Bradley's *Reductio* of Relations
and Formal Ontological Relations

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1. Introduction: Bradley's *Reductio* of Relations

Bradley's most systematic attack on relations occurs in Book 1, Chapter III (*Relation and Quality*) in *Appearance and Reality* (1893):

(1) Qualities *without* relations are impossible, or at least not fully intelligible (AR, III, 21–5).[1]

(2) Equally with qualities together *with* relations (AR, III, 25–7).

(3) Relations *without* qualities or relata are "nothing" (AR, III, 27).

(4) Relations *with* qualities or relata are "unintelligible" (AR, III, 27–8).[2]

We shall call these intertwined arguments "Bradley's *reductio* of relations". Their context consists of the problem Bradley poses in the beginning of Chapter II (*Substantive and Adjective*): What is the relation between "a thing" and its "properties"? (AR, III, 16.) In order to solve this problem of monadic inherence, Bradley soon proposes that the thing is its properties *in a relation* (AR, II, 17). His example is that a lump of sugar as a unity would be white, sweet and hard in some relation (AR, II, 16–7). However, then we face the problem how *many* entities (plurality of properties), even in a relation, constitute *one* entity (a unity) over and above the many (addition to being). This unity-in-complexity or complex-unity problem leads to the discussion of properties, or relata, and relations in Chapter III.

Typically, the entire Bradley's *reductio* of relations is ignored or set aside in contemporary metaphysics and only the relation regress occurring in the fourth part is discussed. However, when we are responding to Bradley, it is

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[1] References to Bradley's *Appearance and Reality* are to the second edition (1897), hereafter cited as "AR" followed by chapter and page numbers.

[2] Bradley uses "term" instead of "relatum" but we take it for granted that "relatum" and "relata" are unproblematic here.

not sufficient that we respond to the second strand of the second horn of his dilemma in the fourth argument, which is known as his relation regress or just "Bradley's regress". We have to be as certain as possible that our response is not subject to his *reductio* of relations in Chapter III since these arguments are, indeed, intertwined. They consist of several eliminative moves, the most relevant of which for the present purposes are the relation regress and especially *Bradley's relata regress*. With the relata regress, he intends to show that the relata of any given relation fall apart into an infinitely complex non-terminating tree of alleged relations and their relata. Therefore the initial relata are not unities (see more below). Consequently, since Bradley thinks that relations presuppose relata as unities (AR, III, 27), relations are not fully intelligible.

Bradley's relation regress and relata regress have the common critical target that any plurality of entities is not fully intelligible since every plurality of entities presupposes holding of relations, at least the holding of numerical distinctness. For the sake of these arguments, Bradley assumes that there is a plurality of entities and then attempts to show that any possible manner of understanding this is not ultimately fully intelligible. Hence, given Bradley's view that being fully intelligible is a necessary condition for being true and fully real, existence pluralism is not the truth and the world according to existence pluralism is not and cannot be fully real (AR, III, 28).

However, looked at from another angle, one may respond to Bradley by showing that there is an intelligible way of understanding existence pluralism. This is not question-begging against Bradley because it does not assume the full intelligibility of existence pluralism. One thing one has to do in order to defend this response to Bradley is to argue that it is indeed fully intelligible that entities are related and these relations do not fall afoul of either of Bradley's regresses. Bradley's eliminative moves in them are not exhaustive of possible views on relations. So we can tell how Bradley's relation and relata regress and his entire *reductio* of relations, indeed, can be *avoided* from arising, which differs from *solving* the regress problems. This is what we intend to do in this paper. Our focus will be on *formal ontological relations*, some of which at least do not fall prey to Bradley's *reductio* of relations. So we shall argue.

