).

The importance of ontological dependence which dates back to Edmund Husserl's *Logical Investigations* and which has been further elaborated by several scholars since then, e.g., by Peter Simons[7], will become even more evident when trope theorists try to counter Russell's regress argument.

4. The Regress Problem

Russell, and before him, Bradley, had argued that any ontology which reconstructs universals in virtue of the similarity or resemblance of individual qualities will end up with a vicious regress. This argument, however, is only valid, if one assumes, as Russell obviously did, that the similarity of at least two tropes demands a special trope of similarity which somehow relates the respective tropes and so accounts for their being similar. But there is no reason for this assumption. Consider two instances of white occurring in two sheets of paper. The ontical ground for this case

[5] F. P. Ramsey (1925, "Universals", *Mind* 34.
[6] K. Mulligan (1998), "Relations – Through Thick and Thin", *Erkenntnis* 48, 325-353.
[7] P. Simons (1987), *Parts. A Study in Ontology*, Oxford: Clarendon, Chapter 8; P. Simons (1994), "Particulars in Particular Clothing: Three Trope Theories of Substance", *Philosophy and Phenomenological Research* 54, 553-575.

of colour-likeness is nothing other than the existence of the respective individual qualities, i.e. the tropes of whiteness. In other words, similarity is an internal relation, ontologically dependent solely on the respective relata. Thus, contra Russell, there are no likeness or similarity tropes involved, and therefore no regress is lurking. If tropes assemble in similarity classes, they do so in virtue of the respective individual qualities which they are and nothing has to be added.

5. Ontological Dependence

So far, I have tried to show why trope ontology is not defeated by Russell's arguments. Both the problem of asymmetrical relations and the regress problem can be solved by employing two counter-arguments: *first*, that relations against the background of trope theory are internal or (at least) reducible to internal relations, and *secondly*, that internal relations of various sorts are cases of existential or ontological dependence. But what about ontological dependence itself? It might be objected that in the end trope theorists have to accept at least one universal relation, namely dependence, and so nothing would have been gained.

Although it is perfectly correct to hold that any internal relation involves existential dependence, as Mulligan and Simons do, it is my contention that something more has to be said about ontological dependence itself. If it is as important as (at least some) trope theorists, myself included, believe it to be, it should somehow show up in the ontological system.

I define ontological dependence as follows:

> (D) *a* is ontologically dependent on *b*, if and only if it is impossible that *a* exists and *b* does not exist.

Thus, ontological dependence is being defined in terms of modality and existence. As these terms might be considered transcategorial, ontological dependence has itself a transcategorial status.[8]

6. Possible Objections

Even if my – admittedly brief – account of treating relations within trope theory is accepted as far as Russell's arguments are concerned, there still might be general objections or, at least, sceptical questions. First, realists about universals may find that "the notion of an internal relation is itself

[8] For more details see K. Trettin (2001), "Ontologische Abhängigkeit in der Tropentheorie", *Metaphysica* 2, No.1, 23-54; see also I. Johansson (1989), *Ontological Investigations*, London: Routledge.

problematic", as Herbert Hochberg does.[9] Starting with G.E. Moore's distinction, he tries to disentangle different meanings of "internal" concerning relations. I think there is one clear meaning which is not at all problematic and which can be stated in Hochberg's own words: "[…] a relation is internal to a pair of terms if the existence of the terms entails that they stand in that relation."[10] For clarity, I should emphasize that here no relating entity is needed. If, for example, trope *a* is similar to trope *b*, there is no similarity trope at work. Secondly, and more important, even friends of tropes could argue that not all relations are internal in the sense of being reducible to their terms, simply because then all contingent (external) connections would reduce to essential or necessary (internal) relations – a very unfortunate result. Thirdly, trope philosophy has recently been attacked by a severe competitor within the field of particularism. Tropes, or so Donald Mertz argues, are totally unable to account for any complexity in the world. What he proposes instead is – as mentioned before – "relation instances", which he now calls "unit attributes" or "ontic predicates".[11] Finally, there is still the case of basic trope composition into something like a thing or a substance. How can one explain that different tropes co-exist in such a way that they build up structures of integral wholes? Surely, an explanation from internal relations alone would be highly problematic, because all trope structures would then turn out as essences or necessary trope complexes. However, there may be a solution to this problem, recently proposed by Anna-Sofia Maurin, fully in accord with trope philosophy and *prima facie* also with my account of ontological dependency. She suggests that the classical compresence relation promoted by trope pioneer Donald Williams[12] should be construed as a trope one-sidedly dependent on the tropes it relates: a pure relation-trope.[13] Whether this is a good solution has to be seen.

In what follows, I shall discuss these problems and their suggested solutions in order to further defend trope philosophy against attacks from the relation-front. As Donald Mertz has recently opened fire against trope ontology with weighty charges from within the camp of particularism, his attack is the first to be met and, accordingly, this cannot be done without an ingredient of polemic.

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[9] H. Hochberg (2001), "A Refutation of Moderate Nominalism", in his *Russell, Moore, and Wittgenstein: The Revival of Realism*, Frankfurt/M.: Hänsel-Hohenhausen, 176.
[10] H. Hochberg, op. cit., 177.
[11] D.M. Mertz (1996), (2002), (2003).
[12] D.C. Williams (1953), "On the Elements of Being", *Review of Metaphysics*, vol. 7, nos. 1-2.
[13] A.-S. Maurin (2002), *If Tropes*, Dordrecht: Kluwer, 163ff.

7. Unit-Relations Attack Tropes

The primary concern of D. Mertz seems to be the metaphysical explanation of all sorts of connectivity, unification, combination, togetherness. He is the champion of "the polyadic", who fights against "the tyranny of the monadic" (TMS, 167).[14] His business is trading in networks, systems, and structures.[15] On this perspective it is not surprising that relations are supposed to be the very building-blocks of what there is, the prime combinators. Against the universalists, however, Mertz claims that relations can only do their combinatorial work, if they are conceived as instances or "unit attributes". According to Mertz**,** universals are not capable of "ontic predication".

So far, this seems to be good news for trope ontology. Why not welcome an ally in instance ontology and combine forces against universal-realism and bare nominalism? Why should not proponents of property instances and proponents of relation instances co-operate in a most fruitful way? Unfortunately, such is not the case. One reason is that Mertz doesn't like tropes. "Under trope theory individuated properties 'free float' in the sense that they are by definition not predicable – each is a self-sufficing 'little substance'" (TMS, 169). Trope theory is a failure because it needs to reduce relations to properties, a reduction which is not possible, as Russell has shown. On the other hand, Mertz doesn't find it problematic to reduce relations to properties: monadic properties are just "the limiting case" of polyadic relations. So, one gets the impression that the actual dispute is not one between universalism and particularism but rather a dispute within particularism, with proponents of tropes on the one side and proponents of relation instances on the other. This will be even more evident, when we take a closer look at what an ontic predicate is:

> […] an ontic predicate is a simple entity with a dual nature – one aspect a combinatorial state to or among one or more subjects, the other aspect a content or intension ('sense') that delimits as to kind and, when the predicate is polyadic, the number and order of the

[14] D. W. Mertz (2002), "Combinatorial Predication and the Ontology of Unit Attributes", *The Modern Schoolman*, LXXIX, nos. 2 & 3, 163-216. References to this essay will be abbreviated as TMS followed by number of page.

[15] In his „An Instance Ontology for Structures" (2003), *Metaphysica*, 4, no. 1, 129, he writes: "[…] a structure or complex is a network or mesh of variously inter-related entities, and so a definition of complexity must make use of relations understood as constituent linkings or 'mediating combinators', the 'rods', between shared object 'nodes' that together make up an inter-connected whole."

> unified subjects. The intension is also the source of a polyadic predicate's formal/logical properties (e.g., asymmetry, transitivity, reflexivity), attributes absent in the limiting case of monadic properties (TMS, 168).

So far, we are confronted with two puzzles: First, how can a *simple* entity be double-natured? If it is composite, talk of simplicity is – to say the least – misleading. But perhaps this puzzle is easily resolved, if one stops talking of different "natures". Under this condition, an ontic predicate is a simple individual relation – period. But as we shall see shortly, this charitable interpretation is not intended. Secondly, one might ask: What are the subjects? Are they – analogously – "ontic subjects"? And if so, are they reconstructed from relation instances or just any old substances? The following statement shows that Mertz not only insists on the composite structure of ontic predicates, but also that the components belong to quite different categories, namely, particulars and universals.

> The combinatorial or predicable agency of relation instances, together with intension universals, are the potent features of this unit attribute ontology and what distinguish it from its chief rival, nominalistic trope theory (TMS, 169).

So what we should swallow is that the purportedly simple ontic predicate is a composition of an individual or individuated combinator or nexus, on the one hand, and a quality universal, on the other, both mixed into one. If this is what "moderate realism" comes to, I prefer to stick with pure trope philosophy. Moreover, Mertz's conception indicates that he obviously wants to embrace theories which promote *facts* or *states of affairs* as the basic (complex) categories. Obviously, it is his contention that these theories need either the help of unit-attribute ontology in order to be fully explicable or that unit-attribute theory is itself intended as an ontology of states of affairs:

> When the details are supplied for instance ontology, we would have, I contend, an explanatorily adequate version of the thesis advanced by Wittgenstein and recently argued by Armstrong that the world is a world of facts, not things (TMS, 171).

From these statements it will be perfectly clear that a theory which admits such a variety of categorially different entities, including universals as well as complex things like ontic predicates and possibly states of affairs, is *not* a chief rival of trope ontology. It might possibly have been one, if it were a theory based solely on individual relations which arguably could explain the general structures of all complex beings. Such a theory would also have to say something more about "monadic properties", i.e., individual qualities. Just to state that these are "limiting cases" of polyadic relations,

wouldn't have been enough. So, the intended attack somehow fizzles out before it reaches the opponent.

If tropes really were "free-floating, self-sufficing little substances", it surely would be justified to propose relation instances in order to explain connections between tropes. But this picture is utterly wrong. Rather, tropes are inter-dependent entities. Presumably no individual quality can exist all on its own. I dare to put forward the even more radical hypothesis that no entity whatsoever is absolutely independent. Admittedly, we are all still in the grip of the Aristotelian idea that at least one ontological category – substance – should be perfectly independent. But it is easy to see that on the substance view metaphysical dependency also plays an important role, because qualities and all non-substantial categories are supposed to be dependent on (first or individual) substances. And one may well ask whether the purportedly independent substances are not equally dependent on their properties. On the trope view it is the other way round: Rich trope complexes (which might be regarded as equivalent to substances) are dependent on the inter-dependent tropes which constitute them. Therefore, I quite agree when Donald Mertz claims that existential dependence is not a defect of being but rather "a positive status" (TMS, 170) – although I wouldn't restrict this view to his relation-theory.

