

Wholeness and internal relatedness:
A Bradleyan critique of recent holistic metaphysics

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Abstract

According to David Lewis' influential thesis of Humean Supervenience, the world is a plurality of self-contained individuals standing in external relations of spatiotemporal distance. In the last decades, this thesis has been under attack by what I call 'holistic ontologies', the most salient of which are Dispositional Essentialism, Ontic Structural Realism, Priority Monism, and Existence Monism. These reactions obey different but closely related suspicions against the central features of Humean Supervenience. On one hand, there are suspicions against the idea of external relations; on the other hand, there are suspicions against the idea of self-contained plurals. Common to these holistic ontologies is to conceive the world not as an externally related heap but, in different degrees of strength, as an 'internally related whole'. This work, following Bradley's stance against relations, puts under critical scrutiny the merits of these holistic ontologies. The central aims are to make explicit the different senses of 'wholeness' and 'internal relatedness' that they happen to endorse; make explicit their internal flaws; and show the relative superiority of Existence Monism. As it happens, Existence Monism vindicates Bradley's core ideas about relations, namely: that external relations are unable to relate; that internal relations are inherently unstable; and that all relations—external and internal—are better understood as imperfect abstractions from a more substantial, non-relational, kind of unity. I conclude with some skeptical remarks against my own metaphysical preferences and against ontology in general.

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Chapter 4 contains, with substantial alterations, some fragments of a forthcoming paper that I coauthored with Stephen Mumford ('Relations all the way down? Against ontic structural realism'), which are reproduced here with permission of Oxford University Press.

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Preface

According to the thesis of Humean Supervenience, the actual world is a plurality of self-contained, concrete and physical individuals standing in external relations of spatiotemporal distance. This ontological thesis, needless to say, has exerted enormous influence, and many philosophers agree with its core claim: the world is a ‘loose and separate’ mosaic of plurals. However, the thesis has been under attack during the last years by what I call ‘holistic ontologies’, the most salient of which are Dispositional Essentialism, Ontic Structural Realism, Priority Monism, and Existence Monism. These holistic reactions respond to different but closely related suspicions against the central ingredients of Humean Supervenience. On one hand, there are foundationalist suspicions against external relations; on the other hand, there are holistic suspicions against self-contained individuals. Common to these holistic ontologies is to understand the world not as a loose and separate heap but, in different degrees of cohesion, as an ‘internally related whole’.

I am in basic agreement with what is common to these holistic ontologies: Humean Supervenience is unsatisfactory so we better look elsewhere. In this work I put under critical scrutiny the merits of these alternatives. Inspired by Bradley’s stance against relations, my aims are to: (i) make explicit the different senses of ‘wholeness’ and ‘internal relatedness’ that these holistic alternatives happen to endorse; (ii) make explicit their flaws, in particular their internal deficiencies and incoherences; and (iii) show the relative superiority of Existence Monism, at least in terms of internal consistency and empirical adequacy. As it happens, Existence Monism vindicates a Bradleyan stance against relations. Central to this stance is the following group of ideas: that external relations are unable to relate and are as mysterious as it gets; that internal relations get closer to reality but are inherently unstable; and that all relations—external and internal—are better understood as imperfect abstractions

from a more substantial, non-relational, kind of unity. Although I do think that Existence Monism is relatively superior to the other ontologies presented here, I still have many doubts about its tenability. In fact, the more I think about ontology in general and about relations in particular, the more I doubt. So my ambitions will be well satisfied if at least I convince the reader that neither of the ontologies examined here is good enough. Perhaps '[a]ll that philosophy can do is to destroy idols. And that means not creating a new one' (Wittgenstein 1993: 171).

The thesis is structured in six chapters. I will start by pointing out the general problems of pluralism of self-contained individuals and external relations, the core ingredients of Humean Supervenience (ch. 1). Then I will re-examine the arguments that Russell and Moore gave for pluralism and external relations. I will show their failure, defend Bradley's stance, and close by offering three plausible ways of understanding 'internal relatedness' that will be useful for my critique (ch. 2). After this historical vindication I will go through a systematic and critical assessment of the most salient contemporary ontologies that offer us a holistic picture of reality, whether by giving monadic or monistic foundations for external relations or by defending some form of relational constitution or strong kind of interdependence: Dispositional Essentialism (ch. 3), Ontic Structural Realism (ch. 4), Priority Monism (ch. 5), and Existence Monism (ch. 6). Focusing on how these alternatives defend the claim of this world being an internally related whole, I will show why the first three face objections and difficulties that make them incomplete, incoherent or unstable. Most of those difficulties are internal to them, due to the inadequacy of their own ontological ingredients. I will also argue—not conclusively, but by giving good 'signs' or 'symptoms' in favour of it—that, extreme as it may seem, the most stable, coherent, and empirically adequate amongst the holistic alternatives under assessment is Existence Monism, which understands relations as Bradley did. I leave for the Epilogue some doubts and skeptical remarks against my own preference.

Some warnings:

First, why I am revisiting Bradley? In short, because ‘contemporary analytic metaphysics is in many ways a parody of the great metaphysics of the past’ (Putnam 1992: 197). Most of the arguments and methods of contemporary analytical ontology have pre-Kantian or even scholastic nature. Furthermore, post-Quinean ontology also shares many of the vices of pre-critical philosophy, with the sad addition that we, unlike Spinoza or Leibniz, do not have the excuse of having lived before the work of Kant, Hegel, Carnap or Wittgenstein. Although I profoundly dislike the cultural and historical void in which post-Quinean ontology is practiced, it is beyond my capacities to change this state of affairs. Fortunately, this impoverished context gives me some strategic advantages: (i) all the work of great post-scholastic and pre-critical philosophers can be seen with renewed interest, and it can be used to support many of the arguments discussed here; and (ii) a post-Kantian metaphysician like Bradley appears, in relative terms, as totally pertinent and up to date.

Second, I do not have any direct scientific knowledge—far from that—so all what I say in this work about science, in particular about physics, is based on the writings of those philosophers that, as far as I know, are competent authorities on the matter. I take their words at face value. After all, my interest is not much in the science itself but in the underlying metaphysics. Occasionally, I have dealt directly with the writings of some scientists, when these very scientists have a metaphysical outlook and exhibit self-consciousness about the metaphysical implications of their scientific theories. This is particularly true of those scientists-philosophers like Bohm, Eddington, Einstein and Schrödinger, who were obviously striving to make sense of reality in a very general and creative way, a way that respects the scientific evidence but goes beyond it by making sense of it within a wider, coherent and all-embracing worldview, like metaphysicians attempt to do.

Third, the focus of my arguments is the actual world. Whether there are any other concrete possible worlds is something that I am not prepared to argue for or against. It is a common place to argue that metaphysical claims are necessarily true, if true at all, since they are about the essence or real definition of the world or about which are its fundamental constituents, the building blocks of reality, and what kind of combinations they allow (Rosen 2006). If so, then it seems that if a view like monism or atomism is true about the actual world, then it is so necessarily. But it is complicated. It seems clear that if this world is one atom, then surely there are no plural counterparts of it, since they could hardly be considered counterparts at all. But can I exclude the existence of other wholly alien worlds, other worlds located in alien dimensions that don't have anything in common with the basic materials, categories or inhabitants of this one? I have no clue. My only consolation is that if the metaphysical possibilities about the actual world can be mapped only after we have clarity about its actual constitution, then the job of finding out which is that constitution comes first and the existence of wholly alien worlds is not very relevant for us.

1 The fragmented world: Pluralism and external relations

In this chapter I will offer objections against the metaphysics of Humean Supervenience, according to which our world consists in a plurality of self-contained objects standing in external relations. Its aim is to raise suspicions against these two basic constituents and justify the initial plausibility of the holistic alternatives that will be assessed later.

In §1.1 I discuss the central elements of Humean Supervenience and similar ontologies. In §1.2 I explain the contemporary dichotomies of internal/external relations and intrinsic/extrinsic properties, central to the claim of independence or separability embraced by Humean Supervenience. In §1.3 I give a hint about the historical origin of external relations—something that will be explored with more detail in ch. 2—and raise initial doubts against the fragmented worldview that they entail. In §1.4 I raise some metaphysical difficulties with external relations. In §1.5 I do the same with self-contained objects. In §1.6 I present the ultimate empirical challenge against the fragmented worldview. Finally, in §1.7, I give a synopsis of what follows.

1.1 Just one little thing and then another . . .

The dominant picture in contemporary metaphysics says that our world is a plurality of self-contained objects having categorical properties and standing to each other in external relations. What I have in mind is, of course, Lewis' thesis of Humean Supervenience:

Humean Supervenience is named in honor of the great denier of necessary connections. It is the doctrine that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another. (But it is no part of the thesis that these local matters are mental.) We have geometry: a system of external relations of spatiotemporal distance between points. Maybe points of spacetime itself, maybe point-sized bits of matter or aether or fields, maybe both. And at those points we have local qualities: perfectly natural intrinsic properties which need nothing bigger than a point at which to be

instantiated. For short: we have an arrangement of qualities. And that is all. There is no difference without difference in the arrangement of qualities. All else supervenes on that. (Lewis 1986b: ix–x)

The thesis of Humean Supervenience comprises at least three closely related sub-theses:

First, there is *radical pluralism*. Lewis is our contemporary Democritus. He embraces an extreme physical atomism, where the building blocks of reality are self-contained point-like objects standing in external relations of distance, and what we call ‘the world’ is ‘just one little thing and then another’. Lewisian objects are *individuals*, since they enjoy determinate identity-conditions and determinate countability (Lowe 1998: chs. 2–3, Strawson [1959] 2003) and they are neither sets nor classes. Allegedly, we can quantify over them and make reference to them. These individuals are supposed to be *concrete*, *particular* and *physical* (though all these labels are contentious, as we will see). Furthermore, a Lewisian individual enjoys the status of a *substance*, at least in the technical sense that its conditions of identity are not only determinate but also *independent* of everything else (Lowe 1998: ch. 6). If you prefer, each Lewisian individual has its own and independent real definition since it is and can be conceived only through itself. The world of Humean Supervenience is like a heap of sand: every feature of the heap ultimately rests on the nature of each of the grains and their spatiotemporal arrangement. With an obvious difference: according to Lewis, each grain of sand is a heap of spatiotemporal parts, a heap of point-like individuals standing to each other in external relations of spatiotemporal distance. Properly speaking, Lewisian individuals are breathless events and/or extensionless space-time points. They are not continuants, they do not endure. And they are not events if by ‘event’ we understand an irreducible occurrent particular that essentially involves some breath or duration, or a change that a persistent individual undergoes. Lewisian point-like individuals can be understood under three basic schemes: (i) Dualistic-relationalism: point-like individuals occupy many space-time points (i.e., individual

locations). Occupants stand to other occupants in external relations of distance, and so locations to other locations and occupants to locations. (ii) Monistic-relationalism I: point-like individuals stand to each other in external relations of distance. (iii) Monistic-relationalism II: space-time points—on which properties directly inhere—stand to each other in external relations of distance. Lewis wants to remain neutral. However, he is tempted to reject (i) based on considerations of parsimony, and to reject (ii) based on empirical considerations (Lewis 1986a: 76n). Never mind which of these is better suited for expressing Humean Supervenience: the fragmented worldview is common to all of them.

Second, there is *separability* or *independence*. Allegedly, each point-like individual could exist and be what it is with independence from others. Each bit of the world is separable from the other. Object and object, subject and subject, subject and object, are all externally related things-in-themselves. It is important to notice that the thesis of independence or separability is not entailed by the thesis of pluralism. Rather, it is entailed by the fact that those plurals have ‘perfectly natural intrinsic properties’ and stand to each other in ‘external relations’.¹ As we will see throughout this work, our conception of individuality cannot be divorced from our conception of relations: what we take as legitimate ‘relata’ or ‘terms’ fixes what we take as legitimate ‘relations’, and vice-versa. The properties of the Humean Supervenience base

¹ In fact, you can be a pluralist and reject separability by offering a different treatment of properties and relations. Leibniz’s and Whitehead’s ontologies are the most obvious examples. More on this later (ch. 5).

are all natural or sparse.² They are also of categorical or purely qualitative nature, i.e., they are what they are in virtue of brutal distinctness, with independence of any causal or nomic role, and, in particular, with independence of the existence or intrinsic nature of other individuals. And all natural or sparse relations are external relations of spatiotemporal distance. How these individuals stand to each other, the *where* and the *when* of them, is a contingent matter that has nothing to do with their intrinsic natures. If Plato is two feet apart from Socrates, then it is not part of Plato's nature to be so related with Socrates, nor is part of Socrates' nature to be so related with Plato. They both could have existed and be what they are without being so related. Their intrinsic natures are not affected by being, for instance, five instead of two feet apart, because Plato's intrinsic nature involves no reference whatsoever to Socrates' intrinsic nature. And this feature is pervasive: each point-like individual has its self-contained physical state regardless the physical state of the others, and the physical state of the whole world is determined by the local, intrinsic, physical state of the plurals plus their spatiotemporal arrangement. This is why these individuals allow duplication and free recombination. This is why a Lewisian world could be chopped down without its constituents suffering annihilation or intrinsic alteration. In principle, in this 'loose and separate' world, external relations of

² Sparse or natural properties are ontologically serious. As Lewis says: 'Sharing of them makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not entirely miscellaneous, there are only just enough of them to characterise things completely and without redundancy.' (Lewis 1986a: 60) All the Armstrong-Lewis ontological program rests on the idea that there is such an elite class of properties. Allegedly, this elite class contains whichever properties 'our best physics' tells us that exist (e.g., spin, electric charge, mass), and is mapped either in terms of universals, tropes, or primitive naturalness. Which of these terms is better? Lewis remained neutral on this dispute (Lewis 1986a: 64), and I will not attempt to solve it or take sides here. However, for the treatment of relations, the language of universals and tropes seems more adequate and helpful to express some classical problems, so I will stick to these two terms for practical reasons. Besides, 'primitive naturalness' remains in the dark for me (I am not saying that 'universal' and 'trope' are clear notions—far from that!—but at least they enjoy more historical pedigree). What is definitely clear is that the pure extensionalism of sets is not sufficient to give an account of those sparse properties, as Lewis himself acknowledged. Because extensionalism (even when improved as trans-world extensionalism) does not discriminate between metaphysically important (sparse, natural) and metaphysically arbitrary (abundant, gruesome) sets. In particular, if it is already difficult to understand how can a relation conceived as a universal or as a trope can relate its relata, it is simply beyond my understanding how two concrete individuals can be really related simply by being members of a set of ordered or unordered pairs.

spatiotemporal distance also enjoy substantial status. Since external relations do not belong to the intrinsic nature of any point-like individual, we can say that their existence and identity is not ontologically dependent on the existence and identity of any point-like individual. A complete inventory of a Lewisian world must include spatiotemporal relations, since one that includes only individual relata doesn't give us a specific world, i.e., a specific spatiotemporal *arrangement* of individuals, but only a list. Even a Hume-world has a little bit of structure.

Third, there is *supervenience*. On the physical, sparse, and purely categorical base just described, all the rest supervenes, meaning by 'all the rest' all facts of resemblance and symmetry, and in particular all nomic facts like those of causation, chance and law. And not only that, but also all what is usually included under the label of 'mental life': knowledge and experience, will and imagination, memory and qualia, and whatever else you think is missing. I will not spend too much time discussing the controversial notion of 'supervenience', mainly because my worries are focused on the sparse ontology that constitutes Lewis' supervenience base. The following remarks should suffice: (i) What Lewis means by 'supervenience' is basically that there is no difference in any worldly fact without a difference in the sparse base; conversely, if you duplicate the sparse base, then you duplicate all the worldly facts (Lewis 1986a: 14, 1986b: 111). (ii) Typically, those who use the word 'supervenience' try to show themselves as moderates that do not want something as extreme as reduction or elimination, yet we are immediately told by themselves that when they say that some Y 'supervenes' on some X, we should understand them as saying that there is 'no real addition of being', or that Y is an 'ontological free lunch', or that Y is 'nothing over and above' X. These are typical modes of expression within the Armstrong-Lewis ontological program (e.g., Armstrong 1997: 11–13, Lewis 1986a: 14–17), and they are very confusing. Because if supervenience is this, then we should better say that what exists is X, period, and that talking about Y is just

another way of talking about X, or that ‘Y’ is simply a different name or mode of presentation of the very same object picked out by ‘X’. Alternatively, if we want to affirm that both X and Y really stand to each other in some relation of asymmetrical dependence, then we should better stop saying that Y is ‘no real addition of being’, because if some entity depends on some other entity, then there are at least two entities.³ (iii) Someone who is fond of the idea of supervenience might try to make sense of it by using the ontology/ideology distinction. According to Quine, given a determinate theory, ontology and ideology are ‘two distinct domains of inquiry’. The *ontology* of a theory is ‘the doctrine of what there is’, where ‘what there is’ means simply the things over which the theory (existentially and universally) quantifies, that is, the things that are the values of the bound variables of the theory. In contrast, the *ideology* of a theory consists in the ideas that can be expressed by it. That is, ‘the ontology of a theory is a question of what the assertions say or imply that there is’ and ‘[t]he ideology of a theory is a question about what the symbols mean’ (Quine 1951a: 13–14). Although Quine introduced the distinction as one that was meant to hold between different parts *of a theory*, he then drew it in absolute terms: on one hand, ‘in absolute ontology we ask what there really is’; on the other hand, ‘in absolute ideology we ask what ideas can legitimately be had, or what primitive ideas are given to us as a basis for thinking’ (Quine 1951a: 14–15). Thus, someone could say that the supervenience base is part of what there really is, part of those things towards which we have serious ontological commitment, and say, at the same time, that the supervenient layers are part of those ideas we can legitimately have. My response against this possible move is that, in a quite obvious sense, recurring to the ontology/ideology distinction to understand the notion of supervenience is simply admitting the point that I made before: taking the supervenient base as serious ontology and the supervenient layers of being as ideology is simply to give up the idea of a really existent (an objective or mind-independent existent) supervenient layer

³ Lowe (2012) makes a similar complain about this use of the word ‘supervenience’. I follow him in rejecting this way of talking.

of being standing in a relation of ontological dependence to another really existent supervenience base. Because what the move is doing is simply restating that when one says that Y supervenes on X, one is admitting the existence of X but not of Y, or that while X is what really exists, Y is (merely) a legitimately expressible idea. That is, that what really exists is the supervenience base, period. This doesn't mean that I am comfortable with Quine's distinction (as it will become clear in the Epilogue, I am not), but only that, if the distinction is right, then one cannot be ontologically committed about the relation of supervenience and pretend to be ontologically uncommitted at the same time. If one is ontologically serious when saying that both X and Y exist and that Y supervenes on X, then one has an existential commitment towards both X and Y, and one should try to spell out the way in which X and Y (asymmetrically) stand to each other. If one is not ontologically serious when saying that Y supervenes on X, because one has only an existential commitment towards X, then one should try to do the honest thing and reveal that one has no objection whatsoever against the ontological elimination of Y. In either case, there is no such thing as an 'ontological free lunch'. In the first case, admitted the existence of the supervenience base X, the supervenient layer Y (and the way in which X and Y stand to each other) represents real addition of being. In the second case, admitted the existence of the supervenience base X, there is no more being around, because the so-called supervenient layer Y is not a value of a bound variable; the so-called supervenient layer Y simply doesn't exist (it is ideology), so, strictly speaking, there is nothing that supervenes on X.

The central features of Lewis' worldview are shared by other influential contemporary metaphysicians. Take, for instance, Armstrong's world of states of affairs (Armstrong 1997)⁴ or van Inwagen's world of atoms and persons

⁴ After his (1997), Armstrong has reconsidered his views on instantiation, and now he takes it to be a case of 'partial identity' between particulars and universals (Armstrong 2004: ch. 4). I have no space to treat Armstrong's later views here (for more details, see Mumford 2007 and Simons 2005). I will only say that this last move radically affects the alleged independent status of his basic constituents and of states of affairs themselves, and puts Armstrong's ontology, unsurprisingly, close to pre-analytical monistic pictures.

(van Inwagen 1990, 2009). They both share the following central ideas: (i) that the world is a plurality of individuals (states of affairs or ‘thick’ particulars in Armstrong’s case; particles and persons in van Inwagen’s case); (ii) that the existence and nature of those individuals does not depend on whether or not there are other individuals making accompaniment; and (iii) that all those individuals stand to each other in at least one type of external relation, namely that of spatiotemporal distance or that of causation. There are differences, of course, but not substantial. Take, for instance, Armstrong, who thinks that the world makes more sense if the spatiotemporal order is the result of the causal order, and that the causal order makes more sense if causation is more than mere juxtaposition of events and if laws are more than general patterns of occurrence. He feels compelled to add second-order nomic states of affairs to an austere base of first-order states of affairs, so that the former can *govern* the latter. But this addition means nothing more than another layer of external relations, this time of primitive nomic nature. Armstrong’s states of affairs are informed by the principles of independence, separability and free recombination, and these principles receive full expression in the fact that Armstrong’s laws of nature and causal relations (i.e., the instances of those laws) are not immanent to the objects they are meant to govern. They are thoroughly *external* relations; they govern from *outside*, from *above*; they are supposed to be contingent additions of being that impose nomic constraints over lower-order states of affairs (Armstrong 1983: chs. 6 and 11, 1997: chs. 14–15). If—as I will show—first-order external relations are already problematic, then adding a second-order layer of external relations just brings more problems or simply moves the problems to a higher level. Underlying the criticisms against how Armstrong’s laws of nature are supposed to govern (Beebe 2000, Bird 2007: §4.4, Lewis 1983b: 366, Mumford 2004: ch. 6, van Fraassen 1989: ch. 5), there is a more deep and old worry: that external relations don’t make any difference to the intrinsic nature of the terms, so these remain indifferent to each other and to the fact of being so related; that is, that external relations do not *really* relate.

No wonder that an Armstrong-world with second-order external relations could look exactly like a Hume-world without them.

1.2 Internal and external relations, intrinsic and extrinsic properties

The metaphysics of externally related plurals comes with a distinction between *internal* and *external* relations (Armstrong 1978b: 84–88, 1997: 12, 87–89, Lewis 1983b: 356n, 1986a: 62). An *internal* relation supervenes on the existence or intrinsic natures of the relata, where ‘supervene’ is understood in the deflationary sense noticed above.⁵ Qua supervenient, internal relations have no ontological weight, and we should better stop talking about real existence of them if all what there is when we use that expression is some terms. Thus, an internal relation is entailed by the relata. The most paradigmatic cases of internal relations in this sense are qualitative resemblance and difference. When we say that Plato *is taller than* Socrates, there is nothing like the relation of *being taller than*: what we have is only Plato being a certain height and Socrates being a certain height. If you duplicate Plato and Socrates, the fact that Plato is taller than Socrates thereby obtains, regardless how they stand to each other. Allegedly, Plato would still be taller than Socrates, regardless *where* and *when* each of them happens to be. So, apart from Plato and Socrates, there is no real item that stands for the relation *is taller than*. Internal relations are ‘nothing over and above’ the relata. This is why *external relations* are the only real relations around. External relations are addition of being because the relata do not entail their existence. If you duplicate Plato and Socrates the fact that Plato is two feet apart from Socrates will not necessarily obtain. Plato *being two feet apart from* Socrates is something additional to the existence and nature of Plato and Socrates. As I said before, it is a common place in contemporary ontology to

⁵ Certainly, this is not the only relevant meaning of ‘internal’ but simply the dominant in contemporary ontology. I will distinguish other relevant meanings later (§2.4, §5.2).

say that relations of distance (spatial or spatiotemporal) are the paradigmatic external relations.

Lewis claims that there is a sense in which external relations can also be said to be internal. Thus, Plato *being two feet apart from* Socrates would be an *external* relation if we duplicate Plato and duplicate Socrates *taken separately*, but it would be an *internal* relation if we duplicate Socrates and Plato *taken together*, that is, as a composite. In this case, the relation of distance could be said to supervene on the intrinsic nature of the composite. Based on this, Lewis offers a three-head classification of relations (Lewis 1983b: 356n, 1986a: 62): (i) relations *internal to the relata*, which are those supervenient on the relata taken separately (e.g., qualitative resemblance); (ii) relations *external to the relata but internal to the composite*, which are those supervenient on the relata taken together, as a composite (e.g., distance); and (iii) what we can call *wholly external relations*, which are those that do not supervene on the relata taken separately nor on the relata taken together (e.g., Humean causation). I think this classification is not enlightening, since it departs from the traditional one only in a superficial way. First, because if Humean Supervenience rules, and we take seriously the claim that supervenient entities represent ‘no addition of being’, then it is not clear what kind of individual is a ‘composite’ apart from point-like terms standing in external relations. Second, because even if supervenience does involve real addition of being, then the thesis of Humean Supervenience suggests that the existence of such a ‘composite’ supervenes upon the existence of some terms standing in some external relations. Point-like individuals with their intrinsic natures standing in external relations of distance are all the basic building-blocks around, together they conform the basic inventory of which everything else is made, and they are at least metaphysically prior to whatever ‘composites’ they might give place. Third, because the relations that fall under the head of (iii) are non-natural or non-sparse under Lewisian

standards: they are obviously derived from global patterns of instantiation across the sparse base.

No one has attempted to provide an exhaustive inventory of external relations. What seems uncontroversial is that distance and/or causation are the most plausible candidates. Someone like Lewis, as any good Humean, would say that causation is obviously a derivative notion, ultimately reducible to patterns of relations of spatiotemporal distance (Lewis 1986a: 67n). Someone like Armstrong, a moderate anti-Humean, would make his bet for causation as more fundamental, and regard the spatiotemporal order as supervenient on the causal order (Armstrong 1978b: 90–91, 1997: 89). And a pluralist that is also a presentist will probably accept only relations of spatial distance between present objects, since he would have to deny both cross-temporal relations and causation (at least if the latter is understood as a relation that holds between *earlier* and *later* relata). What seems also quite uncontroversial is that no one has come up with other clear examples. This state of affairs is very natural. After all, it is contingent *position* the ground for independence and free recombination of the plurals, the dogmas assumed by most of contemporary ontology. And for the *where* and the *when* of the plurals being contingent features and not part of their intrinsic natures, then distance and/or causation must be relations that do not supervene on the intrinsic natures of the relata. So in this work I will assume that, *prima facie*, distance and causation are the only real external relations around and that plausibly one of them grounds the other. On the contrary, *if* it is the case that the world is not a plurality of separate individuals but only one extended simple, or *if* it is the case that the world is a plurality of individuals but these somehow are capable of grounding the spatiotemporal or causal order in their intrinsic natures, then presumably there are no external relations, hence no relations at all. All relational-talk would be an oblique way of talking about something non-relational, something ultimately grounded in monistic or monadic foundations.

Can't external relations be replaced by monadic properties? Can't the relation Socrates *being two feet apart from* Plato be replaced by two distinct properties, namely that of *being two feet apart from Plato*, instantiated by Socrates, and that of *being two feet apart from Socrates*, instantiated by Plato? Well, *if* pluralism, independence, and separability are part of what needs to be preserved by the program, then it seems that external relations need to be recognised in the inventory. First, because those relational properties could not be *intrinsic* properties. If we want Plato to be independent and separable from Socrates, then Plato's intrinsic nature should not include the ways in which he stands to other things. In fact, when relations of distance are replaced by intrinsic properties, the result is a sort of Leibnizian monadism, where there is nothing like free recombination or the possibility of duplication, because it is part of Plato's nature to stand in the way he stands to all of his world-mates. If all Plato's relations are grounded in his monadic intrinsic nature, then Plato mirrors the whole world from his own perspective.⁶ Second, because it wouldn't make sense to replace external relations by *extrinsic* properties, since extrinsic properties rest on the prior existence of external relations. With the distinction intrinsic/extrinsic properties we map the same features that the distinction internal/external relations maps. When the analytic ontologist talks about internal relations he is obliquely talking about intrinsic properties; conversely, when he talks about extrinsic properties he is obliquely talking about irreducible external relations, since the extrinsic properties of a thing at least partly depend on how that thing is related to other things (Lewis 1983a). And when that extrinsic property consists only in relative location, like that of *being two feet apart from Plato*, then it *totally* depends in a relation of distance and in the existence of other thing standing in that very relation. So extrinsic property is

⁶ It is quite obvious that Leibniz's reductive account of relations has as a consequence that there must be coordination between monadic natures and that no mere Cambridge changes ever occurs. Since there are no external relations, there are no extrinsic properties: '...and no one becomes a widower in India by the death of his wife in Europe unless a real change occurs in him. For every predicate is in fact contained in the nature of a subject.' (Leibniz 1989: 365)

a derivative notion; it depends on the existence of a more basic item: an external relation. A good reason for the irreducibility of external relations to relational/extrinsic properties is given by Armstrong: relational/extrinsic properties, like that of *being two feet apart from Plato*, which is instantiated by Socrates, are complex properties. Without considering the subject of predication—i.e., Socrates—the property itself seems to be composed by two constituents: one is Plato, a particular individual, which obviously does not inhere *in* Socrates; the other one is *being two feet apart from*, which seems obviously to be an external relation (Armstrong 1978b: 79; cf. Russell [1903] 2010: §214; more on this in ch. 2). In a pluralism governed by the principle of independence and separability, external relations are an irreducible additional item, independent of the nature of the terms.

The central point that this regimentation aims to express is this: whether a thing preserves its identity is something that depends wholly on its intrinsic properties, and these are had with complete independence of accompaniment or loneliness (Lewis 1983a, Langton and Lewis 1998), hence, with complete independence of the relations in which that thing stands to other wholly distinct things. The internalisation of external relations has the opposite consequence: the identity of a thing cannot be determined in isolation (unless such thing is the only thing).

1.3 Why external relations?

The idea that external relations are numerically distinct constituents of reality is part of the legacy of the early analytical philosophers. Before Russell and Moore defended the existence of external relations against the late British idealists, relations were regarded as relations of ideas, creatures of reason or, in the best case, as the most insignificant of individual accidents. Aristotle, the medievals, the moderns, and those late idealists were all worried about the status of relations and defended different views, yet all of them had a

minimal common agreement: relations are not independent existents or beings in their own right, i.e., there are no *external* relations (Aristotle 1941a: ch. 7, 1941b: book V, ch. 15, Campbell 1990: §5.2, Henninger 1989, Morales 1994, Weinberg 1965: ch. 2). Relational discourse is always about some non-relational features of reality, some *foundations*, as the medievals said.⁷ The most refined versions of foundationism are Leibniz's monadic system and the monistic systems that became dominant during the late 19th century. Russell and Moore divorced from this tradition by rejecting what they called the 'axiom' or 'dogma' of internal relations, according to which, very crudely, *all relations are internal*, meaning by this that *all relations are grounded in the nature of the terms* (Russell) or that *all relations are essential to their relata* (Moore). Where the expression 'all relations' was meant to cover, well, *all* relations, including those which are now regarded as external. The attack that Russell and Moore executed on this dogma gave place to one of the most central debates in contemporary philosophy and was perhaps the most important step in their emancipation from British idealism, specially from F. H. Bradley, who was their main target. Getting rid of the dogma was thought to be an essential step for building a new general metaphysics, committed to realism, pluralism, externality, contingency, atomic truths and, in general, to the adequacy of *analysis* as the right path to truth and reality.⁸

The success of Russell and Moore has been assumed in a natural way. After all, believing that the world consists in a plurality of individuals standing in external relations is a commitment of what van Inwagen calls 'Common Western Metaphysics' (van Inwagen 2009: ch. 2). It is, however, very surprising how unreflectively this legacy has been assumed. A sign of this is

⁷ For a good historical survey of the category of relation, see Weinberg (1965: ch. 2). For a detailed treatment of the medieval period, see Henninger (1989). Contemporary attempts in a foundationist direction include Brower (1998), Campbell (1990: chs. 5 and 6), Castañeda (1975), Dunn (1990), Heil (2009), Fisk (1972), Lowe (2012), Mulligan (1998), and Simons (2010).

⁸ Indeed, it was a step towards philosophical emancipation: 'All the arguments used by Hegelians to condemn the sort of things dealt with mathematics and physics depended upon the axiom of internal relations. Consequently, when I rejected this axiom, I began to believe everything the Hegelians disbelieved.' (Russell 1959: 62)

the fact that contemporary accounts of relations—with honourable exceptions—take for granted the existence of external relations of distance or causation and offer a treatment of the category on a par with properties, simply by clarifying that relations have the peculiarity of being *polyadic* (Armstrong 1997: ch. 6, Lewis 1983b, 1986a: 61–62), as if the existence of external relations were obvious, as if their difficulties were analogous to those of properties, and as if their difference with properties were reducible to a matter of ‘adicity’. But when one makes a pause it seems very clear that what is at issue in the ontology of relations is highly more problematic and crucial. First, the point is beyond the dispute between nominalism and realism about universals. Obviously, there are nominalistic impulses underlying the suspicions against relations, but the puzzles of relations persist even if one is an immanent realist about monadic properties. Relations are supposed to relate, to make somehow things hang together, and, ultimately, to account for coexistence in *one* common world, not *two*. Second, no matter how you treat properties, you can always at least recognise that some portion of reality is, for instance, yellow and square-shaped. That *that* precise portion of reality is yellow and square-shaped excludes that *that* precise portion of reality is red and triangular-shaped. Yet, as Sprigge suggests, you simply cannot grasp relations in that way, since there is no portion of reality in which they are clearly instantiated (Sprigge 1983: 164). In a way, you can grasp a portion of reality that is *yellow and square-shaped*, while you cannot grasp *being two feet apart from* without grasping something non-relational—at least not so obviously. But if relations are real and independent addition of being, i.e., if they are *external* to the relata, then one should be able to grasp them without involving something non-relational. Third, and more important, our views on relations seem to fix our views on many other philosophical issues. In a famous passage, Russell claimed:

The question of relations is one of the most important that arise in philosophy, as most other issues turn on it: monism and pluralism; the question whether anything is wholly true except the whole of truth, or wholly real except the whole of reality; idealism and realism, in some of their forms; perhaps the very

existence of philosophy as a subject distinct from science and possessing a method of its own. (Russell 1956a: 333)

This crucial point has been appreciated by philosophers raised within the analytical tradition, like the early Rorty did: ‘It is perhaps not too much to say that a philosophers’ views on internal relations are themselves internally related to all his other philosophical views.’ (Rorty 1967: 126) But Rorty’s case is exceptional. Generally, the contemporary heirs of the analytical legacy do not exhibit the degree of self-consciousness exhibited by the founding fathers. My impression is that we stopped discussing the consequences of our views on relations because we simply assumed a new dogma, that one of external relations, which is one of the main ingredients, if not *the* one, that grounds the fragmented worldview.