The paper has a dual character. It includes both reconstructions of Bradley's regresses and a systematic treatment of them. We have to do this

because our intention is both to convince contemporary metaphysicians of the power of Bradley's arguments and to be fair to Bradley, even if we cannot be fair to *all* of his intentions. This paper is systematic metaphysics, which gains from a scholarly work on Bradley. One also has to make an argument as solid as possible if one intends to answer the argument; there are already too many straw men in philosophy. So we have to dig deeper into Bradley than is usually done in contemporary metaphysics.

We begin in §2 with Bradley's relation regress, which leads to the discussion of how this regress may be avoided (§3). §4 is devoted to Bradley's relata regress and its critique. In §5, we shall show that there may hold formal ontological relations which escape the entire *reductio* of relations. Before the summary (§7), there is a coda (§6), which is a brief remark on relational thought and language.

2. Relation Regress

Arguably, Bradley's problem in his relation regress argument is how relation *r* is able to stand to two *distinct* qualities or relata, *a* and *b*. By his talk of "relating", Bradley apparently means that *r* is a determinate property of a kind and that *r relationally inheres* in *a* and *b*. For example, *r* is the distance of 2 m, which relationally inheres in *a* and *b*. One may compare this with monadic inherence in which a property (e.g. 1 kg mass) inheres in a bearer (object/substance). So *r*'s relating *a* and *b* involves both being a determinate property and relationally inhering in *a* and *b*. Secondly, Bradley thinks that *r connects a* and *b*, which means uniting *a*, *b* and *r* into a single relational complex *aRb* (Wieland & Betti 2008, 509–11; Betti 2015, 39–41).[3]

The *explanandum* in Bradley's relation regress is therefore the state of affairs[4] that (1) *r* is a determinate property, (2) *r* relationally inheres in *a* and *b*, and (3) *r* connects *a* and *b*. The problem that the regress poses is to give a metaphysical *explanans* for this *explanandum*: which entities account for the

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[3] Consequently, the relation regress problem is not the same as the complex-unity problem, the special case of which is only part of the former problem.

[4] Our talk about states of affairs does not presuppose the ontological commitment that they are entities in the category of facts.

obtaining of the state of affairs that *r* relates *a* and *b* by connecting them.[5] Bradley's conclusion is that finding the *explanans* leads to a vicious infinite regress. Since *r* is an arbitrary existing relation, the vicious infinite regress has the consequence that there can be no metaphysical explanation for the state of affairs that an existing relation relates its relata by connecting them.[6]

Bradley's relation regress starts by assuming, for the sake of the argument, that the existence of *r* itself *as a thing* explains the state of affairs that it does relate by connecting *a* and *b*. What this must mean at least is that *r* is a distinct entity: it is an addition to being, a third entity in relation to its relata *a* and *b*. It is actually this that generates the relation regress according to Bradley.

The next step in the regress is Bradley's crucial assumption that *r* not only relates *a* and *b* by connecting them, *it itself must also be related and connected to both of a and b*. Hence, the only way for *r* to relate by connecting *a* and *b* is bearing relations and being connected to both *a* and *b*. On the assumptions of the argument, this can happen only if there are two additional relating and connecting entities. Thus, there is a new relation r^1 that relates by connecting *r* and *a* and a new relation r^2 that relates by connecting *r* and *b*. From this, an infinite regress of relations is generated, given that Bradley's argument goes through, by returning to the beginning in the case of r^1 or r^2.[7] So the regress has actually the structure of a tree with infinitely many levels:

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[5] In this paper, we do not take any positive stance on the difficult metametaphysical question what metaphysical explanation is. We try to do metaphysical explanation, and characterize it only negatively: it is not causal.

[6] To be precise, Bradley's ultimate conclusion from the relation regress is that *r*'s relating *a* and *b* by connecting them is not the truth and fully real. This stems from his view that being fully intelligible is a necessary condition for being true and fully real, which does not hold of *r*'s relating by connecting *a* and *b* (AR, III, 28).