Apart from further agreements, for instance, in criticising the traditional inherence or containment model (*praedicatum inest subjecto*), there is another point at which Mertz's conception might meet with my version of trope theory. If his ontic predicates are the prime combinatorial entities and, given that they include not only (polyadic) relation instances but also (monadic) property instances, i.e., tropes, then tropes are *eo ipso* ontic predicates with their alleged combinatorial functions. – Let us now consider a notorious problem of trope theory which, at least, *prima facie* cannot be solved by merely recurring to internal relations, and let's evaluate a new solution to it.

8. An Argument for Pure Relation-Tropes

How can one explain that tropes assemble in tight bundles or build a thing-like composition? On the classical view proposed by Donald Williams, tropes simply co-exist if they are members of a "concurrence-sum", i.e., if they are "present at the same place".[16] As Williams observed, *concurrence* or *compresence* is nothing other than (spatio-temporal) location. Location, however, is external "in the sense that two tropes per se do not entail or

[16] D.C. Williams, "On the Elements of Being" (cited after Reprint 1966), 79.

necessitate or determine their location to one another".[17] If this is correct, trope theory has to admit at least one external relation which by trope-theoretical assumptions has to be a trope itself. But Bradley and Russell would surely have warned that by invoking location-tropes we would be on our way to a vicious regress. Let's assume that three tropes, *a*, *b*, and *c* are located at the same place. Then there would be *prima facie* three location- or compresence-tropes at work: C_1 (connecting *a* and *b*), C_2 (connecting *b* and *c*), C_3 (connecting *a* and *c*). But do these C-tropes really connect? Are they not just bare location instances with no internal power of connecting anything? So further compresence-tropes seem to be needed to account for the compresence of C_1, C_2, C_3, and so on, *ad infinitum*.

Williams himself was cautious enough to avoid such a procedure. For him concurrence was somehow primitive, and he saw obviously no problems in using the formal tools of mereology without giving deeper thought to the fact that thereby at least the part-whole relation comes into play. Equally he must have felt no urge to justify the use of set theory in order to account for his "similarity-sets". Since the nineteen fifties and sixties, and surely after Keith Campbell's promotion and elaboration of Williams's ideas in 1990, the situation has changed. Analytical philosophers interested in ontology – and especially in trope theory – have become more and more sophisticated and consequently have tried to circumvent any traps. One way to circumvent the alleged regress trap has been to contest that Bradleyan regresses are vicious.[18] Another option has been to avoid lurking regresses right from the start by exploring the possibility that external relations are reducible to internal ones. This was the route taken by Kevin Mulligan and Peter Simons, a route which I have also adopted – inspired additionally by Ingvar Johansson's interesting definitions of existential dependence.[19] The dependency-option dates back to Husserl's *Logical Investigations* where the unity of 'moments' – as Husserl called tropes – is, at least to my mind, convincingly explicated without invoking a 'moment of unity' (*Einheitsmoment*). A third option would surely be to borrow a relation instance from Donald Mertz, but as we have seen, this is not as easy as it looks. To cast one's whole lot with 'unit-attribute ontology' is to buy things one didn't intend to buy. In addition to these Herculean efforts which may appear obtuse to outsiders, one can easily imagine, for instance, Herbert Hochberg playing the old

[17] Ibid.

[18] G. Küng (1967), *Ontology and the Logistic Analysis of Language*, Dordrecht: Reidel, 168; K. Campbell (1990), *Abstract Particulars*, Oxford: Basil Blackwell, 35-36. On vicious and virtuous regresses see also A.-S. Maurin (2002), 98-104, 161-163.

[19] I. Johansson (1989), *Ontological Investigations*, London: Routledge.

tune again: All you need are relations. The relations you need are, of course, supposed to be proper universals.

In view of these debates, it is especially noteworthy when someone returns to the roots of (modern) trope philosophy and proposes a relational solution by invoking a *compresence-trope*, even though one might be highly sceptical about whether this solution will work. For Anna-Sofia Maurin two things are basic at this point of the investigation: First, the solution should be compatible with assuming a pure trope ontology. Secondly, whatever the relation may be, it should be external to its terms. The decisive passage runs as follows:

> For it to be true that *a* is compresent with *b* there must exist, apart from *a* and *b*, a *compresence-trope*. A compresence-trope is, contrary to an 'ordinary' trope, a *relation*-trope. The difference between an ordinary trope and a relation-trope is this: a relation-trope is such that, although its existence is contingent (that is, it might or might not exist) it must, *given that it exists*, relate exactly the entities it in fact relates. In other words, any relation-trope is *specifically* dependent on the tropes it relates. This is true while, on the other hand, the related tropes are *not* likewise dependent on the existence of the relation-trope in question. [...] We might also put the position as follows: the relation of compresence is *external* to the tropes it relates, but, simultaneously, the related tropes are *internal* to the relation of compresence.[20]

So what we have here is apparently a real relation-trope (and not merely a location-trope which simply adds to the lot of tropes to be connected). This is a refreshing idea. The relation-trope is, if I understand this proposition correctly, a trope being of a sole quality, namely, relating.

Let us get clear about the dependencies involved by way of a simple example. Assume a red-trope and a round-trope, which somehow exist separately. Eventually, a compresence-trope comes along, let's say C_1, and as its *raison-d'être* is nothing but relating, it detects red-trope and round-trope, and – click – the two are connected. Before that 'click' we had three single entities wandering separately through the world, after the 'click' things have changed. C_1 is now one-sidedly dependent on red-trope and round-trope, although it still seems to have preserved its status of being external to what it relates. However, the situation of red-trope and round-trope appears to have changed more dramatically, for from now on they are in the clutches of C_1 and must cope with life as internal relata of this necessitating relation-trope.

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[20] A.-S. Maurin (2002), *If Tropes*, 164.

If my little fairy tale were *cum grano salis* a correct picture of Maurin's explication, it would be totally mysterious how, on the one hand, C_1 is external to its terms and therefore leads, so-to-speak, an independent life on its own, while, on the other, it is supposed to exist only as a dependent entity on the tropes it actually relates. Equally mysterious is that the 'ordinary tropes' which are obviously conceived as independent tropes suddenly turn into mere internal relata of this compresence-trope. The crucial question here is how compresence-tropes come into existence. Maurin says, that their existence is *specifically* dependent on the tropes it relates. Reading "specifically" in a strict sense, a compresence-trope starts life as soon as there are the appropriate species, i.e., *similarity classes of tropes* on which it is supposed to be dependent. On this interpretation C_1 would turn out as an expert on two similarity classes, {Redness} and {Roundness}.

Thus, on a slightly modified version, our compresence-trope is not a *pure* but a *qualified* relation-trope which obviously comes into existence as soon as there are species or classes of tropes for which this relation-trope is "specifically" qualified as a connector. Let's try out a tale based on this modification. C_1, our meanwhile qualified relation-trope, would *not* ramble carelessly through the world, but do its slave job of connecting anything red and round which comes into sight in order to preserve its sheer existence. Meanwhile red-trope and round-trope are still sitting on a bench in the middle of nowhere waiting for Godot. C_1, being a very alert compresence-specialist, is delighted to detect these two isolated tropes which doubtlessly fall under the C_1-obligations and -expertise, and – click – the two forlorn souls, red-trope and round-trope, exist ever after in a nice red ball – a wonderful symbiotic connection already admired by Plato.

I am not sure whether – and if at all, how far – my interpretations correspond to Maurin's intention in this relational account of trope-composition. What is clear is that a relation-trope *must* relate as soon as it exists. This very trope "could not have existed unless it related".[21] However, it is not so clear how one should interpret its being one-sidedly dependent on the tropes it actually relates. Somehow the respective 'ordinary tropes' seem to be responsible for the existence of these relation-tropes. But then one is very close to the view that these individual relations are internal, i.e., depend on the relata.

Thus, I conclude that although proposing a pure relation-trope seems to be a promising hypothesis against the background of pure trope ontology, it may fail in the end. It is promising, because it satisfies the

[21] A.-S. Maurin, op. cit., 166.

categorial conditions of tropes: a trope is an individual quality, and if this individual quality is 'relating', then a pure relation-trope, i.e., a trope which exists as soon as it relates, is a proper member of the universe of tropes. The hypothesis is promising in a further respect: If pure relation-tropes can be considered as a different or quasi-different category from the category of 'ordinary tropes' as the potential terms of these individual relatings, the condition of externality is fulfilled and any vicious regresses are stopped. The approach may fail, however, for two reasons.

First, the dilemma remains unresolved. The dilemma is this: If a pure relation-trope is supposed to be *external* to specific ordinary tropes, *it cannot be dependent* on exactly these tropes; if, however, the relation-trope can only *exist in dependence* of the tropes it relates, it appears to be *internal to them*.

Secondly, 'compresence' is a problematic notion. It is problematic in that it presupposes a fixed framework of space and time, something like a big container of all concrete things. As the relation-trope in question is conceived as a *compresence*-trope in a pronounced way, it is supposed to unify tropes at a position 'in space and time'. But what is time and space on trope theory? Although this is only meant as a minor critique of Maurin's approach, for nearly all philosophers dealing with ontology nowadays still seem to adhere to the Newtonian model of time and space, one should give these presuppositions a thought. If – in the light of modern physics – this containment model cannot be defended as a natural condition *sine qua non*, the idea of construing *mere* compresence-tropes rests on instable ground. The deeper ontological question behind this is how trope theory (or any other metaphysical theory) can coherently account for space-time.[22]

9. Ontological Dependence – Once Again

Let me summarise the outcome of these objections and proposals. Although I consider the 'combinatorial idea' in Mertz's proposal very interesting, his conception follows a dialectic, which is totally different from that of trope theory. Obviously, within 'unit-attribute ontology' one can make use of categories which are complex rather than simple and which do not exclude universals. Therefore**,** it is definitely not a rival of a pure version of trope ontology. Rather, the whole conception seems to be tailored to support fact-ontology or universal-realism.

[22] Cf. K. Trettin (2002), "Tropes and Time".