But we shouldn’t accept dogmas unreflectively. What are the reasons for believing in the fragmented worldview and, in particular, for believing in external relations, the main ingredient that sustains it? To my understanding, there are three groups of reasons: (i) historical, i.e., the worldview accepts the cultural legacy of the analytical tradition; (ii) metaphysical, i.e., the worldview makes sense of things in the most general way; and (iii) empirical, i.e., the worldview is supported by scientific evidence and, ultimately, by evidence coming from our senses.

In correspondence, we have at least three groups of reasons to reject such a view: (i) If accepting a cultural legacy involves reflective acceptance and not mere prejudice, then there are no reasons to accept the analytical legacy. In particular, there are no grounds to believe that those arguments were effective against Bradley’s conception of relations. Russell’s and Moore’s arguments for external relations might well have been overestimated by the natural enthusiasm of those who start a new tradition. (ii) The ontology of external relations and self-contained plurals makes no good sense of things. When one stops to think about the implications of these types of constituents, one

cannot help to notice the force of various old puzzles that remain unsolved, puzzles that this ontology makes particularly intractable. (iii) The fragmented worldview is not supported by empirical evidence. In particular, it cannot make sense of the evidence coming from contemporary physics. All these reasons point against the indivisible package defended by the fragmented worldview: on one hand, the idea of self-contained plurals; on the other hand, the idea of external relations.

The historical reasons will be examined in ch. 2, though I have said something already. To the metaphysical reasons against relations and against self-contained plurals, I turn now (§1.4 and §1.5, respectively). In §1.6 I will discuss the empirical reasons. I hope that all these together will be enough motivation for rejecting the fragmented worldview or, at least, for considering as serious alternatives the ontologies that I will discuss later.

1.4 Metaphysical puzzles about external relations

1.4.1 *Leibniz's puzzle: Relations in the void?*

One of the main reasons against the reality of relations was offered by Leibniz in his 5th Letter to Clarke:

The ratio or proportion between two lines L and M, may be conceived three several ways; as a ratio of the greater L, to the lesser M; as a ratio of the lesser M, to the greater L; and lastly, as something abstracted from both, that is, as the ratio between L and M, without considering which is the antecedent, or which the consequent; which the subject, and which the object. And thus it is, that proportions are considered in music. In the first way of considering them, L the greater; in the second, M the lesser, is the subject of that accident, which philosophers call relation. But, which of them will be the subject, in the third way of considering them? It cannot be said that both of them, L and M together, are the subject of such an accident; for if so, we should have an accident in two subjects, with one leg in one, and the other in the other; which is contrary to the notion of accidents. Therefore we must say that this relation, in the third way of considering it, is indeed out of the subjects; but being neither a substance, nor an accident, it must be a mere ideal thing, the consideration of which is nevertheless useful. (Alexander 1956: 71)

According to Leibniz, the trouble with external relations is their locus of inherence. If they are individual accidents, then they must be treated so, i.e., as distinct individual accidents of each one of the individual relata and not as one ‘biped’ accident inhering in various individuals at once. On the other hand, when taken apart from the terms, as *external* to them, they can only be understood as creatures of reason or acts of comparison, since they cannot belong to no relata at all. As Heil suggests, if we don’t accept them as individual accidents, then anti-realist impulses naturally arise and the temptation is to locate them in the mind, as ideas entertained by an individual (Heil 2009). According to Leibniz, all relations are creatures of reason. All relations, including the spatiotemporal ones, are grounded in the existence and monadic nature of unextended souls.⁹

It is notorious how the contemporary relationalist about space-time doesn’t care about this puzzle. Leibniz’s relationalism is unproblematic because he was an idealist about the spatiotemporal order, something that the contemporary relationalist wants to avoid. But if the contemporary relationalist not only wants the spatiotemporal order to be out there, with independence of the mind, but also made up of external relations, then he has the burden of giving a response to Leibniz’s puzzle: if not in the mind, if not as monadic properties in each one of the relata, *where* do external relations inhere? He cannot say: ‘In space’! This is the substantivalist response. In sheer nothingness, then? Kant saw well the dilemma: either spatiotemporal relations are in the mind or Spinoza is right about them being attributes of the One substance.¹⁰

⁹ This passage is illustrative: ‘I do not believe that you will admit an accident which is in two subjects at the same time. My judgment about relations is that paternity in David is one thing, sonship in Solomon another, but that the relation common to both is a merely mental thing whose basis is the modification of the individuals...’ (Leibniz 1989: 609) And so is this one: ‘To be in a place is not a bare extrinsic denomination; indeed, there is no denomination so extrinsic that it does not have an intrinsic denomination as its basis. This is itself one of my important doctrines.’ (Leibniz 1989: 526–27)

¹⁰ Kant: ‘Hence, if this ideality of time and space is not adopted, nothing remains but Spinozism, in which space and time are essential attributes of the Supreme Being Himself, and the things dependent on Him (ourselves, therefore, included) are not substances, but merely accidents inhering in Him...’ (Kant 1889: 196; cf. Schaffer 2009b: 136n, 2010b: 366).

Finding a way out of Leibniz's puzzle seems to force an account of relations that treats them as *ante rem* universals, as Russell did.¹¹ This seems one way to make relations independent beings. It is, at the same time, a way to give them objective status, against the nominalistic impulses of treating them as mere creatures of reason. The problem with relations when treated as Platonic entities is that they face the classical problem: how do they interact with the real world? How do concrete individuals participate in those Platonic forms? If they are abstract, then what is going on *here*, in this world, when we say that Plato *is two feet apart from* Socrates? It seems that you need, in addition, an imperfect pale version of that Platonic form in the concrete realm, a contingent and imperfect representative of it. But then Leibniz's puzzle arises again: if there is a concrete representative of it, *where* is it inhering? To *whom* it belongs something totally external to any concrete individual? A believer in external relations faces the tension of claiming that external relations can be somehow 'concrete' and 'instantiated' while it seems very difficult to see how can an external relation be 'concrete' and 'instantiated' if it doesn't belong to the nature of any concrete individuals, that is, when, as we may say, they live wholly *outside* the relata. After all, the externality of relations does seem to entail their free-floating character, their substantial yet abstract status. And if a world is totally built by self-contained individuals standing in external relations, then it should be possible for those individuals to be recombined and for those external relations to stand, as it were, alone. But how would such a world of pure external relations look like? Would it make any sense at all?

¹¹ Russell: 'Relations, obviously, do not exist anywhere in space.' (Russell 1956b: 107) And elsewhere: 'There is no place or time where we can find the relation 'north of'. It does not exist in Edinburgh any more than in London, for it relates the two and is neutral as between them. Nor can we say that it exists at any particular time. Now everything that can be apprehended by the senses or by introspection exists at some particular time. Hence the relation 'north of' is radically different from such things. It is neither in space nor in time, neither material nor mental; yet it is something.' (Russell [1912] 1959: 98)

There is an additional problem that underlies Leibniz's suspicions against relations, which is peculiar to asymmetric relations and their converses. Take, for instance, the proposition <Plato is taller than Socrates> and its converse <Socrates is shorter than Plato>. If we were to admit the reality of relations at all, then which of the relations should have the privilege of existence? If we accept one of them, it seems arbitrary which one; if we accept both of them, then one of them seems to be redundant. After all, it seems that these relational propositions are only two different ways of expressing the very same monadic configurations: that Plato is a certain height and that Socrates is a certain height.¹²

1.4.2 *Bradley's regress: Can relations relate?*

Bradley's regress also threatens the idea of relations being numerically distinct entities that exist outside there, with independence of the terms, or, as Heil puts it, the idea of relations being 'shadowy substances' that somehow hold between the relata (Heil 2009: 315). The regress was famously deployed by Bradley in *Appearance and Reality* (1930: chs. II–III), and works as follows.¹³ If a relation (R) is a real, external, independent being, that somehow holds between two terms (*a*, *b*), then how can it be that R actually relates *a* and *b*, if R, *a*, and *b* remain all the way wholly distinct and separate beings, that is, if R does not *enter* into the nature of the terms? One may think that we need a new fresh relation, namely R', in order to really relate *a*, *b*, and R. But if this new relation is also outside the terms, somehow between them, totally independent from them, we will need again a further fresh relation, namely R'', in order to relate *a*, *b*, R, and R', and so on. Thus, 'we are hurried off into the eddy of a hopeless process, since we are forced to go on finding new relations without end' (Bradley 1930: 28). We need more

¹² The discussion about this problem still continues. See Dorr (2004), Fine (2000), MacBride (2007), and Williamson (1985).

¹³ According to Weinberg (1965: ch. 2), similar regresses can be traced in the work of some ancients and medieval philosophers that discussed the metaphysical status of relations (among them, Aristotle, Avicenna, Aquinas, and Scotus).

relations each time a new relation comes to the scene, but the moment of unity, connectedness or real relatedness never comes, since external relations are all equally impotent to achieve that goal. A well-known metaphor may express the idea underlying the regress: it is like trying to make a chain out of two loose rings by adding a third loose ring, and then a fourth one, and a fifth one, and so on. Obviously, since a mere heap of loose rings is not a chain, something completely different is required to unify those loose rings (Candlish 2007: 170). Bradley's point is precisely that external relations, just like loose rings, do not exhibit relating power.

Of course the regress does not affect only relations between particular individuals—which is the main concern of this work—but it also affects any account of predication that treats properties and particular individuals as numerically distinct entities somehow related (Bradley 1930: chs. II–III, Candlish 2007: 37–40, Hylton 1990: 48, Mander 2009: 172–73).¹⁴ So, pace the nominalistic efforts deployed by Simons (2010), the regress cannot be avoided by thinking of relations as relational tropes, since neither of these relational ‘instances’ is capable of relating better than relations understood as universals are (MacBride 2011).¹⁵ In fact, in this respect, realism and nominalism in its most salient variants are on a par, because, strictly speaking, Bradley's regress runs whenever we understand that properties/relations are numerically distinct from the things that have them, or whenever unity and complexity are understood relationally (Bradley 1935: 656, Candlish 2007: 171). Call it instantiation, or participation, or membership, or parthood, the problem is the

¹⁴ It is notorious how Bradley's regress still raises what seem to be insurmountable difficulties to those who treat properties, relations and particular individuals as numerically distinct entities somehow ‘tied’ or ‘related’ by ‘instantiation’ (see Armstrong 1997: ch. 8, 2004: ch. 4, Basile 1999: ch. 2, Vallicella 2002). As Joachim reasonably thought, relations were not a solution to the problem of the unity of the proposition, but just another name for it (Joachim 1906: 49), and this was something that Russell, like his heirs, never answered, although he, unlike his heirs, did recognise as a failure of analysis: once the unity of the proposition is destroyed, there is no copula that can bring it together again (cf. Russell [1903] 2010: §54, Gaskin 1995, and Hylton 1984).

¹⁵ Not to mention if we think of relations as sets of ordered pairs. How can a ‘set’ actually relate two existent individuals that are not sets? Via a ‘lasso’? But what kind of bondage is this one?!

same one. Bradley's point is that once the having of a property is understood as a matter that holds between two distinct entities (particular and universal, thing and form, member and set, part and whole), then we cannot but understand their unity in relational terms. But the problem is that relations neither constitute nor can explain complex unity. By adding relations we merely increase the number of constituents in need of glue and a thing remains always alienated from its properties. For Bradley, it is the other way around: from complex unity we make 'vicious abstraction' of terms and properties/relations; that is, we reject the idea that things and their properties/relations obey real distinctions: a given unity, a stupendous undivided whole, is the self-sufficient and complete explanation and ontological ground that relational and fragmentary thought attempts—in a fatally imperfect way—to express. For Bradley, '[r]elations and relational unity are intelligible only as abstractions from a more fundamental sort of unity' (Hylton 1990: 49).

Someone may think that we shouldn't worry about Bradley's regress, because it is not a vicious one. For instance, one may think that Bradley's regress is analogous to the truth regress, which, though admittedly an infinite regress, is not considered harmful at all. Thus, when the proposition $\langle p \rangle$ is true, the proposition $\langle \langle p \rangle \text{ is true} \rangle$ is true, and the proposition $\langle \langle \langle p \rangle \text{ is true} \rangle \text{ is true} \rangle$ is true, and so on, *ad infinitum*. Infinity, yes; but no viciousness seems to be involved here. If a regress is supposed to be vicious, then it must be for some additional reason to that of being infinite. Why, then, should we worry about Bradley's regress if we don't worry about the truth regress? What is the extra bit that makes Bradley's regress vicious in a way that the truth regress is not? I think the reason is that, while in the truth regress there is truth in each one of the steps, in Bradley's regress none of the steps delivers what it promises. In the case of the truth regress, the truth of the proposition $\langle \langle p \rangle \text{ is true} \rangle$ does not pretend to explain the truth of the proposition $\langle p \rangle$. If anything, it is the other way around: $\langle \langle p \rangle \text{ is true} \rangle$ is true *because* $\langle p \rangle$ is true, or so it seems. But when we ask how is it that the object *a* stands to its property *F* in a real unity, each

one of the relations that appear at each step of Bradley's regress is supposed to explain that fact. But none of them is really capable of unifying a and F , none of them puts together a and F . Because what each relation does is simply making the problem increasingly more difficult. A relation was meant to explain why the many are unified in one but all what it does is to add one more entity to the many that are still waiting to be unified. In the truth regress, there is truth at every step; in Bradley's regress, real unity of constituents is really absent at every step.

Others may think that the business of relations is precisely to relate, so relations don't need relations to do the job of relating. But someone who admits the reality and numerical distinctness of both relations and relata needs to do more than *saying* that relations relate in order to show that they really work as unifiers. After all, everything indicates that the job of an external relation—according to their own supporters—is precisely to leave the relata 'loose and separate', that is, to leave them disconnected. If there are numerically distinct relations, then how is it that they really bring together two numerically distinct relata? Where is the unity that they are supposed to provide? What makes aRb different from a mere list of numerically distinct constituents? Those who think that the business of relations is to relate need to spell out how is it that a relation is capable of doing something more than what an additional loose link does when we add it to a heap of loose links, that is, they need to spell out how does the relating power of relations is deployed, something which, as far as I can see, is far from evident. The burden of proof is on them.

Finally, just like in the case of supervenience, one might try to avoid Bradley's regress by removing instantiation (inherence, participation, parthood, membership, you name it) from the domain of absolute ontology and attempt to locate it in the domain of absolute ideology. Something like this move is what seems to be behind the allegations of those who ask us not to reify the 'having'

of a property as a real relation. For instance, Armstrong (1978a: 108–111), to avoid the threat of Bradley's regress, attempts a defence of what he understands as a 'non-relational' form of immanent realism. As a name for the doctrine, it sounds promising: if we want to block the regress that threatens any real distinction between thing and property, then we need to avoid understanding the having of a property in relational terms. But a philosopher can call any relation a 'non-relation'. We better see the philosopher's deeds. And, as far as I can see, Armstrong's deeds go against his own words. Because he wants something that is incomprehensible or impossible to achieve. On one hand, he wants a sort of realism 'which distinguishes the particularity from the properties of a particular'; on the other hand, he wants this very same realism to be involved in 'denying that the two aspects are related' (Armstrong 1978a: 109). Armstrong wants to join Strawson ([1959] 2003) in the search of a 'non-relational tie', but he prefers to avoid the word 'tie' precisely because it seems to restate a relational idea. And to illustrate what he means, Armstrong appeals to Scotus' idea of a 'formal' distinction, a distinction that is, allegedly, somehow the middle path between a 'real' or 'substantial' distinction and a 'conceptual' distinction. It is not conceptual because it is not projection, fiction or arbitrary abstraction but it belongs to things in themselves; it is not a real distinction since it doesn't pretend to distinguish two distinct things. As if this were not obscure enough, Armstrong regrets that our secular age prevents him from using the example with which Scotus used to silent his contradictors: the Holy Trinity (!), which is the paradigm of both unity and distinguishability. So he goes and uses a more secular example: the way in which the size and shape of a figure are unified (Armstrong 1978a: 110). Now, asking from us to consider how the size and the shape of a figure are unified is simply to restate the original problem once again, and the problem is as mysterious as the one Bradley saw in a lump of sugar, with its whiteness, hardness and sweetness, or the one that underlies the Holy Trinity: how can three entities be one and the same entity? If a 'non-relational' account of the idea of having a property is to

be ‘illuminated’ by examples like the Holy Trinity, I expect that the reader will agree with me that we have not made too much progress.

Something similar can be said against Lewis’ (2002) move. Lewis, like Armstrong, accepts the power of Bradley’s regress. He accepts that if we attempt to explain the ‘having’ of a property in terms of a relation, then the explanation will never succeed. Although Lewis points to the fact that if we use a relational explanation of instantiation, ‘the explanation we seek will never be finished’ (Lewis 2002: 6), this is not the worst part. As we saw, Bradley’s regress is not harmful because it involves infinity but because it shows that relational glue is not glue at all. The point is also recognised by Lewis: he wants the thing that has properties not to be ‘alienated’ from its properties. And the problem with relational and with non-relational ties (which are, apart from their names, relational through and through), is that they involve the alienation of the thing from its properties. Realising how hopeless seems to be the task of understanding instantiation, Lewis’ proposal is simply to stop reifying it (!).

But I do not think these relations can explain having *simpliciter*. Having *simpliciter* is not a relation, whatever grammar may suggest. What is it, then? I don’t know what more can be said. It is all very well to say that the copula is a ‘non-relational tie’ or that properties are ‘unsaturated’ and await completion by their bearers. These remarks at least have the merit of pointing away from the idea that having is relational. But they don’t point toward much of anything. (Lewis 2002: 6)

[I]t is all too obvious that ‘ties’ are relations in all but name. Relations in all but name will serve us no better than relations openly so-called. We can repeat Bradley’s regress . . . to show that we can never finish an attempted explanation of having *simpliciter* in terms of ties; and ties will alienate us from our properties no less than relations do. I conclude that reifying non-relational ties and giving an account of them is a thoroughly misguided thing to do. (Lewis 2002: 7)

What kind of solution is this one? Well, it is not a solution. It is one thing to say that we shouldn’t reify instantiation. It is another one (a quite different one) to solve the problem of unity, to really explain the non-alienation that is supposed to be involved in instantiation. True, without reifying instantiation Bradley’s regress doesn’t get started. But the problem of unity is still there. If

one is a realist about things and their properties and one wants real unity—that is, if one wants to avoid a sort of ‘having’ that alienates the thing from its properties—one still has the problem. Bradley’s regress pretends to stop the relational solution. The problem is that anyone who understands the having of a property/relation in terms of an entity being in a suitable relation with another entity is threatened by a version of the regress. In this respect, the realist and the nominalist solutions that understand properties and things in terms of numerically distinct entities are on a par: they all think that the having of a property is a relational matter (cf. Armstrong 1978a: 16). Thus, the regress does not affect only a realist solution that understands the having of a property in terms of *instantiation* of universals or *participation* in Platonic forms, but also the nominalist solutions that understand the having of a property as a matter of *membership*, *resemblance*, *parthood*, etc., since what are all these if not relations between numerically distinct entities? A solution that consists in accepting both properties and things as numerically distinct entities (i.e., a solution that accepts predication in terms of *real* distinctions), and, at the same time, does the honest thing of admitting that no relational glue will do the work, is not a solution to the problem of unity. It is simply another way to recognise the problem and to recognise the power of Bradley’s regress. How can we still have both predication based in real distinctions *and* real unity of these? Using again the ontology/ideology distinction, one might think that avoiding the reification of instantiation is another way of removing it from absolute ontology in order to place it in absolute ideology. But, if so, then the unity of the thing and its properties pertains also to ideology, and the thing is really alienated from its properties, just like each numerically distinct constituent is alienated from every other.

Lewis, in previous writings (e.g., Lewis 1983b: 353ff), was already recommending us not to go into predication or instantiation. But Lewis’ advice is a prudential one, not a matter of principle. Why Lewis insists in recommending us not to go there? Because it is hopeless, because it is obscure,

because we will get involved in confusion, because we cannot do ontology without some form of non-relational ‘having’, etc. This is all true, but this doesn’t mean that there is no real problem here, a problem that lies at the core of metaphysics and that haunts us since its very origins. It is prudentially wise to avoid going into instantiation (for the same reasons that it might be prudentially wise to stop doing philosophy), but this is not a categorical reason or a reason of principle for not going into it (nor for stop doing philosophy), nor a real solution to the problem.

The real dilemma that Bradley’s regress highlights is that one cannot have both real distinctions and unity of these at the same time. If one thinks that properties and the things that have them obey real distinctions (be these in terms of sets and their members, wholes and their parts, universals and particulars, etc.), then one has to account for their unity, and one cannot do this without being involved in a relational regress. One can *say* that what is needed is something non-relational. But how can one obtain such non-relational unity when one has accepted, from the very start, the numerical distinctness of the ‘that’ and the ‘what’, that is, when one has already started to account for the having of a property in terms of real distinctions? Saying that what is needed is something like a ‘non-relational’ glue, a glue like the one that makes the three persons of the Holy Trinity one and the same, is simply a covered attempt of explaining the obscure with the more obscure. Refusing to go into the mystery of instantiation is very convenient, but avoiding a problem is not the same as solving it.

I will say more about the problem of instantiation and Bradley’s conception of relations later (ch. 2). For now, we can say that Bradley’s regress gives us a second reason for supporting the denial of external relations. If relations are somehow outside the terms related, then how does it become possible for them to actually relate the terms without losing their independence and

externality? Conversely, if there is already a non-relational or substantial unity, then why should we need ‘terms’ and ‘relations’ to constitute it?

1.5 Metaphysical puzzles about self-contained plurals

1.5.1 *Infinite descent*

The truth of Humean Supervenience depends on the existence of a supervenience base as the one described by it. The problem is that the very idea of there being such a base of metaphysical atoms—call them fundamental particles, space-time points, or how you like—is a pure act of faith. It rests on two prejudices: (i) that there is or will be a final and complete physics, and (ii) that such a physics tells or will tell the whole story in terms of a fundamental microphysical, atomic, base. Yet why should anyone believe in something like a final and complete physics? And even if it we were to have something like a final and complete physics, why should anyone believe that the story to be told by it will be in terms of fundamental particles, space-time points or other atomic terms and not in terms of plena? What evidence do we have in favour of these two related assumptions? If anything, we have evidence of their failure. First, the end and completeness of physics has been announced too many times across history, and, up to now, all of those predictions have failed.¹⁶ We have no reason for expecting other than ongoing, fallible and incomplete scientific inquiry. Second, the microphysical base has eluded us permanently. What once we thought were the real atoms of nature, turned out to be molecules, which were made out of electrons, protons and neutrons. And then we found more complexity: there were quarks and leptons and what you name. Why the persistence faith, then, in a microphysical base of fundamental particles capable of grounding all being? Inductive pessimism teaches us to abandon such hope. Similar worries arise with space-time points. If unextended, then

¹⁶ Schaffer (2003) gives various examples of this failure. A recent one is compelling: ‘Stephen Hawking, in his 1979 Lucasian Lecture, predicted that theoretical physics would be complete “by the end of the century” on the basis of N=8 supergravity, a theory which is now defunct.’ (Schaffer 2003: 503)

they cannot ground extension (in fact, think of how can something occur without taking more than an instant of time or how can something have spatial extension if it is made out of points with no extension). And if extended, then each space-time point is not a point but a region that surely has spatial and temporal parts, a left half and a right half, an earlier and a later part, that lacks the simplicity of an atomic ‘building-block’ of reality, a grounding simple thing upon which everything else supervenes or out of which everything else is composed. Infinite mereological complexity threatens Humean Supervenience insofar as it deprives it of the metaphysical atoms that the base requires. It is not only that this would seem to entail mysterious infinite chains of dependence, but also that, without such atomic base, mountains, qualia and electrons would be ontologically on a par. Microphysics will enjoy no special status when compared to biology or geology. There will be no privileged base, because whichever layer you choose it will be based on some other. As Schaffer puts it, without such a fundamental level, ‘*no level is special ... because everything is macro*’ (Schaffer 2003: 512, his emphasis). This kind of reasoning is behind the so-called argument from *infinite descent* or *atomless gunk*, which Schaffer has used against pluralism and in favour of his Priority Monism (Schaffer 2007, 2010a). But the puzzle is not an invention of contemporary analytic ontology. The apparent infinite complexity of matter—with its apparent incapacity of offering metaphysical atoms—is a puzzle as old as the labyrinth of the continuum. More on this later (ch. 5).

1.5.2 Object and object: Causal influence

Imagine a magnet standing one inch far from a nail. Suddenly, the nail is attracted by the magnet and gets attached to it. It looks like magic. After all, there is a spatial gap between the magnet and the nail. It seems to be exactly an instance of what physicists have always feared: ‘spooky action-at-a-distance’. According to the general principle of *spatiotemporal locality*, common to physics and ordinary experience, causes must be spatiotemporally local to their

effects; that is, causal influence must be directly propagated from cause to effect by being the first one in *contact* with the second one, without spatiotemporal gaps. Spatiotemporal locality only tolerates ‘action by contact’ and bans ‘spooky action-at-a-distance’ for considering it intolerably mysterious. So if some cause *here* produces some effect over *there*, it can only be indirectly, through a *continuous* causal chain that *connects* them, a chain that avoids mysterious jumps and guarantees that the final effect has an indirect cause only because ultimately has a direct one. In contrast to the magnet/nail case, receiving a punch in the face seems to be a paradigmatic case of local causal influence: the fist of X is in contact with the face of Y when the punching occurs. Lange illustrates the difference between ‘action by contact’ and ‘action-at-a-distance’ clearly: while it seems quite straightforward to understand why a dog barks *here*, after someone steps on its tail *there*, we are quite clueless when we try to understand why a shortwave radio receiver *here* gets the message transmitted by a radio transmitter *there*. After all, the dog is a single and connected dog, while the radios are two separate things that work *wireless*, as if pure magic were filling in the gap (Lange 2002: 1–3).¹⁷

Are the cases of the magnet and the punch that different? I don’t think so. In fact, I think they are metaphysically on a par. Much of this depends on what do we mean by the family of concepts ‘contact’, ‘continuous’, ‘chain’, and on our understanding of space and time as dense continua. Let’s illustrate the resemblance of the cases by first trying to explain away the mystery of the magnet. How can we do this? According to the principle of locality, only if we fill in the gap. So, if we were told that there is a real field of energy that literally fills the gap between the magnet and the nail, the interaction will look less magical. Because a field is wholly spread through space, and a change in the field propagates just like a wave in the sea. If the field is real, then the case of the magnet looks more like the punch in the face. Has the mystery being

¹⁷ The treatment of spatiotemporal locality and ‘action by contact’ vs. ‘action-at-a-distance’ that I offer in this sub-section follows the insightful treatment of Lange (2002: ch. 1). For the problems of boundaries, contact and continuity, I have also rested on Varzi (1997).

dissolved? It doesn't seem so. After all, aren't the magnet and the field and the nail, just like fist and face, wholly distinct concrete individuals that don't share any point of their boundaries? If they don't share any point of their boundaries, then how is it that the magnet is *in contact* with the field and the field *in contact* with the nail? Or how is it, in the first place, that the fist *touches* the face? They both seem to differ from the case of the dog. The dilemma is the following. First horn: for two wholly distinct individuals being in contact, there must be no spatiotemporal gap separating them. They must touch. Yet how can they touch without sharing a point of their boundaries? And how can they share a point of their boundaries without ceasing to be wholly distinct? Second horn: for the individuals remaining wholly distinct, then they must share no point. Yet, if space-time is a dense continuum, then how can they remain wholly distinct without leaving a spatiotemporal gap between them? What is crucial is that in a dense space-time there is no way in which individuals can make contact 'by occupying *neighboring* points since there are no neighboring points; between any two points there are infinitely many others' (Lange 2002: 7, his emphasis). If the two individuals don't share at least one point of their boundaries, then they are discrete and leave a spatiotemporal gap between them. And how can they be discrete and leave a gap, without influence between them being propagated as 'spooky action-at-a-distance'? We are worst than at the beginning. Now it seems that we are in front of two cases of 'spooky action-at-a-distance'.¹⁸

If we were subsequently told that, in real terms, there is nothing like the magnet and the nail, or the fist and the face, but only more or less stable patterns in a continuous, gapless, field of energy, the mystery is again removed: now there is a real connection, it is the single extended field in itself who does

¹⁸ In the same spirit, Kline and Matheson have argued that it is impossible for two wholly distinct objects to make contact in a spatial continuum. Their argument is as simple as beautiful: '(1) A collision between two bodies involves their touching. (2) If two bodies are touching, then they either occupy adjacent points in space or they spatially overlap. (3) Space is continuous. (4) No two bodies ever occupy adjacent points in space. (Since space is continuous, no spatial point is ever adjacent to another spatial point.) (5) It is impossible that two material bodies should spatially overlap. (6) Therefore, no two bodies ever touch. (7) Therefore, no two bodies ever collide.' (Kline and Matheson 1987: 509–10)

the job, just like Lange's dog. The so-called ordinary objects are ripples or waves in a continuous sea of energy. Good, but this is important to be noticed: a field of energy, thus understood, is a substantial connection, not a relation. The 'chain' metaphor is misleading, since it suggests discrete links somehow related; the image of a single rope (or a single dog) is more accurate: pull one of its extremes and you will see how influence is propagated from one extreme to the other without mediating any relation.

However, if we are told that the continuous field must be understood in terms of a spatiotemporal arrangement of point-like individuals, each of them wholly distinct and independent from the others, standing in *external relations* to the others, we are again at the beginning, where nature seems to be discrete and influence seems to be propagated through mysterious jumps from one point to another. This is, in fact, the reductive way in which continuity is understood by the fragmented worldview, i.e., as 'composed' by, and 'decomposable' into, a non-denumerable infinity of distinct points. This way of understanding continuity is heir of the 'arithmetic tradition', obsessed with the project of analysing the continuum into discrete notions. The uncomfortable result is that the most trivial propagation of influence seems to be a case of 'spooky action-at-a-distance'. The ontology of self-contained plurals standing in external relations is the very denial of causal influence and continuity. In it, nature appears as broken into discrete and causally isolated pieces.

I don't think that we can make sense of the gapless propagation of influence unless pluralism and the fragmentary way of thinking that animates it are overcome. As I will argue in ch. 3, the main reason why contemporary anti-Humeans fail in making sense of causal influence is that they assume a pluralistic framework and then try to fix it at the level of properties. These attempts are contaminated with a relational and fragmentary understanding of causal phenomena. It is my impression that once a pluralistic framework is assumed, then no 'cement of the universe' can do the trick. In particular, no

‘relational’ cement. In ch. 6, I attempt to overcome the discrete understanding of the continuum by defending a non-reductive and monistic account of it.

1.5.3 *Subject and object: Epistemic access to things-in-themselves*

If it is true that the world is just one little thing and then another, and those things have intrinsic natures and stand to each other in external relations, then each of those things is a thing-in-itself. If so, then we face Kant’s gap: how can we have epistemic access to them?

Frank Jackson sees the problem:

When physicists tell us about the properties they take to be fundamental, they tell us what these properties *do*. This is no accident. We know about what things are like essentially through the way they impinge on us and our measuring instruments. It does not follow from this that the fundamental properties of current physics, or of ‘completed’ physics, are causal cum relational ones. It may be that our terms for the fundamental properties pick out the properties they do via the causal relations the properties enter into, but that at least some of the properties so picked out are intrinsic. They have, as we might put it, relational names but intrinsic essences. However, it does suggest the possibility that (i) there are two quite different intrinsic properties, *P* and *P**, which are exactly alike in the causal relations they enter into, (ii) sometimes one is possessed and sometimes the other, and (iii) we mistakenly think that there is just one property because the difference does not make a difference (as the point is put in information theory). An obvious extension of this possibility leads to the uncomfortable idea that we may know next to nothing about the intrinsic nature of the world. We know only its causal cum relational nature. (Jackson 1998: 23–24, his emphasis)

Jackson talks about the nature of properties. But this talk applies to their bearers. If properties are intrinsic, then the individuals that have them have intrinsic natures. They are things-in-themselves. Jackson, like many others (e.g., Blackburn 1990, Esfeld 2004, Psillos 1995), takes the content of the empirical predicates and theoretical terms used by science to be purely functional or relational. Jackson’s argument applies to all empirical predicates, so empirical knowledge is only another instance of it, though a crucial one: we know about the nature of things ‘through the way they impinge on us and our measuring instruments’.