[7] For a closely similar argument, see Bradley's first work *The Principles of Logic* (1883, 96), which was published ten years before *Appearance and Reality* (cf. Allard 2005, 61–66). There is also a version of the relation regress in Chapter II of *Appearance and Reality*. It has the slightly different form that first we need a two-place relation (e.g. instantiation), then a third-place relation and so on *ad infinitum* (the adicity of the relations ascends into infinity vs. infinite number of distinct applications of a multigrade relation). This is the way Armstrong (1997, 114), Cameron (2008) and Gaskin (2008, 314–6), for instance, understand Bradley's relation regress. We focus on the form of the regress advanced by Bradley in the chapter discussing relations (III).

Level 0		aRb		
Level 1	aR^1r		rR^2b	
Level 2	aR^3r^1	r^1R^4r	rR^5r^2	r^2R^6b

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Independently from Bradley's reasons for the infinite regress being vicious, there is a convincing argument to the result that the regress is, indeed, vicious. Rickie Leigh Bliss (2013) has argued that the regress is vicious because on each consecutive level of the tree, the *explanandum* and the components of *explanans* are *of the same type* (cf. Armstrong 1978, 106). The *explanandum* is that distinct entities are related and connected by a distinct relational entity (*aRb*). The *explanans* is to repeat infinitely that distinct entities are related and connected by a distinct entity (xR^ny). So the *explanans* consists of what is type-identical to the *explanandum*; both are of the type xR^ny. Consequently, nothing at all has been explained metaphysically about distinct entities being related and connected by a distinct entity (xR^ny). This problem is just repeated infinitely. The connecting relations form an infinite tree of entities accounting for *r* relating *a* and *b* by connecting them.[8] The tree structure does not terminate; the lowest level does not exist. Hence, no step is taken to explain metaphysically *aRb*.

It is quite clear that the relation regress makes two assumptions about relations. If there can be an account of relations that does not have to make those assumptions, it seems that it does not fall foul of this infinite regress (vicious or not). The first (1) of these assumptions is that relations are entities that relate and connect their relata. This presupposition involves two things at least: (1.1) relations are entities (reification of relations), (1.2) every relation is a genuine relating and connecting entity in such a manner that it unites itself, *a* and *b* into relational complex *aRb*. (1.2) entails (1.1) because it involves the commitment that relations are existences. The other assumption (2) is, as was seen above, that necessarily, if a relation relates and connects *a* and *b*, it itself

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[8] The same holds about every r^n on an infinite number of levels; every connecting by relational entity r^n unfolds an infinitely complex tree structure.

is connected and related to both *a* and *b*.[9] (2) presupposes (1.1), since if a relation is itself connected to both of them, the relation must be an entity; non-entity cannot connect distinct entities. Only as constituents of what there is (entities), relations can connect their relata.

3. Could One Avoid Bradley's Trap?

A good start for not falling afoul of Bradley's relation regress is therefore to show that there may be related entities *without there being any reified relation that relates and connects them* (cf. Lowe 2006, 30). Then (1.1), (1.2) and (2) would be rejected since (1.2) and (2) presuppose (1.1). These putative relations would not relate by existing and by being connectors: they do not connect and unite distinct entities into *relational* complexes. Rather than an individual relational complex entity, these related entities form only a *plurality*. In a word, these relations are metaphysically speaking relatednesses of entities without relating and connecting entities. Still these relatednesses may be called relations since we can talk about them by means of relational predicate terms, which is a familiar possibility from the several different views of "internal relations". Neither does it follow that these relations do not mark any difference in being because they may mark a difference in *how* the world is even if they in themselves do not contribute to *what* there *is in* the world (see more below). As such, Bradley's point above that non-entities cannot connect does not really target them: "And, if you take it [a relation] as a kind of medium of unsubstantial atmosphere, it is a connexion no longer." (AR, III, 28.)