This is different with Maurin's relational account, which is designed to fit perfectly in the framework of pure trope theory. If, however, the purportedly external relation-trope turns out to be merely internal to the tropes it actually relates, nothing will have been gained by taking the trouble to invoke this special relation-trope in the first place. For those who wish to defend the view that relations are reducible to theirs terms, myself included, this outcome surely wouldn't be tragic but, rather, desirable. Nonetheless, I concede that *prima facie* the idea of an individual connector or *nexus* looks very attractive, because then trope theorists could lean back and simply point to this fabulous nexus-trope whenever there is an attack from the relation-front. Unfortunately, this nice and useful looking ontological device is as problematic as other bare particulars, e.g. substrates. If our relation- or nexus-tropes are by definition purely combinatorial and totally external to the tropes they may or may not combine, the nexus-tropes would be indistinguishable from one another and eventually collapse into One Big Combinator. Apart from the fact that trope theorists would then have to accept at least one universal (or would have to say something intelligent in order to reject Russell's early objection), it is far from clear whether such a universal nexus can combine anything – a lesson we have learned from Donald Mertz. For, in order to do its combinatorial work, the Big Nexus must be 'exemplified' or 'instantiated' and obviously thereby gain back some individuality – but then we are right back to the only existing individuals which could do all this: the self same entities which are supposed to be connected – tropes or individual qualities in our case. Therefore, a pure nexus-option is not a very promising solution. If, however, one argues for an individual nexus- or pure relation-trope in terms of *existential dependence*, as Maurin does, one should give more thought to what dependency is. Although in any *definiens* or *explanans* one has to use concepts which seem to be more basic or at least better understood than the ones to be defined or explained, those defining concepts should be examined thoroughly, if they appear to play a decisive explanatory role not only in one definition but in the whole theory. This is the case with ontological dependency. Therefore, I should like to conclude by briefly stating in a pointed way what dependency means on the version of trope theory which I have tried to defend.

On the ground-level of ontological reconstruction there are what Leibniz would have called the very atoms of nature and the elements of being.[23] In contradistinction to Leibniz's conception, these atoms are not

[23] In his Monadology, § 3, Leibniz speaks of « les véritables Atomes de la Nature et en un mot les Elemens des choses ».

independent monads, but tropes. Tropes are individual qualities and as such far more basic than his monads or 'simple substances'. Nevertheless, I think one can preserve a great insight from Leibnizian monadology, namely, that the metaphysical atoms should not be conceived as dumb & dull items, but, rather, as entities bestowed with a little *appetitus*. Tropes, at least as I conceive of them, are such that they are internally 'inclined' to possibly connect to other such beings. Translated into our terminology, this means that tropes are in principle capable of building structures without the help of external combinators. Let's assume that *a* is a trope which has an internal 'conatus' to trope *b*. Assume further that *b* is not around: what happens? Not much, because then – deplorable as it is – trope *a* will have had a very short life and pass out of existence.

The idea of a totally independent, sole trope which is traditionally supposed be needed as a starting point is denied. Tropes are not substances. So the starting point – if there is one at all – is pluralistic: there are at least two individual qualities compatible to each other in order to build up higher structures. If they are not compatible, they will not succeed – and evolution has to wait for a better opportunity. Surely, this picture is not meant to revitalise something like the Adam & Eve Myth. One shouldn't forget that tropes are very basic entities and not just 'little substances'. Has anyone ever explored whether the sub-atomic particles detected or inferred in physics can exist all on their own? However these explorations may turn out, there is good reason to be critical towards the classical obsession of watching over the strict independency of basic entities.

If dependency is such an important and explanatorily decisive notion, it should be taken seriously in ontology and granted the status it deserves. On my view, it is a principle by which the connection of all tropes is explicable. As I have briefly indicated in §5, ontological dependence itself can be defined in terms of modality and existence. And if one takes 'modality' and 'existence' as the most basic transcategorial concepts of any ontology, dependency itself turns out to be a transcategorial concept.

I am quite aware of the fact that my view is tentative and needs to be worked out in detail. Nonetheless, I am convinced that this is a worthwhile task.[24]

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[24] An earlier version of this paper was presented at the 2003 World Congress of Philosophy in Istanbul. I have profited much from the lively discussion with a very interested audience. Special thanks to Louise Röska-Harding for checking my English.

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ONCE MORE: BRADLEYAN REGRESSES

1. Preliminary Remarks on Properties and Relations
2. A Multitude of Entities (Regress #1)
3. Necessitation (Regress #2)
4. Logical Form (Regress #3)
5. The Copula and Exemplification (Regress #4)

INTRODUCTION

Old English manors have their ghosts. And though I would not want to call analytic philosophy a 'manor', nor exactly 'old', it certainly is of some decent English origin, and it left adolescence a while ago. No wonder then, that it is not exempt from haunting terrors. One particular spectre has been haunting it for decades; it already gave some analytic pioneers the creeps, and we still now and then find people terrified by it: the ghost of old Bradley has not yet found its rest and keeps on threatening people with his notorious regress. The present essay is a lecture in exorcism; much of the fear old Bradley spread, so I will argue, peters out once we dare to look it in the eye.

However, this essay is not primarily exegetical, and especially not an attempt in *interpreting Bradley*. I find Bradley's writings, to say the least, not particularly accessible. Discussions of isolated passages from his longer treatises will probably be less fruitful than a careful study of the positions within the whole argumentative structure, supplied by the examination of Bradley's intellectual upcoming.

His treatments on relations and properties, in which he develops the famous regress argument, are motivated by a radical goal: a vindication of some form of monism. To reach this goal, he tries to deconstruct the most basic categories of our ordinary conceptual framework. Thus, he holds that

the distinction between things and their qualities, fails 'as a serious attempt at theory' (1930: 16). Reality, he holds, is different from how we conceive of it; 'the arrangements of given facts into relations and properties may be necessary in practise, but it is theoretically unintelligible,' (1930: 21) and that 'a relational way of thought – any one that moves by the machinery of terms and relations – must give appearance, and not truth' (1930: 28). Many allusions to Bradley's regress argument are hardly faithful to his work, because they do not take this radical goal into consideration.[1]

Now, as I said before, I am not a Bradley scholar and I do not intend to put Bradley's original argument in perspective. Rather than discussing *Bradley*'s regress argument(s), I will focus on *Bradleyan* arguments – arguments that are, in one or the other way, inspired by his treatise – and on certain concepts that are central to them. Since more or less elaborate references to such regresses are legion, I will in no way strive for completeness in my discussion of the relevant literature. My selection may be personally motivated, but I hope it also successfully picks out some of the more important issues.[2]

The Bradleyan regresses that I will consider are concerned with our *ordinary* conception of relations and/or properties, not with some elaborate and artificial philosophical theory. The regresses are supposed to raise some problems about this conception. The alleged problems will concern either the category of a relation (and/or a property) as such, or a particular member of this category, namely the relation which holds between a thing and its properties – the relation, that is, of *having*, *possessing*, or, to use a philosophical phrase, *exemplification*.

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[1] Incidentally, Bradley not only formulates *one* regress arguments, but three of them (op. cit. 17-18; 22; 26), whose relation would deserve discussion.

[2] What I will not discuss, is the distinction between external and internal relations. But notice that the role it plays in Bradley's thoughts is often misunderstood; thus, Peter van Inwagen (2002: 33-37) reconstructs Bradley as arguing for monism on the premise that all relations are internal. But, as William Vallicella (2002: 5ff.) points out, Bradley rejects relations *tout court* – not only external ones (which becomes apparent already from Bradley 1930, but which is explicitly stated in Bradley 1935: 641ff.). Vallicella's essay is, by the way, one of the more serious attempts to evaluate Bradley's original argumentation.

1. Preliminary Remarks on Properties and Relations

a. *Canonical Designators for Properties and Relations*

Talking about φs would be a rather idle affair without the possibility of identifying reference to φs. Now, the proper vehicle for such reference is a singular term. Accordingly, the central component of the fragment of English which allows for discourse about properties and relations is the stock of singular terms for properties (for short: property *designators*) and relations. For a start, I will briefly investigate into the semantics of such designators. I will, for the nonce, concentrate on property-designators. I think that most of what I say about them equally applies to designators of relations. However, I shall briefly hark back to them at the end of this section.

Designators of properties (or: traits, characteristics, attributes, qualities) divide into several groups; there are, of course, definite descriptions which denote properties (‘my favourite virtue’); much more important, however, are certain derived singular terms that I call *canonical* property-designators. Canonical property designators are nominalizations of general terms and predicates.[3] Two familiar groups of such canonical designators are

(i) abstract nouns (‘wisdom’), derived from adjectives (‘wise’), and

(ii) gerundive phrases, derived from verbs (‘converging’) and verb-phrases (‘being earnest’).

Members of both species can receive an additional categorial prefix, such as ‘the quality of’ (while members of the second group more often *require* such a prefix). Two other important groups comprise (i) combinations of ‘to’ and a verb or verb-phrase in the infinitive (‘to converge’, ‘to be a lucky man’), and (ii) that-clauses (‘He hath this property of an honest man that his hand is as good as his sword’). We see that the devices for deriving

[3] While abstract nouns are, in the vast majority of cases, derived terms, there are some exceptions to this rule; thus, the adjective ‘courageous’ is derived from the noun ‘courage’, and the noun ‘animosity’ lacks a corresponding adjective in English. I will henceforth ignore such exceptions and concentrate only on the standard cases, which are derived terms.

property designators are rich and hardly limited; the layman's properties, we may conclude, are far from sparse.[4]

In the relevant ontological literature, designators like 'wisdom' or 'redness' (i.e. members of the first mentioned group; for schematic reference to them I shall from now on use '*F*-ness') are often classified as (proper) *names* of properties. Why is this? Non-indexical singular terms are often divided into two major groups, names and definite descriptions. Now, judged from its grammatical form, the property-designator 'wisdom' bears little resemblance to definite descriptions, which are typically many-worded and contain the definite article. Furthermore, 'wisdom' contains no descriptive material which would pick out its referent by correctly describing it, and it is a rigid designator. That could make the choice to classify 'wisdom' as a name at least somewhat reasonable.

But perhaps we are driven towards a doubtful decision by an artificially limited range of options. Some reflection on the semantic profile of canonical property-designators proves it to differ significantly from that of proper names:

(D-1) Canonical property-designators are *semantically complex*, such that the conditions of understanding them systematically depend upon the conditions of understanding the corresponding general term: whoever understands the general term *F* and who knows how to derive the corresponding designator *F*-ness will also understand this expression. Furthermore, whoever understands *F*-ness must know that exactly those things have the denoted property, of which the corresponding general term *F* is true.

(D-2) The reference of a canonical property-designator is a function of their meaning, which in turn is a function of the meaning of the corresponding general term(s). Thus, the meaning of 'verbose' determines the meaning of 'verbosity', which in turn determines the reference of the designator.[5]

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[4] Hence, sparse theories of properties cannot yield an account of the ordinary conception of properties. At least their most prominent proponent, David Armstrong, never made a secret of this circumstance (see his 1978 II: 18).

[5] Cp. Strawson (1953/54: 256f.).

(D-3) Knowledge of the meaning of a canonical property-designator suffices for knowledge of its referent. Understanding ‘verbosity’ is enough for knowing to what it refers.[6]

In virtue of these features, property-designators such as ‘wisdom’ differ clearly from proper names, which are in general semantically simple, and typically lack any linguistic meaning. And even if a name can be said to possess some linguistic meaning (think, for example, of ‘Dartmouth’ or ‘Sitting Bull’), its reference is neither a function of its meaning nor of the meaning of some correlated terms. Thus, it seems better not to class the property-designators in question with *either* definite descriptions *or* proper names. Instead we should realize that they form a class of their own. But they are not the only examples of this class. The semantic profile of derived abstract nouns is shared by the second class of property designators I mentioned, gerundive phrases, such as ‘being verbose’. Although they do contain descriptive material, this material is in general not true of their referent (thus, they do not receive their referent by description). They are rigid designators of properties that satisfy conditions analogous to (D-1)-(D-3).[7]

Just as we can and do explicitly talk about properties, we can and do talk about relations (or, which comes to more or less the same, about connections, ties, links, contrasts, etc.). And we have the same devices of deriving singular terms for relations as we encountered in the case of properties – in particular, we can use abstract nouns and gerundive phrases for our discourse about relations.