The dilemma we face is this one: either individuals have intrinsic natures or they don't. If they do, then 'Kantian humility' (Langton 1998) orders us to recognise that we may know 'next to nothing' about them. If they don't, then how they relate to each other is all what we know (through how they relate to us), because finally that is all what there is to them.

Thus, the possibility of radical ignorance can be taken either as a reason for epistemic humility or as a reason to abandon the metaphysics of isolated intrinsic natures. What it seems inconsistent is to defend Kantian humility and the ontology of Humean Supervenience at the same time. If Kantian humility is correct, then Humean Supervenience is ontology going wild while our epistemic faculties are on vacation. Lewis' mistake is Kant's: positing a noumenal world while admitting that there is no epistemic access to it. On the other hand, if all what science tells us about things-in-themselves is how they relate to each other (through how they relate to us), then this is a good reason for believing that this is all what there is to them. We avoid positing epistemically inaccessible natures. Sounds like verificationism. But philosophers that are fond of causal relations and dispositions, usually reject intrinsic properties combining epistemic and ontological considerations precisely on these lines: (i) properties whose nature is intrinsic threaten us with radical ignorance about them, and (ii) properties whose nature is intrinsic involve an implausible divorce between their nature and their causal role (Bird 2007: §4.2, Black 2000, Dipert 1997, Esfeld 2004: §4, Ladyman and Ross 2007: §§2.4.1 and 3.4, Mumford 2004: §§6.10, 9.5, 10.6 and 11.3, Shoemaker 2003: 214–19).

But is the relational path a good one? While I do think that a metaphysics of isolated things-in-themselves is threatened by Kant's gap, it is doubtful that the move towards relational natures solves it. After all, relations seem to be as mysterious as things-in-themselves. Because if all that a thinking subject

comes to know about the world are the effects of it on him, then he only knows, as we can put it, one extreme of the relation. Thus, knowledge of the *effects* of things is neither knowledge of *causes* nor of the *relation* (causation, perception, or the like) itself. The point of Kant's gap is precisely how can a thinking subject know something wholly distinct from him, something that is outside him, something that transcends him. The puzzle is not dissolved by saying that things are relationally constituted and so are subject and object, which live somehow *related*, because every relational account of things and of subject and object, of mind and world (whether through *direct* or *indirect* relations), accepts an ontological gap insofar as any relation presupposes at least two distinct individual terms. When we say that two things are related we admit that they are distinct, so we need to show how can relations close that gap. Answering that the gap gets closed 'by relating the two terms' is not a solution but simply another way of stating the problem. Recall that it is the very relating power of relations what is under scrutiny here.

I will criticise relational accounts of objects, properties, causation and *doings* (chs. 3 and 4), and show their failures and obscurities. In ch. 6 I will end up embracing the identification of subject and object of experience as the only real solution to Kant's gap, since it transcends both pluralism of things-in-themselves and relationally constituted things. Subject of experience and object of experience are better seen as a single non-relational ONE. The only real solution to an ontological gap is the admission of some form of non-relational, more substantial, form of unity.

1.6 The ultimate challenge against fragmentation: Non-separability

If you ask to a fan of the fragmented worldview why he supports it, he will probably answer: 'because it is consistent with our best physics'. Very likely, he will be unmoved by the metaphysical puzzles previously discussed. Under his conception, our best physics explains the constitution and evolution of the

world in terms of tiny self-contained individuals and external relations. Thus, he thinks he honours the basic meta-ontological commitments within which the Armstrong-Lewis program attempts to make sense of things, namely, naturalism, physicalism, and scientific realism (Armstrong 1997: ch. 1, Lewis 1986b: xi).

However, if we are to believe the reports of those who have good understanding of contemporary physics, one conclusion appears as uncontroversial: ‘our best physics’ simply does not support the fragmented worldview of Humean Supervenience. Quite the opposite, the world that describes our best physics is an entangled, non-separable, or undivided world. Persisting on the contrary is empirically unmotivated and dogmatic: it looks as metaphysics arbitrarily imposing an ontological inventory on scientific inquiry. Entanglement is in fact the most fundamental feature revealed by quantum physics (Schrödinger 1935: 555), and the non-separability of quantum entangled states reveals that an irreducible form of ontological holism must be accepted to make sense of it (Bohm [1980] 2002, Bohm and Hiley 1993, Esfeld 1998, 2001, 2004, Healey 1991, Schaffer 2010a, Teller 1986). Crucially, entanglement appears to be not an exceptional feature of the world, restricted to a tiny region where weird things happen, but a pervasive one, which ultimately involves the whole world.

Non-separability is clearly exemplified by the famous Einstein-Podolsky-Rosen (EPR) experiment. In this experiment two electrons are produced in an entangled state, the Singlet state. A pair of electrons in this state is always anti-correlated with respect to spin, i.e., if one of them is ‘spin-down’, then the other one is ‘spin-up’, while the total spin-value of the entangled state is always 0. A pure spin state cannot be attributed to the particles individually but only to the entangled system as a whole. Measurement outcomes of the entangled particles are subject to the following distribution of probabilities: there is a 0.5 chance of particle 1 having ‘spin-down’ and particle 2 having

‘spin-up’, and a 0.5 chance of particle 1 having ‘spin-up’ and particle 2 having ‘spin-down’. But the chances of measuring out both particles as having ‘spin-up’ or both as having ‘spin-down’ are 0. If one of the particles is measured as having ‘spin-up’, the spin state of the other one is fixed immediately as ‘spin-down’, and vice-versa. Importantly, this correlation obtains regardless the distance that holds between the particles (in fact, the position of the particles is unlocalised). The components behave as one single, non-separable, unit; and since the correlation obtains regardless the distance between the components, it seems to be magical, like ‘spooky action-at-a-distance’.¹⁹

This anti-correlation cannot be explained in terms of the intrinsic natures of the components of the entangled state plus their spatiotemporal arrangement. The reason is obvious: if Humean Supervenience were true, it would be possible to obtain a measurement of both particles having ‘spin-up’ or both having ‘spin-down’. But the chances of that are 0. The entangled state contains information that cannot be explained in terms of the information of the intrinsic state of its components and their spatiotemporal arrangement. The loose and separate base of Humean Supervenience is simply incapable of fixing all the facts.²⁰

What the EPR experiment reveals is a pervasive feature. Because what is said about spin applies equally to other properties, like momentum and—this is crucial—to position (Esfeld 2004: §2.1). Ultimately, as Esfeld puts it:

These properties of the whole contain *all* that can be said about the local properties of the parts, and *only* these properties of the whole contain all that can be said about the local properties of the parts. (Esfeld 2001: 252, quoted also in Schaffer 2010a: 52)

¹⁹ This is a rough summary of the EPR experiment, close to the one offered by Schaffer (2010a: 51–52). For more detailed explanations of it and of entangled states in general, see Maudlin (2007: 53–64) and Esfeld (2004).

²⁰ Regardless the different ontologies that might be offered to make sense of entanglement, the negative diagnosis against Humean Supervenience is fairly uncontroversial. See specially Maudlin (2007: ch. 2). In similar vein, Esfeld (2004), Healey (1991), Ladyman and Ross (2007: 149–51), Schaffer (2010a: 50–57), and Teller (1986).

And what is said about an entangled state ultimately can be extended, without many difficulties, to the whole world, as Schaffer has argued: if the world started with a singularity, like the Big-Bang, where everything was entangled, and then has been evolving according to Schrödinger's equation, then the world is one vast entangled system. In fact, since Schrödinger's form of evolution not only preserves but also promotes entanglements, the idea of a vast entangled system is plausible even if that singularity never existed (Schaffer 2010b: 52). Anyway, whichever is the cosmological story, the idea that the world forms a vast entangled system seems to be the assumption under which physics actually works: it treats all physical systems as entangled. Ultimately, only the totality of entangled systems as a whole has a pure state (Esfeld 2001: 258). And if there were an oddity to explain, it would not be entanglement, but non-entanglement (Esfeld 2004: §2.1). In other words, only the whole entangled cosmos exhibits an independent or unconditioned nature; all of its fragments are interdependent and lack self-sufficiency—including observers and measurement instruments. Every subsystem, when taken in isolation, is not an independent and self-contained 'building-block' with an intrinsic nature, but a more or less valid abstraction from the entangled whole in which it is actually embedded.

One might try to make sense of entanglement within a pluralistic framework, by retaining particles and introducing a peculiar type of relations. Teller calls them 'inherent relations' (Teller 1986: 73). These relations are not captured by the contemporary dichotomy internal/external (§1.2). Like external relations, they can be seen as non-supervenient on the intrinsic nature of the relata, not even on the relata taken together with their spatiotemporal relations. If anything, it is the other way around: the relata have the nature they have—even the position they have—in virtue of being so related. Thus, unlike external relations, they play a constitutive role—and this puts them closer to internal relations, insofar as these make oblique reference to the

natures of the relata. This way of understanding relations was in fact one of the important senses in which *internal* relations were understood during the rise of analysis (in fact, this was Moore's understanding, as I said in §1.3 and as I will explore in more detail in ch. 2). The idea of a relationally constituted pluralism is defended by Esfeld (2004) and Teller (1986) for explaining entanglement. It receives a general support in the ontology defended by Dispositional Essentialism, according to which, roughly, the nature of properties is relationally determined. I will discuss the idea of internally constituted plurals in ch. 3, and reject it due to its internal difficulties, in particular due to the unstable character of 'inherent relations': these seem to affirm and deny at the very same time the individuality of the relata, as Bradley used to argue. But, apart from internal difficulties, there is another reason to abandon the pluralistic framework: it is very dubious that there is any coherent way of making sense of these 'particles', the relata of those 'inherent relations'. Because there may be no qualitative way to individuate them, apart from positing a superfluous transcendental haecceity (Ladyman and Ross 2007: 152n, van Fraassen 2006: 290–91), and, at least in Relativistic Quantum Field Theory, even their number is undetermined (Halvorson and Clifton 2002, Schaffer 2010a: 54). These reasons offer a motive for abandoning particularism altogether and for embracing a wholly different ontology. Among these are those who embrace an ontology of pure relational structure. Here, the so-called 'particles' are mere pragmatic posits, ultimately nothing but more or less stable patterns in a structure which is relations through and through. This view will be discussed and rejected in ch. 4. For others, this whole mess speaks in favour of an ontology of pure fields. In fact, in Relativistic Quantum Field Theory there is no real support for particle-talk. A 'particle' is also a pragmatic posit, a convenient abstraction from a sea of energy. Just like in General Relativity, the idea of all-pervading fields seems to speak in favour of a monistic metaphysics. In chs. 5–6 I will try to make sense of the monistic alternatives. Due to internal difficulties of

Priority Monism (ch. 5), I will be forced to embrace a stronger version of monism, namely Existence Monism (ch. 6).

1.7 What follows?

I hope to have offered good reasons against the fragmented worldview and its main ingredients. I do not expect them to be conclusive reasons, but good enough to motivate suspicions against it and to motivate the exploration of alternatives. Yet, if the ontology of externally related and self-contained plurals cannot make good sense of reality, what sort of ontology can?

I think it can only be one that combines foundationism and holism. On one hand, the classical difficulties about relations call for either monadic or monistic foundationism. On the other hand, the old difficulties of self-contained plurals and the ultimate challenge of quantum entanglement call for a holistic ontology. I see three general holistic alternatives: (i) pluralism of interdependent individuals; (ii) structural realism without individuals; and (iii) a more substantial form of holism, i.e., monism. Of these three alternatives only (i) and (iii) can, in principle, offer non-relational foundations for relations. In contrast, alternative (ii) is relations through and through (although not external, but constitutive).

In what follows I will argue for a non-relational monism as the most coherent and stable ontology. The argument is limited in its scope: non-relational monism appears as the best alternative when compared to the other ontologies that will be examined here as alternatives to the fragmented worldview. And the argument is basically negative and operates by default: the other alternatives examined here are too problematic.

Before the assessment, I will revisit Russell's and Moore's arguments for external relations, show their failure, and vindicate Bradley's skeptical

conception of relations, the one that inspires this work. This re-examination will liberate us from some prejudices and will restore our confidence in monistic and monadic foundationism (ch. 2). Then I will examine the holistic alternatives following a progressive path, starting with the one that preserves more of the fragmented worldview and ending with the one which is its exact opposite. Thus, I will critically examine Dispositional Essentialism (ch. 3), Ontic Structural Realism (ch. 4), and Priority Monism (ch. 5). Due to the problems exhibited by these intermediate alternatives, I will be forced to fall into Existence Monism (ch. 6), where the everyday talk about things-in-relations makes no real sense, though it might be accepted as a pragmatic tool. Echoing Bradley, I describe this individual as a non-relational ONE. Compared to the other holistic candidates examined here, a serious form of monism appears to be the best alternative. Not only seems consistent and well-supported by empirical and speculative reasons, but it also avoids, like no other ontology, the classical puzzles of pluralism and relations, and the challenge of non-separability. But, again, I will offer no conclusive reasons: I will exhibit its relative superiority and provide what I prefer to call ‘signs’ or ‘symptoms’ of its tenability. However, I retain reservations about my own preferred alternative. Yet my doubts make evident that the problem is not with Existence Monism itself, but with ontology in more general terms. I will leave the Epilogue to expose these doubts, offering a skeptical and open end to this work.

2 Revisiting the dogma of internal relations

As I said in the previous chapter (§1.3), before the rise of the analytic tradition, relations were not taken with ontological seriousness. Monadic or monistic foundationism was the rule: something non-relational was thought to ground relational discourse. Ultimately, relations were thought to be nothing over and above monadic or monistic ways of being, or ideas entertained by one thinking subject. One of the most important steps in shaping the analytic tradition was precisely the rejection of foundationist treatments of relations and the parallel defence of external relations as serious ontological items. The arguments that Russell and Moore deployed against the so-called ‘dogma’ or ‘axiom’ of internal relations were thought to be an essential step for building a new logic and metaphysics, committed to realism (i.e., to the independence of object from subject), to pluralism (i.e., to the independence of object from object, constituent from constituent), and to the atomistic analysis of complexity as the right path to truth and reality.

In this chapter I will discuss Russell’s and Moore’s arguments against the dogma of internal relations and vindicate Bradley’s stance. In §2.1 I will discuss Russell’s arguments and show how they fail. In §2.2 I will do the same with Moore’s. In §2.3 I will vindicate Bradley’s position. Finally, in §2.4, I will conclude by distinguishing three different understandings of internal relatedness that are relevant to what follows in the next chapters, including the Bradleyan understanding that guides my critical approach.

2.1 Russell against the dogma

Russell claimed that ‘[t]he fundamental doctrine in the realistic position . . . is the doctrine that relations are “external”’, meaning by this that ‘relatedness does not imply any corresponding complexity in the *relata*’ and that ‘any given

entity is a constituent of many different complexes' (Russell 1911: 158). This idea was supposed to be the exact opposite of the dogma of internal relations, which, according to Russell, says that '[e]very relation is grounded in the natures of the related terms' (Russell 1907: 37; see also Russell 1910: 162). Russell took the dogma as saying that, strictly speaking, there are no relations, since they are always reducible to the complex natures of the relata. Once you have the relata, you have the relation. Russell's sense of internal relatedness seems to be the sense that Leibniz had in mind when he treated all individual accidents as monadic and intrinsic, and claimed that relations were 'a mere ideal thing' (§1.4.1). Sprigge—I assume following Leibniz—puts this sense of internal relatedness under the label of 'ideal relations' (Sprigge 1979, 1983: 180–87). It seems also the sense in which Armstrong (1997: 87–90) and Lewis (1986: 61–62) understand internal relations, that is, as 'supervenient' on the nature of the relata, where 'supervenient' represents no addition of being. Whether the relata are two or more complex terms, as in monadism, or only one complex term, as in monism, in both cases there are no relational differences without non-relational differences.

No one denies—not even the monist—that relational discourse is convenient to our descriptive machinery. The point under discussion is whether that discourse expresses real or essential distinctions. Our everyday talk is plagued with this type of utterances: Mexico is warmer than Alaska, yellow is lighter than red, Sally and Paul have the same mass and they are three feet apart, etc. All of them say that some terms are so and forth related. But is there really something like the relation of *being taller than*? Russell famously defended the affirmative answer, and he did so with particular force in the early stage of his career, after breaking up with idealism. He was convinced that relations do exist outside the mind, and that they are not grounded in the nature of the relata, that is, that they are real addition of being. Since his arguments were developed in detail in his *Principles of Mathematics* (Russell [1903] 2010: ch.

26), I will examine them as stated there, although he repeats them in other places (e.g., Russell 1910, 1956c: Lecture III, 1959: 54–64).

2.1.1 *Asymmetrical relations*

Russell starts his attack on the dogma of internal relations by distinguishing between monadism and monism and by saying how these two doctrines attempt to deal with relations:

Given, say, the proposition aRb , where R is some relation, the monadistic view will analyse this into two propositions, which we may call ar_1 and br_2 , which give to a and b respectively adjectives supposed to be together equivalent to R . The monistic view, on the contrary, regards the relation as a property of the whole composed of a and b , and as thus equivalent to a proposition which we may denote by $(ab)r$. Of these views, the first is represented by Leibniz and (on the whole) by Lotze, the second by Spinoza and Mr Bradley. (Russell [1903] 2010: 223–24)

Russell's first general argument tries to show that neither monadism nor monism are capable of giving a good account of asymmetrical relations. A relation xRy is *asymmetrical* iff xRy excludes yRx . Russell claims that the relation x *being greater than* y , and in general all asymmetrical relations, bring with them certain order, and they cannot be reduced to the monadic natures of each of the terms (monadism) or to the nature of a single complex term (monism). When we try to do so, order is supposed to be lost.

(i) *Against monadism.* The monadic strategy, as construed by Russell, says that the relation x *is greater than* y is grounded in the monadic natures of x and y . According to him, in the first place, monadism cannot appeal to relational properties like *being greater than* y or *being smaller than* x to ground such a relation, mainly because the sense in which monadism understands that a property of y 'involves some reference' to x is, for Russell, simply 'unintelligible' (Russell [1903] 2010: 224). What Russell takes as plain and clear is that properties, like that of *being smaller than* x , are complexes which consist in a term, x , and a relation, that of *being smaller than*. His point

assumes, rather than proves, that a Leibnizian pluralism is untenable, because he takes as obvious that properties of relational appearance are analysable complexes that hold in virtue of relations and terms, but not the other way around (cf. §1.2).

In the second place, Russell's objection says that the monadic strategy cannot work if it takes the monadic property of x as only *being smaller than*, leaving open the other term, since x is *smaller than* with respect to y , but it can also be *greater than* with respect to z . So, leaving aside these two alternatives, it seems that the best case that the monadic strategy can build is to claim that the relation x *being greater than* y is grounded in the precise magnitudes of x and y , say $20m^2$ and $10m^2$, respectively. Russell's main point is that this final monadic attempt of reduction is condemned to failure and to the ultimate recognition that relations cannot be avoided. His argument takes the form of a regress: if the monadist says that the foundations for the relation x *being greater than* y are x 's and y 's respective magnitudes, that is, $20m^2$ and $10m^2$, then why is he allowed to say that $20m^2$ is a *greater* magnitude than $10m^2$? Russell's response: because those magnitudes stand in the relation of *being greater than* already. It is the asymmetrical relation of order that holds between those very magnitudes what is instantiated by x and y . A relation seems to appear inevitably at every step of the analysis of asymmetrical relations. So, Russell concludes, relations should be recognised as an irreducible category (Russell [1903] 2010: §214).

Surprisingly, this last move made by Russell puts him closer to a structuralist (cf. §2.4, ch. 4). The structuralist says that the nature of a term is exhausted by its relations to other terms. Russell's argument for the existence of asymmetrical relations is assuming precisely that there is nothing in the nature of a number to account for its greater or lesser value than its relations to other numbers. Thus, the nature of a number is relational. Compare with the characterisation of mathematical structuralism stated by Shapiro:

The structuralist vigorously rejects any sort of ontological independence among the natural numbers. The essence of a natural number is its relations to other numbers. . . . The number 2 is no more and no less than the second position in the natural number structure; and 6 is the sixth position. Neither of them has any independence from the structure in which they are positions, and as positions in this structure, neither number is independent of the other. (Shapiro 2000: 258)

In other words, number 2 cannot be or be conceived without all the other natural numbers, since its nature is constituted by its relations towards them, and vice-versa. The ontology of this picture seems difficult to grasp outside the realm of mathematics. In fact, it is an ontology that ultimately must be rejected for reasons that I will explore later (chs. 3–4). However, it is still easy to see that, ironically, the relations that the structuralist posits seem to be *internal* in at least one of the senses of the dogma. Although here we don't find reduction of relations to monadic or monistic natures, the relations of the structuralist are, pace Russell, not external and contingent addition of being, but *internal*, insofar as they are *essential* to the relata, and this, as we will see, matches perfectly with Moore's understanding of the dogma (§§2.2, 2.4). The structure actually forms an interdependent or organic whole similar to some monistic pictures, where everything owes its place in the whole to the whole itself. Only that this whole is not *thingy* but *structural*. The relational nature of every term ultimately compromises the whole structure in which it is embedded: outside the relational whole, the term couldn't exist or be what it is. Only the whole structure has the unconditioned properties of being well ordered and internally rich or complex.

To escape from this relational holism one has to reject the last step of Russell's argument and reconsider the monadic strategy, where order and difference in quantity is grounded in something non-relational. The monadic solution in fact can avoid the last step of Russell's argument, which seems to add relations where there was no need for them in the first place. As Campbell argues, if God creates x and y with their monadic properties (their respective sizes), his job is done: the relation x is *greater than* y holds without need of adding an

extra entity, namely the relation *being greater than* (Campbell 1990: 103–4). Russell's regress seems harmful only if one tries to eliminate relational discourse. But when one is skeptical about Russell's arguments for relations and holds that relations are grounded in the nature of the terms, one is only claiming that relations are no addition of being, i.e., that there are no relational differences without non-relational differences. Whether relational discourse is eliminable or reducible to subject-predicate discourse is a different story.

(ii) *Against monism*. A second form of the argument based on asymmetrical relations tries to show that the monistic strategy also fails. According to Russell's reconstruction, the monistic strategy says that the relation *x is greater than y*, attributes diversity of magnitude to a whole composed by *x* and *y*. What is wrong with this strategy? Russell claims that the monistic strategy, just like monadism, fails to give an account of order. He claims that the asymmetry of the relation and a correct account of order is missing. By treating *x* and *y* as a whole that has difference of magnitude, the monistic strategy cannot express the difference between the relation *x is greater than y* and the relation *y is greater than x*, since these relations are both reduced to difference of magnitude within the whole *xy*; but then the different asymmetrical order expressed by each of those propositions is collapsed into one proposition where the direction of those different relations is lost. Or so he argues (Russell [1903] 2010: §215).

This second argument seems sound, but only because it oversimplifies monism. The monist can still preserve order by saying that what Russell treats as one and the same property, namely *difference of magnitude in xy* and *difference of magnitude in yx*, are really different properties of different objects. As it has been pointed out by Campbell, what is really happening here is that, for the monist, *xy* and *yx* are different wholes (Campbell 1990: 106), while Russell's error is precisely to take *xy* and *yx* as if they were identical. But this is because Russell basically takes the monist as endorsing a pluralistic account of

wholeness, like the one offered by the mereologist, which rests, evidently, on a pluralistic understanding of composites. But the monist always takes the word ‘whole’ in a more metaphorical sense, as comprising a more organic form of unity, and not as the ‘composite’ made of loose and separate ‘parts’ that the mereologist has in mind. For the monist, xy and yx are obviously distinct wholes; each of them is a distinct object; only their grammatical labels give the illusion of plurality. While xy has a certain complex distribution of a certain magnitude (i.e., Reality is $20m^2-10m^2$ -ish), yx exhibits the opposite complex distribution (i.e., Reality is $10m^2-20m^2$ -ish).²¹ As Bradley puts it:

[W]hen it is objected against me as a Monist that all that I as such have a right to is the terms and the whole, while the order or direction is in neither—my answer is that *no* whole is really a simple whole, and in every whole are always conditions unexpressed and that in these conditions falls the difference required here, and here is the reason why ARB and BRA are incompatible... (Bradley 1935: 672, his emphasis)

The deepest disagreement between a pluralist like Russell and a monist like Bradley can be better expressed in linguistic fashion, as it has been done by Sprigge (1979). While the former thinks that there are logically proper names, the latter denies that. Indeed, ‘it is of the essence of monism to deny that there can be logically proper names’ (Sprigge 1979: 153). For the monist, a proposition like <the cat is on the mat> characterises a total organic situation where the cat and the mat figure as embedded, in a way that they are only ‘cat’ and ‘mat’ after being abstracted from that total organic situation. The proposition does not stand merely for two logical atoms and something like ‘being on’. When ‘cat’ and ‘mat’ are not logically proper names, then the proposition <the cat is on the mat> is very different from the proposition <the mat is on the cat>, since both attempt to describe two different total situations. So there is no point in making a difference between < a being on b > and < b being on a > if a and b have no other difference than that of one being on the

²¹ Thus, the monist might try to account for the qualitative complexity of the world by appealing to *distributional properties* (e.g., being polka-dotted). See Schaffer (2010a), who follows the account of distributional properties developed by Parsons (2004). In similar sense, Cornell (2013), who uses distributional properties to rescue monism from Sider’s suspicions (Sider 2007, 2008).

other. The asymmetry that so much worries Russell is correctly expressed by his external relations and their direction, but the need for them only arises when we treat the relata as bare terms being fully abstracted from the rich whole in which they are embedded. What a monist like Bradley denies is precisely that a proposition of the form aRb implies nothing but two referents devoid of all nature, and a direction from one referent to the other, since ‘in order to be related, a term must keep still within itself enough character to make it, in short, itself and not anything diverse’ (Bradley 1935: 634). In sum, Russell’s need for relations arises from his impoverished understanding of what counts as ‘term’. And this is not surprising: our views on what may count as a relation are determined by our views on what may count as a relatum, and vice-versa.

2.1.2 *Resemblance and difference*

If qualitative and quantitative difference seem to be clearly supervenient on monadic or monistic natures, what about the relation of *being different from*? According to Russell, foundationist strategies fail because they have to recognise that at least the relation of difference exists (Russell [1903] 2010: §425, 1910: 163). The same holds for resemblance. In order that three yellow birds get to resemble each other—Russell thinks—it is not enough the yellowness of each bird, but also the relation of resemblance holding between those patches of yellow. Moreover, the case of resemblance is, for Russell, not only a compelling case for relations, but also one of the most compelling arguments for the existence of universals. Because if we have to admit the universal relation of resemblance then there is no more a general objection against universals (Russell [1912] 1959: 96–97, 1956b: 111–12).

The answer to Russell’s objection is that both resemblance and difference seem again to be obviously supervenient, since they will hold regardless the existence of a relation (Campbell 1990: 106). If you have three yellow birds,

you don't need something extra to ground the fact that they resemble in colour. Given their existence, why would you need the relation of resemblance for grounding their colour-likeness? What difference would it make? Three birds differ or resemble in colour in virtue of their monadic natures, i.e., their respective colours; and two colours differ or resemble in virtue of being the colours they are (Sprigge 1979: 162). And if objects are what they are in virtue of their monadic natures, then they differ or resemble each other just in virtue of being what they are. No relation of resemblance or difference is needed in addition.

2.1.3 *Instantiation*

Russell's ultimate argument for the existence of relations is directed against what he takes to be a common commitment of both monism and monadism. Russell thinks that even if the reduction of relations to the nature of terms were successful, there remains at least one relation that both monadism and monism must admit since it cannot be reduced or eliminated, namely the relation that holds between an individual object and its nature/properties (Russell [1903] 2010: §216, 1910: 167–68). The question can be put in the form of a dilemma: either an object is distinct from its nature/properties or is identical with it/them. If they are distinct, then a relation between them must be admitted. And if they are identical, then

.... it seems impossible to understand what we mean when we ask whether S has the predicate P. For this cannot be: "Is P one of the predicates enumerated in explaining what we mean by S?" and it is hard to see what else, on the view in question, it could mean. (Russell 1910: 167)

So, the argument ends, both monadism and monism must accept at least the relation of instantiation. And if we must accept this relation, then there is no principled objection for not accepting other relations.

This argument has at least two central weaknesses. First, it takes the bond of instantiation as if it were an evident kind of relation. But this is very hard to swallow. How an object stands to its nature/properties is, without exaggeration, one of the most intriguing metaphysical puzzles, and has been haunting us since Plato. Thinking that a ‘relation’ solves the mystery straightforwardly is, to say the least, superficial. This was precisely the point of Bradley’s regress: if instantiation is a relation between an object and its nature/properties (let’s call it R), then it seems that an endless number of relations is waiting for us, since R also needs to be instantiated. What is worst, neither an infinite number of relations will be able to bring into any sort of *unity* what are admitted from the very start as loose and separate constituents. And besides Bradley’s regress, at least the following doubts arise: is it possible, or at least conceivable, the existence of bare objects, on one hand, and numerically distinct properties, on the other hand? If yes, where are these two kinds of constituents, how can we have epistemic access to them, and how do they form genuine units? If not, then it seems that, necessarily, whenever there is an object, this has a determinate nature/properties, and, thereby, their unity cannot be accounted in terms of those loose and separate relations whose reality Russell was so interested to prove. Perhaps this is the main reason why so many authors leave instantiation as a primitive, or prefer to account for it in terms of an ‘internal relation’ or a ‘non-relational tie’ (Armstrong 1997: §8.11, Simons 2010, Strawson [1959] 2003: 167ff). Of course, these last moves do not favour Russell’s point. Nor they are real solutions to Bradley’s regress, as we argued before (cf. §1.4.2). Quite the contrary: they are the very recognition of the power of Bradley’s regress and of the fact that external relations cannot do the job; that the unity of a concrete individual and its nature/properties requires

something completely different than mere juxtaposition or external relatedness of what are taken to be distinct constituents.²²

The second weakness of the argument is its target. Absolute idealism was not a clear doctrine. It was obscurely formulated and presumably rested over weak logical bases. For instance, there was no unified and clearly stated doctrine of internal relations.²³ This is all true to a certain degree. But, and precisely because of that, there are several differences between those who advocated it. Bradley, perhaps the main target of Russell's argument (along with Leibniz), was well aware of the point that was under discussion. So, at least since *Appearance and Reality*, he clearly rejected all the subject-predicate structure, and for reasons closely similar to those he used against relations. According to Bradley, subjects, predicates and relations are just a product of a process that he called 'vicious abstraction'. This vicious abstraction might be useful to deal with the world in fragmentary and partial ways that might fit very well our pragmatic needs. The nonsense lies in trying to take the separateness that is created by that process of abstraction as a metaphysical truth about ultimate reality. His famous examples tried to denounce the confusion behind this strategy of description and partial knowledge. A lump of sugar comes as a whole and cannot be separated in hardness, sweetness and whiteness, only thought does this. A billiard ball is not actually apart from its context and position in the world, and the fact that we talk about a billiard ball as a separate and independent term does not communicate this character to the actual

²² One might be tempted to infer from the rejection of Russellian logical atoms that something like Frege's account of objects and their properties/relations can restore the unity of the proposition. But this move is equally hopeless. Because even if one thinks that objects are saturated while properties/relations, qua concepts, are unsaturated, the problem of how object and concept get together in a unity still remains when one takes the 'is' of predication as contingent. You can have a list of unsaturated items and a list of saturated items and you still need to put them somehow together to form a real unity. Thus, you can think of properties/relations as *__ is red* and *__ is lighter than __*, but this doesn't solve the mystery of how two distinct *x* and *y* come to 'fill' those blanks, going beyond a mere list or fusion of loose and separate constituents, like [*x* + *__ is red* + *x* + *__ is lighter than __* + *y*] does. The list or fusion does not entail the propositional unity. See Gaskin (1995), Hylton (1984), MacBride (2005: §4) and Vallicella (2002: 13–14).

²³ For a detailed and illustrative treatment of the idealist doctrine of internal relations, see Ewing (1934: ch. IV). Ewing's catalogue, despite including ten (!) different meanings of the doctrine, is still incomplete: Bradley's understanding is missing.

situation: the billiard ball abstracted from its context is just a ‘character’. In fact, before abstraction, we cannot even distinguish the ‘billiard ball’ from its context as a distinct and separate existent. Instantiation does not disprove Bradley’s monism. Because if we understand it in relational terms, it deserves, according to Bradley, no special treatment, and should be equally rejected, with all other relations, from ultimate metaphysical truth and reality:

In short, far from admitting that Monism requires that all truths can be interpreted as the predication of qualities of the whole, Monism with me contends that all predication, no matter what, is in the end untrue and in the end unreal, because and so far as it involves always and ignores unexpressed conditions. (Bradley 1935: 672)

There is an obvious sense in which Bradley’s position might be taken as forming an ‘unholy alliance’ with extreme nominalistic understandings of predication (I borrowed the expression from Armstrong 1997: 114). In fact, Bradley, with the extreme nominalist, would reject as non-sensical the idea of self-sufficient abstract modes of existence (whether these are constructed as universals, tropes, classes or sets it doesn’t really matter). Both will reject, on one hand, the idea that properties are wholly distinct and independent beings, and, on the other hand, the idea that there is something out there that *relates* them to concrete individuals to form a unit (an idea that is needed only when the first step of fragmentation, the one that separates the lump of sugar from its sweetness, is admitted). Both ideas are simply the result of illegitimate hypostasis after a process of abstraction, and so it is the very idea of predication. Because, according to both Bradley and the extreme nominalist, when we say that *a* is F, there is nothing in the world that corresponds to F-ness (nor a universal, nor a class of tropes, nor a set, nor a mereological fusion).