However, this is only a start. It is also necessary to show that the *relata* of these possible relations do not launch any vicious infinite regress. In Chapter III, Bradley considers two ways in which this might happen. The first way is the relata regress discussed below that the relata are relational in nature (ontologically complex), which leads to an infinitely complex, non-terminating tree of alleged relations and their relata. The second way is that *a* or *b* bears some *other* relation than *r* to some entity distinct from *a* or *b*, which re-launches the infinite regress. In the first part of Chapter III, no qualities without relations, Bradley argues that one possibility of this is that the difference in nature between *a* and *b* is due to an entity distinct from them

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[9] We omit the critical discussion of this principle since such a discussion is not needed for the purposes of this paper.

(e.g. an idealist view that the understanding distinguishes them), to which *a* and *b* have to bear some other relation than difference in nature (AR, III, 24).

It seems to us that there can hold relations that fall afoul of neither the relation nor the relata regress. This idea is familiar from internal relations (we do not discuss the definition of internal relations since our focus is elsewhere). Let us also be as sure as possible that at least some relations are not subject to Bradley's entire *reductio* of relations. First, it appears to be metaphysically possible that entities are numerically distinct without these entities involving a relational structure, composing an individual relational complex and reifying the relation of numerical distinctness, which would launch an infinite regress. Secondly, it seems to us that these numerically distinct entities can stand in other relations than numerical distinctness without an infinite relation regress ensuing. These metaphysically possible distinct entities would be metaphysically simple: they would have no metaphysical constituents whatsoever. Let us take a schematic example.

Assume that particulars *t* and *u* exist. Assume further that both *t* and *u* are metaphysically simple: *t* is identified with some particular nature *P* and *u* is identified with some particular nature *Q* in such a way that *P* and *Q* are thin natures in every metaphysically possible respect. On this assumption, *t*, *u*, *P* and *Q* do not divide into constituents that are distinct in any metaphysical sense. This assumption is part of the standard trope theory, but a realist may also hold it if *P* and *Q* are construed as universals.

Suppose that the difference in nature of *P* and *Q* consists of nothing but *P* and *Q* themselves. In other words, *P* and *Q* are different in nature for the fact that they are essentially certain thin natures. But the difference in nature of *P* and *Q* is not an additional entity to *t* and *u*. Bradley's supposition (1.1) is not true about it. That *P* and *Q* are different in nature means nothing but that there holds a certain relation in the world: *P* and *Q* are different in nature. Neither does this difference make *P* and *Q* different in nature, nor what they are; rather, the obtaining of their difference in nature consists of nothing other than the existence of *P* and *Q*. Nothing else than the existence of *P* and *Q* is metaphysically necessary or sufficient for their difference in nature. As thin natures, *P* and *Q* are intrinsically non-relational so no regress of relations and their relata can be generated *in* them. At least in this respect, our starting assumption seems to represent a metaphysically possible matter of fact.

Bradley would not be happy with this. He would be quick to point out that by the principle of the non-identity of discernibles (the contrapositive of Leibniz's law: the indiscernibility of identicals), it follows that t and u are numerically distinct. So there is another relation holding in our example, the relation of numerical distinctness, and it is that relation that generates an infinite relation regress. However, here we can insist against Bradley that the generation of an infinite relation regress is not necessary in this case. Both the difference in nature of P and Q and the numerically distinctness of t and u consists of nothing but P/t and Q/u themselves, which are non-relational in nature and do not generate relations that would lead to an infinite regress. Numerical distinctness or the plurality of numerically distinct P/t and Q/u is not an entity either.

4. Relata Regress

Against this insistence, Bradley advances a relata-regress argument in the second part of his *reductio* of relations, where he argues that qualities with relations are not fully intelligible. His point is that the difference in nature and numerical distinctness of a simple relatum from the other simple relatum are numerically distinct aspects of the former simple relatum. In our schematic example, t's difference in nature and numerical distinctness from u, are numerically distinct aspects of t. As such, t is not simple but complex: it consists of two aspects that are related by numerical distinctness. The same holds of these two aspects and so on. Hence, an infinite regress of relations and their relata within t ensues: "We, in brief, are led by a principle of fission which conducts us to no end." (AR, III, 26) The key move in Bradley's argument to this result is that as "*a* it [t] is the difference on which distinction is based, while as *a* it is the numerical distinctness that results from connexion." (Ibid.)