However, it appears that abstract nouns which denote relations are rarer than those which denote properties. This is not to say there are none; ‘equality’ (or ‘identity’) and ‘difference’ seem to be two clear, albeit formal, examples. (Or perhaps they are not so clear? ‘Equality gives rise to challenging questions,’ writes Frege at the commencement of his ‘On Sense and Meaning’, ‘which are not altogether easy to answer. Is it a

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[6] Cp. Künne (1983: 177f.), Levinson (1978: 16), Peterson (1986: 298), and Schiffer (1990: 604).

[7] The rigidity of at least some designators of this kind is sometimes contested; for a rebuttal of this challenge see Tye (1981: 24) and furthermore Schnieder (forthcoming), in which the rigidity is traced back to the semantic peculiarities mentioned above.

relation? A relation between objects, or between names or signs of objects?') Some material examples are 'matrimony', 'contact', and 'causality'. Thus, we say that matrimony is a bond between two people – and what else should a *bond* be but a relation? Similarly, a contact can be called a relation between two objects, and causality a relation between two events.

But nevertheless, the stock of abstract nouns that function as designators of relations seems less rich than that of property designators. This is partly due to the fact that adjectives in the comparative, which play a pivotal role for relational statements, do seldom, if ever, give rise to derived nouns (some girls are bigger than others, but we never talk about *biggerness*).

What we often rely upon in our discourse about relations, when we lack appropriate abstract nouns, are *descriptions* that characterise them via their relata: in this way, we use phrases like 'the relation between *F*s and *G*s', 'the relation of an *F* and a *G*' etc. These expressions are used as if they were *definite* descriptions; but notice that although we may speak about the relation between natural science and philosophy, the relation between the lord and his servants, or the relation of wealth to social well-being, there surely are countless distinguishable relations holding between the mentioned pairs of objects. Thus, the semantics of such expressions would deserve some further attention (but I lack the space to go into this issue here).

It might be interesting to further investigate into the differences between discourse about properties and discourse about relations, and to see whether, for instance, the comparative dominance of abstract property-nouns over abstract relation-nouns has some systematic reason. But I shall not do so here; I am content with the observation that analogous devices for discourse about both sorts of entity are well enough entrenched in language.

b. *The Individuation of Properties and Relations*

I distinguish properties and relations from *concepts* (understood as *meanings* or meaning-like entities).[8] Concepts are plausibly individuated by some epistemic conditions that constitute the possibility of grasping them. But properties, I take it, are individuated by their exemplification-conditions with respect to different possible worlds. On this view of the *intensional* individuation of properties, the following identity conditions hold:

(Int-Prop) For all properties p, p^*: $p = p^* \leftrightarrow \Box \forall x$ (x has $p \leftrightarrow x$ has p^*).

Similarly, we can formulate identity conditions for relations. In the case of dyadic relations, we would have:

(Int-Rel) For all dyadic relations r, r^*:
$r = r^* \leftrightarrow \Box \forall x_1, x_2$ (x_1 stands to x_2 in $r \leftrightarrow x_1$ stands to x_2 in r^*).

(It is easy to see how we can generate analogous conditions for n-adic relations.)

Although this is not the right place for an exhaustive discussion of concurring accounts of the individuation of properties and relations, let me say a few words in defence of the intensional account. Some philosophers thought that this view can be refuted by simple counterexamples: don't we say that the property of being an equilateral triangle is to be distinguished from the property of being an equiangular triangle (although they have the same conditions of exemplification)? I sympathise with David Lewis' eclectic answer to this: 'Sometimes we do, sometimes we don't.' (Lewis 1986: 55) Such naked (non-) identity statements are hardly ever made at all in everyday talk. If the question about property individuation turned solely on our intuitions what careful and competent speakers would say about explicit identity statements of the form 'the property of being F = the property of being G', the linguistic data would simply not be sufficient to yield a determinate answer.[9]

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[8] This distinction is often made; see for example Bealer (1982), Jackson (1998: 15f.), and Künne (2003: 26, *et passim*).

[9] Cp. Bennett (1988: 78) on identity conditions of events.

What further data might be relevant to our present concern?[10] If some entities are meaning-like, then talk about them should be relevantly linked to cognitive or epistemic notions. Such links exist, for instance, in the case of propositions. Natural language expressions for them (general terms like 'doubt', 'belief', 'assertion', 'statement' and that-clauses ruled by opaque contexts) are clearly epistemically constrained. But no such links exist between epistemic notions and uses of 'quality', 'state', 'property' etc.[11] Indeed, we have other terms for the relevant purposes; we talk about the *idea*, the *concept*, the *notion* of something, and these terms are clearly linked to epistemic notions. Ideas can be grasped, understood, conveyed, and they can be coherent, confused etc. What is characteristically said of properties, on the other hand, is that they are *had* or *possessed*. Now these terms could perhaps also be applied to concepts; but if they are, they differ significantly in meaning. To possess or have the concept of courage would consist in having some kind of mental capacity (the ability to conceive of something as courage), but surely not in being courageous – whereas having or possessing the property of courage does consist in being courageous. To exhibit the property of patience is to behave patiently in some situation, whereas to exhibit the concept of patience may at best be to illuminate it in a philosophical lecture.

These observations suggest that properties, contrary to ideas or concepts, are conceived of as rather 'worldly' entities, as ways things *are*. They are not, like concepts, ways of thinking about or conceiving of things. Furthermore, playing a worldly role, properties constitute (possible) differences between things. Not everything which constitutes a difference *for us*, i.e. a difference in how we think about certain things, also constitutes a difference in things. It makes a (cognitive) difference whether we think of something as an equilateral triangle or as an equiangular one. However, since necessarily all equilateral triangle are equiangular ones and vice versa, there is no difference between these *things* at all. It seems to me that this 'worldly' feature of properties is central to everyday talk of prop-

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[10] Elliot Sober (1982) brought forth an argument that is relevant to the discussion. However, I wholly agree with Frank Jackson's reply (1998: 126f.) and could not add anything substantial to it.

[11] For the following cp. Strawson (1987: 404).

erties and this is why I opt for the individuation via exemplification-conditions (the sketched reasoning, I should add, is of course far from being a *proof* of my position; I do not expect something like that to be available).

2. A Multitude of Entities (Regress #1)

Assume some entity *x* is *thus-and-so* related to some other entity *y*. In this ontological state of affairs, we obviously can distinguish two different entities which I have already named: *x* and *y*. But then, we can make out another entity that is somehow involved in the matters, the relation of *being thus-and-so related to something*. Let us call it, for sake of brevity, *R*. Having now three entities at our ontological disposal, we can make out yet another entity. A second relation (let us call it *R**) comes into play, because we see that *x*, *y*, and *R* are somehow related, of course: *x* stands to *R* and *y* in the relation of *being related by something to something*. Once we have recognised this fourth entity, the relation *R**, we can go on and realise that *x*, *y*, *R*, and *R** are somehow related, of course. Thus, there will be another relation, *R***, in which they stand to each other. Obviously, *R*** cannot be identical with either *R* or *R**, since it is a tetradic relation, whereas *R* is dyadic, and *R** is triadic. We can easily climb up the adicities in this way, making out ever more relations along our way. There are infinitely many of them.

This circumstance (which could have been expected) is as harmless as the hierarchy of sets that starts with the empty set, ∅, proceeds to its singleton, {∅}, then to the singleton of this singleton, {{∅}}, and so on, *ad infinitum*. The worst we can say about both sequences of entities is that they are terribly long and rather boring to look at.

I take it that nobody should be irritated by such a ‘regress’ of relations just because of the number (or rather: numberless multitude) of relations involved. If there is anything scary about them, it cannot consist in their mere existence but must reside in some feature they (allegedly) have. So let us turn to another regress argument now.

3. NECESSITATION (REGRESS #2)

Let us say that an object *x* necessitates a proposition *p* iff *p* is (classically) entailed by the fact that *x* exists:

(Nec) *x* necessitates the proposition $p \leftrightarrow_{df.} \Box$ (*x* exists $\rightarrow$ *p* is true).

The notion of a truth-maker, which has enjoyed much attention recently, is sometimes identified with the notion of a necessitator.[12] Insofar as this equation is correct, one could rephrase my following remarks in terms of truth-makers. However, the equation is doubtful: every entity necessitates all necessary truths. But does, for instance, my right shoe *make* the theorem of Bolzano-Weierstrass *true*?[13] To be on the safe side, I shall stick to the notion of necessitation; everybody may feel free to draw whatever consequences seem appropriate about the notion of a truth-maker.

Now Bradley's argumentation has been read as a complaint that the assumption of relations does not provide us with necessitators of relational statements. If *x* is *thus-and-so* related to *y*, it stands in the relation of *being thus-and-so related* (for short: *R*) to *y*. But the mere existence of the three entities *x*, *y*, and *R* does not imply that *x* stands in *R* to *y*, and neither does it imply that *x* is *thus-and-so* related to *y*. Assuming a further relation, in which *x* stands to *R* and *y*, will not improve matters (nor will the assumption of yet another relation etc.).

This complaint is firstly true, and secondly not very surprising. Relations, which are universals, are surely not the right kind of things to necessitate specific relational statements. If one feels the need for having such necessitators (whence should this need come from, by the way?), then one should seek refuge not to universals but to other entities, such as particularised *instances* of properties and relations.[14] That Jean-Paul kisses Jean is not necessitated by the universal *kissing*. But it is necessitated by the particular *kiss* that Jean-Paul kissed to Jean.

Does the existence of such particularised relations give rise to a regress of such entities? That depends upon the conception of

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[12] See, e.g., Fox (1987: 189).

[13] Cp. Restall (1996: 334) and Williamson (1999: 254). For other cases that speak against the equation see Smith (1999: 278).

[14] On the notion of a particularised property see, for example, Mulligan *et al*. (1984).

particularised relations involved. If one opts for very generous existence conditions, such that any relation may have particularised instances,[15] a regress will evolve.[16] There is a relation in which Jean, Jean-Paul, and their kiss stand to each other; Jean and Jean-Paul are the sole two subjects of their kiss, so we might describe the relation as that of *being, together with something, the sole two subjects of something*. Or, to save some breath, we might simply call it *R* again. But if every relation can have a particular instance, then *R* can have one, and it will have such an instance if Jean-Paul kisses Jean. But then there will be a relation in which Jean-Paul, Jean, their kiss, and the particular instance of *R* stand to each other – and on it goes.