Crucially, Bradley's point against instantiation (qua relation) also receives support from an Aristotelian point of view.²⁴ This is very clear, for instance, in Scaltsas' understanding of Aristotle's metaphysics:

[F]or Aristotle, a universal form is not related to its subject by an ontological relation (e.g., by participation, communion, etc.), but it is separable from that subject by abstraction. The *realist* element in Aristotle's account of universals is that the singling out of a form by abstraction is grounded in experience: thoughts about the abstracted universal form derive their *truth conditions* from thoughts about the substance that the form is abstracted from. Thus, the path from the substantial form in actuality (=the concrete substance) to the abstracted form (=the universal) is separation by abstraction, which has no ontological correlate, but is governed by the content of our experience. (Scaltsas 1994: 5, his emphases)

Aristotle's understanding is clearly in conflict with the Platonic account of Russell and his followers, who understand instantiation in terms of object and properties/relations somehow 'tied' together. (Note that Armstrong, despite claiming to be an Aristotelian about universals, accepts universals and bare particulars as actual, distinct and independent constituents of states of affairs; this is why, despite his rejection of abstract universals, his view—at least until his (1997)—is still trapped by the Platonic puzzle of instantiation and by a fatally relational way of understanding it, a way which is obviously exposed to

²⁴ In fact, there is an obvious communion between the famous Hegelian idea of 'concrete universal' as adopted by British idealism and the Aristotelian idea of substantial form. The unity and structure of the object cannot be provided by a mere bundling relation between properties (Hume), nor by the (relational) inherence of properties in a bare substratum (Locke), nor by the synthesis done by the thinking subject (Kant). Both Hegel and Aristotle would be together in defending a holistic understanding of concrete objecthood or individuality, and would claim that the unity and structure of a concrete individual can only be provided by the actual substantial form itself. (For an insightful treatment about this problem and a defence of the Aristotelian character of the Hegelian solution, see Stern 1990, 2007.) It is also very clear that Leibniz found himself accepting Aristotelian substantial form as the only possible source of the unity and indivisibility of a real individual (this is a recurrent theme in his correspondence with Arnauld; see Mason 1967), and ultimately accepted what Russell thought unbearable: that every predicate is *contained* in the subject, i.e., that when one says 'Russell is X', there is no metaphysical need to *relate* Russell with X, since '...is X' cannot but be true about Russell and only about Russell. In other words, by saying: 'Russell is', all the true predications about Russell come for free. Every substance enjoys the metaphysical status of an angel, since every substance has a unique essence or is one of a kind. Similarly, Descartes held that the distinction between substance and its attributes was not a real distinction, but only a distinction of reason (Descartes 1985: I.63), and so did Spinoza, who claimed that 'there is nothing outside the intellect through which a number of things can be distinguished from one another except substances, *or what is the same* (...), their attributes' (Spinoza 1994: IP4d, my emphasis). After all, an attribute is nothing but 'what the intellect perceives of a substance, as constituting its essence' (Spinoza 1994: ID4). The separation between the particular individual and its nature is of course also rejected by Bradley, who couldn't accept the 'that' without the 'what' (Bradley 1930: ch. 15).

Bradley's regress. As we saw before (§1.4.2), to accept universals and bare particulars as independent constituents and then claim that they are unified by a 'non-relation tie' is just putting a non-relational name to what has been tacitly accepted as a relational problem from the very minute in which two wholly distinct and independent terms are taken to be constituents of states of affairs in need of any sort of 'tie'.)

Like Bradley and Hegel, and unlike Russell and his followers, Aristotle understood that one cannot have one's cake and eat it, i.e., that one cannot have distinct, actual and independent constituents and, at the same time, a real unity.

It is Aristotle's most mature metaphysical realization that the unity of a substance is incompatible with the actuality of distinct components in the substance. . . Any division of the substance into components that are identifiable independently of the substantial whole is a generation of components that are not present in the substantial whole. . . For Plato the problem was how a universal could be in many different substances. For Aristotle *the universal could not be even in a single substance*, for the distinctness of the universal would destroy the unity of the whole. . . No element in a substance is *primitively particular*. By not introducing primitively particular items for the particularity of the substance, Aristotle avoids the division between the *which* and the *what*. . . *Only the whole substance is particular* . . . (Scaltsas 1994: 196–97, his emphases)

The substantial whole precludes the identity of properties, but it gives us real unity, which is the substantial whole itself. Conversely, the identity of a property precludes the substantial whole, the real unity.

Thus, there is an inverse relation between the *identity* and the *actuality* of a property: The closer we get to the property's *actualized* (instantiated), the further we get from the property's *identity*; the closer we get to the property's *identity* (in its definition), the further we get from its *actualized* state. (Scaltsas 1994: 4, his emphases)

Aristotle sacrificed the real numerical distinctness of properties in order to achieve unity. What Bradley did was to take Aristotle's insight about instantiation and extend it to the treatment of relations, following it up to its ultimate consequences. If relations are also supposed to be really instantiated, then they cannot obey real distinctions; they, just like monadic properties, can only be abstractions from a substantial whole, a real unity. But if real relations

are gone, then so does real pluralism, since how can we have a real plurality of individuals without having any sort of real relation holding between them? You can, again, attempt to locate relations in the domain of ideology and leave the plurality in the domain of ontology. But how can you do this move without being involved in an obvious ontological tension? You want a real plurality but you don't want real relations to accompany it. How can you have that package without being involved in contradiction? It seems that either you get real plurality with real relations between the plurals, or you accept the fact that locating relations in the domain of ideology involves accepting that pluralism is also in the domain of ideology. Because once the domain of ontology has been emptied from real relations, then it cannot contain real plurality. What Bradley does is to accept the consequence that is implicit in an extreme nominalistic stance that denies the mind-independent or objective reality of both properties and relations: its natural tendency to collapse the world into a seamless Parmenidean dough (monism), and to find no other solution than treating the heterogeneity and plurality exhibited by appearances as a form of mental fiction, abstraction or projection (idealism). As it becomes clear from the history of philosophy, nominalism (in its different variants) and idealism (in its different variants) have been always partners in crime (cf. Hochberg 2013). Once properties/relations—or, in more general terms, abstract forms of existence—are removed from the domain of the mind-independent reality, their function starts being performed by some ingredient in the domain of the mind-dependent reality, the domain of ideas, fictions, abstractions and projections.

I do not expect to put an end to the puzzle of instantiation by introducing these considerations in favour of a non-relational account of it. But I do think that they have sufficient force to show that Russell's last argument is far from being a knock-down argument and that there are good reasons for rejecting a relational treatment of this problem. A relational treatment of instantiation seems to be the only way open to those who think of concrete individuals and their properties as wholly distinct existents. But this way of making sense of

things introduces one of the most puzzling fragmentations of metaphysics. Bradley's regress still haunts that relational approach. Anyway, at least it is clear that Russell is wrong when assuming that a relational account of instantiation is the only one available. There are holistic alternatives, like the Aristotelian tradition proves. And, at any rate, what seems to be indisputable is that Russell totally missed the mark when attributing to Bradley a relational account of instantiation. Because Bradley's point was precisely that Russell's understanding of the copula was inadequate to express the unity of a thing with its properties (Candlish 2007: 38). Russell blamed the late idealists for confusing the 'is' of identity with the 'is' of predication. But by introducing the distinction, he also broke the unity of the proposition, and the link between a thing and its properties became totally loose and contingent. Of course, restoring the real unity seems to collapse the 'is' of predication with the 'is' of identity back again. We may now begin to understand that, inadequate and paradoxical as it appears, perhaps there is no better way to express the unity of a thing and its properties than recurring to something like the Hegelian notion of 'identity in difference'. Yet, if we think, as it is also very natural, that this is a plain contradiction, then we also may begin to understand why Bradley thought that all predication was ultimately unintelligible, and that the unity of thing and quality is ultimately ineffable.

Russell's arguments are not capable of defeating Bradley's skepticism. Firstly, from the fact that relational discourse is not reducible to subject-predicate discourse, it doesn't follow without additional premises that such relational discourse stands for any sort of 'shadowy substances' or real existents. Secondly, relations of resemblance and difference seem obviously to be nothing over and above the relata, as most contemporary pluralistic metaphysicians would accept. And thirdly, Bradley denied the reality of *all* relations, so Russell's last argument simply missed the mark when directed to him. Bradley wasn't committed to the defence of the subject-predicate relation; in fact, he firmly rejected it as depicting reality (Candlish 2007: 165–66).

Russell, at least after his *Principles of Mathematics* and before Wittgenstein's influence, was convinced that relational expressions referred to independent constituents, so his arguments for the existence of relations rested on the assumption of a transparent grammar as a safe guide to ontology.²⁵ This attitude, that was evident in the *Principles of Mathematics*, persisted during his career even after some skeptical doubts.²⁶ For Russell, if not ordinary language, at least well analysed propositions were able to mirror the world. Bradley, in severe contrast, distrusted grammatical categories as a guide to ontology. Not only did he deny the existence of these shadowy substances, but also that the subject-predicate form reflected any kind of *relation* between an object and a property. In this sense, his attitude is closer to the nominalist and to the Aristotelian. Moreover, Bradley's stance on relations is also close to Wittgenstein's.²⁷ The difference with Wittgenstein is that Bradley took terms to be as unreal as relations (i.e., both were equally abstractions from the One), while Wittgenstein thought that logically proper names had the ability to refer to an object at least in the context of a proposition. This is a proof that, pace Russell, the real dispute is not as much on the reality of relations as it is on the reality and ontological status of terms. Yet Bradley's objections against terms-in-relations 'cannot be accepted with equanimity by those who wish to draw back from monism' (Candlish 2007: 172), i.e., by those who assume the

²⁵ The story has been unfair to Bradley when describing his attack on relations, specially his regress argument, as somehow assuming that the supporter of relations has a *naïve* account of them that treats them as substances. Well, in fact, that was precisely Russell's account in the *Principles of Mathematics*, where he developed his main arguments for external relations. It can be appreciated clearly in the following sentence: '[T]he theory that there are adjectives or attributes or ideal things, or whatever they may be called, which are in some way less substantial, less self-subsistent, less self-identical, than true substantives, appears to be wholly erroneous, and to be easily reduced to a contradiction.' (Russell [1903] 2010: §49; see also §§46–48). An accurate reconstruction of the story of the early struggles that gave birth to the analytical tradition seems definitely to favour Bradley (Candlish 2007: ch. 6, Hylton 1990: ch. 2; for contrast, see Griffin 1998). As I said before (§§1.1, 1.4), the contemporary ontologist also gives substantial status to external relations.

²⁶ Later on his career, specially after developing his theory of types and after receiving Wittgenstein's influence, Russell became more timid in his ontology. He kept defending the idea that relational propositions were irreducible to the subject-predicate form, but he stayed in silence about the ontology (cf. Russell 1956a).

²⁷ Recall when Wittgenstein says in the *Tractatus*: 'Instead of, "The complex sign "*aRb*" says that *a* stands to *b* in the relation *R*", we ought to put, "That "*a*" stands to "*b*" in a certain relation says that *aRb*.'" (Wittgenstein 1961: 3.1432, his emphases). For Wittgenstein, relational signs are not names, i.e., they don't stand for individual objects.

legitimacy of pluralism from the start. Reaching the Absolute involves transcending grammar, thus transcending relational, fragmentary, pluralistic, and even subject-predicate ways of thinking, which are all inadequate to express the non-relational and should be thrown away altogether with the ladder.²⁸

In general terms, none of Russell's arguments for relations will impress today. That asymmetrical relations of comparison (of quality or quantity) and that relations of resemblance and difference themselves are no real addition of being seems to be a common place among contemporary metaphysicians, regardless their views on the precise nature of properties and relations. The pluralistic dominant pictures include monadic properties that are obviously capable of grounding those relations (cf. Armstrong 1997: 87–90, Lewis 1986a: 61–62, Mulligan 1998, Simons 2010, Williams 1963). Russell wasn't capable of providing such monadic properties because he treated properties as one-place relations and *all* relations as external. This strategy leaves no place for non-relational natures, hence no place for a supervenience base for those relations. Strangely, none of Russell's arguments was focused on what today are regarded as the most plausible types of external relations, namely causation and spatiotemporal distance. Nowadays these are just assumed as forming an indivisible package with pluralism, but no further arguments are provided. This lack of arguments for external relations should at least raise some suspicions. The burden of proof is on those who postulate them as an extra ingredient. This involves demonstrating that the distinction external/internal is well-founded and capable of making ultimate sense of things, and providing a positive criterion of demarcation. And this task certainly involves much more than merely assuming the general contingency of predication or that heterogeneity or qualitative richness involves separability, independence and pluralism.

²⁸ The extension of Wittgenstein's metaphor to Bradley's metaphysical ascent was suggested to me by Steve Barker in conversation.

2.2 Moore against the dogma: Numerical and qualitative identity

In ‘External and Internal Relations’ (1919), Moore tries a modest proposal: to show that at least *some* relations are purely external or, in other words, that *not all* relations are internal.²⁹ The dogma of internal relations, according to Moore’s interpretation, says that all relations are *essential* to their relata. Thus, he understood the dogma as making a claim of constitution with obvious and radical modal consequences. If *a* and *b* stand in a certain relation *R*, then *a* has the relational property of *being R-related to b*. This relation is internal in Moore’s sense iff something that lacks the property of *being R-related to b* is *different* from *a* (Moore 1919: 47–48). Of course, claiming that every relatum stands in the relations it stands *essentially*, involves the rejection of the distinction between essence and accident. In fact, absolute idealists and monist philosophers have always found the distinction between essence and accident quite arbitrary, since no objective and sharp criterion of demarcation has been offered by anyone (Blanshard [1939] 2002: 452).

According to Moore, the absolute idealist—specifically Bradley, to whom the article is mainly directed—incurs in the error of confusing two senses of the expression ‘different’ used above. Moore’s attack is based on distinguishing *qualitative* from *numerical* difference and on showing that the former doesn’t entail the latter (Moore 1919: 48–53). His attack rests on a commonsensical distinction between essence and accident, and it works like this. There is *qualitative* difference and *numerical* difference. If *a* has the property of *being R-related to b*, then the relation *R*, from which that relational property is derived, is said to be internal to *a* in the following senses: (i) one can say that if an object lacks the property of *being R-related to b*, then that object is *qualitatively* different from *a*; and (ii) one can also say that *a* could not lack the property of *being R-related to b* without ceasing to exist or ceasing to be *a*, i.e.

²⁹ As showed before, it is very plausible to attribute to Russell the view according to which *all* relations—including the ‘relation’ of inherence—are external, at least in his *Principles of Mathematics* ([1903] 2010). Moore’s proposal is evidently less radical.

without being *numerically* different from *a*. The problem with the dogma, according to Moore, is that it understands those claims as if (ii) would follow from (i). Internal relatedness, in the sense attacked by Moore, says precisely that from qualitative difference follows numerical difference and, therefore, that all properties, including all relational properties, are *essential* to their relata. And this is the idea that Moore finds unacceptable on the grounds of common sense, because for sure, he thinks, there are at least *some* relations that are purely external, i.e., there are at least some relations that give place to relational properties that are accidental to the terms that have them. Thus, for sure *a* might have existed or could have been numerically identical with itself without *being R-related to b*. Therefore, although it might be true that *a* is *being R-related to b*, it also might be false that if *x* were to lack the property of *being R-related to b*, then *x* would not be *a*.

These two propositions, the one which I admit to be true (1) that if A has ϕ , and *x* has not, it *does* follow that *x* is other than A, and the one which I maintain to be false (2) that if A has ϕ , then from the proposition with regard to any term *x* that it has not got ϕ , it *follows* that *x* is other than A, are, I think, easily confused with one another. And it is in fact the case that if they are not different, or if (2) follows from (1), then no relational properties are external. For (1) is certainly true, and (2) is certainly equivalent to asserting that none are. It is therefore absolutely essential, if we are to maintain external relations, to maintain that (2) does *not* follow from (1). (...) To maintain external relations you have to maintain such things as that, though Edward VII was in fact father of George V, he *might* have existed without being father of George V. But to maintain this you have to maintain that it is *not* true that a person who was *not* father of George would necessarily have been other than Edward. (Moore 1919: 52, his emphases)

If from *qualitative* difference follows *numerical* difference, then *all* relational properties, hence *all* relations from which those are derived, are *internal*. If, on the contrary, from *qualitative* difference doesn't follow *numerical* difference, then at least *some* relational properties, hence *some* relations from which those are derived, are *external*.

What can be said in Bradley's favour? First, that Moore's objection is grounded on a distinction between essence and accident that allows qualitative difference without entailing numerical difference, but he offers no reasons for the objectivity and reality of such distinction and, more important, no criteria for

deciding when does a property counts as essential or as accidental. In fact, for him it is just *obvious* and *evident* that at least some relational properties are accidental. But no argument is provided:

It seems quite obvious that in the case of many relational properties which things have, the fact that they have them is *a mere matter of fact*: that the things in question *might* have existed without having them. That this, which seems obvious, is true, seems to me to be the most important thing that can be meant by saying that some relations are purely external. (Moore 1919: 51, his emphases)

But I have gone further and asserted that some relational properties certainly are *not* internal. And in defence of this proposition I do not know that I have anything to say but that it seems to me evident in many cases that a term which *has* a certain relational property *might* quite well not have had it: that, for instance, from the mere proposition that this is this, it by no means follows that this has to other things all the relations which it in fact has. (Moore 1919: 60, his emphases)

What it *is* obvious and evident is that nothing becomes obvious and evident only by saying that it is so. One can agree that there are many things that enjoy evident status. But if there is anything that is not evident at all is whether there is any real distinction between the essential and the accidental, the internal and the external; and even if this were the case, it is still less evident *where* is the boundary that separates one realm from the other.

Secondly, of course Bradley can be seen as the hyper-essentialist that Moore had in mind. But this is only true if one oversimplifies Bradley's thought. Certainly Bradley denied the sharpness and objectivity of the internal/external distinction and, consequently, the sharpness and objectivity of the essential/accidental distinction (Bradley 1930: 23). In claiming that those distinctions are in some sense arbitrary and ultimately based on pragmatic reasons, he certainly is not alone: a great part of the analytical tradition has been suspicious about them. Thus, while an absolute idealist will allow no sharp line to draw the difference between the essence and accident of an item (since for him all properties/relations are important in some degree), an analytical skeptical will allow whatever words are useful to pick out an item (since for him no property/relation is essential, and the only important task is to find the right predicates and conventions to describe an item). According to the analytical skeptical, if a

thing loses some properties, then, trivially, some descriptions will not pick it out (Rorty 1967: 125–26). Reasonably, Bradley insisted in many places that those distinctions were perfectly fine for practical purposes and that they could give us relative or partial truth; his point is that we shouldn't take them as giving us ultimate or metaphysical truth.

Mere internal relations, then, like relations that are merely external, are untenable if they make a claim to ultimate and absolute truth. But taken otherwise, and viewed as helpful makeshifts and as useful aids in the pursuit of knowledge, external and internal relations are both admissible and can be relatively real and true. [...] Still *in practice, and for a limited purpose*, you can divide your individual term, and take one part as what you call 'essential'. And so far as this division is made, the distinction between intrinsic and extrinsic relations will hold. Wherever that part of your term which you select as its essence remains outside of some relation, into which the individual term enters, the relation so far is extrinsic. And on the other hand, where the entrance of the term includes, and carries into the relation, the essence also as in one with the whole, the relation here is intrinsic. *But no such distinction, if I may repeat this, can have more than relative validity.* (Bradley 1935: 645–46, my emphases)

Bradley's skepticism against the distinction between external and internal relations, and consequently against the distinction between essential and accidental properties, is grounded in his fidelity to immediate feeling and experience as the departing point of inquiry. To my judgement, he correctly thinks that from the fact that we find difference or heterogeneity, we cannot legitimately infer intrinsicness, separability, independence, self-sufficiency or modal freedom. Bradley in fact can be interpreted as saying: 'One is not entitled to **assume** of something which is always experienced in combination with something else, that is capable of existing uncombined' (Candlish 2007: 36, his emphasis; in a similar sense, Sprigge 1983: 268–69). The distinction between external and internal relations, or between essential and accidental properties, makes precisely that assumption. Taking Bradley's example (Bradley 1930: Appendix B), we can experience a total situation that embraces a place with a man and a billiard ball. We may start talking about how the man or the billiard ball could be unaffected by a change of place, but Bradley's point is that while we do so, we start talking not about something that actually exists but about an abstraction or, as he puts it, a 'character'. If we, on the contrary, accept our immediate experience, then we simply cannot assume the

man and the billiard ball as self-sufficient, as independent from, or as unaffected by, their place, background or context. When we experience a total situation in which a man and a billiard ball are embedded, and we start talking about how the man or the billiard ball might have existed in a different place, background or context, then we are talking about a very similar man or billiard ball, but not of that *very same* man or that *very same* billiard ball, which, as existents and not as characters, are embedded in an all-embracing totality. When we take the billiard ball as a term that is wholly independent or externally related to its place and background,

. . . an important if obvious distinction seems here overlooked. For a thing may remain unaltered if you identify it with a certain character while taken otherwise the thing is suffering change. If, that is, you take a billiard-ball and a man in abstraction from place, they will of course—so far as this is maintained—be indifferent to changes of place. But on the other hand neither of them, if regarded so, is a thing which actually exists; each is a more or less valid abstraction. But take them as existing things and take them without mutilation, and you must regard them as determined by their places and qualified by the whole material system into which they enter. And, if you demur to this, I ask you once more of what you are going to predicate the alterations and their results. The billiard-ball, to repeat, if taken apart from its place and its position in the whole, is not an existence but a character, and that character can remain unchanged, though the existing thing is altered with its changed existence. Everything other than this identical character may be called relatively external. It may, or it may not, be in comparison unimportant, but absolutely external it cannot be. (Bradley 1930: 517–18)

Bradley's rejection of external relations has the obvious consequence that there is no trans-world identity or that everything is world-bounded. Better said: we have no reasons to think that things might have been otherwise, mainly because our very referent of 'thing' or 'term' is here under suspicion.

2.3 Vindicating Bradley

Besides the internal weaknesses that affect Moore's and Russell's arguments, which I already discussed, there are at least three reasons that vindicate Bradley's position.

First, it seems clear that Russell's and Moore's arguments against the dogma of internal relations do not touch Bradley's position. In fact, a careful reading of the sources shows that Russell and Moore, when directing their attacks against Bradley, were discussing with an imaginary enemy. They both wrongly attributed to Bradley the view that all relations were internal, but Bradley didn't defend the dogma of internal relations, neither in the sense attributed by Russell nor in the sense attributed by Moore. It is certainly true that for Bradley no relation was purely external. But the denial of the reality of external relations doesn't entail the idea that all relations are internal. As it has been convincingly shown, accusing Bradley of supporting the idea that all relations are internal is historically wrong (Candlish 1998, 2007: ch. 6, Hylton 1990: ch. 2). The truth is that Bradley denied the reality of *all* relations, external and internal, and rejected them with similar force (see specially Bradley 1914: 237–40, 1930: Appendix B, 1935: 641–46, 665–68). According to Bradley, no relation, neither internal nor external, is ultimately real, since 'neither can succeed in attaining the non-relational unity which is fundamental' (Hylton 1990: 55). A relation 'is always an abstraction' and 'is not the entire fact of the relational situation, as actually experienced, but in every case omits and ignores more or less of what there is contained' (Bradley 1935: 648). In the end, all relations and all relational ways of thinking must be transcended in a more comprehensive unit that embraces all what we, as finite centres of experience, treat as separate terms in relations. It is true that internal relations were thought by Bradley to be more true or closer to reality than external relations, but both of them were ultimately regarded as appearance. In the end, all relations 'are unmeaning except within and on the basis of a substantial whole' (Bradley 1930: 125), all of them 'are the inadequate expression of an underlying unity' (Bradley 1930: 522), and "'internal" relations, though truer by far than "external", are . . . not true in the end' (Bradley 1914: 312). It is also true that Bradley recognised some relative value to the distinction between internal and external relations, but that was only for practical purposes (Bradley 1935: 645–46, Candlish 2007: 43). The fact is that Bradley rejected

the very legitimacy of the distinction. As long as it remains useful for ordinary purposes, we can defend it; the error lies in attributing to it some ultimate, absolute or metaphysical validity. Relational thinking helps us to characterise the world under partial and limited consideration, but at the price of distorting non-relational reality. And the plurality that is entailed by those relations is also another distortion. Bradley's point is that neither terms, nor properties, nor relations can be understood apart from the total and all-embracing whole³⁰ in which they are embedded:

Plurality and relatedness are but features and aspects of a unity. (Bradley 1930: 125)

Nothing in the whole and in the end can be external, and everything less than the Universe is an abstraction from the whole, an abstraction more or less empty, and the more empty the less self-dependent. Relations and qualities are abstractions, and depend for their being always on a whole, a whole which they inadequately express, and which remains always less or more in the background. (Bradley 1930: 521)

Second, regarding internal relations in particular, these were not part of Bradley's metaphysics, since for him they were not adequate for achieving a self-sufficient, unconditioned or independent unit. In fact, in the context of a metaphysical tradition that attempts to make sense of reality in terms of self-sufficient units of being,³¹ the idea that a plurality of things is internally related, in the sense that *all* the relations into which one of those things stands to the rest of things are part of its very nature, is evidently fragile or unstable (Bradley 1914: 239–40, 1935: 643–45, Candlish 1998: 133–34, 2007: 159–61, Hylton 1990: 54–55). Qua *relations*, they work assuming or affirming the existence of a plurality of distinct relata; qua *internal*, they deny their

³⁰ It would be a serious mistake to take the expression 'whole', when used by Bradley and other idealists, as having always the same meaning. The use is often metaphorical and, anyway, the expression itself is way too neutral and general to infer any resemblance. Still worst mistake would be to think that there is anything in common between Bradley's use of 'whole' and the use of contemporary mereology. To understand what someone means by 'whole', one needs to pay attention to the consequences attributed to the concept, not to the labels. As we will see, this applies with special force to Schaffer's Priority Monism (ch. 5).

³¹ As it is obvious, this metaphysical tradition is simply the history of standard metaphysics. It includes not only Bradley's project, but also the different historical developments around the notion of substance (Aristotle, the scholastics, the rationalists), Russell's own logical atomism, and the building-blocks posited by such different metaphysical projects like those of Whitehead, Lewis, Armstrong and van Inwagen, to name a few.

individuality and self-sufficiency. If *a* and *b* are internally related, then being so related is part of *a*'s and *b*'s nature, i.e., neither *a* nor *b* could exist or be what they are without being so related, because a thing (*a*), as if by magic, seems to be *constituted* by something else (*b*) that lies *outside* it. Self-sufficiency or independence could only be achieved by a higher non-relational unity that transcends, transforms and absorbs both *a* and *b*. While external relations are the very negation of that higher non-relational unity, internal relations recognise it but reveal their own impotence to achieve it. Of course, when pushed to choose between internal or external relations, Bradley held that internal relations were closer to reality, since at least they recognised the lack of self-sufficiency of fragmentary relata and pointed to the existence of an all-embracing unity. But internal relations attempt to achieve such a self-sufficient unity by means that are supposed to be transcended in that very process. '[Internal relations] point to a higher consummation beyond themselves and beyond all relations. But, at least in the end, they cannot . . . be thought consistently' (Bradley 1914: 240). Something that depends on conditions can only achieve independence, self-sufficiency or intrinsic character, when is taken together, as a unit, with those conditions. So while Russell, in the end, achieved independence by getting rid of all the complexity present in ordinary objects, reaching absolutely simple logical constituents that took the place of traditional substance (Russell 1956c: 201–2), Bradley achieved independence by unifying all complexity in an all-embracing non-relational substantial whole, which is independent because there is nothing else there capable of conditioning it. In any case, it must be noticed that neither of these solutions—Russell's or Bradley's—has common sense on its side: both solutions reject in equal terms that ordinary objects are the building blocks of reality, and they both need to offer some pragmatic solution for our ordinary ways of speaking and thinking. Thus, regarding this inadequacy, they seem to be on a par: *pace* Russell, his atomism is as incredible as the monism of absolute idealism, and his ordinary truths and objects seem to be as false and unreal as ordinary truths and objects were for absolute idealism (Candlish 2007: 162–63). Because there

is nothing in common sense that speaks more in favour of an extreme atomism than of an extreme monism.³² Common sense only helps Moore, at the price of introducing the problem of *where* to draw the line between essential and accidental, between internal and external, without arbitrariness, and, once that line is drawn, the problem of how the accidental/external stands, or is *related* to, the essential/internal.

Third, as I have insisted, underlying this debate on relations was a radically different attitude towards the package grammar/ontology. Russell and Moore trusted grammar as a guide to ontology. Their categories of term, property and relation were grammatically based. Bradley, in contrast, distrusted grammar in a radical way as a guide to metaphysical truth.³³ Bradley arrives to a non-relational Absolute by remaining loyal to what he thinks is the first datum of experience or feeling. Experience or feeling exhibits a non-relational character that remains fatally ineffable, since our ways of thinking and talking do exhibit a relational and abstract character which is obviously very ill suited to express what has non-relational and concrete character. Immediate experience and feeling exhibit unity and variety but no relations, since there are no wholly distinct terms there to be related. And so with a term and its qualities. Simple constituents are mere abstractions from the complex and unified whole which is experienced reality. Think in what is present in your visual field. It is like a moving landscape, a unity with internal variation and complexity. Primarily, there is not even a distinction between subject and object, scheme and content,

³² Schaffer (2010a: 46–50) has even suggested that monism finds more support in common sense than an extreme pluralism (atomism), since common sense approaches the cosmos as an integrated whole. I am not sure if Schaffer is right on this, but it seems clear to me that monism at least must enjoy the same privileges, since towards some ordinary things we behave as monists while towards other ordinary things we behave as pluralists. Compare our approach towards a living organism with our approach towards a heap of sand.

³³ Again, Bradley's position reminds us the contrast between Wittgenstein and Russell. While Wittgenstein said: 'Distrust of grammar is the first requisite for philosophizing' (Wittgenstein 1979: 106), Russell said: 'The study of grammar, in my opinion, is capable of throwing far more light on philosophical questions than is commonly supposed by philosophers' (Russell [1903] 2010: §46).

the process of experiencing and the content of experience.³⁴ We can abstract the subject from the object, then the sun from its context, or the yellow colour from the yellow sun, but they don't present themselves as separated elements in relations. The tools of our thought (concepts, propositions) and language (nouns, adjectives, verbs) are fragmented and relational, and they can only work by paying partial attention to some object (we somehow share Jonah's position, who simply cannot fully understand the whale that he inhabits from his precarious perspective and position). They are useful for our everyday purposes, and they may well be preserved as long as they pay us such service and as long as they fit into a maximally coherent and comprehensive system of thought. But experience doesn't present itself as fragmented, as terms in relations, and there is an evident sense in which no relational tools can give us a taste of reality better than feeling or experience. In the end, dualisms like those of experiencing subject and object of experience, or appearance and reality, must be transcended. If experiencing subject and the object of experience, or appearance and reality, were separated realms, we would be looking for *relations* between them, and this is something that Bradley would not accept as a final solution. Reality, the Absolute, must consist in an all-embracing, supra-relational, unit. In a sense, this supra-relational unity recovers the unity of pre-relational experience, which relational thought breaks

³⁴ Philip Percival (personal communication) points to me that Bradley's account of immediate experience (as unstructured and non-conceptual) might be victim of what Davidson (1974) identified as the 'third dogma of empiricism'. I disagree. Those empiricists that were the target of Davidson did accept the duality between world and conceptual scheme, the world waiting to be organised and the organiser. But Bradley is not a traditional empiricist. He would have also rejected the dualism between world and conceptual scheme that underlies Davidson's criticism. For Bradley, the very division between subject of experience and object of experience, is already an arbitrary division within the non-relational. The real disagreement between someone like Davidson and Bradley is about reality in itself, about whether reality is thought-like or experience-like, relational or non-relational, plural or singular. Bradley is consistent and accepts the consequences of his metaphysics: since reality is one and enjoys experiential character it cannot be expressed in relational thoughts. Bradley's point is somehow indirectly acknowledged by Davidson when he says: 'We cannot attach a clear meaning to the notion of organizing a single object (the world, nature etc.) unless that object is understood to contain or consist in other objects. Someone who sets out to organize a closet arranges the things in it. If you are told not to organize the shoes and shirts, but the closet itself, you would be bewildered. How would you organize the Pacific Ocean?' (Davidson 1974: 192). Indeed—Bradley would answer—a single object resists organisation, and any attempt of organising it cannot have a clear meaning; yet you better be bewildered, because reality is just like the Pacific Ocean.

down into pieces and is incapable, by its very fragmentary nature, to restore or express (Bradley 1914: 194, 230–31, Hylton 1990: 57, Mander 2009).