Bradley clearly thinks, even if he does not say it, that this infinite regress in t is vicious. He says that the relatum, t in our example, loses "its unity" because t has "a diversity within its own nature", which is "fatal to the internal unity of" t (AR, III, 26–27). It "demands a new relation, and so on without limit. In short, qualities in a relation have turned out as unintelligible as were qualities without one." (AR, III, 27.) These passages tell us not only that Bradley thinks the infinite regress is vicious but that it is vicious since it

turns t into an infinitely complex, non-terminating tree of alleged relations and their relata. If this infinite regress ensues, it is a serious problem on Bradley's plausible view that the relata of any given relation should be unities. This time the tree has the following structure, where a^n is the difference on which the relation of numerical distinctness is based, while as a^n it is the aspect of the numerical distinctness that results from a relation of numerical distinctness r^n:

Level 0		$t=aR\alpha$	
Level 1	$a=a^1R^1\alpha^1$		$\alpha=a^2R^2\alpha^2$
Level 2	$a^1=a^3R^3\alpha^3$ $\quad$ $\alpha^1=a^4R^4\alpha^4$	$a^2=a^5R^5\alpha^5$	$\alpha^2=a^6R^6\alpha^6$

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Regardless of his reasons for it, Bradley is correct that this relata regress would be vicious if it went through. As in the case of the relation regress, there is type-identity in the *explanandum* and *explanans*. Here the *explanandum* is the unity of a distinct entity t as a relatum of the difference in nature and numerical distinctness between t and u, given t's ontological structure *aRa*. This is an instance of the complex-unity problem, which we characterized in the Introduction. The *explanans* is the unity of distinct entities a^n and a^n, which have a similar ontological structure to t (two entities related by numerical distinctness). The *explanandum* and each element of the *explanans* are of the same type; the latter is just repeated in an infinite number of times. The problem with this, as in the case of the relation regress, is that this is a metaphysical explanation failure. The complex-unity of a distinct entity is left without explanation; it does not shed any light on this complex-unity problem to repeat infinitely what the problem is.[10] Consequently, on the assumption that the infinite regress is generated, nothing about the complex unity of any distinct entity in the infinite tree, including t, is explained metaphysically.

It is a different question whether the relata of a relation, *a* and *a* for example, have to be unities, which the viciousness of the relata regress clearly presupposes. This is a requirement that is not without its merits. If the relata

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[10] Recently, the complex-unity problem is taken up in the discussion on the different answers to van Inwagen's (1990) Special Composition Question. Metaphysicians attempt to lay down the non-mereological conditions that the parts of a complex entity must fulfil in order to constitute a complex unity, i.e., to satisfy the conditions of restricted composition.

were not unities, *what* would be related (e.g. what would be numerically distinct)? At least before anyone can come up with an account, the answer is: no entities. It does not help to point out that then the apparently two-place relation r^n would turn into an *n*-place relation holding between pluralities instead of two complex unities. These *n*-places have to be occupied by unities, for which no metaphysical explanation is reached if the infinite regress ensues.[11] So if Bradley's argument regarding *t* went through, we would be in fact dealing with a vicious infinite regress. Both *t* and *u* would exchange their intelligibility as unities for an infinitely complex non-terminating tree of alleged relations and their relata in both *t* and *u*.