Notice that even if one opts for existence conditions of particularised properties and relations generous enough to yield this regress, it would do no harm. *All* of the particularised relations in the regress would necessitate each other's existence, and furthermore that Jean-Paul kisses Jean. It might be bewildering to some philosopher that so many necessitators should exist – but then again, one might be bewildered by the number of things in general, by the numbers of positive integers etc. Bewilderment not always indicates philosophical dilemmas.

4. LOGICAL FORM (REGRESS #3)

Without explicitly alluding to Bradley, Roger Teichmann (1989) presented a regress argument that obviously stands in the Bradleyan tradition. Teichmann's line of reasoning resembles Bradley's even in its radical goal: the argument is supposed to undermine a certain form of realism about universals. More precisely, it is supposed to show that apparent reference

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[15] Any relation, I should add, which is not necessarily 'empty'. If there is a relation in which nothing can possibly stand to anything (as, for example, the numerical relation of *being both greater and smaller than*), then this relation cannot have any particularised instances.

[16] Such generous existence conditions are proposed by Mertz (1996: 9, *et passim*) and Moltmann (2003: 456). Other philosophers that accept the general framework of particularised properties and relations are suspicious about instances of *certain* (e.g. *formal* and *essential*) properties and relations.

to universals and apparent quantification over universals are merely that: *apparent*. Apparent discourse about universals has a misleading surface grammar; underneath it, on the level of logical grammar, we find no such reference any more.

a. *The argument*

The exact form of realism under attack holds that (i) there are genuine singular terms which refer to universals (properties and relations) while (ii) predicates do not refer to universals.

Teichmann's argues that the described realism about universals forces its advocates to attribute an absurd, because infinitely complex, logical form to ordinary, elementary statements. I should admit in advance that I feel a little uneasy about the central notion of the argument, the notion of *logical form*. This notion is often employed in contemporary philosophy, and often rather uncritically so. I doubt that it is always supported by a coherent conception of what it should amount to. Having expressed my reservation about this notion, I will have to employ it for the sake of the argument.

Let me turn to Teichmann. He writes:

> If 'redness' is really a name, then the predicable ' – has redness' cannot be treated as mere longhand for a logically simple predicable, any more than can ' – loves Jack'. (1989: 156)

Fair enough. He continues that this

> behoves us to regard ' – has redness' as displaying the true logical form of '– is red'; the latter, despite appearances, must be considered as a relational predicable, like ' – loves Jack'. (loc. cit.)

But just as the property designator 'redness' is derived from 'red', we can derive a further property designator from the relational predicate 'has (or: partakes of) redness': by building the gerundive form, we arrive at the designator 'having redness', which we can furthermore prefix with a categorial apposition, 'the property of', thus arriving at 'the property of having redness'. But now we can argue in a similar fashion as above that

> since ‘partaking of redness’ is a genuine name, the logical form of ‘ – partakes of redness’ (and hence of ‘ – is red’) turns out to be shown perspicuously by ‘ – partakes of partaking of redness’. By similar steps, it seems that we end up driven to imputing an infinitely complex logical form to the apparently simple ‘ – is red’ – and this is absurd. (1989: 157)

We can precisely capture this argument by the following argument-schema:[17]

(1) If ‘*F*-ness’ is a referring term, then ‘*x* has *F*-ness’ will be about what ‘*F*-ness’ refers to, namely *F*-ness.

(2) If ‘*x* has *F*-ness’ is about *F*-ness, so is ‘*x* is *F*’.

(3) If ‘*x* is *F*’ is about *F*-ness, then its logical form is more perspicuously shown by ‘*x* has *F*-ness’.

(4) If ‘*F*-ness’ is a referring term, then ‘the property of having *F*-ness’ is a referring term too.

(5) If ‘the property of having *F*-ness’ is a referring term, then ‘*x* has the property of having *F*-ness’ will be about the property of having *F*-ness.[18]

(6) If ‘*x* has the property of having *F*-ness’ is about the property of having *F*-ness, so is ‘*x* has *F*-ness’.

(7) If ‘*x* has *F*-ness’ is about the property of having *F*-ness, then its logical form is more perspicuously shown by ‘*x* has the property of having *F*-ness’.

(8) So it goes on, *ad nauseam*.

Therefore:

(C-1) If ‘*F*-ness’ is a referring term, then elementary predications exhibit an infinitely complex, logical form.

(C-2) So, ‘*F*-ness’ is *not* a referring term.

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[17] I deviate from Teichmann’s terminology in two aspects: (i) instead of the awkward ‘*x* partakes of *y*’ I simply use ‘*x* has *y*’; (ii) for reasons I have given in section (1.a.) I prefer to talk about property-*designators* instead of names.

[18] You could formulate this premise as a strict analogy to premise (1); for sake of brevity, I contracted it a little.

Although I have my worries about the notion of logical form, I will agree with Teichmann that we should better not attribute an infinitely complex form to elementary predications. Nevertheless, the argument is unconvincing. There are good reasons to think that premise (7) is at least disputable, and there are even better reasons to think that premise (2) is definitely false. I will propound them one after another.

b. *Is* F-*ness distinct from the property of having* F-*ness?*

How can premises (3) and (7) be justified? Two statements that share a common logical form can differ in how perspicuously this form is mirrored by their respective surface grammar. That a statement is about some entity *x* must somehow be significant to its logical form. The relevant feature of the logical form will, on the level of surface grammar, be adequately reflected by the appearance of a singular term which refers to *x*. So, the following principle seems sound:

(LogForm) If two statements *s* and *s** are about *x*, while only *s* contains a singular term referring to *x*, then (*ceteris paribus*) *s* more perspicuously exhibits its logical form than *s**.

(The *ceteris paribus* is essential, because *s* might of course be much less perspicuous than *s** in some other aspects.)

This principle easily validates (3), and it might seem to validate (7) equally easily. If a statement is about the property of having *F*-ness, it should, for sake of perspicuity, contain a singular term referring to this property. Now a certain singular term suggests itself for this role: the term ‘the property of having F-ness’. But contrary to the statement ‘*x* has the property of having *F*-ness’, the statement ‘*x* has *F*-ness’ does not contain this singular term. Thus, the former is better off in terms of logical perspicuity.

However, we must not forget that we can usually refer to one and the same entity by the use of different singular terms. And it is far from obvious that ‘*F*-ness’ must differ in reference from ‘the property of having *F*-ness’. Indeed, if properties are intensionally individuated, as I have argued in section (1.b.), then both terms come out as coreferential: necessarily, whatever has *F*-ness, has *eo ipso* the property of having *F*-ness, and vice versa. So, (Intens-Prop) implies that the property of having *F*-ness is

nothing but *F*-ness itself. But if this identification is correct, then we have good reasons to be suspicious about premise (7). It obviously cannot be established by (LogForm) any more, because in terms of referential transparency the statements '*x* has *F*-ness' and '*x* has the property of having *F*-ness' will be on a par. *Each of them* contains a singular term referring to the property of having *F*-ness (or, what is the same, *F*-ness). What made (7) plausible was the assumption that '*x* has *F*-ness' is about some entity (the property of having *F*-ness) to which it does not refer by any singular term. But now that we identify *F*-ness and the property of having *F*-ness, we have the singular term required.

Notice that similar considerations even apply to theories of properties on which they are individuated in a considerably more fine-grained manner. For we should realise that the property denoted by the term '*F*-ness' is not only necessarily coexemplified with the property denoted by 'the property of having *F*-ness', but that this circumstance is furthermore *evident* to competent users of the terms. In this respect they differ from what is typically offered as counterexamples to the intensional view: pairs of property designators which can be thought to denote properties that are *not* necessarily coexemplified. The intuition that the property of *being an equilateral triangle* is not identical to the property of *being an equiangular triangle* surely receives some support from the difference in cognitive value of both singular terms. So, even on an account on which coreferentiality of canonical property designators is somehow tied to their having the same cognitive value, the terms '*F*-ness' and 'the property of having *F*-ness' could be classified as coreferential.

c. *Elementary Predication and Property-Attribution: The Synonymy Thesis*

As promised, I presented a reason for rejecting premise (7): whoever believes in the intensional individuation of properties should not accept (7), and the same will even hold for some less coarse-grained accounts. Still, some philosophers might adopt a view about property individuation which can support (7). So let me now turn to the second half of my promise: to give even better reasons for a rejection of the second premise:

(2) If '*x* has *F*-ness' is about *F*-ness, so is '*x* is *F*'.

Why should we believe so? Teichmann argues for (2) as follows:

> […] it must surely be a necessary condition of two sentence's being strongly equivalent, in the way in which '*A* is red' and '*A* has redness' are, that those sentences are not about, do not make mention of, different numbers of things. (1989: 156)

Teichmann relies on the following principle:

(T-1) If two sentences *s* and *s** are strongly equivalent, then they are not about a different number of things.

Indeed, there seems no rational reason to hold (T-1) without holding also the stronger principle:

(T-2) If two sentences *s* and *s** are strongly equivalent, they are about the *same* things.

If two sentences are about the same things, they are about the same number of things. Thus, (T-1) follows from (T-2). While the weaker (T-1) is all that is needed for the regress-argument, the stronger version is needed as the rationale of the weaker. So, I shall henceforth concentrate on (T-2).

To evaluate this principle we should know a little more about what is meant by 'strongly equivalent' here. Teichmann provides us with not more than a hint: the equivalence he has in mind is just the kind of equivalence holding between '*x* is red' and '*x* has redness'. A characterisation in descriptive terms rather than by examples would be fine to proceed. Let us compare our sentences with some other sentence pairs:

(i) The sentences are *materially equivalent*, i.e. they have the same truth-value. But material equivalence is evidently much too weak to validate (T-2).

(ii) The sentences in question not only share their truth-value, but also their *intension* (in Carnap's sense of the word). Sentences *s* and *s** are intensionally equivalent iff the sentence ⌜□ (*s* ↔ *s**) ⌝ is true (more informally: iff they can be substituted *salva veritate* in modal contexts). But intensional equivalence is still too weak to validate (T-2); all mathematical truths are intensionally equivalent, but clearly, pairs of such statements (such as '1+1=2' and '√2 is an irrational number') can be about different things.

(iii) Although '1+1=2' and '√2 is an irrational number' are intensionally equivalent, we can take up different attitudes towards them. We may erroneously disbelieve the latter, because we have not yet been introduced to its proof. On the other hand it might seem that whoever differs in the evaluation of '*A* is red' and '*A* has redness' must have misunderstood one or the other of them; we might say, they are *cognitively equivalent.*[19] But so are all evident truths, like for example 'No one is her own mother' and '4=4'. The latter, however, is about the number 4, while the former is not. So cognitive equivalence too proves to be insufficient for supporting (T-2).