The problem behind the dispute on the dogma of internal relations was not much that Bradley rejected the reality of relations, but that for him the category of ‘term’ or ‘relatum’, at least in its ordinary use, was also under suspicion. But both Russell and Moore built their arguments using ways of thinking and talking that were the very object of Bradley’s skeptical challenge; and, on the other hand, Bradley couldn’t formulate his objections without making use of the very same ways of thinking and talking that he was challenging (Candlish 2007: 153–54). Because we can start talking about external and internal relations only when we think of terms in abstraction from a total situation, when we divide a total situation into terms and their background. If we reject, with Bradley, that *that* very process of separation of terms by abstraction can ever give us metaphysical truth, then the question of relations doesn’t take place. In contrast, if we accept, with Russell and Moore, that *that* very process of separation of terms by abstraction is a metaphysically reliable tool, then of course some relations will appear as totally external to some term; yet ‘as an argument for the externality of some relations, this appeal to common sense is plainly circular’ (Candlish 2007: 154). The problem that affects the dispute is that there seems to be no vocabulary shared by both parts, because talking about ‘man’ and ‘billiard ball’ is already to involve oneself in vicious abstraction. The problem is that Bradley’s objection is ineffable, it cannot even be said, because ‘we simply have no words for a billiard ball, or a man, taken *not* ‘in abstraction from place’ (or some other background)’ (Candlish 2007: 153, his italics).

2.4 Varieties of internal relatedness

As a way of concluding this chapter, we can distinguish various senses of internal relatedness. First, we have the foundationist sense employed by Russell. Let's call it **internal-Russell**:

Two terms, x and y , are **internally-Russell** related iff the relation is grounded in the intrinsic natures of x and y .

This sense of internal relatedness affirms that relations are nothing over and above the relata. It assumes relata with rich or complex intrinsic natures, capable of grounding relational thoughts and discourse. I equate this sense of internal relatedness with the one employed by Armstrong and Lewis when they say that internal relations are 'supervenient' on the intrinsic natures of the relata, where 'supervenient' entails no ontologically serious consequences. When *all* relations—including spatiotemporal ones, and those between experiencing subject and object of experience—are internal-Russell, the result is monadism, like in Leibniz's system. However, this sense of internal relatedness does not entail monism, unless one assumes from the very start that the plural terms that appear as distinct relata stand somehow obliquely for One complex and rich term in the relevant sense. But this is problematic. Such a One cannot be a mere aggregate or mereological sum of relata with distinct intrinsic natures, since this conception of wholeness is precisely the pluralistic conception, where self-contained units somehow concur to 'compose' a whole, a whole which exhibits no substantial oneness, insofar as it is nothing over and above an aggregate of plurals. But we should try to make reasonable sense of monism before rejecting a trivial version of it. I will try to do so later (chs. 5–6). For the moment, let's assume that monism endorses a more organic or substantial understanding of wholeness. If so, then monism does seem to entail that relations are internal-Russell, but then we are no longer speaking as if we were in presence of distinct terms standing in internal relations but, in fact, as

if we were in presence of One organic term with a rich and complex intrinsic nature. I conclude that internal-Russell relations do not entail monism without assuming it from the start. At most, they entail monadism.

Second, there is Moore's sense of internal relatedness. Let's call it **internal-Moore**:

Two terms, x and y , are **internally-Moore** related iff it is essential to x and y to be so-related.

Moore's sense, like Russell's, also assumes a pluralistic framework of distinct relata standing to each other in some way. In fact, when such a pluralistic framework is assumed, Moore's and Russell's interpretation of the dogma might well said to be coincident. This is in fact the case when we take Moore's interpretation as saying that ultimately all relations are nothing over and above rich and complex monadic essences, equating Moore's expression 'essence' with Russell's expression 'nature'. I think this understanding of Moore's claim is very plausible; but it is also very uninteresting, insofar as it is a mere repetition of Russell's understanding.

There is a second way in which we may understand Moore's claim. This is the way in which—as we saw above—the mathematical structuralist understands the nature of numbers. When the structuralist says that there is nothing to the nature of a number except its relations to other numbers, instead of positing very rich intrinsic natures, the mathematical structuralist prefers to take the path of relational constitution. As we can see, Moore's interpretation is ambiguous, since it tolerates to be understood as expressing monadic foundationism of relations and also as expressing relational constitution of the relata. Since foundationism was unequivocally the sense in which Russell understood the dogma, in what follows I will use the label 'internal-Moore' as

expressing relational constitution.³⁵ This sense commits us to a sort of relational holism, but not to a substantial form of monism, at least not without additional premises. As it is obvious, the relational constitution reading and the monadic foundationism reading mirror each other: while the first one can be understood as treating terms as points of fission, the second one can be understood as treating terms as points of fusion. While the first reading exalts the constitutive role of relations and excludes the constitutive role of intrinsic natures, the second one excludes the constitutive role of relations and exalts the constitutive role of intrinsic natures. Yet in both cases every term, somehow, mirrors or expresses the whole system in which is embedded.

Third, and finally, there is what we might call Bradley's sense of internal relatedness. Let's call it **internal-Bradley**:

Two terms, x and y , are **internally-Bradley** related iff the relata and the relation are mere abstractions from an all-embracing, non-relational, substantial unity.³⁶

Bradley's sense is the very denial of relational or non-substantial forms of existence. It is the expression of what Russell only could express defectively under the head of what he understood by monistic foundationism, since he assumed a pluralistic understanding of wholes (i.e., as composites of plural terms). Bradley's sense does entail monism, but only in an uninteresting or trivial sense, since monism is the very point of departure in pre-relational experience (we reach it once again, in a higher form, after transcending relational thought). Internal-Bradley relatedness can be seen as conservative or neutral in modal matters (Sprigge 1979: 166, Sprigge 1983: 268–69, Candlish

³⁵ This understanding of internal relatedness seems very close to the one defended by T. H. Green. See Basile (1999: ch. 1), Dunham, Grant and Watson (2011: ch. 9), and Hylton (1990: ch. 1).

³⁶ This sense of internal relatedness is close to the one that Sprigge treats under the head of 'holistic relations', which are also meant to express a Bradleyan understanding of internal relatedness (Sprigge 1979: 164, Sprigge 1983: 187ff).

2007: 36, 154). It does not rest on any strong idea of necessary (or other modal) connections between distinct existents. Of course, it can also be read as endorsing a necessitarian or hyper-essentialist picture of reality, insofar as it rejects to take any properties or relations more relevant to the nature of a term than others. But this is because what this conception really does is to deny the legitimacy of the process in which the very idea of ‘distinct existents’ is based upon, the very legitimacy of the distinction between what is external to a ‘term’ and what is not, the very legitimacy of abstracting a ‘term’ away from its surroundings and then say that it has such and such intrinsic nature or essence. Division by abstraction was rejected by Bradley, and is precisely what Russell and Moore accepted and used against the dogma. Talking about a ‘term’ as distinct from its surroundings, is already to accept ‘vicious abstraction’, and treat as ‘existent’ what is only a ‘character’, treat as independent, unconditioned or self-sufficient what actually exists and presents itself embedded in an all-embracing context. Rejecting division by abstraction might be seen as a denial of contingency but it can also be seen as a way of rejecting necessity, when necessity is based in a fragmentary understanding of terms with clearly distinct essences. It just says that we shouldn’t assume distinct existents and modal freedom if we don’t experience isolation and self-containment of the partial aspects of the total and all-embracing situation in which they are embedded. For practical purposes, the division is perfectly fine; for metaphysical purposes, its legitimacy has not been proved.

Here is a crucial question: how are we supposed to understand the word ‘abstraction’ in the definition of internal-Bradley relatedness given above? The answer is that we should understand it as meaning exactly what Lewis puts under the head of ‘The Way of Abstraction’ in his (1986a). That is, ‘abstract entities are abstractions from concrete entities. They result from somehow subtracting specificity, so that an incomplete description of the original concrete entity would be a complete description of the abstraction’ (Lewis 1986a: 84–85). This Bradleyan and traditional sense of ‘abstraction’ *is not* the

sense in which a universal, a trope, a Fregean thought or a set might be said to be abstract. It *is* the sense in which ‘the standard Englishman’, as used in a sociological study, might be said to be an abstraction. Thus, ‘[t]he inevitable hypothesis is that they [abstractions under ‘The Way of Abstraction’] are verbal [or mental] fictions’ (Lewis 1986a: 85).

The Bradleyan understanding of internal relatedness is the one that animates my critical approach to recent holistic ontologies. In what follows, I will try to show its relative superiority.

3 Dispositional essentialism: The active and connected plurality

In this chapter I will discuss and criticise our first holistic alternative, namely: Dispositional Essentialism (DE). DE is the metaphysics according to which all sparse properties are dispositions. Basically, what I will try to show here is that the promise of DE, of bringing into the scene a *causally active* and *connected* plural world, is not fulfilled. Although there are empirical considerations that count against DE qua pluralistic ontology (§1.6, ch. 6), the critique offered here is only internal: it pretends nothing but showing that DE fails due to its own insufficiency or incoherence.

In §3.1 I present DE, its motivation and its two most salient versions. In §3.2 I criticise the first version, ‘relational essentialism’, according to which the nature of a disposition is determined by its relations to other properties. In §3.3 I do the same with ‘monadic foundationism’, according to which a disposition is identical with a monadic categorical property. Both versions of DE offer a different way of fixing the identity of properties but they both equally fail in explaining how dispositions can be the source of causal activity and connection. This is so because the reality of causal activity and connection cannot be explained by the nature of dispositions. I share with DE the idea that causal activity and connection cannot be understood as basically inexistent (Lewis)³⁷ or as brutal ingredients imposed from the outside (Armstrong) but as something grounded in the nature of things; however, unlike DE, I don’t think that the nature of dispositions is sufficient to do that job. In §3.4 I attempt to make a sketch—and nothing but a sketch, since a full development would require much more detail—of a possible solution to the problem of causal activity by presenting a different approach to properties. Though this improvement may work as a supplementary help for DE, it leaves the problem

³⁷ I say ‘inexistent’ precisely because this is what in the end is entailed by the deflationary understanding of ‘supervenience’ defended by the Armstrong-Lewis program (§1.1).

of connectedness untouched. In §3.5 I continue working on my sketch of a solution, showing that to solve the problem of connectedness we need to move from the level of properties to the level of objects. In §3.6 I show that the problem of how two distinct active objects can causally connect has no real solution under a pluralistic framework, since pluralism, even including causally active objects, is the very denial of transeunt causation. This is not surprising: as we saw before (§1.5.2), plurals cannot even *touch* each other. The main error of DE lies in thinking that pluralism can be preserved and the world be causally active and connected by providing the plurals with dispositions. What I show here is that dispositions cannot bring causal activity to the world, and even if they were reformed in order to be so, they couldn't connect the world, since the source of connectedness is the object itself. Once a pluralistic metaphysics is assumed, nothing that we add to it can bring the world together again in a non-brutal manner.

3.1 Dispositional essentialism: Properties as dispositions

As we saw in §1.1, the world as described by the thesis of Humean Supervenience has some salient features. It is a radical pluralism of individuals. There are no irreducible continuants and no irreducible processes, but only point-like, unextended and durationless individuals. These tiny things have intrinsic properties and stand to each other in external relations of distance. These properties and relations have a purely categorical nature, they are what they are in virtue of brutal distinctness, regardless their causal or nomic role, i.e. they are *quiddities* (Black 2000). This worldview is, according to its critics, the contemporary heir of the old mechanistic view held by Newton, Descartes and others, to whom nature was analysable in terms of primary qualities like shape and size, that is, a worldview that sees nature in purely geometrical terms, as an odourless, colourless and dead machine, devoid of any intrinsic *vis viva*, causally impotent, whose behaviour is determined by *external* laws (Ellis 2001: §§1.9, 3.2–3.3). Not surprisingly, within the thesis of Humean

Supervenience, causal talk is not ontologically serious or does not refer to anything fundamental. Thus, for Lewis, causation is neither an *internal* (in any of the different senses distinguished in §2.4) nor an *external* relation, since we need more than a pair of relata in order to get it: we need to make sure that there is a regular pattern across the whole spatiotemporal arrangement of particular matters of fact. Causation has a totally derivative and non-fundamental character. To have it, first you need regularity; and to have regularity, first you need the mosaic. For Armstrong, a moderate anti-Humean, causation is still an instance of a law, but for him a law is a second-order, non-supervenient, *external* relation of irreducible nomic character. Something that doesn't emerge from the first-order pattern but that is meant to *govern* it from above. Still externality. The problem is that these laws have nothing to do with the nature of the first-order states of affairs that they are meant to govern. Insofar as it comes from the *outside* of things, such constraint remains mysterious and brutal.

As we also saw, the fragmented world-view, in its different variants, has various troubles. These troubles have motivated the development of more holistic alternatives, DE being one of these. By DE I understand the metaphysics according to which *all* sparse properties are dispositions. I take the expression 'disposition' as having the same meaning as 'causal power', 'potency' or 'capacity', and I include under the label of DE the accounts of properties defended by Bird (2007), Hawthorne (2001), Heil (2003), Mumford (2004) and Shoemaker (2003).³⁸ I take DE as having two variants, which I put under the labels 'relational essentialism' and 'monadic foundationism'. According to relational essentialism, all properties are dispositions, and the identity of a disposition is determined by its relations to other dispositions.

³⁸ There are also metaphysicians who defend the coexistence of both kinds of sparse properties, dispositional and categorical (e.g., Ellis 2001, Molnar 2003). For reasons of space I will not treat this mixed view here. I am afraid that this mixed view—as many eclecticism—is a vicious rather than a virtuous synthesis, insofar as it suffers from the problems of both categoricism and dispositionalism. The critical considerations that dispositionalism has against categoricism can be applied to the subset of categorical properties, while my critique to dispositionalism can be applied to the other subset.

According to monadic foundationism, all properties are at the same time categorical and dispositional, i.e., every monadic categorical quality is identical with a disposition.

The general aim of DE is to provide an ontology that satisfies what Bird declares to be the aim of his book: ‘to account for the *cement* and *motor* of the universe (potencies and the laws that supervene on them)’ (Bird 2007: 8, my italics). Dispositions are supposed to be the metaphysical ingredient that both brings the world back together and provides it with causal impulse, the very features that are denied by the fragmented worldview. This different account of properties leaves pluralism untouched: the world is still a plurality of individuals, but now they are supposed to be causally powerful and bonded in virtue of the new account of properties introduced. What DE rejects is the causal impotence of categorical properties and the idea that what holds the world together is nothing grounded in the nature of things. The external arrangements offered by Armstrong and Lewis leave the world loose and separate. Something different, something thicker, seems to be needed to do the trick. Thus, DE attempts to offer not more externality but an *immanent* solution. This time, allegedly, the cement and motor of the universe is not coming from the *outside* of things, but is written in their nature. So the way things stand to each other is neither a metaphysical coincidence nor due to external laws, but somehow grounded in their nature. In particular, causation is meant to arise from within, or be grounded in, the very nature of properties.³⁹ Let’s see whether it works.

3.2 Relational essentialism: The way of relations

According to the first variant of DE, all natural properties are dispositions, and the identity of a disposition is fixed by the relations into which it stands to

³⁹ Of course, this is not a new adventure. With relevant differences, a central claim of some late idealists was the rational ideal that the world was causally connected in a way that effects were *entailed* by their causes in virtue of their very nature, i.e., that causal necessity was just like logical necessity. See Blanshard ([1939] 2002: ch. 32), Ewing (1934: ch. 4) and Rorty (1967).

other dispositions. In Bird's words, 'all there is to (the identity of) any property is a matter of second-order relations to other properties' (Bird 2007: 43). Each property is a concrete potency with a relational essence. Typically, these second-order relations have the general relational pattern of Disposition-Stimulus-Manifestation (D-S-M). Take, for instance, the property of *fragility* (for the sake of the argument, assume that it is sparse). According to the relational essentialist, the essence of *fragility* (D) is given by the second-order relations into which this property stands to other properties, e.g., the properties *if it were hit* (S) and *it would break* (M). That is, when fragility is actually instantiated by a vase, its essence involves other non-instantiated properties, a non-actual hit and a non-actual breaking (Bird 2007: 6). Of course, the role that a property plays is relative to its position in the second-order pattern: towards some other properties, fragility stands in the M role, and to still other properties, in the S role. The idea is that properties conform a vast 'power-net', and only once you have fixed the second-order power-net you can fix the identity of a monadic disposition. In a way, each disposition that belongs to the power-net exhibits a Leibnizian feature: it mirrors the whole power-net from its own perspective. I take Bird (2007), Mumford (2004) and Shoemaker (2003) to be the most salient contemporary representatives of this variant of DE.

Although the essence of a disposition is fixed or determined by its second-order relations to other properties, a disposition is still a monadic property, and 'its existence has no ontological dependence on those properties' (Mumford 2004: 171). This is crucial for understanding the content of relational essentialism. One of the main points stressed by relational essentialism is that dispositions can be instantiated even if their manifestations and triggers are never instantiated. Thus, a disposition can be instantiated and have being or reality (i.e., *be* a concrete potency), without those other properties that contribute to fix its identity ever being instantiated, just like a grain of salt instantiates the property of solubility even if it never gets placed in warm water

and even if it never gets dissolved, or just like a vase instantiates fragility even if the properties of being hit or being shattered are never instantiated.

Critics of DE have objected that:

- (i) If all properties are dispositions, then '*no property can get its identity fixed*, because each property owes its identity to another, which in turn owes its identity to yet another—and so on and on, in a way that, very plausibly, generates either a vicious infinite regress or a vicious circle' (Lowe 2006: 138, his italics).
- (ii) What properties do *when manifested* is not clear, since in a world of pure powers the bearers seem 'to be always re-packing their bags as they change their properties, yet never taking a journey from potency to act. For 'act', on this view, is no more than a different potency' (Armstrong 1997: 80).
- (iii) In a world of pure powers, what these do *when not manifested* is also unclear, since it seems that they are doing nothing but 'pointing' to its manifestation (Psillos 2006b).

I don't see any of these objections as compelling. Objection (i) confuses the first-order of dispositions with the second-order of relations between dispositions. Once these two orders are distinguished, the threat of a regress disappears, as Bird has argued (Bird 2007: ch. 6.3). First-order monadic properties can get their identity fixed by second-order relations just like the nodes of a graph can get their position fixed by the graph itself.⁴⁰ A quite different thing is what that second-order relational structure is and if it is consistent to say that something can be relationally constituted without collapsing into the second-order structure itself (more on this soon). Objections (ii) and (iii) confuse instantiation with manifestation, as Barker (2013: §3.1) has shown. The idea that the instantiation of potencies does not require any

⁴⁰ The graph itself needs to satisfy certain conditions of asymmetry, but this is not important here. How relations themselves can provide identity conditions has also been shown by Dipert (1997) and Holton (1999).

manifestation is coherent. This might sound mysterious for those who think that all that is real is actual, but there is no contradiction in positing the real existence of potencies: the being of a potency consists simply in its instantiation, and its instantiation only brings to the world the potency for other potencies being instantiated. Let's not dismiss the idea just for being mysterious; before that, let's see how much it delivers.

The fact that all properties are dispositional and not categorical is what, according to DE, makes the world *causally active* and *connected*. Allegedly, these features arise from the very nature of properties. This passage is representative of the spirit that animates DE:

The essentialist's world is therefore not one in which all events are loose and separate. On the contrary, it is a world dominated by causal powers in which events *activating* these powers necessitate other events that are their displays The essentialist's world is therefore a *bound* and *connected* world. (Ellis 2001: 287, my italics; similarly, Mumford 2004: 168, 182–3)

But here is the crucial question: how is it that dispositions can *connect* the world and make it *causally active*? How is it that these features arise from the very nature of dispositions?

As we saw, the essence of a disposition is determined by second-order relations. Yet what is the nature of the second-order relational structure, the power-net, that fixes the identity of dispositions? First, it is clearly *not a disposition*. If it were, then its identity would be determined by third-order relations, and the identity of these by fourth-order relations, and so on, in a way that the regress-objection presented in (ii) above would in fact undermine DE. Second, it is *not causation*. The essence of a disposition is relational, insofar as it is determined by its relations to other properties. But these other properties need not be instantiated: when fragility is instantiated it stands in a second-

order relation to non-actual properties (i.e., if hit by a stone, it would shatter).⁴¹ When a disposition is instantiated, it mirrors the whole power-net from its own perspective; but the other nodes of this higher-order structure need not be instantiated: they are ontologically independent, the instantiation of one of the nodes neither is nor contains nor necessitates the instantiation of the others. Yet causation, if it is real at all, surely takes place when something actually occurs. In order to be, all of it must somehow take place in the flux of this concrete world. Third, it is *not an external relation*, a non-supervenient addition of being that has nothing to do with the nature of the relata, like Lewis' relations of distance or Armstrong's nomic relations. Without the relational structure, dispositions wouldn't be what they are. Fourth, it is *not an internal-Russell relation*, since it is not grounded in the intrinsic nature of the non-relational relata. In fact, the relata of this particular case (i.e., the first-order dispositions) are of relational nature (i.e., they are relationally constituted), and it seems that if anything has ontological priority here is the second-order relation itself: the identity of a first-order property depends on the existence and identity of the second-order relation. Only once you have the power-net, you can have its nodes. Fifth, it is *not an internal-Bradley relation*, since there is a plurality of relata-in-relation, and not an all-embracing substantial unity from where both relata and relations can be said to be mere abstractions. In sum, the important bit is that a property *is what it is* in virtue of standing in a certain relation to other properties. In other words, in a world where properties conform a vast power-net, this power-net is an *internal-Moore relation*: it is of the very *essence* of the terms related (the first-order properties) to stand to each other in the way they stand; they wouldn't be what they are if they were not so-related. The label applies with an important qualification: while DE is talking about the essence of properties, the relata that Moore had in mind were concrete

⁴¹ Thus, the most consistent path for the dispositionalist is to defend the existence of *ante rem* universals; otherwise, the idea that a disposition can be instantiated and not manifested, or the idea that a disposition can be instantiated and its identity fixed by how it is related to non-instantiated properties, cannot be sustained with internal coherence. Bird (2007: §3.2.2) defends the Platonic path explicitly.

individuals.⁴² And if the second-order relational structure is an *internal-Moore* relation, i.e., an essential or constitutive relation, then the essence of a disposition is just being what it is. As Barker claims, the second-order relational structure can only be a *quiddity* (Barker 2009: 248). Thus, in a world where every property is a disposition, at least one non-dispositional property needs to be recognised.

Having in mind that dispositions are relationally constituted, how is it that from this relational essence something like causal activity and connectedness can arise? Well, it cannot. Or better: it could, but in a way that would remain as mysterious and brute as in Armstrong's case. Because nothing like causal activity or connectedness follows from such second-order relational essence. The second-order relation does not need any occurrent casual activity or connection in order to be what it is. Here is important to keep in mind Mumford's claim: that despite having a relational essence, the actual existence of a disposition is *ontologically independent* from the actual existence of other dispositions. This is so because, though the essence of solubility is relational, solubility can be instantiated by a grain of salt even if this grain of salt is never dissolved or never placed in warm water. That is, any disposition can be instantiated without any kind of actual and concrete causal activity or connection taking place.

Dispositions are not sufficient to bring any concrete causal activity or connection. First, as it will be admitted by any dispositionalist, it is clear that a *single* disposition cannot bring causal activity and actual causal connections to

⁴² In fact, Bird explicitly follows the ontic structuralist strategy that Dipert developed with the help of graph theory (Bird 2007: ch. 6.3, Dipert 1997), but applies it to a different target. What the ontic structuralist says about the identity of objects is just what Bird says about the identity of properties, namely that they are relationally constituted, that their identity is determined by their position in a relational structure. It is also the way in which the mathematical structuralist accounts for the nature of numbers (cf. Shapiro 2000: 258, quoted in §2.1.1 above). Yet it is difficult to see how structuralism about properties doesn't collapse into structuralism about concrete objects. Unless concrete objects have a transcendental principle of individuation, they are what they are in virtue of their properties, and if these properties are what they are in virtue of their relations to other properties, then it seems that the internal-Moore structure somehow swallows or dissolves all individuality into the structure itself. This is, in fact, the picture embraced by ontic structural realism. More about this in ch. 4.

the world. After all, *doing X* is a reality that goes beyond the (relational) essence of *being disposed to do X*, because the essence of *being disposed to do X* can be instantiated without *doing X* being instantiated. Being ontologically independent from other properties, the instantiation of a disposition can take place with independence from the instantiation of other dispositions. Thus, neither causal activity nor instantiations of other properties nor actual causal connections can arise from the very nature of a disposition, because no further instantiation of anything else arises from, or is necessitated by, the instantiation of a disposition. In fact, an instantiated disposition cannot even manifest by itself; this already goes beyond its essence; to be triggered, it requires something else to be instantiated, something external to it. And we cannot bring into the scene a self-manifested disposition or a continuously-exercised disposition: if the former, then an infinite chain of dispositions capable of self-manifestation is needed to make sense of the idea, central to DE in all its versions, that it is essential to a disposition the possibility of being instantiated without manifesting; if the latter, then we are in front of something which is not a disposition—since, again, a disposition by its very essence can remain unmanifested (Psillos 2006b: 139–41).

But the previous objection is something that generally doesn't worry the dispositionalist. In fact, as I said before, the dispositionalist would be happy to admit it, since he believes that properties do not work alone but as a team. So let's grant the dispositionalist the initial conditions that he needs. Let's take a pan with boiling water and throw a pinch of salt into it. If we wait a little bit, we will have salted water. The salt has the disposition to get dissolved in boiling water and boiling water has the disposition to dissolve salt. Allegedly, these 'reciprocal partners' dispositions are stimulated by putting the salt into the boiling water, and together they manifest as salted water. Once the salt is placed in the boiling water, all that the dispositionalist needs for the manifestation is in place. But this is clearly not enough. The problem is that all the process of dissolving, all the causal activity itself, is right in the middle: it

takes place *after* the triggering and *before* the manifestation. All the causal activity and connectedness is in the process itself of salt and water *becoming* salted water. Yet this process is not captured by the relational pattern of dispositions (D-S-M), nor by any relational pattern that assumes the actual existence of relata standing in some causal or spatiotemporal relation, because in the *becoming* bit there are no distinct relata to relate. Only *after* the salt is in contact with the water, and only *before* we have salted water, we have salt and water *on the way* of being salted water. Salted water does not exist *yet*. The truth is that neither *having the disposition D to M if triggered by S*, nor *being manifested as M after triggered by S*, are the same as *becoming M*. Neither the pattern of wholly distinct events standing in cross-temporal or causal relations nor the relational pattern of dispositions can capture the actual *going on*, the actual *process* that is involved in causal activity. Thus, causal activity and connectedness is not explained by dispositions. If anything, it seems to be the other way around: from the existence of causal activity and connectedness we derive the relational ideas of dispositions, counterfactuals, and the like.

Since actual causal activity and connectedness are not captured by the relational pattern of dispositions, in a way we face have the same mystery that we have in Armstrong's case. In Armstrong's case, it is a mystery how his higher-order external relations of nomic character communicate causal activity or connectedness to lower-order states of affairs whose nature is ontologically independent from those laws. Now, in the case of relational essentialism, we get closer but not close enough: how is it that the instantiation of dispositions with relational essence can bring about causal activity and connectedness? Only by introducing a distinct brute fact! But the brutal route is open to anyone; it is not a better ontological explanation than the one offered by any fragmented worldview. All necessity that does not arise from essence is, after all, brute addition of being.

3.3 Monadic foundationism: The way of identity

One might try a different route. One might claim that dispositions are simply *identical* with *categorical* properties. This is the position defended by Heil (2003), who rests on ideas that have been defended by Martin (1994, 1997) and on a particular interpretation of Locke's stance on how primary and secondary qualities are supposed to stand to each other.⁴³ Under this view, the Lockean labels of primary qualities (categorical properties like the microstructure of a red rose) and secondary qualities (dispositional properties like the power of that microstructure to produce the visual experience of seeing red) are understood as two different modes of presentation of the very same property.

If P is an intrinsic property of a concrete object, P is simultaneously dispositional and qualitative; P 's dispositionality and qualitativity are not aspects or properties of P ; P 's dispositionality, Pd , is P 's qualitativity, Pq , and each of these is P : $Pd = Pq = P$. (Heil 2003: 111, his italics)

In an obvious sense, Heil, like relational essentialists, holds that all properties are dispositions. We just need to add the important qualification that all properties are, as well, categorical or, in Heil's terms, qualities. The *sphericity* of a ball is both a categorical property of the ball, i.e., its shape, and a disposition of the ball, i.e., its disposition to roll.

In principle, it seems that Heil's theory does not face the common criticisms to relational essentialism presented above. The identity regress is blocked from the very start. Since all dispositions are also qualities, there is no need for a second-order relational structure to fix their identity. Second, the doubts about what are dispositions when manifested or when not manifested don't arise. Though, as I said, these objections confuse instantiation with manifestation, now, in Heil's theory, it is clear that instantiated properties, either manifested or not manifested, qua qualities, they simply are what they are. But these three

⁴³ It is also the position defended now by Tugby (2012), as a response to the challenge raised by Barker and Smart (2012) against pandispositionalism. Mumford also proposed an identity theory in his (1998), before embracing the relational essentialism deployed in his (2004).

difficulties, as we saw, are only superficial. With its own resources, the relational essentialist can also give proper answers to them.

Heil claims that the temptation of thinking of dispositions as relationally constituted comes from the fact that for characterising them we might well appeal to conditionals that refer to their manifestations and stimulus conditions (Heil 2003: 81–82). But a way of characterisation is not necessarily a way of constitution. There is more to the nature of properties than relations, and objects might be seen as enjoying some real intrinsic nature by being the nature of their properties also intrinsic. Those who support the way of identity like to think that they have introduced powerful objects in their own right. Naturally, they are also tempted to take their view as providing monadic foundations for causal relations. Immanent causation would be a matter of the same object instantiating one monadic quality-disposition after another monadic quality-disposition. Transeunt causation would be a matter of *this* object instantiating one monadic quality-disposition and *that* object instantiating another monadic quality-disposition. That is, in general terms, causation would be a matter of a dispositional property reacting to its ‘reciprocal disposition partner’ (Heil 2003: 83). It is the solubility of salt with the dissolving capacity of warm water that produces salted water. This seems to suggest that causation could be considered as an internal-Russell relation: if you have objects with this type of nature, then causal relations could be said to be grounded in the monadic natures of the terms (in fact, Campbell 1990: ch. 5 and Heil 2009 both suggest something along these lines). And if relations of distance are the product of the causal order, then the prospects for a general monadic foundationism seem promising.

Unfortunately, the identity theory lacks sufficient resources for all this. And this is so because the mysteries of causal activity and connectedness still remain untouched. These are not less obscure if someone says that one property-instantiation is followed by another property-instantiation because

they are ‘reciprocal disposition partners’, like the power of solubility and the power to dissolve. Before having salted water, salt must be *dissolving*. Just saying that *this* property has the disposition to dissolve, while *that* property has the disposition to be dissolved, and after (somehow!) getting together, they manifest as salted water, doesn’t give us much more light than the explanation offered by the Humean: one instantiation is followed by another instantiation. Now how can qualitative-dispositional properties as those proposed by Heil can bring causal activity to the world? How can these properties provide a cement for the universe? Again, we have a similar problem that the one exhibited by relational essentialism: how is it that causal activity and connection can arise from properties whose essence is fixed or determined with independence of those activities or connections taking place, i.e., when these features are far more addition of being than the one present in a pair of qualitative-dispositional properties?

Take causal activity. An example might be helpful. Think of yourself as a God that happens to endorse Heil’s theory of properties. Create a plurality of things and bestow them with this kind of qualitative-dispositional properties. For the sake of example, bring into existence a couple of things in your world, a stone and a vase. The stone has mass and solidity, which are, allegedly, identical with the disposition to break fragile things; and the vase has certain microstructure, which is, allegedly, identical with the disposition of fragility. You have your ‘reciprocal dispositional partners’ there. There is fragility and there is the disposition to break things, both instantiated by distinct objects. Grant the identity-theorist the necessary initial conditions (huge concession!) and actually throw the stone to the vase. Luckily, the stone *hits* the vase and then the fragile vase *breaks*. We have the manifestation: a broken vase. But as I said before against the relational essentialist, all the real action is not captured by these ‘reciprocal disposition partners’ nor by the stimulus nor by the manifestation. All the causal activity, all the real process of *breaking* takes

place *after* the stone hits the vase yet *before* the vase is broken. What happened there, right in the middle? No answer.

Something similar happens with the problem of connectedness. Under Heil's conception, dispositions are identical with first-order monadic intrinsic qualities. Of course it is tempting to think that one has found monadic foundations for causal relations, in a way that these would be internal-Russell relations. But if properties still enjoy ontological independence, i.e. if they can exist and be instantiated without causal connections actually obtaining, what, then, apart from a brute nomic fact, can really *connect* one instantiation with another one? We are again in the dark. And looking to the monadic foundationist picture closer, it seems that even if qualitative-dispositional properties were really capable of providing complete foundations for causation, you still cannot have both monadic foundations *and* a bonded or connected world. This is, in fact, a dilemma for any pluralist that looks for monadic foundations for causal relations: if transeunt causation has monadic foundations, then it seems that the connection is merely apparent, like a choreography of individuals, since how can two monadic properties inhering in distinct individuals *connect*? How can two distinct individuals even *touch* each other without ceasing to be wholly distinct (§1.5.2)? Leibniz was at least consistent: his monads were active objects; but, as he well realised, if the plurality of monads gives foundations for relations, then they, in fact, do not influence each other, they do not connect in any relevant way: they, at most, can be *coordinated*.⁴⁴

The identity theorist faces the same dilemma that the relational essentialist: how is it that dispositional-qualitative properties bring causal activity and connectedness if their essence does not contain enough to explain these? In short, what the monadic foundationist offers is only a different way of fixing

⁴⁴ Lotze, like Leibniz, was also consistent. Founding unbearable the causal isolation of monads, he ended up embracing monism by merging all his monads into his 'M'. Cf. Russell (1937: §78).

the identity of properties. But the problems of causal activity and connectedness still remain in the dark. We need to look elsewhere.