Accordingly, let us judge this argument by Bradley. Then we shall see that his reasoning may be resisted: this relata regress does not get off the ground in the case of *t* and *u* in our schematic example. His move that *t*'s numerical distinctness from *u* introduces a distinct aspect to *t* is not easy to understand, but a reasonable reading, put in terms of our example, is the following. Bradley begins with the assumption that *t*'s nature is different from *u*. He argues that a relation of numerical distinctness holds between *t* and *u* by the principle of non-identity of discernibles and the holding of the relation of difference in nature between *t* and *u*. The holding of numerical distinctness, in turn, introduces the aspect of numerical distinctness (from *u*) into *t*; this holding is constitutive of the *aspect* of *t* that it is numerically distinct from *u*. Therefore there are two aspects in *t* and "these different aspects are not each the other, nor again is either" *t* (AR, III, 26).

It is hard to see how this reasoning by Bradley could be solid. It rests on the premise that the holding of numerical distinctness between *t* and *u* is constitutive of the aspect of *t* that *t* is distinct from *u*. However, Bradley does not give us any reason to think that this is so. Furthermore, it is a strange view indeed that a non-entity, such as the relation of numerical distinctness, could make a difference to *what* there is. But Bradley clearly supposes that the relation of numerical distinctness does make a difference to what there is;

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[11] It does not do to respond to Bradley that the relata a^n and a^n are relations (relations all the way down). This view is endorsed e.g. by Simon Saunders, James Ladyman and Don Ross, who are structural realists (Saunders 2003, 129; Ladyman & Ross 2007, 155). This is not assumed to be ruled out by Bradley's argument here. Rather, the heart of the problem is not the relational or non-relational nature of the relata. It is, to repeat, that there is no metaphysical explanation for the unity of the relata, *relations or not*.

perhaps he thinks it as an entity since he speaks about it as a "connexion" in the previous quote. As this may be reasonably denied, we conclude that Bradley has not succeeded in arguing that *t*'s difference in nature and numerical distinctness from *u* make *t* relational in nature and infinitely ontologically complex. Consequently, his relata regress, vicious or not, does not get off the ground.

5. Formal Ontological Relations

Do our replies to Bradley mean that difference in nature and numerical distinctness are properties of their relata? They must be something and the only reasonable option seems to be that they are properties of their relata, which, in turn, would subject them to Bradley's objection that relations cannot be properties of their relata. This objection occurs in his footnote just before the relation regress (AR, III, 27). The relevant part of the objection would be that "the problem of inherence would break out in an aggravated form." (Ibid.) Is not this exactly the case with difference in nature and numerical distinctness?

Our reply to this possible objection is that difference in nature and numerical distinctness are not entities of any category (constituents of what there is). Rather, they are *ways* of the being of entities (how they exist), in contradistinction to *what exists*: that *t* exists, for instance, *as* different in nature from *u*. As such, difference in nature and numerical distinctness are not to be categorised as properties, which their relata would bear. So this objection of Bradley just does not arise in their case.

Still Bradley would not be happy (would an existence monist ever be with an argument defending pluralism?). He would insist that *t* and *u* are not simple since they have a dual nature, this time because of their numerical *identity* and difference in nature from each other. So there is a third relation in addition to difference in nature and numerical distinctness in our picture: the (logical) relation of numerical identity. "Inside" both *t* and *u* "we must distinguish its own quality and its otherness." (AR, III, 24.) Entity *t* is identical with *P*, entity *u* is identical with *Q and t/P* is different from *u/Q*. There are different and hence distinct entities *in* them that constitute their numerical identity (*t* is *t* and *u* is *u*) and difference in nature (*t* is different in nature from *u*) in the same manner as in the case of difference in nature and numerical

distinctness just above. "And if so, then the unsolved problem breaks out inside each quality, and separates each into two qualities in relation." (Ibid.) To be precise, Bradley does not speak about any infinite regress ensuing, vicious or not, in this context. It is easy to see, however, that he could be arguing for it along the lines of the argument discussed above that difference in nature and numerical distinctness make relata lose their needed unity.