(iv) There is of course an even stronger kind of equivalence, the one that holds between 'Yesterday I had the mean reds' and 'I had the mean reds yesterday'. These sentences differ only with respect to the order of words but they *mean* the same, they express the same propositions (although they might have differing implicatures). Now, for sentences that are strongly equivalent in this sense, (T-2) surely is true. But are '*x* is red' and '*x* has redness' equivalent in this pretty strong sense? are they synonymous?

Many philosophers found the positive answer to this question, the *Synonymy Thesis* attractive, if not evidently true. It is a thesis upon which such antagonists as Quine and Strawson could (and did) agree on,[20] as the following quotation from Quine illustrates:[21]

> The difference between (B) ['Socrates possesses bravery'] and (b) ['Socrates is brave'] is, as [Strawson] rightly suggests, 'simply a matter of stylistic variation'. (Quine 1980: 164)

(Despite the general agreement that we find Strawson and Quine in, they disagree about what the alleged synonymy of elementary predications and corresponding property-attributions amounts to. While Quine is suspicious of properties, Strawson readily accepts them. In this dispute, I side – without argument – with Strawson. I am presently concerned with *defending* realism against a certain attack.)

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[19] On this (largely Fregean) notion cp. Künne (2003: 42f.).

[20] Others who explicitly endorsed the *Synonymy Thesis* include, for instance, Bolzano (WL II, §127), Künne (1983: 30), and Ramsey (1925: 404).

[21] For Strawson's corresponding view see Strawson (1974: 33; 1987: 405; 1990: 318).

d. *An Argument Against the Synonymy Thesis*

Unlike Strawson and Quine, I deem the *Synonymy Thesis* to be false. The discussion of the *Synonymy Thesis* will take a few pages – only then I will return to Teichmann's argument; it will prove to be unsound, because it implicitly relies on a false premise, the *Synonymy Thesis*.

My basic argument against the thesis is quite simple:

(P1) Elementary predications and corresponding property-attributions differ in their conditions of understanding.

(P2) If two statements differ in their conditions of understanding, then they express different propositions and accordingly they are not synonymous.

(C) Elementary predications are not synonymous with the corresponding property-attributions.

Because the argument's validity is out of question, and premise (P2) seems hardly controversial, I better say something in defence of the crucial premise (P1) now: to understand a property-attribution, a speaker must possess certain *knowledge about properties*. More particularly, whoever understands a property-attribution knows what property it is about (this follows from what I said about canonical property-designators; understanding them is sufficient for knowledge of their reference); and thus, he has certain knowledge about properties.

But the same is not true for elementary predications. A speaker may competently talk about thick or thin, red or yellow, and wise or naïve things or people, without knowing that there are, in addition to thick, thin, red, etc. things also properties. She need not have *any* idea about the existence and the nature of properties at all. Indeed, she need not recognise any entities relevant to her parlance apart from thick, thin, etc. things. But then we have no reasons to ascribe to somebody, on the basis of her ability to use elementary predications, any ontological commitments to properties. In general, we should not interpret a certain kind of discourse as involving reference to φs (and statements about φs) if it is not a requirement of mastering the discourse to have a grasp of the nature of φs.[22] We have reasons

[22] Evans defends a similar thesis (1975: 355f.).

to attest somebody such a grasp if he knows some existence-conditions and identity-conditions for φs. The relevant knowledge might be some form of implicit knowledge, that could, for instance, manifest itself in a basic understanding of how to *count* and *re-identify* φs, and thus in the ability to distinguish between a good many true and false identity statements about properties.

From the above I conclude that an elementary predication and its corresponding property-attribution differ in their condition of understanding, and since this is a sufficient condition for non-synonymy, they are not synonymous.

e. *On the Acquisition of the Conceptual Framework of Properties*

Mastery of elementary predications does not require knowledge about properties, so I have argued, while mastery of property-attributions requires it. It employs conceptual resources that are not employed by elementary predications. But how do we acquire the conceptual framework of properties? We do so by learning to use new linguistic forms, a new fragment of our language. This fragment is essentially constituted by a bunch of (i) statements of specific forms and (ii) relevant inferential relations between such statements and elementary predications. The following forms and rules of inference give an outline of this fragment:[23]

1. *Introduction of designators of properties in property-attributions*.

   From any elementary predication,

   a is *F*.

   you can infer the corresponding property-attribution (where the implication, of course, also holds in the other direction):

   a has (or: possesses) *F*-ness.[24]

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[23] Cp. Brandt (1957) on the build-up of realistic languages.

[24] This rule has some exceptions due to the possibility of semantic antinomies: while we may truthfully say that courage does not exemplify itself, the property of non-self-exemplification cannot exist.

2. *Using designators of properties as singular terms by allowing quantification into their position.*

   Relevant inferences are for example the steps from statements of form

   a possesses *F*-ness and *b* possesses *F*-ness too,

   to those of form:

   There is something that *a* and *b* have in common.

3. *Using designators of properties in subject position in statements about properties.*

   Apart from statements involving predicates custom-made for properties, as for example:

   Wisdom is a virtue,
   Red is a colour,

   another important class are identity statements, both *contingent* ones, such as:

   Wisdom is the virtue which Socrates was most famous for,

   and *necessary* ones, as for example:

   Being a spinster is being a female who has never been married.

Our knowledge of properties requires mastery of the outlined fragment of English (to avoid some kind of anglocentric fallacy I should add: or a corresponding fragment of another language), and this mastery is in turn all that is required. Talking about wisdom, intelligence, thickness, thinness etc. requires knowledge about properties and thus mastery of the relevant linguistic forms. But, and this is the crucial point, no such mastery is required for the ability to talk about wise, intelligent, thick, and thin people by using elementary predications. *Therefore*, since a property-attribution involves richer conceptual resources than the corresponding elementary predication, they are not synonymous.

Notice that it is *not* part of my proposal that knowledge about properties is *meta-linguistic* knowledge. Properties are not linguistic entities and therefore knowledge about properties is not to be construed as knowledge about language. Nevertheless, *mastery* of certain linguistic forms *consti-*

tutes knowledge about properties (where this constitution may or may not be in need of some additional constituting circumstances). Similarly, knowledge about natural numbers is not a form of meta-linguistic knowledge, while at the same time mastery of certain linguistic forms (idioms relevant to counting) may be required and partly constitute knowledge about numbers (some knowledge about numbers will not require much more than the mastery of certain linguistic forms, while other will additionally require most complicated processes of reasoning).

f. *The Connection Between Elementary Predications and Property-Attributions*

If the *Synonymy Thesis* is false, what can we positively say about how the meanings of elementary predications and property-attributions are related (it is evident that some intimate relation does hold between them)? Property-designators, I have said before, exhibit some kind of semantic complexity. This complexity suggests that they express *complex concepts*. Whoever understands the term ‘wisdom’ must know that its referent is a property possessed by all wise people and only by them – we cannot attribute a proper understanding of the term to anyone who fails to see this fact. Thus, the following expresses a substantial truth fixing the identity of the concept of wisdom:

(Wis) x = wisdom $\rightarrow \forall y$ (y exemplifies $x \leftrightarrow y$ is wise).

This principle opens the way for a conceptual analysis of the concept expressed by ‘wisdom’. The way is not wholly straightforward, though: we cannot simply turn (Wis) into a biconditional; while two sets cannot agree in their members, two properties may well be had by the same objects. In section (1.b.) I opted for the intensional individuation of properties. Given this account, we can explain the concept of wisdom as follows: by ‘wisdom’ we understand that property which is essentially such that all and only wise people possess it.[25] And we can even construct a schema whose instances provide analyses like the one proposed in droves:

[25] Cp. Peterson’s similar proposal (1986: 296).

(Schema Property Analysis)

> By '*F*-ness' we understand the property *p*, such that:
> $\Box \forall x$ (*x* has *p* $\leftrightarrow$ *x* is *F*).

These reflections enable me to answer my initial question about the relation between elementary predications and property-attributions: a property-attribution employs a *complex* concept analysable in recourse to a general concept employed in the elementary predication (by a *general concept*, I just mean a concept expressible by a general term).
Thus we may analyse a property-attribution of the form

(Pro-Att) *a* has *F*-ness.

as follows:

(Pro-Att*) *a* has the property *p* which is such that $\Box \forall x$ (*x* has *p* $\leftrightarrow$ *x* is *F*).

Notice that for my proposal I once more relied on the view that properties are intensionally individuated. But the general idea behind my proposal is independent of such a view; we could hold onto it and accommodate for a more fine-grained conception of properties by replacing the notion of necessity with some stronger (perhaps epistemically laden) notion. My basic tenet is that concepts expressed by property-designators are derived from the concepts expressed by the associated general terms, such that an understanding of the property designator requires knowledge about what it is to have the property; into the content of such knowledge will enter the concept expressed by the associated general term.

g. *Conclusion: Why Teichmann's Argument Fails*

I hope the reader did not, over my extensive discussion of the *Synonymy Thesis*, loose sight of what motivated my endeavours: Teichmann's regress argument, which he supposes to undermine realism about universals as a whole. We have seen that a crucial step of his reasoning relies on the assumption that a realist is somehow compelled to accept the *Synonymy Thesis* – only this assumption would justify Teichmann's second premise.

What I have put against this is a realist view on which the property-attribution is *not* synonymous with the elementary predication, but involves richer conceptual resources that draw on the conceptual resources

employed in the elementary predication. Thus, the latter may maintain whatever simple logical form it has; the logical form of the corresponding property-attribution differs from that of the elementary statement and exhibits a higher logical complexity. But this implies nothing less than the breakdown of Teichmann's regress at its very beginning. His argument is based on an inadequate account of property discourse, which no realist should adopt and which is certainly not *mandatory* for realism.

It should be noted that if the view on properties which I developed is correct, we should reject a certain claim that realists sometimes raise with respect to their position: to wit, that it provides for an *explanation* of elementary predication. At least we should reject that any conceptual explanation or analysis is provided for; contrariwise, the analysis of property-attribution draws on the device of elementary predication. To regard this mistaken claim as a cornerstone of realism is widespread both among realists themselves, but also among non-realists. It is furthermore not untypical that philosophers who formulate such a claim remain rather vague on what exactly the purported *explanans* is supposed to be, and whether explanation should differ from analysis (and if so, how).[26] No harm is done if we once for all abandon this idea; rejecting a mistaken claim will only make the realist's position stronger.

Perhaps, I may add, some realists have something else in mind when they talk about an explanation in this context; if so, only a closer investigation could reveal how the resulting claim would relate to the view I defended. But this is not the place to pursue those issues.

[26] A recent example both of the misconception of realism and the sloppy use of 'explanation' and 'analysis' is provided by Moreland in his introductory monograph on universals (2001: 115, *et passim*).