3.4 Filling in the gaps (I): From disposition to activity

As far as I can see, causal activity cannot occur unless it is accepted as something independent from, or at least more basic than, dispositions. In the following sections I will offer the sketch of what I think is a more promising approach to causal activity and connectedness. And if it is not promising, at least it has the virtue of highlighting the points where DE fails.

The problem up to now is that most of the contemporary debate on properties, causation and law, assumes that the dichotomy categorical/dispositional is exhaustive. So, on one hand, the categoricalist commits the mistake of reducing the realm of occurrent properties to causally inert quiddities, having in his mind, as paradigmatic examples, geometrical properties such as size and shape, and taking their essence to be totally divorced from any causal activity. On the other hand, the dispositionalist commits the mistake of trying to ground the realm of actual causal activity in the inactive realm of dispositions, making the rise of occurrent causal activity a total mystery. Both miss the mark. The distinction categorical/dispositional is simply not a dichotomy because it is not exhaustive. Following a tradition that traces back to Aristotle and Leibniz, we can introduce *occurrent* properties of *causal* nature. These properties are usually called *activities*. I take activities to be the properties of essentially active objects, in the sense defended by Adams (2007) and Dumsday (2012), and in very close agreement to the understanding of Hornsby (2013). As Adams puts it,

An activity is an action whose present reality does not consist merely in producing, or tending to produce, effects distinct from the action itself. The content of an activity, accordingly, should not need to be completed by the content of an effect distinct from it. (Adams 2007: 45)

An *activity* is neither an event nor a causal relation, nor, by its essence, a relatum of any other sort of relation. It is a *process*, and as such, it does not need to achieve any result distinct from itself to be what it is. When an object engages in an activity there is a concrete ongoing process. The standard, atomistic, conception of processes takes them to be somehow the result of particular events standing in causal or cross-temporal relations. When this is done, all the apparently dynamic character of a process is lost. On the contrary, when one starts with process as basic, one reaches the idea of events-in-relations after abstractions are made from process. An event is a dated, well-bounded, completed and unrepeatable particular, which finds its natural place in a tenseless or eternal view of reality. Events are reported in sentences like ‘the vase broke after the stone hit it’, ‘the Titanic sunk’, ‘Peter cooked a stew yesterday’. There is nothing properly dynamic about these events, just like there is nothing dynamic in a sequence of still photographs that tries to capture a horse race. Events, like still photographs, are simply countable happenings indexed to times. In contrast, a process is essentially tensed and cross-temporal relations are the very denial of that tensed character (Sellars 1981). The sentence ‘Peter cooked a stew yesterday’ cannot report it, while the sentence ‘Peter was cooking a stew yesterday’ does. When Peter is cooking a stew something is going on, and it goes on as long as it goes on. The activity of cooking a stew is something in which Peter is engaged in at any time when he is cooking a stew. Since an ongoing activity or process doesn’t need a result distinct from itself, Peter can be cooking a stew for ages without ever finishing to cook it (he might take life easy or he might find cooking very relaxing), or he might decide to quit or suspend the process right after finishing chopping the onions (he realised that it was time for his favourite TV show), yet it is still true that Peter is not merely disposed to cook a stew, nor having cooked a stew, but that he is actually cooking a stew. As Hornsby (2013: 4–5) rightly argues, it is meaningful to ask *how many* events of a certain type (e.g., world wars) there were, but it is meaningless to ask *how many* of ongoing activity there is (was). One cannot ask meaningfully *how many* Peter’s cooking a stew there is (was).

Since ongoing activity is not a countable particular, the proper question would be *for how long* has been (was) Peter cooking a stew. For a day? Until he finished it? Until he got bored?

Activities are neither categorical nor dispositional nor an identity of both. On one hand, activities cannot be instantiated and remain unmanifested: it is of their very essence to be occurrent. Peter cannot be cooking a stew without being cooking a stew. On the other hand, the nature of activities is not impotent or inert, as categorical properties such as ‘shape’ might suggest. An activity *is* a doing: cooking a stew. Accepting the existence of activities involves resisting two temptations. We have to resist the categoricalist temptation of shrinking every activity into dead mechanism, into something that can only be instantiated within the inert, breathless and unextended dimension of a geometrical point; and we also have to resist the dispositionalist temptation of reducing occurrent activity into the relational, potential and static realm of dispositions.

It is not surprising that Leibniz, who strongly believed that activity was the mark of being, carefully distinguished between occurrent exercise of force and a pure disposition, potency or capacity. According to him, it was quite clear that only occurrent and actual force could bring real activity to the world, and pure powers were just abstractions from actual and occurrent forces. Causal powers are not dynamic nor they can bring activity to the world. They are ‘dead’:

By force or power (*puissance*), I do not mean the capacity (*puovoir*) or mere faculty, which is nothing but a near possibility of acting, and which, being as it were dead, never produces an action without being stimulated from without, but I mean something which includes an effort, an act, an entelechy, for force passes of itself into action, in so far as nothing hinders it. Wherefore I regard force as constitutive of substance, since it is the principle of action, which is the characteristic of substance. (Leibniz in Russell 1937: §18; cf. Leibniz 1989: 433)

Spinoza held a similar view to that of Leibniz, though, of course, in a monistic variant: by power of an object he understood its actual striving; moreover, the

very essence of an object was given precisely by its striving or *conatus*, i.e., its actual persevering in being (Spinoza 1994: IIP6–P8). So an activity is not a potency, nor a frozen categorical state, nor a relation, nor a free-floating chain of loose and separate events, but the ongoing process in which an object is engaged in. We can also understand activity, striving or *conatus* as actual effort.⁴⁵ While categoricalism chops down the instantiation of properties into impotent, breathless and unextended instants, and DE takes activity to mysteriously arise from properties that in themselves are frozen structures, activity or striving involves an occurrent exercise of force with indeterminate duration: as long as the active (striving) individual object exists (Spinoza 1994: IIP8). No wonder that when one reads Leibniz and Spinoza it is hard to distinguish between the individual object and the process, because the essence of an individual object is its striving, *to be is to strive* (Rescher 1996: ch. 1, 2000: ch. 8, Basile 2012). Thus, ‘Socrates’ and ‘Socrates’ striving’ are like two names for the same thing: while one puts the emphasis on the persister, the

⁴⁵ Steve Barker (personal communication) has suspicions against expressions like ‘activity’ or ‘striving’. He claims that they are too closely associated with agency and panpsychism. Thus, he suggests the use of a word like ‘propensity’. I think he is right in claiming that expressions like ‘striving’ are associated with agency and often linked to forms of panpsychism. But I see the connection with agency and panpsychism as a source of clarity and virtue, not as a source of obscurity and failure. First, because I don’t see how the word ‘propensity’—which is used by philosophers like Popper—is any more clear than my preferred expressions, which have the advantage of being more rooted in the philosophical tradition—ancient, medieval and modern. On one hand, ‘propensity’ is often misinterpreted as suggesting causal power, so this means no progress; on the other hand, when we try to differentiate a propensity from a causal power, it is not clear that we can avoid my preferred expressions. Admittedly, we are sailing in obscure waters, but I don’t see how causal concepts that are distant from agency can be any more clear than those that are closer to agency. It is like pretending that the existence of colourless particles is more evident, serious and ontologically respectable than the existence of the colourful landscape offered by immediate experience simply because those particles are more detached from the perceiving subject (when it is precisely this very detachment what makes them more distant and obscure). Second, I am happy to be considered a panpsychist. Later on it will become more clear why panpsychism is an option to be considered seriously. Here is a hint: I take the existence of agency as more or less evident: it is hard to see how could there be any causal activity without agents; in other words, surely there is at least one object that acts without being caused to act by something else. So the question is not whether there is any agency, but up to what extent agency is present in nature. Now, if nature is seriously undivided, if it is seriously one, then it is quite arbitrary to restrict agency to some well-bounded proper part of it, because there is nothing like a well-bounded proper part of it. Anyhow, if you think that ‘propensity’ produces in your head more clear ideas than the words ‘striving’, ‘conatus’, or ‘effort’, then feel free to read ‘propensity’ where I write ‘striving’, ‘conatus’, or ‘effort’. Perhaps the word ‘force’ can be accepted as a way of compromise. But again, if you ask what does ‘force’ mean, it is doubtful that we can avoid in our explanation the temptation of falling back into dead causal powers or of introducing something that acts without being caused to act, i.e., an agent. When we get to these expressions it is quite obvious that we have reached rock bottom.

other puts the emphasis on its ongoing activity. But there is nothing really ‘particular’ in Socrates qua persister; he is more like a ‘universal’, because what persists through a process is a certain substantial form. Call it Socrateshood, if you want. In fact, as a British idealist would say, the concrete individual is more like a ‘concrete universal’, a concrete single form that persists through the many properties and stages that can be obtained through abstraction from its continuous unfolding.⁴⁶ The word ‘Socrates’ works just like the word ‘river’, which designates a single dynamic form undergoing change. (By the way, it is not correct to say that one can never step twice into the same river. The correct way to put the idea is the following: one can step many times in the same river, as long as the river-form exists; but never, not even once, in the same waters.)

The introduction of activities might help us to have an active world. But what *connects* one activity to another activity? Apparently, nothing. After all, the essence of an activity does not necessitate other activities. And if the essence of an activity does not necessitate any other activities beyond itself, then an activity by itself cannot determine the occurrence of other activities, so it will be very difficult to see how could two different activities be connected in a non-brutal way. If all what there is out there is activity after activity, then we might well be Humeans that accept a sparkling world, i.e. an active but loose and separate world, where all activities hang together due to pure metaphysical coincidence. This is not surprising. When looking for immanent (as opposed to external) connections, DE, by putting the attention in the nature of properties, is looking in the wrong place. To find immanent connections we need to look elsewhere: in the object itself.

⁴⁶ Thus, I am with those who think that the particular/universal distinction is somehow arbitrary and certainly not always enlightening because it is not an exclusive and exhaustive dichotomy into which objects can be classified (MacBride 2005, 2009, Ramsey 1925). In this case, as in so many others, grammar bewitches us. For an account of the origins and different uses of the Hegelian term ‘concrete universal’, adopted in an idiosyncratic way by British idealism, see Stern (2007).

3.5 Filling in the gaps (II): From activity to active object

The key point is that activities do not float around freely, because ‘[a]n activity is something an object *does*’ (Dumsday 2012: 55). An activity, unlike a mere happening, is something that someone does. Moreover, activities cannot be done by any kind of object, but only by an active object. A mere activity does not act and a non-active object does not act; an *active object acts*. Of course, *prima facie*, being *x* and *y* distinct active objects, *x*’s activity does not necessitate *y*’s activity, but *x*’s activity clearly is necessitated by *x* if *x* is an essentially active object. What provides connection to a series of activities, then, can only be the object itself: only an essentially active object can necessitate a certain succession of activities. As Leibniz used to argue, activities can only arise from the object’s own depths or nature.

As for me, as far as I believe myself to have grasped the notion of action, I hold that most received philosophical dogma, that *actions belongs to subjects (esse suppositorum)*, follows from it, and is proved by it; and I think that this principle is so true that it is also reciprocal, so that not only whatever acts is a single substance, but also that every single substance acts without intermission. (Leibniz in Russell 1937: §21; cf. Leibniz 1989: 360, 457)

Actual numerical distinctness of activities (e.g., Peter’s cooking, Peter’s running) can only be obtained through abstraction from the active object itself, from its continuous striving, *conatus* or effort. They are obtained through arbitrary cuts within the continuous unfolding of an essentially restless object; they are not distinct stages or discrete parcels somehow in need for metaphysical glue.

The idea of a body exerting actual force gets close to what an essentially active object is (in this sense, Dumsday 2012: 46, 47, 51, with references). Think in the gravitational field of a massive body. It cannot but be in constant exercise as long as the massive body exists. It does not need any external triggers, nor any effects beyond it. It does not and cannot exist unmanifested, so it does not even make sense to distinguish between it and its exercise. Its being *is* its

exercise; it ceases to be only after the massive body is annihilated. This occurrent force escapes from the usual suspicions of Humeans: they are not hidden to our senses like occult powers or pure potentialities or mysterious causal relations are. Actual gravitational force is felt and experienced. And one extreme of a field is not a wholly distinct existent from its other extreme: there are no gaps within it and the influence is propagated in a continuous, unbroken and direct way, so no mysterious nomic relations are required to make connections (§1.5.2).

(An analogy might be illustrative. Activities stand to an essentially active object in the way voluntary body movements stand to the will according to Schopenhauer and Wittgenstein. First, a voluntary body movement is not a mere *happening* but something that someone *does*. Second, a voluntary body movement does not stand to the will in the way in which effects stand to causes or manifestations to dispositions; nor the movement is brought about by any sort of transcendental ego, a bare point somehow mysteriously standing beyond its actions. Will and action do not stand as related-in-relation. Willing *is* acting, to will to raise my left hand *is* to raise it, the act of the body *is* the act of the will (cf. Schopenhauer 1966: 100, Wittgenstein 1979: 4.11.16, 2001: §615).)

With the incorporation of activities and the recognition of essentially active objects as their ground, what is *immanent causation* might be more clear. It cannot be a *relation* of any sort that somehow mysteriously connects different stages, or successive activities, of an individual object. An essentially active object cannot be reduced to separated stages or different activities in need of metaphysical glue. If we accept essentially active objects, then what we take to be cause and effect within the career of a single essentially active object, are nothing but imperfect abstractions from the continuous, unbroken and ceaseless activity of an object whose essence is striving, conatus or effort. The expression 'immanent causation' is only an inadequate, relational and discrete mode of expressing what is really the continuous unfolding, the ceaseless

striving, of a singular object, the only genuine source of unity and activity. An essentially active object necessitates certain active unfolding because it is of its very essence to do so: its essence is to unfold in a certain way and it wouldn't be what it is if it were to unfold in a different way.⁴⁷ Of course, not being God, such an object is not a necessary being. The necessity to which an essentially active object like this gives place is the necessity entailed by its essence; the contingency that it enjoys is the contingency of its own existence. But granted its existence, it cannot but unfold according to its own essence. If such an active essence comes to existence, it simply cannot but strive according to its immanent program, restlessly, until its annihilation. For it, to be is to continuously exercise force, and to cease to be is to stop striving.

DE wrongly focuses on dispositions as the key ingredients, forgetting that the answer to the mysteries of connectedness and activity might lie elsewhere: in the objects themselves, as long as we understand them as essentially active objects. You might question the existence of activities and of essentially active objects, but that is another story. What I am trying to show is that for guaranteeing a really active world we need activities and that activities are only guaranteed if we have essentially active objects. What connects a series of activities is not a relation that holds between them, but something non-relational: the essentially active object itself. Thus, immanent causation is not a relation between different stages of an object, but an abstraction from the object's unfolding. E.g. if an acorn is an essentially active object, then immanent causation is the unfolding of the acorn-form according to its essence, not a cross-temporal relation between an acorn at t_1 and an oak tree at t_2 . In this picture, immanent causation can be qualified as internal-Bradley: terms and relation are better understood as abstractions from an underlying more substantial unity. And once we have a choreography of two or more essentially

⁴⁷ Essentially active objects can be seen as realising an immanent law or blueprint, as Leibniz and Lotze conceived them (cf. Leibniz 1989: 360, Russell 1937: §20). I am not claiming that necessity grounds essence. On the contrary, if anything, it is essence, i.e., what a thing is, what eventually gives ground to *de re* modality (Fine 1994). I am just offering objects with a very rich and particular essence.

active objects, transeunt causation can be seen as internal-Russell: it is grounded in the non-relational nature of the relata.

3.6 Gaps that cannot be filled: Transeunt causation

Think of yourself again as a God. Create a simple world with two or three essentially active objects. They are immanently active, unfolding their program of behaviour in a continuous and restless manner. Striving until their complete annihilation. You create them and, as soon as they come into existence, they start to unfold according to their immanent program. No need for triggers or stimulus conditions or external laws. Your objects are essentially active, and they cannot exist but in striving, and they don't need nothing extra for connecting their own activity, since there are no gaps to be filled within each of them: they are the source of their own activities and of their gapless unfolding. Immanent causation is nothing but the restless striving of a single essentially active object. Add, for the sake of simplicity, the condition that each program of unfolding, each blueprint, is fully deterministic.

Think, again, in familiar objects to fulfil that role: your friend telling you some story while you pay him full attention; you observing a red rose which is slowly opening after receiving some sunlight. In this active and plural world we still have a problem, which DE also promised us to solve through causal powers. And the problem persists even if causal powers are replaced by the improved ontology that I have offered in the previous sections. We need more metaphysical glue; we need to fill in the gap that exists whenever there are two distinct individuals (§1.5.2). Can two or three essentially active objects make any sort of causal connection? If so, in what sense they are 'connected'? *If* you and your friend, you and the rose, the rose and the sun, are wholly distinct yet essentially active objects, is there any causal connection making some real bondage, i.e. something that makes your friend's words get into you, or the sunlight somehow make happen or influence the unfolding of the red rose? If

not, what explains the fact that these distinct activities appear to be somehow magically coordinated?

The answer that DE gives falls under what we can call, in general terms, *the way of influence*. The way of influence is old and it has its most salient contemporary representatives in supporters of the so-called transference theories of causation of physicalist inspiration, where transeunt causation is understood as transmission of certain physical quantities (Aronson 1971, Dowe 2000, Fair 1979, Salmon 1994). The answer of DE falls under this head, since transeunt causation is understood by it as a case of *influx*, a *transference* of properties from one object to another object. For instance, Mumford and Anjum present causation simply as a matter of ‘passing powers around’ (Mumford and Anjum 2011: ch. 1), and they explicitly endorse a non-reductive ‘transference’ theory of causation, where what is transferred are causal powers (Mumford and Anjum 2011: 102).

The problem is the following. Transference is supposed to be transference of first-order dispositions of monadic inherence. Yet monadic properties, whether you conceived them as immanent universals or as tropes, cannot survive an actual transference from object to object, since they cannot exist uninstantiated. They are *ways of being* of some object, so their existence is bonded to the object. Perhaps there is a sense in which it might be said that properties, when conceived as immanent universals, are ‘transferable’, but this is the coarse modal sense in which it is said that *this* red rose *could have been* a different way, say white, like *that* rose. I must recognise my complete incapacity for understanding this. First, this way of thinking assumes the contingency of predication. And the contingency of predication can only take place, as far as I can tell, under a relational understanding that takes it to be an external, contingent link. But the relational understanding of instantiation is not plausible: no genuine unity can arise by ‘relating’ a bare object with a property in such a loose way. Again, I must insist in a non-relational account of

inherence, where unity is restored but the price to pay is to stop treating properties as numerically distinct entities, since their numerical distinctness is lost in the substantial whole. There is no division between a bare substratum and some ways of being, since the only numerically distinct entity, the only individual object, is the substantial whole itself (§2.2.3). This is still more clear in the case of the activities of an essentially active object, since what an essentially active object *x* does is, and cannot but be, the unfolding of *its* own nature, not of *y*'s. Of course, you and me can both engage in the activity of experiencing, but if you are an essentially active object, then your experiencing cannot be but yours, i.e., what *you* experience. Second, even if the contingency of predication were accepted, this coarse modal sense of 'transference' is not the one applicable to the sort of transference of properties that allegedly takes place in an actual transeunt causal interaction. In this second sense, transference would entail that the redness of *this* rose actually stops inhering in this rose, somehow 'flies away' alone for a little while, and, after 'landing', starts inhering in *that* rose. And this is simply incoherent, whether we think of properties as tropes or as immanent universals, because they cannot survive such a transference (pace Ehring 1997). Because their very existence is bonded to the fact of being instantiated, and a transference of it cannot take place unless there is an instant where the property is not instantiated in neither of the objects. The only way in which properties can exist uninstantiated is when they are understood as transcendental, *ante rem*, universals. But if so, it is still doubtful that transeunt causation can be understood as transference of properties. In the first place, it is obvious that in such an abstract realm there is probably nothing like causation or influence between distinct forms. They are perfect, unique, self-sufficient and out of the causal traffic. In the second place, because we still need pale representatives of those perfect forms for accounting for the ways of being of concrete objects, and we still need to explain how it is that those pale concrete representatives of those perfect forms actually get transferred from object to object. Of course, the mystery is not the survival of the *ante rem* property. This exists even if it is not instantiated. The problem is

what happens with the *in rem* pale representatives of them in a concrete transference from this object to that object. We are again facing the same problem. What it may happen is that a new representative of the *ante rem* property starts inhering in the second object. Still, no transference. The problem for the Platonic is the one of participation itself: how something there, which is numerically one, can be here, inhering in many concrete individuals; how something there, in the atemporal heaven of abstract forms, has participants of it here, in the concrete realm, where transeunt causation surely takes place if it takes place at all.

It is notorious how this issue is completely avoided by Dowe in his (2000), perhaps the last and most comprehensive work within the physicalist program of transference theories of causation. In fact, although Dowe recognises that '[t]he difficulty arises if we wish to say that the effect receives the *same* quantity as the cause gave up' (Dowe 2000: 111, his italics), he says that his theory is 'noncommittal' on that point. But *that* is precisely the crucial point! If we want to have real transeunt influence and not just a brute fact, then it must be the *same* property-instance the one that is transferred. If object S1 possesses a certain conserved quantity and that very same quantity is not the one that is transferred to object S2 when they collide, then there is no such thing as transference or influx. We can observe that S1 and S2 seem to collide. We can measure the conserved quantities of S1 and S2 before and after the collision. We can tell that before the collision S1 had x amount of a conserved quantity while S2 had $x-1$. After the collision, we observe that S1 has $x-1$ and that S2 has x . But with this information we simply cannot tell whether the new conserved quantity that S2 has is the very same one that S1 lost. We just have a correlation of values, but the 'transference' is missing. It remains a mystery what is going on between S1 and S2 when a 'transference' is allegedly happening.

One might think that there is no such thing as transference of an identical property in a case of transeunt causation. For instance, Mumford and Anjum say:

It is not, however, always the same power that is passed on from cause to effect. In the case of heat and momentum, the same power in the cause is passed on to the effect, which acquires the power. But in many cases the change brought about in the effect is acquisition of a different set of powers to the powers of the cause. [...] We have a fragile glass that manifests its disposition when it is dropped and breaks. [...] The effect is that the glass is broken into many pieces. The glass (or at least its pieces) now has a power, to cut, for instance, that it did not have before the causation occurred. Then the glass had a different power – to hold liquid – which it no longer has now that it is broken. Now its pieces have sharp, rigid edges. Some new properties are instantiated, and older ones relinquished, at the time of causation. And with the appearance of new properties, for the dispositionalist, there arise new powers. The case can be understood as new, different powers being passed from cause to effect. (Mumford and Anjum 2011: 6–7)

The key problem of the idea of transference deployed in the quoted paragraph is in the use that Mumford and Anjum make of ‘instantiation’. Different properties being instantiated is not the same as transference of properties. The glass, while unbroken, has the power to hold liquid. It loses that property when broken into pieces, i.e., when it is no longer a glass. The pieces of the glass now instantiate the power to cut. But this is just a case of different dispositional properties being instantiated by different individual objects (*if a glass and its pieces are individuals at all, then they are distinct: the initial one glass is now many separated pieces*). No transference, no passing around, is happening here. This is because the very nature of monadic properties is inconsistent with their actual transference.

The previous case against transeunt causation can be better understood if we think in some example involving secondary qualities. Think in a red ball. The primary qualities of the ball are identical or at least give grounds to the causal power that it has to produce red sensations in human observers under suitable conditions. Now, is the red ball *really* red? Common answer: ‘It is *really-really* spherical, but it is not *really-really* red, since it is spherical but not red when unobserved, that is, it is spherical but not red *in itself*. Yet it does have the

causal power to produce the sensation of red in human observers under suitable conditions. And it has this causal power even when unobserved.’ This is very confusing. We might object to this position all what we have already said against the two versions of DE, but let’s push a little bit more to really understand what is supposed to be taking place in an actual case of transeunt causation. I could ask again what goes on between the ball that has the causal power of causing me to see red and my seeing red when I am actually observing it. Probable answer: ‘Well, there is transference of certain powers; perhaps various little objects called photons help with this transference. Properties are passed around and then, after a final transference, they land in your retina, and then you see red.’ I could insist asking what is going on between the last photon and the surface of my retina before seeing red. To say that some object has some active properties and the other object has the reciprocal partner passive properties doesn’t solve the mystery. The problem is precisely what is happening when the magic bringing about is taking place. Nor is it helpful to claim that the process of influence is smooth and continuous. I think this kind of move is close to what Mumford and Anjum have offered more recently by rejecting the dominant two-events model of causation. As they put it: ‘Causation should not then be understood as a relation between two events, but rather as what makes an event occur...’ (Mumford and Anjum 2011: 23), where a cause is ‘depicted as merging into and becoming the effect through a natural process’ (Mumford and Anjum 2011: 107). Mumford and Anjum realise how problematic is to find metaphysical glue between cause and effect once these are understood as two wholly distinct relata, so they prefer to see causation as an actual and continuous process (similarly, Huemer and Kovitz 2003). I think this processual model of causation is far more illuminating than the relata-in-relation model. But the problem is that Mumford and Anjum still hold that their basic inventory of properties is of dispositional nature, that the inherence of these is monadic, and that they inhere in a plurality of things. So, even if DE were reformed in order to include real immanent activity, which unfolds in a

non-relational but processual and continuous way, there is an obvious tension here that has its origin in their commitment to pluralism (see my 2012). If we have two wholly distinct things, then at some point the continuity and smoothness of the process is broken and interrupted by the boundaries of these distinct things. As I have argued, pluralism cannot but accept gaps between the plurals and that the most trivial case of transeunt causation is a case of action-at-a-distance (§1.5.2). Two distinct objects, no matter how active they are, seem to live in two different worlds. They don't make contact; they don't touch; their boundaries do not share any point. What is scary is that the problem affects all type of transuent influence, not only that one which involves secondary qualities. It affects the way in which we understand also our sensations of primary qualities, other minds and, in general terms, the external world. The mystery of how two distinct things exert influence over each other is pervasive, and there is no easy road to explain such transuent influence in plausible and coherent terms. This is probably why Leibniz, a convinced pluralist and a firm believer in immanent activity, rejected transeunt causation with such a strong conviction:

The *way of influence* is that of the common philosophy. But since it is impossible to conceive of material particles or of species or immaterial qualities which can pass from one of these substances into the other, the view must be rejected. (Leibniz 1989: 460)

If there is no transference, what can be the source of the apparent *connection* between two distinct essentially active objects? We are again at the beginning. One option is to be Humean regarding transeunt causation, and take it as an instance of a regular pattern in the general behaviour of essentially active objects. If this is so, then their position with respect to other essentially active objects is just a metaphysical coincidence. There is nothing in their very nature that compels them to behave in such a coordinated way. There is no more explanation to the apparent choreography than the brute and contingent fact of some external relations of distance actually holding between them. Since they are externally related, none of them acknowledges in its intrinsic nature the

unfolding of the others. The choreography is a brute fact: they just happen to be coordinated. But it could have been otherwise. Each of them could have still been an essentially active object in a different world, with different world-mates, with the only condition of there being enough free space for each of them to unfold their own selfish career. Another option is to rescue Nomic Realism, and include an external, higher-order, nomic relation that compels things to be coordinated as they appear to be. This brings all over again the objections against this mysterious determination: if we have to choose between brute facts, why don't we stay with the brute non-nomic cosmic coincidence of the Humean? What difference does this higher-order, nomic and external relation can really make? A third option is the Leibnizian way, that is, to make still more rich the essence of active objects, and include in their program of unfolding a complete acknowledgement of the unfolding of other active objects, in a way that their relative position also becomes an essential feature to all of them, because the unfolding of each one of them essentially mirrors the unfolding of all the others from its own perspective. A world like this would still require at least an initial miracle of bringing into existence the plurality in such a coordinated way. If this is not a divine intervention, then it is also a brute fact. Whichever is the option, in neither of these cases is there any real transient influence.

The best scenario for those who are looking for an immanent source for causal activity and connections is the Leibnizian response. The world *looks* connected if inhabited by various disconnected but active objects each of which is subjected to an individual law of unfolding that is coordinated with the rest. In this case, we can still say that transeunt causation is an internal-Russell relation, since it is grounded in the monadic activity of distinct objects and their perspectival essences. But, again, in this picture there is no real connection between you and me, and to say that there is, adds nothing: when there is coordination between your activity and my activity, we just look as connected, but nothing is really going on between you and me. The source of

these coordination is in each of our own individual essences, but there are no bridges between you and me. This response is grounded in one of the most coherent metaphysics ever imagined, yet also one of the most fantastic. Being monads completely windowless and containing each of them a full representation of their own world, one might wonder what other reason, apart from an alleged divine preference for infinite cardinality, gives support to this plurality. What is clear is that, once there is pluralism, there is no way to fill in the insurmountable gap that arises between object and object. In particular, no *relation* is able to do such job. Internal-Moore and internal-Russell relations, as the two variants of DE show, are unable to do the job. And external relations, as revealed by Lewis' relations of distance and by Armstrong's laws, are just a different name for the gap.

4 **Ontic structural realism: Relational world-making**

We have seen the mysteries of self-contained individuals and external relations, the core ingredients of Humean Supervenience. We also saw that the attempts to improve this loose and separate ontology by adopting a different conception of properties—DE in its two versions—don't dispel the mysteries but, quite the contrary, they bring some new ones to the scene. We are now in position to examine a holistic ontology much more radical than DE in its commitment to a form of internal-relatedness and in its rejection to self-contained plurals. In fact, according to this ontology, the world is exclusively made of relations. I am talking about the metaphysics defended under the labels of 'Exclusive Relationalism' (Dipert 1997) or as 'Ontic Structural Realism' (French and Ladyman 2003a, 2003b, Ladyman and Ross 2007). Following the nomenclature of the latter, I will call it OSR.

In §4.1 I will introduce OSR and distinguish it from other similar positions. In §4.2 I will discuss the reasons that seem to motivate it. In §4.3 I will argue that OSR makes little sense (if any), because if relations are already mysterious in the presence of relata, then the idea that there are relations without relata is doubly mysterious. In §4.4 I argue that OSR only makes sense as a sort of exclusive Platonism, and this must be rejected if we want to make good sense of certain undeniable concrete features of reality. In §4.5 I conclude that we must, somehow, restore the concreteness that OSR gives away with no good reasons. The main point of my objections is the following: the reasons that motivate OSR might be good reasons to reject certain ontologies where self-contained individuals play a central role, but those reasons are not enough to give away the non-relational. The holistic picture to which OSR is committed is also desirable and well motivated, but relations are not the only, and certainly not the most adequate, mean to obtain it: the problem of overcoming fragmentation, of how can we transcend mere juxtaposition and achieve

connectedness or interdependence, might well rest, as Bradley thought, in accepting the world as an undivided, indivisible, self-sufficient, non-relational unity. The relata-in-relation talk might well be just an imperfect way (perhaps the *only* way available) to express such unity (a unity that, ultimately, might well be ineffable).

4.1 Varieties of structuralism

Call OSR the ontology according to which the world is exclusively constituted by relational structure. In the slogan of two of its advocates: ‘There are no things. Structure is all there is’ (Ladyman and Ross 2007: 130). As it is obvious, OSR stands on the opposite side of monadic or monistic foundationism, since it is eliminative about self-contained individuals (either one or many) and embraces full-blown relationalism. Thus, it incarnates in its maximal expression all the mysteries that we have raised against the category of relation. In its favour we must say that OSR embraces a relational holism that also represents a rejection of the external relatedness embraced by Humean Supervenience. Because the pervasive relations of OSR are neither external (since they don’t leave the world loose and separate), nor internal-Russell (since there are no non-relational relata that may give monadic foundations to them), nor internal-Bradley (since there is no non-relational unity from which relata and relations can be said to be imperfect abstractions). The relational structure of OSR is real addition of being and makes of the world not a heap but an interdependent whole of relational nature in which everything owes its existence and identity to its place in the whole relational structure. Hence, the relations of OSR are internal-Moore, but with two provisos: (i) these relations are, at least partly, modal in character, and (ii) there are no concrete individuals with intrinsic natures standing as relata. As Ladyman and Ross put it: ‘Individual things are locally focused abstractions from modal structure. By modal structure we mean the relationships among phenomena . . . that pertain to necessity, possibility, potentiality, and probability’ (Ladyman and Ross 2007:

153–54). OSR is eliminative about individuals and their intrinsic natures. These are seen as pragmatic posits that do not carry any ontological weight since they are really nothing but invariant patterns in a relational structure. As Dipert (1997) prefers to put it, the world of OSR is like a huge graph and its holistic character obtains because the conditions of existence and identity of every subgraph are fixed by the whole graph.