Our reply to Bradley here is that he just cannot be seen to advance any argument to the result that the mere joint existence of t and u as identified with P and Q in our example would not be metaphysically sufficient for the holding of numerical identity of t and u, respectively, and their difference in nature from each other. He merely asserts that it would not be sufficient without t and u dividing into numerically distinct entities. So Bradley has not shown that the numerical identity of t and u and their difference in nature bestow a dual nature to them. This argument of Bradley may be resisted. No infinite regress is generated, vicious or not.

Actually, difference in nature, numerical distinctness and numerical identity belong to what are called "formal ontological relations" in the contemporary metaphysical literature. Formal ontological relations spell out what E. J. Lowe's calls "ontological form", which he distinguishes from "ontological content" (2006, 48; cf. Smith & Grenon 2004).[12] This distinction is analogical to the logical contrast between the non-logical content of a proposition and its logical form (Smith & Murray 1981; Smith & Mulligan 1983; Lowe 2006, 48). It is to be insisted, however, that ontological and logical form should not be conflated because the former is the form of *being* in general, whereas the latter is much more restricted: the form of truth-bearers (if they are entities) (Smith & Mulligan 1983, 73; Smith 2005, ch. 5; Lowe 2006, 48).

It is not an easy task to give a comprehensive account of the distinction between ontological content and ontological form. However, a comprehensive account is not necessary for the present purposes. Suffice it to introduce the distinction by way of examples.[13] One may consider anything

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[12] Husserl's distinction between ontological content and ontological form was brought into contemporary discussion by Barry Smith, together with David Murray (1981) and Kevin Mulligan (1983).

[13] In fact, we believe that at least ontological form is a concept that cannot be given an eliminative non-circular definition. It is a primitive notion in formal ontology (or ideology).

one believes to exist. This entity adds to the entities one believes to exist. In one's view, then, the entity is a part of the ontological *content* of the world: what beings there are ("ontology" in Quinean/Lewisian parlance, one makes an "ontological commitment").

For example, if one believes in the existence of Olli Koistinen, one believes that there is an entity to which "Olli Koistinen" refers. One holds a belief about the ontological content of the world. If one also believes that Olli Koistinen exists *as* having numerical identity (he is the same with himself), one holds a belief about the ontological *form* of the world.[14] This is a belief about *how* Olli Koistinen exists as a constituent of the world ("ideology"), that is, as being the same with himself. One does not believe in any entity in addition to Olli Koistinen; rather, the belief concerns Olli Koistinen's *form of being* as being the same with itself. It can be understood as a formal feature of existence, what it is to be the same with itself. Arguably, further examples of formal features of existence are *being one* (unity), *being individual* (having numerical identity and being one) and *being particular* (and *being universal* for the realist). In Lowe's terms, all these are expressed by "formal ontological predicates", which apply but do not refer to entities (Lowe 2006, 193). In our example, "is numerically identical" applies to Olli Koistinen and the sentence "Olli Koistinen is numerically identical" is true about him.[15]

Accordingly, formal ontological relations may be characterized as formal relational features of existence. Take numerical distinctness as an example: it should be seen as how an entity exists, that is, as numerically distinct *from* another entity. If this formal ontological relation holds, it is part of the formal structure of the world: the world includes these two entities, which exist as not one and the same entity. In addition to numerical distinctness and difference in nature, possible formal ontological relations include numerical identity, relations between categories in different category systems (e.g. instantiation and characterization in the Neo-Aristotelian ontological square, different ontological dependencies), similarity or resemblance, quantitative relations (e.g. proportion), composition,

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[14] In principle, it seems not to be necessary for believing in an entity to hold that it has numerical identity since it appears to be possible to believe in the existence of something as a mere unity (cf. Lowe 2006, 75).

[15] If this sentence is true, there are in principle several possible semantic accounts for its truth. In this paper, we set this semantic question aside.

constitution and mereological relations. Of these, at least dependences spell out the possible ways of existence of entities rather than their actual ways of existence.