5. The Copula and Exemplification (Regress #4)

As far as I can make sense of Bradley's reasoning, Teichmann's regress argument indeed captures some of its central aspects. But an important step in Bradley's considerations has not yet been touched; he was puzzled by the meaning of the little word 'is' in its use as the copula:

> [A lump of sugar] is, for example, white, and hard, and sweet. The sugar, we say, *is* all that; but what the *is* can really mean seems doubtful. (1930: 16)

In his 1995 article (to whose title both Bradley and the copula must lend their names), Richard Gaskin takes up this thread. Indeed, he formulates a regress argument which he supposes to be somehow concerned with the meaning of the copula. The exact connection that he has in mind is, however, not easy to figure out. So before I address his argument, I will prepare for it by a partially independent discussion of the copula in sections (a.) and (b.). I will examine Gaskin's views on the copula in section (c.), and turn to his regress argument in section (d.); in the final section (e.) I will come back to the doubts that Bradley voiced in the above quotation.

a. *What Makes a Sentence? On an Alleged Function of the Copula*

In the title of his article, Gaskin not only alludes to Bradley, but also to an old topic of philosophy, the *unity of the proposition*. As often, it seems that several problems and ideas are more or less loosely subsumed under this heading. One of them concerns the difference between mere assemblies of words or ideas on the one hand, and assemblies that combine to form sentences or judgements on the other. This is a place at which Gaskin sees the copula to come into play:

> If we make the basic assumption that the components of a proposition have reference on the model of proper name and bearer, we face the problem of distinguishing the proposition from a 'mere list' of names. (Gaskin 1995: 177)

It is not wholly clear to me what problem we allegedly have to face here. In his article, Gaskin incessantly moves back and forth between talk about *linguistic* entities (names, predicates, sentences) and talk about what is

expressed by (utterances of) linguistic entities. I will separate the issues and concentrate henceforth on the linguistic level. The following question seems to trouble Gaskin:

(Q) How can we distinguish a sentence from a mere list of names?

On an ordinary understanding this task poses no problems; proper names alone do not suffice for a sentence (except in elliptic utterances: ‘Who was that girl sitting next to you at Lady Gaster’s party?’ – ‘Juliet’). But assume we make the ‘basic assumption’ that just as singular terms, predicates have a reference. It would follow that there are sentences in which every syntactically distinguishable element has a reference (‘Socrates lives’). We could then reformulate our question:

(Q-2) How can we distinguish a sentence from a mere list of its referential components?

But if that is an important question, it will be so only because this question is equally important:

(Q-3) How can we distinguish a sentence from a mere list of its components?

I cannot see how the assumption that all sentential components have a referential function could in any significant way contribute to the difficulties that this latter question may pose. Can anyone?

Because I do not think that the more specific question is of any particular interest, I shall proceed to the question with the greater generality, (Q-3). I assume it is concerned with *inscriptions* of sentences (or equally the products of oral utterances of sentences), not with sentences understood as linguistic *types*. Now, on a rather lenient understanding, any inscription of words, if they are properly arranged, is the inscription of a sentence. In this sense, inscriptions of sentences can be produced by accident: if a friend of mine and I are mindlessly scrabbling down some words on the same sheet of paper, and they happen to be in the order of a well formed sentence (I wrote down ‘I want’, he wrote down ‘to fly’), then *there is* a sentence inscription on the paper. If we read (Q-3) on the basis of this understanding of a sentence inscription, then we must reject the question

because of a wrong presupposition: do not ask *how* we can φ, if we cannot φ at all.

But we could vote for a more restrictive understanding of what a sentence-inscription is. We can, indeed, distinguish between inscriptions of signs that are *intended as* sentential inscriptions and those that are not, reserving the term 'sentence' for the former kind of inscription. The scribbles of my friend and me will not classify as a sentence then, and (Q-3) will be a substantial question understood like that. John Stuart Mill was concerned with such a notion of a sentence when he raised a question similar to (Q-3) (mind Mill's rather traditional use of 'proposition': a proposition, in his sense, is a *sentence*; to be more precise, it is a *token* sentence of the *declarative* kind[27]):

> A proposition […] is a portion of discourse in which a predicate is affirmed or denied of a subject. […] as we cannot conclude from merely seeing two names put together, that they are predicate and subject, that is, that one of them is intended to be affirmed or denied of the other, it is necessary that there should be some mode or form of indicating that such is the intention; some sign to distinguish a proposition from any other kind of discourse. (*System of Logic*: ch. IV, § 1)

How do we find out whether a particular collection of word-inscriptions is the vehicle of an assertion rather than a question? – or, we may add, whether it is perhaps a mere list of words? In his answer, Mill stressed the role of the copula; indicating that something is intended as the inscription of a declarative sentence

> […] is sometimes done by a slight alteration of one of the words, called an *inflection* […]. But this function is more commonly fulfilled by the word *is*, when an affirmation is intended, *is not*, when a negation […] The word which thus serves the purpose of a sign of predications called […] the *copula*. (Loc. cit.)

[27] Mill's use of 'proposition' is not wholly systematic, though. Cp. Skorupski (1989: 49f.).

I think Mill clearly overrates the role of the copula here. After all, the copula has not only a use in assertive utterances (‘Belmondo is charming.’), but equally so in questions (‘Is Belmondo charming?’).

But there are several other conventions about how to mark off a declarative sentences from interrogative ones, and both, in turns, from non-sentential collections of words. We can derive important clues about such conventions from the two sentences about Belmondo: the classification of a sentence as declarative or interrogative is made possible by *word-order* and *punctuation*.[28] Both also play a role in distinguishing *any* sentences from non-sentential inscriptions; they are furthermore (at least in European languages) assisted by the use of a capital letter at the beginning of a sentence, and (a circumstance which is very basic) by some form of *linear* arrangement of words on a surface.

Must we deny the copula any relevance for an answer to (Q-3) and Mill’s variant of it, then? No; the copula still contributes to these matters, even though its contribution is not as pivotal as Mill urges. The copula increases the number of components in an elementary predication; accordingly, it also increases the number of possible arrangements. Since word-order is highly important for our ability to tell declarative from non-declarative sentences or mere lists, the existence of the copula enriches the desambiguating devices of language. This circumstance has been clearly noted by Quine, who produced a nice illustration:

> I was told of a telegram sent by a journalist to check on the age of Cary Grant: HOW OLD CARY GRANT. Came the reply: OLD CARY GRANT WELL STOP HOW YOU. (Quine 1987: 37)

Here the copula would have enabled us, not to recognise the interrogative sentence as interrogative, but to recognise the function of the words and the semantic units. Thus the addition of the copula would have resulted in a syntactically *unambiguous* expression of a question, instead of the ambiguous ‘HOW OLD CARY GRANT’, which can express either of two questions.

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[28] In spoken language, intonation may also be important.

We have seen that there are several factors that make us see what functions certain words or groups of words are meant to play. The copula only indirectly contributes to them.

Finally it is important to realise that the relevant conventions are not so rigid that they could not be overruled by the particular context of an utterance. After all, every word could appear as an item of some list, and you cannot deny a verb the possibility of being listed just because it is inflected. As an example, let us take a look at a mere list of a noun and an inflected verb: Socrates lives. Although the words that follow the colon in the last sentence are linearly arranged, are followed by a full stop, and would be apt to constitute a well-formed sentence, you can know that they are *not* a sentence but a list of words. You can know so because (and only because) I told you what they are.

Or take another example; the following does certainly appear to be a mere list of words:

> Some Some poets others try think to it deconstruct is language impossible.

Context, however, might make us see things differently. The above arrangement of words is, in fact, a twofold sentential arrangement; it resulted from crossing over two sentences by alternately writing down a word from the one, and a word from the other sentence.[29] Such a procedure might, for instance, be employed in a poem, perhaps for effect of linguistic deconstruction. (One could perhaps even arrange two sentences in this way such that a third sentence emerges – but I lack both the ambition and the artistic ability to do so.)

Despite the fact that every sentence-like inscription might possibly be only a list, we normally have no difficulties of telling word-lists from sentences. There is a simple reason for this fortunate circumstance: lists of words just have not much use in everyday life – in comparison to the importance of sentences, the importance of lists is clearly inferior. There are, of course, some exceptional situations; in word games like *Scrabble* or *Boggle*, for instance, where single words are formed on a board or written

[29] So it incorporates the following sequence of sentences: Some poets try to deconstruct language. Some others think it is impossible.

down on a piece of paper, we habitually generate lists of words. By accident, some such list might happen to be ordered such that it could be mistaken for a sentence. Again, only contextual knowledge will help to decide such issues.

b. *The Copula is a Predicate-forming Operator*

So far, I have (with one exception) concentrated on showing what function the copula does *not* have. But we can indeed give a positive characterisation of what the copula does: the copula is a predicate-building operator that operates on general terms (be they adjectives, or complex noun-phrases like 'a man of age').[30]

Such an operation does not necessarily require an *operator* (a word or a phrase). It could have been conducted by some other linguistic device, like conventions about order or (in written word) highlighting and (in spoken tongue) intonation or pronunciation. But the existence of such an operation, however it is implemented, is important for our language. It highly increases the flexibility of language, because it enables us to use the same (general) terms in different logico-grammatical functions; thus, an adjective such as 'old' has an attributive use in 'old man' and it forms the substantial part of a predicate 'is old'. Analogous remarks apply to nouns and noun phrases: thus, the noun 'man' has an appositive use (comparable to the attributive use of an adjective) in 'the man Socrates', it forms the substantial part of the predicate 'is a man', and it figures as part of quantified noun phrases such as 'every man' or 'no man'.

So we see again that the copula is not idle. It helps distinguishing between the grammatical roles of other phrases – a job that could have been fulfilled by other devices, but which, as a matter of fact, is the responsibility of the copula.

c. *Exemplification and the Copula*

Let me return to what Gaskin thinks about the copula. Above, I quoted him speaking about the 'basic assumption that the components of a proposition have reference on the model of proper name and bearer' (loc. cit.). I

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[30] Cp. Quine (1987: 36f.) and Künne (forthcoming).

assume that he uses ‘proposition’ in the traditional meaning of ‘sentence’ – otherwise, it would be strange that he speaks, in the same breath, of propositions and *names*, by which he surely means linguistic entities. Presumably, when Gaskin talks about the components of a sentence, he does not mean *all* of them (think, for example, of logical connectives or interjections, such as ‘unfortunately’); but he definitely intends his remark to apply to the copula. He reckons that ‘we are subject to a requirement […] to find a referent for the copula.’ (1995: 175)

A minor remark: it is one thing to assign some expressions a semantic value, and another to say that they *refer* to this value, or that they stand to it in the relation in which a name stands to its bearer. I will illustrate this with an example (that will soon become important in another respect): it is rather common to assign, in a way, semantic values to predicates – for predicates are often said to *express* or *signify* properties (or relations).[31] These locutions can be explained such that it will be hardly contentious to speak in this manner; we can stipulate:

(Signify) Given a predicate *x*, let us say that *x* signifies whatever property is referred to by a canonical designator derived from *x* by means of nominalization.