The view of metaphysics I propose is relational and holistic: the concrete world is a single, large structure induced by a single, two-place, symmetric relation, and thus best analyzed as a certain sort of graph. Every concrete entity “in” the world is a part of this structure and is a structure (subgraph) in its own right. Such entities are individuated (and hence contemplated) solely by their graph-theoretic structural features. (Dipert 1997: 329)

OSR must be distinguished from another metaphysics, which I would like to call Moderate Ontic Structural Realism (MOSR). According to MOSR relations require non-relational relata, so the world is not only structure. But those relata do not need to have intrinsic natures: all that there is to them is the relations in which they stand to each other. Assuming that this idea makes sense at all, there are individuals but their natures are purely relational; apart from their relations, they are naked. This position is the one defended by Esfeld (2001, 2004), Esfeld and Lam (2008), and, at least to some extent, by Teller (1986), who speaks in favor of ‘inherent relations’. These ‘inherent relations’—which I prefer to call ‘internal-Moore relations’—play a crucial role in the constitution of quantum ‘particles’ and, through entanglement, they give place to a pervasive form of relational holism. But these internal-Moore relations do not exclude individuals. MOSR can be seen as a conservative reaction to the evidently radical ontology offered by OSR. As we will see soon, the apparent moderation of MOSR is not sufficient to rescue OSR.⁴⁸

OSR should also be carefully distinguished from Epistemic Structural Realism (ESR). ESR, in Kantian vein, is simply an epistemology of science according

⁴⁸ Although I presume that contemporary ontic structuralists would not be happy to be associated with British idealism, we can find clear antecedents of a similar type of relational constitution and relational holism in the work of T. H. Green. See Basile (1999: ch. 1), Dunham, Grant and Watson (2011: ch. 9), and Hylton (1990: ch. 1).

to which all we can know about the world is its relational structure. Individuals and their intrinsic natures remain always hidden to our observational apparatus so we better not claim knowledge about them. This view is a just a humble version of scientific realism. It says that mature and successful scientific theories tell as the truth about the structure of an external and mind-independent world; that this structure belongs or is had by something; and that we can only claim knowledge about the structure, not about what has the structure, because this, whatever it is, remains forever hidden: a noumenon to which we have no epistemic access. In principle, ESR is obviously compatible with a wide range of ontologies (monistic or pluralistic, materialist or idealist, Humean or anti-Humean, etc.), as long as these ontologies are capable of giving support to the same observable structure. Allegedly, if there is a knowable structure, then ‘something’ must exist that supports it; it just happens that we cannot know that ‘something’, whatever it is. OSR, in contrast, is straight scientific realism, only with a weird ontology. The epistemic bit is simply a consequence of the radical metaphysics embraced by OSR: if structure is all what there is, then structure is all what can be known.

4.2 Why OSR?

Why would anyone embrace the radical ontology offered by OSR? Despite its prima facie implausibility, there are a number of good reasons in favour of it. Here are the main ones:

(i) *Individuality in common sense*. The individuality of everyday individuals, like tables and oranges, like football matches and wars, is metaphysically and epistemically elusive, and it gives us a hint of what occurs in fundamental physics. Even if there is ample agreement that an individual must have determinate identity-conditions and countability, it is difficult to tell whether there are any entities that fit the bill, and certainly more difficult in the realm of common sense. In particular, the diachronic and synchronic boundaries of the

posits of common sense seem totally undetermined. It is very hard to tell where *this* commonsensical individual starts or where *that* one ends without falling into arbitrariness or paradox. Dipert (1997) argues that all traditional monadic ways of individuation collapse into relations. This seems fairly obvious in the case of the spatiotemporal position of a common-sensical individual, which seems to obtain due to its relations to other individuals. Though less evident, it also seems to be the case of properties which are usually considered intrinsic. Just try to find an example of these. Is ‘mass’ intrinsic, when we seem only to understand what it is through its relations to other properties, like acceleration or force—as the functional character of the laws in which all these properties figure seems to suggest? And what about ‘shape’? Isn’t it just ‘a set of spatial relations albeit “internal” to the object’, as Dipert (1997: 339) suggests? If so, we are back again with the problem of what counts as an ordinary individual object. And these, like intrinsic properties, seem also to be grasped in purely relational ways. Take, for instance, the case of a banana. How can we even perceive a banana as a distinct individual if not because it makes a genuine contrast against a background (e.g., a green plant, a white fridge)? Yet what is ‘contrast against’ if not a relation?

(ii) *Individuality in Quantum Mechanics (QM)*. It is not only the case that QM posits a crucial challenge to the metaphysics of Humean Supervenience due to the fact that this latter thesis is simply incapable of explaining entanglement (§1.6). In addition, quantum particles seem not to be individuals in a traditional sense. Traditionally, we can say that an individual satisfies the Principle of the Identity of Indiscernibles (PII), because at least one of its properties or its spatiotemporal position/trajectory makes it discernible from others; otherwise, they are identical. But PII simply fails for quantum particles. As Ladyman and Ross argue, particles in an entangled state, say the Singlet state, may share all of their monadic properties, and their spatiotemporal position/trajectory (which is, by the way, unlocalised!). Moreover, each of the so-called monadic attributes is identified in purely relational terms (e.g., mass is just that property

m with which something will satisfy certain complex relation, namely $m=F/a$, given a force F and an acceleration a , etc.). The only restriction is that the entangled ‘particles’ must have opposite spin-state, because the whole entangled system has a spin value of 0. Yet this says nothing about which is the ‘particle’ that has spin-down and which is the ‘particle’ that has spin-up. Nothing can be said about the spins of the particles except that they are anti-correlated. What we can say for sure is that the whole entangled system has a spin-value of 0. What is also clear is that the description of the Singlet state includes no property of one particle that cannot be attributed to the second one, and that a permutation of the ‘particles’ cannot be counted as a distinct state because the total spin-value will be the same, namely 0 (Ladyman and Ross 2007: §3.1). This suggests a tetralemma. First horn: PII is true and entangled particles are not distinct individuals since they are not discernible. Second horn: PII is false and entangled particles are distinct individuals in virtue of some transcendental and empirically superfluous principle of individuation that somehow mysteriously escapes from entanglement, i.e., a thisness, haecceity or bare substratum that transcends everything that can be expressed by the description of the phenomenon. This is the move favoured by MOSR, which appeals to relata devoid of intrinsic natures in order to avoid the spooky ontology of OSR. Third horn: PII is true but only in a very weak form, which makes quantum particles individuals also in a very weak form. Quantum particles do not have any intrinsic nature or any position/trajectory that can help us discern one from another, but they do satisfy a two-place irreflexive relation: $\langle _ \text{ is anti-correlated with respect to spin to } _ \rangle$. This is the move favoured by OSR. Under this solution quantum particles turn out to be nothing but pragmatic posits of internal-Moore relations, since their ‘individuality’ is grounded in nothing more than relations (OSR simply refuses to take the step into the transcendental individuality that MOSR takes). Fourth horn: this whole mess is a sign that quantum particles are neither distinct individuals nor mere placeholders of relations but something completely different, which is the move that I favour.

(iii) *Individuality in General Relativity (GR)*. Ladyman and Ross also argue that there are good reasons to prefer OSR about space instead of relationalism or substantivalism (Ladyman and Ross 2007: §3.2). Roughly, according to relationalism, space is the result of individuals standing in certain relations (external, in Armstrong's and Lewis's cases; internal-Russell, in Leibniz's case) in such a way that space would not exist if there were no individuals. According to substantivalism, space exists in its own right, with independence of the existence of individuals occupying it.⁴⁹ Ladyman and Ross take that GR gives good reasons to reject relationalism, since it attributes to space itself certain properties with independence of the existence of material 'occupants', like its topology and its propensity to influence and be influenced by matter. Yet they also take that GR gives good reasons to reject substantivalism, since, according to 'the hole argument' (Earman and Norton 1987), space-time points are indiscernible in such a way that it would make no relevant difference to swap them as long as spatial structure is preserved; thus, one could have equivalent structures that are satisfied by swapped points, in such a way that the substantivalist seems forced to accept, without any empirical motivation, a form of radical indeterminism. The identity and individuality of points is either transcendental (i.e., a thisness, haecceity, or bare substratum) or solely determined by structure. Since the transcendental way is empirically unmotivated, then it better be the case that space is nothing but real relational structure, yet this relational structure, pace relationalism, exists in its own right, with independence of the existence of individuals instantiating it: it is simply internal-Moore relatedness without individual relata supporting it. What a spatial point/region *is* is determined solely by its relations to other points/

⁴⁹ It seems obvious to me that the contemporary relationalist—the one who accepts spatial relations as *external* relations—must accept that these relations can exist without individual objects acting as relata (hence, that they could exist by their own). After all, this is what entails the fact that those relations are wholly external to the nature of the relata: that they do not depend on them, that they enjoy substantial status (not much progress since Russell). How this external relationalism without individuals is supposed to work and how a space like this would look like are questions beyond my understanding. I am only bringing to the light what it seems to be an obvious implication of the externality of relations. I presume that each relation could have a thisness in order to be distinguished and that they all could be swapped without making any relevant difference to the nature of space.

regions: it is nothing but a position in a relational structure. There is nothing intrinsic to it. To be precise, there is no *it* apart from structure.⁵⁰

(iv) *Realism vs. Antirealism*. For reasons of space and scope I will not discuss in depth one additional argument given in support of OSR as a particular species of scientific realism. This argument says that OSR, as a philosophy of science, is capable of making sense of the major argument for scientific realism (i.e. Putnam's 'no-miracles' argument; Putnam 1975: 73) and the major argument against it (i.e. the pessimistic meta-induction argument based on constant theory changes), giving us 'the best of both worlds' (Worrall 1996). According to OSR, we should be realists about structural components of scientific theories and anti-realists about the rest, since although there are countless ontological losses across theory changes, structure is always preserved. Ladyman and Ross give their verdict: 'In sum, we *know* that well-confirmed relations among phenomena *must* be retained in future theories' (Ladyman and Ross 2007: 157, my emphases).

I don't think that any of these reasons builds a compelling case for OSR. Admittedly, they are good considerations against standard 'particularists' ontologies, but OSR is not the only alternative to them.

Against reason (i)—according to which even the most basic individuation requires relations, like the one of 'contrasting against' certain background—we can reply what Bradley would reply. Dipert is only half right. Because grasping relations, like that of 'contrast against', is as difficult as grasping terms with intrinsic natures. We can only do it if there is a whole undivided situation. But that total situation in itself is not a relation. Both the idea of what counts as a 'term' of the relation 'contrast against' and the very idea of 'contrast against'

⁵⁰ Esfeld and Lam (2008) support MOSR about space: they argue that both points and structure come together as an indivisible package, since neither points nor relational structure make sense without each other. I cannot see how the inclusion of points may improve things: the world certainly is not pure geometry. More on this soon.

can only be obtained from a whole undivided situation that enjoys qualitative richness, e.g., a landscape.

Against reason (ii), we simply need to embrace the path suggested by the fourth horn. The whole mess about individuality of quantum particles does speak in favour of something different, and this ‘something different’ are nothing but *fields*. This path will be defended in ch. 6.

Against reason (iii) we can say that the structuralist solution indeed emerged as an answer to the ‘hole argument’ that Earman and Norton (1987) raised against manifold-substantivalism. But OSR is not the only solution. One may well reject the idea that substantivalism is simply manifold-substantivalism. In fact, when one defends a thicker version of substantivalism—by saying that space is not merely a manifold of bare points but that it is simply identical with the metric field, or by saying that space not only is identical with the metric field but also with the energy/matter field, as Einstein argued—the ‘hole argument’ doesn’t work, since swapping spatial points is a move that is no longer possible without making a *very* relevant difference (Dorato 2000, Hoefer 1996, Maudlin 1988). The question is whether these thicker versions of substantivalism are to be interpreted as giving support to structuralism or to supersubstantivalism. As I will argue in this chapter, bare structure is simply incomprehensible; and as I will argue in the next chapters, there are good metaphysical and empirical reasons in favour of a ‘thick’ supersubstantivalism; after all, the mere addition of bare points to the structure doesn’t help too much if we are not explained how can there be naked individuals that get to ‘instantiate’ a structure. As Maudlin (1988) shows, the ‘hole argument’ not only works against manifold-substantivalism but also against any metaphysics according to which the names of things refer to bare substrata or logical atoms of which all predication is contingent. The alternative to bare substrata, of course, is embracing some form of essentialism, where the subject of predication is simply identical with certain nature, or, as Leibniz would say: the predicates are *contained* in the

subject. I, with Bradley, find the notion of a bare substratum or logical atom ‘in relation’ to a determinate nature as spooky as it gets (thus, as he would put it, existence and content, the ‘that’ and the ‘what’, are indivisible aspects of anything real), and the distinction between essence and accident as arbitrary as it gets (Bradley 1930: 23, 143, 148–49). If this leads, indirectly, to a form of hyper-essentialism and to a kind of monism, so be it. I think that all attempt to analyse singular predication into numerically distinct elements—such as a bare particular that it is somehow related (!) to numerically distinct properties—is doomed to failure, because no copula can put Humpty Dumpty together again.

Finally, we can say that reason (iv) is not an argument but simply a dogmatic postulate. Whether theoretical losses concerning structural elements occur or not, and to what extent, is not something to be decided a priori or by postulation, so Ladyman and Ross shouldn’t say with so much confidence that they ‘know’ that structural components ‘must’ be preserved. This is an empirical matter to be settled by science itself or by the history of science. If we are to remain open to the possibility of novelty and discovery, of failure and error, then we ought to allow that theories, including their structural elements, can lose adequacy. To be clear, it might well be the case that the world, necessarily, has a certain structure that may be discovered a posteriori, just like $\text{Water}=\text{H}_2\text{O}$ might be a necessary identity which can be discovered a posteriori. But the central question is whether we are justified in claiming that we actually ‘know’ that our current mature scientific theories do get that real structure right and that we also ‘know’ that future scientific theories will and ‘must’ retain that structure (analogously, the question is whether we have any reason for believing that our current theory of water does get the essence of water right). And the answer to this question seems to be negative. After all, there is empirical evidence that shows that theory changes occur not only at the level of the individuals posited by scientific theories but at every level, including the level of structural components. Laudan’s report is compelling:

Copernican astronomy did not retain all the key mechanisms of Ptolemaic astronomy (e.g., motion along an equant); Newton's physics did not retain all (or even most of) the 'theoretical laws' of Cartesian mechanics, astronomy and optics; Franklin's electrical theory did not contain its predecessor (Nollet's) as a limiting case. Relativistic physics did not retain the aether, nor the mechanisms associated with it; statistical mechanics does not incorporate all the mechanisms of thermodynamics; modern genetics does not have Darwinian pangenesis as a limiting case; the wave theory of light did not appropriate the mechanisms of corpuscular optics; modern embryology incorporates few of the mechanisms prominent in classical embryological theory. [...] [L]oss occurs at virtually every level: the confirmed predictions of earlier theories are sometimes not explained by later ones; even the 'observable' laws explained by earlier theories are not always retained, not even as limiting cases; theoretical processes and mechanisms of earlier theories are, as frequently as not, treated as flotsam. (Laudan 1981: 39; in the same sense, Kuhn 1996 and Stanford 2003.)

So if mature scientific theories have always lost structural components in the past, on what grounds can we claim that the structural components of our current mature scientific theories do map the real structure and must be retained in future theories?⁵¹

The fact that scientific theories suffer constant replacement doesn't mean that there is no scientific progress, as long as you don't have too high expectations of what 'scientific progress' means. There is scientific progress whenever a new scientific theory is capable of explaining why an old theory was empirically adequate and ceased to be so, and how it [the new one] is more empirically adequate insofar as it is capable of saving both the old as well as the new phenomena, those phenomena that the old theory did save and those that it couldn't save (van Fraassen 1980: ch. 3, 2006: 298–99). The error lies in taking science as giving us ultimate truth, that is, as giving us a complete metaphysics. Science offers us a good point of departure to the enterprise of making sense of reality, but certainly is not the best place to stop. Because

⁵¹ Two additional considerations should be added against the idea that structure is preserved while other theoretical components are lost. First, that there seems to be no sharp way to distinguish between the 'form' from the 'content' of a scientific theory, so they cannot be abandoned by separate. After all, the 'structure' and 'nature' of the physical entities described by scientific theories seem to form an indivisible continuum (Psillos 1995, 2001). Second, that if one is a committed naturalist, as Ladyman and Ross claim to be, one should be open even to abandon mathematical and logical knowledge if the tribunal of experience demands it (Quine 1951b: 39–43). As Quine thought, those disciplines are at the very centre of our web of knowledge, and we are very reluctant to revise them if something less central can be sacrificed instead. However, they are not untouchable, and even the law of excluded middle maybe subjected to revision. Thus, if neither logic nor mathematics are untouchable, why then the scientific models constructed using those very tools must be immune to theoretical change?

science is not all the insight, since, after all, it is bounded by what is observable. And what is observable is context-dependent and does not exhaust reality. As Bradley would say:

[T]he object of natural science is not at all the ascertainment of ultimate truth, and its province does not fall outside the phenomena. The ideas, with which it works, are not intended to set out the true character of reality . . . The question is not whether the principles of physical science possess an absolute truth to which they make no claim. The question is whether the abstraction, employed by that science, is legitimate and useful. (Bradley 1930: 250–51)

As far as I can see, neither of these reasons is sufficient to make a positive case for OSR. In what follows I will try to show that even if these reasons were a powerful argument in favour of OSR, they are insufficient for its acceptance, since OSR is an internally incoherent and unstable ontology that is incapable of making sense of things in a general way.

4.3 Relations without relata?

As Psillos has argued, one of the most important difficulties that OSR has to confront is to make sense of the idea that there are relations without relata (Psillos 2006a; in similar sense, Chakravartty 2003). Within the foundationalist tradition (pluralist and monist), relations are not entities in their own right: all the world-making is done by either one or many individuals with very rich intrinsic natures. The Armstrong-Lewis program, following the path of Russell, moves a huge step away from that tradition by accepting external relations and by giving them substantial status: their existence and identity is not dependent on the existence and identity of one or more relata, nor the existence and identity of these relata depend on the existence and identity of external relations. For me, this conception of external relations is already incomprehensible: I cannot perceive relations without perceiving a total situation that transcends them, I cannot point to external relations without pointing to something non-relational, I cannot conceive them without

conceiving something non-relational, and I cannot understand how can they allegedly relate if they are wholly external to their relata.

In fact, the very idea that external relations are allegedly ‘instantiated’ by some relata, seems to be just a contradiction in adjecto, since how can an external relation ever be ‘instantiated’ by some relata yet, at the same time, remain numerically distinct and wholly external to them, without ever forming part of, or entering into, their very nature? That is, how can those relata *be* related by that relation, without their nature being affected by being so-related? Don’t say ‘well, just by being instantiated’. The central point is that ‘instantiation’ is of no help if you understand it as another external relation (Bradley’s regress strikes again). Don’t say ‘well, they are part of the *extrinsic* nature of the relata’, since this is another name for the same problem: how can something be part of the nature of something yet at the same time be extrinsic to it? I cannot but share all of Bradley’s (and Leibniz’s) worries against relations and extrinsic denominations.

How can we make sense of the ‘exclusive relationalism’ of OSR? If the external relations of the Armstrong-Lewis program are already suspicious entities—since their being obtains outside the relata, in sheer nothingness—how can we make sense of a world constituted solely by relations? We understand that these relations are internal-Moore. But still: how can internal-Moore relations stand alone without anything non-relational making such a world? What are they relating if not something non-relational?

Ladyman and Ross have tried to answer this objection in what seems to be at least an evasive strategy:

[T]he claim that relata are constructed as abstractions from relations doesn’t imply that there are no relata; rather the opposite. A core aspect of the claim that relations are logically prior to relata is that the relata of a given relation always turn out to be relational structures themselves on further analysis. [...] Certainly, the structuralist faces a challenge in articulating her views to contemporary philosophers schooled in modern logic and set theory, which retains the classical framework of individual objects represented by variables subject to predication

or membership respectively. In lieu of a more appropriate framework for structuralist metaphysics, one has to resort to treating the logical variables and constants as mere placeholders which are used for the definition and description of the relevant relations even though it is the latter that bear all the ontological weight. [...] We may not be able to think about structure without hypostatizing individuals as the bearers of structure, but it does not follow that the latter are ontologically fundamental. (Ladyman and Ross 2007: 154–55)

Why this response is unsatisfactory?

First, Ladyman and Ross are wrong in accepting that the road of ‘analysis’ of relational structure can give a satisfactory response to the ‘missing relata’ objection. Because *every* relational structure that will appear ‘on further analysis’ will present the same recurrent ontological puzzle, whether there is an ultimate level of relations or not. And this is so because at every step of the analysis it seems that the whole structure is condemned to reappear, since every fragment of the structure is relationally constituted by the whole structure. Hence, no fragment of the structure can have its identity fixed before the identity of the whole structure is fixed. Yet there is really nothing more than the structure, since each ‘relata’ dissolves into relations and is, we may say, totally empty of privative content. While self-contained plurals give place to a world of isolated things-in-themselves, pure relational constitution offers not even one thing-in-itself but only bare structure.

Second, from the fact that the metaphysics that underlies modern logic and set theory doesn’t offer the adequate formal categories to express what OSR tries to express, it doesn’t follow that relations are capable of doing that work. In this sense, Ladyman and Ross fall in the same kind of scholasticism that they condemn. When pushed to explain the metaphysics of OSR, Ladyman and Ross simply reply with a *tu quoque*:

We ask the reader to consider whether the main metaphysical idea we propose, of existents structures that are not composed out of more basic entities, is any more obscure or bizarre than the instantiation relation in the theory of universals. (Ladyman and Ross 2007: 155)

They made, admittedly, an interesting point. Instantiation is one of the most intriguing metaphysical conundrums. However, in the first place, instantiation is mysterious in a major part precisely because contemporary metaphysicians think of it as a ‘relation’ between an object and numerically distinct properties/relations, despite their use of non-relational words to refer to it (i.e., ‘non-relational tie’, ‘fundamental’, ‘primitive’, etc.).⁵² Secondly, relations are not only the source of the mystery of instantiation but also a victim, since they are also supposed to be instantiated if they want to relate. Thus, OSR has a double problem: it shares with contemporary metaphysics the burden of instantiation, but, additionally, it can offer nothing that could plausibly work as instantiators. One might think that there is nothing wrong with uninstantiated relations, but my point here is different. Take that there are uninstantiated relations. What I am saying is that our world doesn’t look as if it were actually made of uninstantiated relations, and if we claim that relations are instantiated, then OSR not only needs to account for instantiation—as everyone else in the market—but it also needs to offer us some plausible instantiators. Bradley’s strategy was to deny that instantiation made sense when understood in a relational way: no real unity of many attributes in one individual can be done by a relation, because relations also need to be instantiated, and this move will force us to bring into the scene more and more relations, without ever reaching the moment of unity. The regress certainly troubles contemporary ontologies that admit individuals with intrinsic natures, insofar as instantiation is conceived (pace appearances to the contrary) as relational (they want unity, but they also want to preserve numerical distinctness of intrinsic properties and contingency of predication). The truth is that Bradley’s regress can only be avoided by accepting a non-relational form of unity. If so, individuals and their intrinsic natures cannot be treated as *relata-in-relation*; and the same goes for individuals and their relations. Thus, OSR does not escape from the regress: if relations relate, then they must be ‘instantiated’. The only way to avoid the

⁵² The same worry extends to the relation of bundling or compresence that allegedly glues various properties together into a single bundle.

regress is to accept relata and relations as internal-Bradley related, i.e., as abstractions from a more substantial, non-relational, unity.

Third, Ladyman and Ross (2007), as well as Dipert (1997) and most of the authors that are looking for something to *connect* the world or to make it an *interdependent* whole, make the mistake of trying to achieve that *connectedness* or *interdependence* by importing relations allegedly stronger than external relations of distance and by dissolving self-contained individuals into that relational structure. Dipert, for instance, wrongly believes that his ‘graph-world’ is capable of bringing to us a connected world like the one conceived by Spinoza or Sprigge (Dipert 1997: 330). The error here lies in thinking that relations are capable of doing that job. Admittedly, external relations leave the world loose and separate, lacking any real unity; they are the very recognition and expression of fragmentation and of the ontological and epistemic isolation of the fragments that stand as relata. But we also saw that it is difficult to understand how can causation or dispositions, when understood relationally, could ever be able to connect the world. For connecting a loose and separate world you have to do something different from adding more relations, just like if you want to build a chain you have to do something different from adding more loose links. Internal-Russell relations—as we saw in ch. 3 and as it is evident in Leibniz’s metaphysics—still leave the world as a plurality of distinct and separate individuals, yet somehow essentially coordinated in mysterious ways. Now the internal-Moore relations of OSR raise new mysteries: what is what they are allegedly relating if there are no individuals to relate but only more relations? And how can these relations connect the world better than internal-Russell relations if the world is not already connected in a more substantial way? And if the world is already connected in a more substantial way, then why do we need relations to do the job of connecting it? In connected worlds, like those of Spinoza, Sprigge, Bradley and Bohm, there are of course no separate and independent individuals except from the world. Yet with the same certainty we can affirm that there are

no such entities as relations doing the work of connecting it.⁵³ In these connected worlds there are no relations or strong interactions, since there is already an undivided wholenesses, from where both relata and relations are abstractions, useful for practical purposes but metaphysically spurious: what we find is internal-Bradley relatedness.

4.4 The concrete and the abstract

The only consistent way in which OSR can be defended (at least the only one that I can see) is as a form of Platonism, where the world is conceived simply as an abstract universal, an *ante rem* relational structure. In this case, I am using the word ‘abstract’ in the sense which is supposed to apply to objective, self-subsistent entities, which are singular (an abstract entity is a type, a *one* that may be multiply realised across many concrete individuals or that may have many tokens), not in space nor in time, nor constrained by space or time, and outside the causal traffic. Numbers, sets, Platonic forms and Fregean thoughts are supposed to be abstract in this sense. It should be noticed that when I defined internal-Bradley relatedness I used ‘abstract’ in a different, more traditional sense, which is (pace the uses of contemporary metaphysics) the only sensible way in which I can understand that term and conceive abstract entities (§2.4). The contemporary sense in which the relations of OSR are said to be abstract fulfils the platitudes of what Lewis understands under the head of ‘The Negative Way’ (since they are not spatiotemporally bounded, they are outside the causal traffic, and, qua distinct types, they are never indiscernible from each other) and under the head of ‘The Way of

⁵³ This is why Dipert is wrong when he attributes to Sprigge a serious commitment to a relational picture of the world (Dipert 1997: 330). This is simply a misunderstanding or misinterpretation of Sprigge’s doctrine. Sprigge tries to develop a doctrine of relations from Bradley’s work, very similar to the one defended here. The result is a holistic picture in which Sprigge’s ‘holistic relations’ have a central role. But Sprigge’s ‘holistic relations’, like Bradley’s, offer us nothing like Dipert’s ‘exclusive relationalism’. What Sprigge understands by ‘holistic relations’ is precisely the most plausible sense that can be traced in Bradley’s work, i.e., that both relata and relations are abstractions from a more substantial, non-relational, form of unity (Sprigge 1979, Sprigge 1983: ch. 5.3). This is a commitment towards monism and towards Bradley’s doctrine of the ‘unreality of relations’, not towards a metaphysical picture where relations are fundamental. In Sprigge’s world, like in Bradley’s world, there is holism insofar as there is monism, but not insofar as there are internal-Moore relations.

Conflation’ (since they are more like sets than individuals, more like universals than particulars) (Lewis 1986a: 81–86).

The relational structure of OSR seems to be irreducibly abstract or *ante rem* because if it were *in rem*, then something more—that ‘rem’, regardless if it admits individuation and whatever it turns out to be—would exist. But OSR denies this. If there is only structure, then *nothing* has it: there is just self-sufficient structure. The world of OSR is a type with no discernible tokens. While the previous objection points to the lack of relata that affects a purely relational world, the present objection points to the lack of concreteness that seems to exhibit exclusive relationalism. I do not think that the distinctions particular/universal and abstract/concrete are sharp and insightful dichotomies to classify entities—in fact, I find them *very* confusing. But what I do think is that our world doesn’t make sense when conceived as exclusively made of abstract, *ante rem*, universals, as relations stubbornly appear to be. The objection can be formulated in these terms: does the world as depicted by OSR have anything concrete at all—in the broadest possible sense of the words ‘anything’ and ‘concrete’ that you can conceive, and regardless if there is any determinate criteria of individuation of that ‘concrete something’?

To be fair, the supporters of OSR are ready to embrace full-blooded Platonism. Dipert, for instance, is explicit:

I would maintain that the very possibility of a clear understanding of the world requires the possibility that it *is* a simple mathematical structure, and that creating complex, ad hoc, or hybrid structures for this task constitutes negative progress. (Dipert 1997: 332, *his emphasis*)

French and Ladyman (2003b) seem also happy to embrace Platonism, and Ladyman and Ross (2007) also toy with the idea that there is ultimately no real distinction between mathematical and physical structure, between what we can say is very abstract and what is undeniably more concrete:

Physical structure exists, but what is it? [...] What makes the structure physical and not mathematical? That is a question that we refuse to answer. In our view, there is nothing more to be said about this that doesn't amount to empty words and venture beyond what the PNC allows. The 'world-structure' just is and exists independently of us and we represent it mathematico-physically via our theories. (Ladyman and Ross 2007: 158)⁵⁴

Skepticism towards the distinction between physical and mathematical is, up to a certain point, understandable. After all, the lines are blurred in the work of contemporary theoretical physics, which is very distant from direct empirical research and very focused on trying to find solutions to what are mainly mathematical equations (van Fraassen 2006: 287). To realise this we just need to think about those physicists who devote their whole lives to find solutions to Schrödinger's equation or to the field equations of GR. What is the nature of their research? Are those theories about something qualitatively different and notoriously more concrete than mathematical models? More understandable turns out to be when we realise that what seems to be the paradigmatic example of concreteness—namely, a *material* individual—apparently fails to fit the bill, because the very notion of matter is now under suspicion, since it no longer satisfies the classical features of solidity, impenetrability and the like: 'matter has become increasingly ephemeral in modern physics' (Ladyman and Ross 2007: 160).

But what do we mean by 'concrete' then? Very difficult question. And more difficult is when matter itself is said to melt into thin air. I am tempted to think that a necessary condition for something to be concrete is that it must be a determinate being, a being that enjoys fully specific character. Participating in the temporal and causal traffic seems also to be a necessary condition. Some negative criteria may also be helpful: first, not everything that is concrete needs to be a concrete individual in the sense of being a concrete entity that enjoys

⁵⁴ 'PNC' stands for what Ladyman and Ross call the 'Principle of Naturalistic Closure', according to which '[a]ny metaphysical claim that is to be taken seriously at time *t* should be motivated by, and only by, the service it would perform, if true, in showing how two or more specific scientific hypothesis, at least one of which is drawn from fundamental physics, jointly explain more than the sum of what is explained by the two hypotheses taken separately...' (Ladyman and Ross 2007: 37)

determinate identity-conditions and countability;⁵⁵ second, a fully specified being does not need to be material or spatial. This is why a Leibnizian monad is an immaterial and unextended individual but also qualifies as concrete: it is an entity whose character is fully specific and determinate, it is temporal and causally active, and enjoys experience. Third, I am tempted to say that what is concrete seems evidently more close to the occurrent than to the dispositional, more ‘right here-right now’ than ‘iffy’ (where ‘occurrent’ shouldn’t be equated with something non-causal or inactive; cf. §3.4).

The most obvious and uncontroversial example of concreteness that I can think of is experience.⁵⁶ Someone with reductive inclinations about experience—not me—might say that experience is ‘merely’ an epiphenomenon, or something that ‘supervenes’ on something non-mental, or simply a systematic illusion. I think all these strategies are doomed to failure, as it has become each day more evident. Anyhow, my point here is not to prove that experience exists but that experience enjoys evident concrete character (it is fully specific and determinate in character, it is temporal and active, in a sense which seems very close to the occurrent activities defended in §3.4), in such a way that any attempt of reduction or elimination of it must offer as a reductive base or

⁵⁵ Thus, maybe free processes or primordial stuffs are concrete entities but do not have determinate identity-conditions and countability so they do not qualify as individuals in this metaphysically relevant sense. See Lowe (1998: ch. 2) and Seibt (2002: §3.5).