Which formal ontological relations hold, what the formal structure of the world is, is dependent on which formal ontological category system is true. Still, formal ontological relations are necessary for every category system according to which there is something in the world, as Lowe argues (2006, 34).[16] Actually, disputes between different ontological category systems are partly disagreements of what the (basic) formal ontological relations are. Whatever formal ontological relations obtain at the end of the day, they are in general good candidates for relations in the world that do not fall afoul of Bradley's *reductio* of relations, as we have argued.[17] First, they are not subject to the relation regress because they are not entities of any category. Secondly, at least in the case of simple entities, they may hold between simple entities without falling prey to Bradley's *reductio* of relata.

6. Coda: Relations in Thought and Language

It seems to us that Bradley's last resort at this point would be to point out that as human beings we have to think and talk about our schematic scenario, formal ontological relations and their relata. This re-launches his relation regress for two reasons. (1) There has to hold some relation between our thinking or talking about the scenario and the scenario (e.g. representation, reference, truth, truth-making). (2) Thinking and talking about the scenario and formal ontological relations involves relations since they involve predications that have relational structure. When we think or talk about the scenario, for instance, we predicate over *t* and *u*, *P* and *Q*. When we do this,

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[16] Arguably, even an existence monist like Bradley should accept the formal ontological relation of numerical identity at least because there is one self-identical entity in the world. It is also quite unclear whether the one could exist without any difference or distinction in it. If it could not, it would involve formal ontological relations.

[17] In some category systems, the holding of formal ontological relations results in the existence of complex unities. Ontological dependences are typically such formal ontological relations. They spell out how entities *can* exist as constituents of the world. It is to be emphasised, however, that these formal ontological relations ought not to be identified with these complex unities. Neither are these complex unities relational complexes. So no holding of formal ontological relation should be identified with the existence of a relational complex unity. The (1.2) assumption of Bradley's relation regress does not hold true of them.

something works as a subject and something as a predicate of the subject. Therefore there must hold relations between predicates and subjects. Bradley believes that "the conclusion to which I am brought [at the end of Chapter III right after his relation regress argument] is that a relational way of thought– any one that moves by the machinery of terms and relations–must give appearance, and not truth." (AR, III, 28.)

These two points raise extremely difficult questions in epistemology, philosophy of mind, theory of judgement or assertion and philosophy of language, which obviously cannot be discussed in a paper in metaphysics. We can point out, however, as an initial response to Bradley, that our argument has shown that at least some formal ontological relations are, indeed, intelligible. So the possible problems in relational thought and talk are not relevant in this respect. There are two different things here: the possibility of fully intelligible relational thought and talk and the possibility of related *being*. Even if the former were impossible, it does not follow that the latter is not possible, without some further (idealist) premise. Moreover, it is not necessary that predications or judgments are relational complexes: complex entities with a relational ontological structure. First, it can be reasonably denied that predications or judgements are entities. Secondly, according to Allard (2005, ch. 3) and Basile & Candlish (2013, sec. 5), Bradley's own theory of judgement is monistic.

7. Conclusion

In this paper, we have reconstructed Bradley's relation and relata regress, including their structure, and defended their nature as vicious infinite regress arguments. If they go through, they are vicious infinite regresses since the *explanandum* and *explanans* are type-identical in the regresses and this type identity is repeated in an infinite number of times. Therefore no step is really taken to metaphysically explain the initial *explanandum*.

Our intention has not been to solve the problems that these regress arguments pose. We have limited ourselves to the argument for the result that there are possibly ways of standing in relation in the world that escape both regresses and Bradley's entire *reductio* of relations. At least difference in nature, numerical distinctness and identity of ontologically simple entities count as such relations. Since they are examples of formal ontological relations, this

suggests that formal ontological relations in general are good candidates for relations that do not fall afoul of either regress.

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