By this stipulation, we can justify talk about semantic values of predicates with two low-level assumptions: (i) we can derive canonical designators of properties from predicates; (ii) there are (in general) properties which those designators refer to.

Since (i) is just a linguistic fact, whoever does not reject the ontology of properties and relations as a whole has therefore an unproblematic sense in which predicates signify properties. By assigning a predicate a semantic value in this sense, we do not assimilate the function of predicates to that of names (or singular terms).

But now let me proceed to a question which will lead to the basic disagreement between Gaskin and me: why should we want to assign a value to the *copula*? We have seen an easy and uncontroversial way of assigning

[31] Similarly, we can assign such values to *general terms* (by which I mean *components* of predicates that need the copula to make a predicate). For the present concern, the differences between both practices are not important.

values to predicates – but the copula is not a predicate; it is only a predicate-forming operator. And indeed, its nominalization, 'being', does not denote anything. (Presumably, it has a reading in which it denotes *existence*; but in that reading it is related to the existential use of 'be', not to the copulative).

'Being' figures as a part in denoting phrases, in gerundive nominals. But in such phrases it is not itself a denoting component. It rather keeps its copulative status, just as any adjectives by which it is followed keep their adjectival status. The very same operations can be performed upon the components of gerundive constructions that can be performed upon their non-nominalised counterparts. Just as we can modify the adjective 'witty' in 'is witty' by some adverb, such as 'scintillatingly', we can modify the adjective in 'being witty' by an adverb, obtaining 'being scintillatingly witty'. And similarly, components which attach to the copula, such as the negation in "is not witty", still attach to the copulative element in a gerundive, as in "not being witty". This relates to a fact that Zeno Vendler once stressed: verbal components of gerundive nominals still behave like verbs (as he put it himself, the verb in a gerundive nominal is still *alive and kicking*).[32] But the verbal phrase from which a nominal is derived may essentially contain the copula – and thus it should keep its copulative status in the nominal. And indeed, we cannot, *salva congruitate*, substitute any singular term for the 'being' of a gerundive phrase. The reason is simply that in these constructions 'being' does not play the role of a singular term.

I conclude that, *pace* Gaskin, we not only lack the need *and* reason to assign a value to the copula, we have all reason not to do so – it is not a singular term, nor is it systematically related to such a term in the way a predicate is related to its nominalization.[33]

But perhaps Gaskin would agree with my *linguistic* remarks about the copula and argue that the need does not arise for linguistic reasons; indeed, he describes the requirement of assigning a referent to the copula as the

[32] See Vendler (1967: 131).

[33] See also Künne (forthcoming), where he lends further support to the view that the copula should not be assigned any entity as its semantic value.

> *philosophical* need to be able to talk about instantiation (i.e. predicative being as such, not being *F* for any particular replacement for '*F*'). (loc. cit.)

(Notice that where I have talked about *exemplification* so far, Gaskin talks about *instantiation*. In the present context, I take this to be a mere difference in terminology; to avoid unnecessary confusions, I will from now on follow Gaskin's diction.)

So, Gaskin thinks that

(G-1) if there is a relation of instantiation, it will be the semantic value of the copula, and that

(G-2) as philosophers, we sometimes need to speak about instantiation.

While Gaskin's second assumption has something for it, his first assumption, (G-1), should be rejected. The relation of *having* (instantiation), in which a property stands to its objects, is signified by the word 'has' ('instantiates'). But this is, contrary to the copula, an ordinary *relational predicate* that requires completion by two singular terms.

d. *Gaskin's Regress*

Let me now turn to Gaskin's regress argument. He writes:

> The basic idea of the regress is the following: if we analyse the connection between object and property (or object and relation) as the obtaining of a further relation of instantiation of the property by the object, or participation of the object in the property, we are launched on an infinite regress, because we shall have to analyse the introduced relation of instantiation (participation) as the obtaining of yet a further relation of instantiation (participation), connecting object, property and instantiation. And so on. (Gaskin 1995: 161)

What is remarkable about Gaskin's formulation of the regress is that he never mentions the copula. None the less, it is obvious from his whole article that he thinks the regress is concerned with the copula. By bringing the foregoing discussion of the copula to bear upon this matter, we can shed light on why Gaskin thinks so: because he holds that the copula

should be assigned a semantic value, more specifically, the relation of instantiation, and because the regress threatens the notion of instantiation, he thinks that the regress equally endangers the meaningfulness of the copula. But since his reason is erroneous (see my rejection of (G-1)), whatever destructive potential the regress may have, it will not affect the copula in any way.

Perhaps though, it does affect the notion of instantiation. Does it? I do not think so. Gaskin expects his regress to start from an *analysis* of the notion of instantiation. Above I proposed a schema for an analysis of the concepts expressed by canonical property designators, a schema that we can easily modify such as to apply to designators of dyadic relations:

(Schema Relation Analysis)

> By ‘φ-ness’ we understand the relation *r*, such that:
> □ ∀*x*, *y* (*x* stands in *r* to *y* ↔ *x* φ *y*).

Here the proper substitution for ‘φ’ will be a two-place predicate, such as ‘has’. So, if we want to analyse the connection of *having* (instantiation) which holds between an object *x* and one of its properties *p*, we should resort to the corresponding predication ‘*x* has *p*’; we obtain:

> *Having* is the relation *r* such that:
> □ for all objects *x* and all properties *p* (*x* stands in *r* to *p* ↔ *x* has *p*).

This rather trivial-seeming statement correctly explains what we understand by the singular term ‘having’ (or: ‘instantiation’). Notice that there is no mention of any other relation in this explanation; in particular, instantiation is not to be analysed by recourse to some further relation of instantiation. So the regress which Gaskin envisages cannot get off the grounds here. Just as concepts of properties should be explained with recourse to a prior understanding of monadic predicates, concepts of relations should be explained with recourse to a prior understanding of relational predicates.

e. *Bradley on the Copula and the Word ‘has’*

I take it that I have disposed of all of Gaskin’s challenges by now. Before I conclude this section, I shall, at least once in this article, pay some serious attention to what Bradley himself had to say. I already quoted him de-

claring that he finds the meaning of ‘is’ mysterious. His worries may become clearer when he writes:

> One quality, *A*, is in relation with another quality, *B*. But what are we to understand here by *is*? We do not mean that ‘in relation to *B*’ *is A*, and yet we assert that *A is* ‘in relation with *B*’. […] No, we should reply, the relation is not identical with the thing. It is only a sort of attribute which inheres or belongs. The word to use, when we are pressed, should not be *is*, but only *has*. But this reply comes to very little. The whole question is evidently to the meaning of *has*; and, apart from metaphors not taken seriously, there appears really to be no answer. (1930: 17)

Here, he is not only concerned with the meaning of the copula, but also with the meaning of ‘has’ (as used in connection with property-designators).

Let me address both points in turns:

(i) *Bradley’s alleged Problems in Understanding the Copula*. Bradley rightly insists that the copula cannot have the same meaning as the ‘is’ of *identity*. Where we use the ‘is’ to express identity, we can replace it by ‘is identical to’. Treating the copula in this way would deprive many true statements of their well-formedness (and indirectly of their truth): after all, the ‘is’ of identity requires completion by a second singular term, while the copulative ‘is’ accepts general terms. Replacing the copula in ‘Socrates is wise’ with the phrase ‘is identical to’ results in gibberish.

Thus far, Bradley is therefore correct. But he seems somewhat obsessed with the ‘is’ of identity. He pretends not to understand the copulative ‘is’. But this, I take it, is mere pretence; for we know that Bradley at the same time declares to understand the ‘is’ of identity. Now we have seen that we can spell out this use of the ‘is’ by the phrase ‘is identical to’. But as it occurs in *this* phrase, the ‘is’ certainly does not *again* express identity – a second replacement by the phrase ‘is identical to’ yields word salad. So, the ‘is’ in the ‘is identical to’ is our dear old copula. Since Bradley admits that he understands the ‘is identical to’, he indirectly commits himself to an understanding of the copula. So I do not think that we have any reasons to take his concerns about the copula seriously.

(ii) *The Meaning of 'has'*. Can we help Bradley a little with his understanding of the word 'has'? Though we may assume that he does have a sufficient understanding of the word, there is an important difference to the case of the copula. No understanding of 'have' is required for the ability to master elementary predications. Prior to our acquisition of the framework of properties, we have no need for such a relational predicate (or the concept expressed by it). Thus, unlike the copula, the word 'have' (in the use in which things are said to have properties) may allow for an explanation, which may even seem quite desirable. Now we might try the following:

(Have) An entity *x has* the property *F*-ness iff *x* is *F*.

This might, under usual circumstances, seem sufficient for an introduction of the 'have'. But notice that I already relied on an understanding of *having* in my explication of the meaning of property-designators. If in turns, by explication (Have) I rely on the understanding of property-designators, this seems circular.

Let us agree this *is* circular. Nevertheless, both explications will be helpful to someone who has not yet adopted the conceptual framework of properties. To do so, he must *both* acquire the concept expressed by 'has' and some concepts of properties. Without further aid, the explications given cannot produce the mastery of these concepts, because they are underdetermined due to their circularity. Someone who learned only about the two explications could, for example, mistake properties for sets, since structurally equivalent explications can be given for talk about sets and the membership relation.

But when I described the acquisition of the framework of properties, I pointed out that there are a lot of linguistic forms, in the combined mastery of which the understanding of this framework will manifest itself. These forms will in particular include statements whose mastery will yield an implicit grasp of identity-conditions for properties. Thus, their mastery will prevent speakers from mistaking properties for sets.[34]

[34] The process I describe is indeed similar to a prominent idea about how we come to a grasp of the concept of a set, i.e. the idea that we learn the concept by some form of implicit definition (for a recent defence of this idea about sets see Muller 2004).

I conclude that we cannot, simultaneously, give easy and non-circular explications for singular property concepts and the concept expressed by ‘has’. But we can say something circular, yet nevertheless illuminating about them, and explain the mechanisms of how these explications will become sufficient with the aid of mastering several other linguistic forms. I do not know whether Bradley would have been content with this; but I think he should have been.

CONCLUSION

I have distinguished between four regresses, centring around the notions of the mere *existence* of relations (regress #1), of *necessitation* (regress #2), *logical form* and *synonymy* (regress #3), and finally *instantiation* and the *copula* (regress #4).

Furthermore, I have defended certain views about these notions in light of which the regresses loose their alleged sting. I think we can breathe a deep sigh of relief: whatever mischief the spectre of old Bradley may still do, it will have nothing to do with his notorious regress argument.[35]

[35] For discussions of the issues I dealt with in this paper, as well as for comments and criticisms I am indebted to Thorsten Fellberg, Wolfgang Künne, Kevin Mulligan, and Moritz Schulz.

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