⁵⁶ I could also have used the word ‘experiencing’ (to stress its active character), ‘consciousness’, ‘phenomenal experience’, ‘subjective experience’, ‘qualia’, ‘feeling’, ‘what-is-likeness’ or any other similar word that attempts to name what gives a direct and satisfactory answer to the hard problem of consciousness. But I want to remain as neutral as possible about the connotations of the expression. For instance, I don’t want to suggest that if we accept experience then we are committed to accept an ‘object’ of experience plus a ‘subject’ of experience. And I shouldn’t be understood as claiming that experience consists in a ‘relation’ of direct acquaintance with a sense-datum or that it is something ‘external’ upon which a subject imposes certain conceptual scheme. Far from this. If I were forced to use a more suggestive expression, I would choose ‘absolute experience’ or ‘pure experience’, that is, experience previous to, or unconditioned by, all of those distinctions and constraints, experience previous to a distinction between subject of experience and object of experience, between what is external and what is internal. Of course, Bradley takes experience this way (viz., as pre-relational and then, after ‘thought’s happy suicide’, as supra-relational; see Mander 2009), and so do Bohm ([1980] 2002: 169, ch. 7), Nishida (1990: Part I), Oakeshott (1933: ch. 2), and Schrödinger (1959, 1964). I also take it this way, but I am not trying to argue for this here (I will say more in ch. 6). For the moment, as I said before, I want to remain neutral and simply avoid misinterpretations. You can take experience as ‘subjective’ or as ‘internal’, as long as you respect and preserve its concrete character.

replacement something that at least preserves that concreteness. This is why relational structure is not enough: its irreducibly abstract character is not sufficient to ground or replace something as concrete in character as experience, nor can I imagine how it would be possible to recover the concreteness of experience from nothing but relations. And no consistent and comprehensive metaphysics can simply accept as real some hidden and abstract realm, while at the same time denies what is the most evident and concrete point of departure of any form of comprehensive inquiry into the real, from the most trivial to the most sophisticated. That would be like cutting the branch over which all comprehensive theory of reality is ultimately sitting.⁵⁷

Thus, if you, like me, are not ready to jump into the relational Platonism embraced by OSR, then our answer must be something along these lines: first, it doesn't really matter whether what exists admits to be individuated in traditional terms as long as it exhibits concreteness, at least more concreteness than abstract structure. This answer says nothing about what is that something, nor how it can be individuated. We don't need to provide any sophisticated criteria of individuation nor any fancy categorical system. And we don't need to argue against the existence of a Platonic realm per se; we only need to say that Platonism alone is not sufficient to account for the evident feature of concreteness. Although 'matter' doesn't seem concrete enough these days, there is still something which without doubts is as concrete as it gets: experience. We can either accept its existence as an irreducible primitive or we might try to offer something that grounds it or replaces it. If the former, no problem; if the latter, then whatever we offer as a ground for it, or as a replacement of it, must at least preserve its concrete character.

⁵⁷ A comprehensive metaphysics cannot deny the existence of experience. Even a 'realistic physicalism' (Strawson's expression), that is, a metaphysics according to which 'everything real is physical', cannot deny the reality of that whose existence is more indubitable than anything else: experience. If there is one kind of physical-stuff then this stuff must also be experiential-stuff, and if this sort of 'neutral monism' cannot stand together, then what we must give away is the non-experiential bit (Strawson 2006a, 2006b). Coming from a different approach but arriving to similar conclusions, see Adams (2007), who understands that reality makes no sense if we don't recognise the primitive character of something like mental activity, in such a way that either mentalism or at least panpsychism appear as the only real alternatives. More on this later (ch. 6).

My point is rather minimal: in order to reject the Platonic world of OSR we just need to show that something concrete—*anything* concrete—exists. If our strategy succeeds, then there is something which is at least more concrete than structure. And if so, then OSR is false, and what seems to be the ultimate step in the process of abstraction shows that its sparseness is insufficient, and leads us back to some kind of reification. As van Fraassen says, ‘if structure is not just there as mathematical or abstract entity, then it is not true that structure is all there is’ (van Fraassen 2006: 294).

Here is what a fan of relations might say. In a world of relations these *are* the actual configuration of space, time, matter, causal activity and experience, they *constitute* the concrete realm. He might say, for instance, that the concrete realm is simply a *concrete bundle* of abstract universals. However, I cannot see how can *bundling* bring concreteness to relations, since what is bundling if not another relation? (Notice that the problem of unity persists and that Bradley’s regress is still a threat for the bundle theorist: How can bundling do the trick of unifying distinct universals into one object, many relations into one complex structure? Don’t we need more bundling-relations to bundle our original relational relata and the original bundling-relation, and so on ad infinitum?) Or he can insist by saying that it might well be the case that there are abstract relations, but this doesn’t mean that there are no concrete instances of them, concrete instances that do not require the concurrence of some non-relational relata. But I cannot see how could relations have concrete instances without there being some non-relational concrete entity doing at least part, if not all, the real job. How could relations by their own be enough? Obviously, it is not enough to call them ‘concrete instances’: their concrete and token character must be shown or be quite obvious. But this hasn’t been shown and it seems very far from obvious. How can we talk about concrete instances of, lets say, <__exerts causal influence over__> without accepting some other non-relational concrete entities (events, processes, substances, stuffs, etc.), that fill

in those blanks? It may be the case that monadic properties have instances, as when we distinguish between the redness of *this* rose and the redness of *that* rose. But we can only make sense of these as distinct property-instances if we first can make sense of a real distinction between *this* and *that* rose as two distinct individuals.⁵⁸ But what would make the difference between the abstract relation <__being two feet apart from__> and a concrete instance of it? What would make it ‘concrete’? Not another relation! Certainly not the relation of bundling! It may well be the case that relations within a relational structure get their identity fixed by recurring to other relations, indeed to the whole relational structure (Dipert 1997, Holton 1999). This certainly happens when a structure is not ‘loose and separate’ but made of internal-Moore relations: this structure is a universal of universals—indeed, a ‘structural’ universal. However, this only means that there is a way of fixing the identity of relations embedded in a relational structure without more help than the relational structure itself; but it doesn’t mean that concreteness has been achieved. Relations seem to acquire concreteness only when something non-relational enters into the scene, something that has a more specific character, an existent that enjoys experiential, temporal and causally active character (or at least one of these features!). But relations by their own do not fit the bill. As Russell thought, if relations exist, then they are the best case for there being abstract, *ante rem*, universals (Russell [1912] 1959: 98, 1956b: 107, quoted in §1.4.2 above). Thus, if only relations exist, then the world is simply an abstract, *ante rem*, structural universal. Because even a shadow or a hole enjoy more concrete character: you can refresh under the former, you can break a bone by falling into the latter.

⁵⁸ Imagine a leaf of grass, which is dark-green over its central area and smoothly varies to yellow over its dry borders. How many colour-instances we have here? There seems to be only two non-arbitrary ways to answer this question. Either we say that there is only one internally variegated colour-instance, as a continuous spectrum, or we break this spectrum into point-like colour-atoms, each of them being a simple instance of a colour. Any other alternative would involve making an arbitrary boundary within the leaf. The same reasoning applies when we try to demarcate the leaf from its surroundings, when we try to distinguish one object from another one. The generalisation of this puzzle is one of the main reasons that leads a bundle and trope-theorist like Campbell (1990) to embrace a monistic metaphysics.

Can't we avoid the missing-relata objection and the objection against exclusive Platonism by embracing MOSR instead of OSR? Philosophers that support MOSR say that while QM shows that we cannot say that individuals have intrinsic natures, this does not mean that there are no individuals standing in those relations (Esfeld 2004; see also Esfeld and Lam 2008). As it can be appreciated, MOSR just adds to OSR the existence of individuals that work as relata but, apart from that, these relata lack any private content. Not too much progress. Bare individuals are not less mysterious than pure structure. And the addition of these two types of ingredients in one package doesn't seem to give too much of substance to our world. The position of MOSR is very unstable. First, to posit some transcendental bare individuals merely to support the structure of OSR seems not only an ad-hoc move but also a quite poor improvement. The sparseness of such ontology makes it insufficient to explain the most evident concreteness. An individual devoid of intrinsic nature might qualify as a concrete particular that can work as a relatum, but why would anyone believe in such an empty thing? In what sense such an entity can give us the concreteness that we are looking for? How can it be the source of temporality, causal activity and experience? Simply because it 'stands' in relations to other entities of the same empty character, without being anything but that? MOSR has to make sense of the idea of relata, that, apart from standing in relations to other relata, are otherwise naked. Dressing them exclusively with internal-Moore relations offers little consolation. The individuals of MOSR that work as relata look like naked men who insist in being sufficiently dressed just by pointing to the clothes of the others, who, in their turn, claim the same but pointing to the clothes of the first ones. But who is really dressed?! I cannot see how one can 'instantiate' those abstract relations or recover concreteness merely by adding these type of relata. A 'relation' of instantiation certainly cannot do the trick, since Bradley's regress will haunt it, and I cannot see what makes a bare point more 'concrete' than an abstract structure. If OSR seems devoid of all instantiators and all concreteness, MOSR does very little more by adding to this picture some thin

individuals that lack any specific nature for their own and that do not offer any evidence of a non-relational instantiating power. We can appreciate why Bradley was suspicious about an ontology of internal-Moore relations: these relations recognise the individuality of the relata but at the same time they deny their self-sufficient character. The constitution of this type of relata rests mysteriously in what lies outside them. Why do they deserve the name of individuals at all? What is left for them? Why aren't they simply dissolved into the relational structure that constitutes them?

4.5 Restoring concreteness

It is my impression that OSR is just an example of a methodological error that affects most of current naturalistic, physicalist and reductive metaphysics. Whitehead calls that error 'The Fallacy of Misplaced Concreteness' (Whitehead 1925: 72). It occurs in all intellectual enterprises that involve a great amount of generalisation. It happens, for instance, when we use geometrical models to represent extended nature. Abstractions such as 'line', 'point' and 'simple location' are certainly useful elements of those theoretical models, but extended nature doesn't present itself like that: line, point or simple location are constructed by considering the abstract limit of what experience presents as having extension and duration or as being in motion. OSR simply represents an extreme of the hypostasis done at the end of a process of abstraction.⁵⁹ A mathematical model is reached by abstraction

⁵⁹ As the rise of OSR proves, physicalist reductivism often is followed by mathematical reductivism. Quine (1981) is also a good example of how this (misguided) process works. He started with abundance, he continued with points, then he replaced points by systems of coordinates, and he ended up betting for an ontology of nothing but sets of sets. If you love dessert landscapes, you will look for dessert landscapes, and you will start paying attention only to dessert landscapes. Just like a man with a new hammer sees nails everywhere. Suspiciously, sets fans avoid the issue of what makes a singleton distinct from its member or what makes an individual to be a member of its singleton (compare Socrates and {Socrates}). Of course, the identity-conditions of sets are very clear, since the identity of a set is given by its members. But how are we supposed to understand membership? Or how are we supposed to understand the identity-conditions of a member of a set which is not itself a set, i.e., the member of a singleton? The building of set theory rests upon heavy (and shaky) metaphysical assumptions. It either presupposes an answer to the question of individuality/objecthood or it (conveniently) leaves 'singleton' or 'membership' as primitives. But it is in these very notions where all the real action takes place!

from experience, and then the model is taken *as if* it were reality in itself. Whitehead saw this fallacy as one of the two more misleading strategies in which philosophers regularly fall—the second one, closely associated to it, was to overestimate the place of logic when drawing the premises of a philosophical system of thought:

The aim at generalization is sound, but the estimate of success is exaggerated. There are two main forms of such overstatement. One form is what I have termed, elsewhere, the ‘fallacy of misplaced concreteness’. This fallacy consists in neglecting the degree of abstraction involved when an actual entity is considered merely so far as it exemplifies certain categories of thought. There are aspects of actualities which are simply ignored so long as we restrict thought to these categories. Thus the success of a philosophy is to be measured by its comparative avoidance of this fallacy, when thought is restricted within its categories. (Whitehead 1929: 9–10)

The search for general categories and principles should never lead us to forget our point of departure: the qualitative richness and concreteness revealed in experience, which any general way of making sense of reality as a whole must account for and try to preserve. Feyerabend raises a similar point in a suggestive manner:

The search for reality that accompanied the growth of Western civilization played an important role in the process of simplifying the world. It is usually presented as something positive, or an enterprise that leads to the discovery of new objects, features, relations. It is said that it widens our horizon and reveals the principles behind the most common phenomena. But this search has also a strong negative component. It does not accept the phenomena as they are, it changes them, either in thought (abstraction) or by actively interfering with them (experiment). Both types of changes involve simplifications. Abstractions remove the particulars that distinguish an object from another, together with some general properties such as color and smell. Experiments further remove or try to remove the links that tie every process to its surroundings—they create an artificial and somewhat impoverished environment and explore its peculiarities. In both cases, things are being taken away or “blocked off” from the totality that surrounds us. Interestingly enough, the remains are called “real,” which means they are regarded as more important than the totality itself. Moreover, this totality is described as consistent of two parts: a hidden and partly distorted real world and a concealing and disturbing veil around it. (Feyerabend 1999: 5; in similar vein, Oakeshott 1933: ch. 2)

OSR just shows how far the way of abstraction can take us. The thirst for reduction starts when a line is drawn between appearance and reality, or between subjective and objective, or internal and external—you name it: any fragmentation of similar sort will do. After that, we start forgetting about

appearances, subjectivity or internality, and we give them away as derivative, redundant or even illusory. Then we approach the real, the objective or the external with the same attitude. Thus, a landscape is reduced to objects in relations, objects are reduced to points, points to mere locations, locations to mere nodes of a relational structure. ‘Less is more!’, we hear. It is only after we start missing what we lost and after we try to recover it that we realise that the materials that we have in our hands are not sufficient to do the trick. They are too thin, too sparse. We need to move some steps back. Reality cannot be pure structure, so something must exist apart from it, whatever it is. As van Fraassen puts it:

I do not see any way out of this. The radical form of structuralism seems to me to lead right back to reification: the whatever it is that bears this structure may be denied other properties perhaps, but not existence. This does not mean, of course, that there have to be distinguishable particles. What it does mean is that we must take as at best metaphorical any attempt to equate particle talk, of any sort, with descriptions of structure. (van Fraassen 2006: 294)

So we need to restore the richness and concrete character of appearances with the help of a more complete metaphysics. Bare structure is not enough. OSR has the right diagnosis about the ontologies of externally related and self-contained individuals: they are incapable of making sense of the results of contemporary physics and they lead us to intractable metaphysical conundrums. But the solution offered by OSR is not better: it might make sense of the results of physics, but its price is too high, since it leaves us with nothing but abstract structure. Let’s see whether a holistic ontology that is willing to add more substance to the world can do the trick.

5 Priority monism: The priority of One, the internal relatedness of Many

Having showed the ontological insufficiency of DE and OSR, in this chapter I will move forward to examine what seems to be a more substantial contemporary holistic ontology: Priority Monism (PM), the view that Jonathan Schaffer has made popular during the last years (Schaffer 2010a, 2010b, 2013).

I will argue that PM is not a satisfactory ontology. In §5.1 I present PM in contrast with other views about fundamental cardinality. In §5.2 I present one of Schaffer's central arguments for PM, according to which PM can be inferred from the internal relatedness of all things, where internal relatedness is understood as failure of free recombination. In §5.3 I argue against the mereological principles upon which this argument rests. Incidentally, my objections will also undermine another core argument that Schaffer has used for PM: the possibility of gunk. In §5.4 I argue against the metaphysical assumptions upon which the argument of internal relatedness rests, in particular against Schaffer's understanding of ontological basicness and modal freedom. In §5.5 I argue against Schaffer's peculiar understanding of internal relatedness and show that his view either collapses into some form of relational essentialism, or into a stronger form of monism, or back into the fragmented world of Humean Supervenience. My central claim is that we cannot make clear sense of Schaffer's inference because his understanding of internal relatedness is compatible with different ontologies—including pluralistic ones—and because he doesn't give us a more specific idea of what kind of whole we are supposed to infer. Schaffer's inference only works if one takes too much for granted, as he does in the 'assumptions' and 'principles' of his arguments, most of which I dispute in what follows.

5.1 The number of things

Let's start with a very simple model. Imagine world **W**, which appears as inhabited by two metaphysical atoms, **x** and **y**:

xy

Take a metaphysical atom to be a simple or non-composite individual, that is, an object with no proper parts into which it could be divided (Leibniz 1989: 655). Understand 'could be divided' as expressing metaphysical possibility in the widest sense. Assume **x** and **y** to be concrete and material. Moreover, assume that they are wholly distinct and that there are no gaps between them; take these two claims as compatible.⁶⁰ For the moment, forget about how **x** and **y** are related. Now quantify over such world. How many individual objects are there?

PM says that there are three, namely two atoms (**x** and **y**) and one composite whole or mereological fusion (**W**). But with one qualification: the whole is metaphysically prior to the two atoms; that is, **x** and **y** are grounded in, or are ontologically dependent upon, **W**. According to PM, our world is just like that. There is one prior or basic concrete material individual, the cosmos, which is the maximal fusion, and many posterior or grounded concrete material individuals, the planets, chairs and grains of sand. There is the whole and there are the parts, but the whole is ontologically prior to the parts.

⁶⁰ Connecting the part-whole structure with the prior-posterior structure, Schaffer accepts what he calls the *tiling constraint*, according to which, 'the basic actual concrete objects collectively cover the cosmos without overlapping. In a slogan: no gaps, no overlaps' (Schaffer 2010a: 38). As I said in §1.5.2, it is mysterious to me how a Humean metaphysics of externally related basic objects, where everything is 'loose and separate', can leave no gaps, since wholly distinct basic objects do not even *touch* each other, and if they don't touch, and space is dense, then they *do* leave a gap. Thus, I deny from the very start that Humean pluralism can satisfy Schaffer's tiling constraint. This is not the way in which Schaffer thinks, though. Under Schaffer's understanding, the Humean pluralistic metaphysics, *prima facie*, can also satisfy the tiling constraint. Schaffer just wants to make clear that neither parthood nor overlapping obtain among what he calls basic or prior individuals, but the constraint says nothing about what is prior to what.

Obviously, PM is not the only possible answer. Take Existence Monism (EM) to be the view that rejects the assumed atoms as mere appearance of plural cardinality and answers that there is only one individual object, **W**, which is not a composite but an extended simple (Horgan and Potrč 2008, Potrč 2003, Rea 2001, Spinoza 1994: IP12–13, IP15s). In **W**, **x** and **y** do not have determinate identity-conditions nor are they countable, so they only deserve to be called individual objects when talking *under the fiction of decomposition* (Schaffer 2007: 179). If EM is right, **x** and **y** can only be internally-Bradley related, since both the relata and the relation would be mere abstractions or fictions derived from **W**. The object defended by EM qualifies as simple because, though extended, it is neither composed nor metaphysically divisible into distinct individual objects or proper parts—according to reasons that EM is supposed to provide, as we will see soon.

Thirdly, there is also Priority Pluralism (PP), the view that answers, just like PM, that there are three individual objects, namely two atoms (**x** and **y**) and one composite whole or mereological fusion (**W**). But with the opposite qualification: the two atoms are metaphysically prior to the posterior whole, i.e. the whole is grounded in, or is ontologically dependent upon, the atoms. Lewis' thesis of Humean Supervenience may fall under this label (only if we take that wholes represent real addition of being that stand in asymmetrical dependence upon the atomic base; more on this later).

Finally, there is Existence Pluralism (EP), the view that answers that there are only two individual objects, **x** and **y**, period. Typically, nihilists about composition fall under this label (Rosen and Dorr 2002, Sider 2013, Unger

1979, van Inwagen 1990, 1994, 2002),⁶¹ though of course we should not forget that EM is also a variant of compositional nihilism (Horgan and Potrč 2008, Potrč 2003, Schaffer 2007). What PP calls a posterior or grounded composite is only so *under the fiction of composition* (Rosen and Dorr 2002: 167). Mere aggregates or composites, no matter how close are their atomic components, never make *one* individual object. Thus, **W** is just a plurality. What happens is that simples are arranged in many different ways, e.g., there are no chairs but only simples arranged chair-wise.

Prima facie, these four views exhaust the possible answers to the question about the number of things in our toy-world,⁶² at least under the assumption of a metaphysics of concrete material individuals.⁶³ There is wide agreement in the literature on the idea that, if any of these views is true, then it is so with metaphysical necessity (Rosen 2006, Schaffer 2010a, Sider 1993, Tallant 2013,

⁶¹ I include van Inwagen as giving arguments for compositional nihilism, though obviously his position is not strictly that. He thinks that things never compose unless they compose a living organism. So, leaving aside living organisms, van Inwagen does support compositional nihilism. Now, his argument for accepting that living organisms are the only composites is very weak, and leads to difficulties. It takes this form: (i) I exist; (ii) I am a material composite; therefore, (iii) at least one material composite exists (cf. van Inwagen 1990: 73). The argument has a Cartesian tone but there is nothing Cartesian about it. Only premise (i) seems uncontroversial: something exists—call it ‘I’—because I have direct awareness that mental activity takes place, and I cannot deny it. But there is nothing indubitable about premise (ii). On the contrary, the indubitable character of premise (i) can perfectly drive me to conclude that there are no material objects, neither composites nor simples. Only materialistic prejudices lead van Inwagen to his implausible conclusion. And his conclusion multiplies the problems, for what criterion can we offer to determine when some material simples compose a ‘life’ or an ‘organism’? Moreover, are we going to include only organisms that think? What about living organisms that do not think or computing artefacts that are not organic? Very vague.

⁶² This is not exactly true. Those who accept composites have two options: either they accept unrestricted composition or restricted composition. I take PP and PM as embracing unrestricted composition, that is, as supporting the mereological criterion according to which any two objects *always* compose a whole or mereological fusion (this is the way in which fans of mereology take composition; see Armstrong 1997: §2.12 and Lewis 1991: 74). The so-called ‘restrictionist’ about composition would recognise the existence of the two atoms but would make a pause before answering the question about the existence of a derivative composite. ‘It depends’, he would say. But, as far as I know, no restrictionist offers a clear criterion of composition for concrete material objects. More on this later (§5.3.2).

⁶³ There are other possibilities. For instance, **x** and **y** (or **W**) could be immaterial, or free-floating tropes, or mere patterns in a relational (hence, abstract) structure (as in OSR), or just portions of some primordial stuff (substance-mass-term, not substance-count-noun). It is difficult for me to make sense of the idea of free-floating tropes and specially of the relation of ‘bundling’ that allegedly makes *many* of them *one* bundle, so I will not consider this alternative (see Campbell 1990 and Williams 1953 for a defence of the pure trope metaphysics). We already saw the puzzles that affect OSR (ch. 4). Later on, I will say a little more about immaterial things and stuff.

van Inwagen 1990: §2, §8, Williams 2006). Since these views involve claims about the inherent nature of reality (its fundamental cardinality and identity), they are necessarily true if true at all. I will not dispute this claim; I will only note that this shared commitment says *nothing* about what is actually the case.

EM and EP reject composites as real individual objects; they are nihilists about composition. To the question about when two individual objects compose a third one, their answer is ‘never’. To the question about when an individual object is a proper part of some other, their answer is also ‘never’. According to EM and EP there are only simples, either one or many. Consequently, they both also reject the metaphysics of levels, at least when applied to individual objects: since there are only simples, there are neither ‘wholes’ nor ‘parts’ that require grounding. The objects that exist have equal metaphysical rights. They are exclusionary: the existence of *many* excludes the solitary existence of *one*, and vice-versa. In contrast, PP and PM accept composites and, consequently, a metaphysics of levels that introduces direction of ontological priority between components and composite (in either direction).

For the sake of argument, take PM, EM, PP and EP to exhaust the possible answers about what is the number of things in our toy-world. How can we decide? Not clear at all. The four alternatives, *prima facie*, make sense. But if the answer is necessarily true if true at all, then only one of them can be true. Which one? PP and PM need, as a condition of sense, the existence of mereological structure and the existence of a fundamental layer of being, either the whole or the atoms. This need is more or less clear: without a fundamental layer, no objects would exist because there would be no ground for them; but there are objects, so there is some layer grounding them! On the other hand, EM and EP need, as a condition of sense, the existence of either one or many simples. This need is also more or less clear: without the existence of one or many simples, no objects would exist; but there is at least one object, so at least some simple exists! But how can these views *guarantee* that their particular

conditions of sense actually obtain? From the armchair we can answer only *some* questions, as I will try to do in this chapter. From the armchair we can reflect on the range of possible alternative views and the conditions that each of these views needs to meet in order to make sense at all; from the armchair we can also clarify what possibilities threaten those conditions. But certainly we cannot tell from the armchair what is actually the case! From the armchair we can also offer reasons for preferring a metaphysics of simples over a metaphysics of levels, or vice-versa. But once we have decided, say, in favour of a metaphysics of levels, how can we decide between PM and PP? Or once we have decided for a metaphysics of simples, how can we decide between EM and EP? The question has the form of an empirical question. Thus, the question is either not answerable—because the answer lies beyond the bounds of sense, as Kant thought (Kant 2007: 7, 402ff)—or it is answerable only by doing empirical investigation—as Russell ended up thinking after giving so many frustrating battles against the neo-Hegelians:

There is nothing in logic that can help us to decide between monism and pluralism, or between the view that there are ultimate relational facts and the view that there are none. My own decision in favour of pluralism and relations is taken on empirical grounds, after convincing myself that the *a priori* arguments to the contrary are invalid. (Russell 1956a: 338–9)

If the answer lies beyond the bounds of sense, end of story, and all discussion is futile. If the question is answerable by empirical grounds, then we need to stop thinking and start looking, and only once we have a clear understanding of what is actually the case we can definitely rule out certain possibilities. As I will argue in the next chapter, empirical evidence supports a conclusion that is the exact opposite of Russell's.

5.2 From internal-Schaffer relatedness to PM

One of the core arguments that Schaffer has given in favour of PM is a reformulation of what he takes to be a classical monistic argument: that of universal internal relatedness (Schaffer 2010b). As I said in §2.4, there are at

least three different meanings of internal relatedness. Schaffer's understanding of internal relatedness adds a fourth one. For arguing for PM, Schaffer takes as point of departure Moore's understanding of the 'dogma' or 'axiom' of internal relations (Moore 1919). Recall that a relation is internal-Moore iff it is *essential* to its relata. By saying this, Moore means that if two terms are internally-Moore related, then they are (at least partly) constituted by being so-related. Pervasive relational constitution has obvious strong modal consequences: if *all* relations are internal-Moore, then all the related terms wouldn't be what they are without the others being what they are. Yet these necessary truths about the terms are a *consequence* of their relational essences; they hold *because* the terms are relationally constituted.⁶⁴ This is precisely what happens in OSR.

Schaffer thinks that Moore's formulation is unnecessarily strong, since 'the monistic conclusion will equally follow from a much less demanding conception of internal relatedness' (Schaffer 2010b: 349). Furthermore—and this is very puzzling—he thinks that this less demanding conception leaves room for external relations (Schaffer 2010b: 361–2). Question: *which* ones? What Schaffer tries to do is to infer the organic unity of the world just by using a '*modally constraining* relation, which is a relation that precludes the free recombination of its relata' (Schaffer 2010b: 350, his italics). According to the Lewisian understanding of the principle of Humean free recombination—which Schaffer dogmatically accepts as true of basic objects—'anything can coexist with anything else, at least provided they occupy distinct spatiotemporal positions. Likewise, anything can fail to coexist with anything else' (Lewis 1986a: 88). Since the Lewisian world is just one tiny thing after another one, and since the natural properties instantiated by those things are perfectly intrinsic, and since all natural relations are external relations of spatiotemporal distance, the actual mosaic is a metaphysical accident and every bit of it could

⁶⁴ The essence, inherent nature or real definition of a thing (i.e., what a thing *is*) grounds necessary truths about that thing; in contrast, necessary truths about a thing do not necessarily tell us what a thing is (Fine 1994). E.g., Socrates and {Socrates} *necessarily* hang around together, yet only the second of these objects *is* a set.

have existed differently arranged or could have failed to exist without affecting the rest of the arrangement. By way of contrast, Schaffer understands that an internal relation is a relation that constraints modal freedom or precludes Humean free recombination thus understood. Let's call this fourth understanding of internal relatedness **internal-Schaffer**:

Two terms, x and y , are **internally-Schaffer** related iff x and y cannot be freely recombined.

While in internal-Moore relatedness, modal constraint is a natural consequence of relational constitution, in Schaffer's formulation there is only a commitment to the modal consequence: internally related terms are modally constrained terms. Schaffer simply assumes that the principle of Humean free recombination *must* hold between basic objects, in such a way that if it fails to hold, then this failure must be explained by the fact that the objects in question are not, after all, basic, either because they overlap or because they have a common ground in a more basic object (recall that according to Schaffer's *tiling constraint*, basic objects do not leave gaps and do not overlap). His idea, then, is to take the reverse path that the Humean pluralist takes:

A disconnected pluralist heap should be amenable to free recombination; failure of free recombination is thus the modal signature of an interconnected cosmos. In short: while the neo-Humean argues from pluralism to free recombination, the neo-Hegelian should argue from failure of free recombination to monism. (Schaffer 2010b: 350, his italics)

Schaffer's argument is developed in two stages:

Stage I: There is universal **internal-Schaffer** relatedness, i.e., there is at least one sufficiently pervasive **internal-Schaffer** relation, call it **R**, that modally constraints all things. Though his aim is not to defend some specific version of **R**, Schaffer offers three plausible candidates to fulfil **R**'s role: **R1**=Causation—given causal essentialism; **R2**=Spatiotemporal relatedness—given supersubstantialism about the relation of objects and regions, and

structuralism about the essence of regions; and **R3**=Being world-mates–given counterpart theory (Schaffer 2010b: §§3.2–3.4).

Stage II: PM follows from the failure of free recombination of the dependent objects. If two wholly distinct objects do not enjoy modal freedom, then they cannot be basic. Otherwise, they would be freely recombinable. If they are not basic, then this is so because they co-depend upon a ‘common ground’. Since the cosmos overlaps everything and nothing hinders its modal freedom, the cosmos is prior to all of its dependent objects.

In what he takes to be his first proof for stage II, Schaffer includes the following mereological principles and metaphysical assumptions, which I reproduce here with minor alterations (cf. Schaffer 2010b: 356):

P1=There is a unique maximal element among concrete objects (a concrete world).

P2=A concrete object that has a proper part has other disjoint proper part.

A1=All things are internally-Schaffer related (stage I).

A2=There is some basic object (chains of ontological dependence stop somewhere).

A3=A basic object is freely recombinable (tiling constraint and Humean free recombination of basic objects is assumed; failure of free recombination of basic objects needs explanation).

Given all these assumptions, the first proof for stage II is trivial, and it consists in the following *reductio* (Schaffer 2010b: 357): Suppose (for *reductio*) that there is a basic object, **x**, which is short of **W**. (Importantly, by P1, the world or cosmos does exist qua maximal element among concrete material objects.) If so, then there is in **W** another basic object, **y**, which does not overlap **x** (P1, P2). If so, then **x** and **y** should be freely recombinable (A3). But **x** and **y** are not freely recombinable (A1). We have a contradiction. Therefore, since neither **x** nor **y** can be basic because neither of them enjoys modal freedom, and since there must be some basic and modally free object (A2, A3), this object must be **W**. The cosmos is the only basic or ontologically independent thing; all the rest of things are not freely recombinable because they depend upon it.

Notice that this first proof for stage II cannot demonstrate the existence of a prior concrete material object upon which many other posterior concrete material objects depend. These facts are taken for granted (P1, P2, A2). Schaffer's argument, at the very most, can reveal an asymmetrical direction of ontological priority, according to which a whole is prior to its parts, *given* the existence of both a whole and its various parts (P1, P2), *given* that either the whole or the parts must be basic (A2), and *given* that basic things are taken to be not modally constrained by wholly distinct basic things, that is, that being basic is the same as being modally free (A3). But this is something quite different from offering a proof for PM simpliciter. The second proof for stage II runs in very similar terms, so I will skip it. If my objections work against the first proof, then they should work against the second proof without problems, in particular because the latter employs stronger mereological assumptions.

5.3 Schaffer's prior whole unpacked: Mereology and metaphysics

It is quite clear that great part of Schaffer's argument depends on the mereological principles assumed for stage II (P1, P2). In particular, it depends on P1, the idea that there is an object which is a *maximal* element among concrete material objects. However, I don't see why should one accept mereological principles as offering a guide to, or imposing constraints on, a specific ontology. After all, mereology is supposed to be like logic: uninformative about what is the case. It's nothing more than a *formal* analysis of the concepts 'part' and 'whole', and, as such, it says *nothing* about whether the concepts apply or not. As Simons puts it, mereology 'can have little or nothing to say about what parts or wholes there actually are or what is part of what, any more than an analysis of causation could tell us what events there are or what causes what' (Simons 2006: 597; in similar vein, van Fraassen 1995, 2002: ch. 1). Furthermore, even *if* we were to accept mereological assumptions, I see no reason for accepting Schaffer's particular mereological assumption of

there being a *maximal* whole, when there are equally coherent mereological systems that work without such assumption. Let's see these reasons in detail.

5.3.1 Mereology: *Not so innocent after all*

Mereology is supposed to be like logic in the following respects. First, it is supposed to be vacuous: it is supposed to tell us what is consistent to say given certain assumptions, but not what there is or what is actually the case. Second, it is supposed to be topic-neutral: it is supposed to apply regardless the nature of a given domain of objects –yet with the obvious restriction that its primitive concepts (e.g., ‘proper part’, ‘fusion’, ‘distinct’, ‘overlap’) only make sense under the assumption of a plural domain; but granted a plural domain, those concepts are supposed to apply across the board and cross-categorically (e.g., mereological notions can even apply across possibilities, since a world can be taken to be a proper part of the fusion of all possible worlds). Third (and this is the most important bit), mereology is supposed to be ‘ontologically innocent’, in the sense that, unlike set-theory, it represents no addition of being to that of the domain. Mereological composition is supposed to be like identity. Or at least this is the way in which Armstrong and Lewis take it. As Lewis puts it,

To be sure, if we accept mereology, we are committed to the existence of all manner of mereological fusions. But given a prior commitment to cats, say, a commitment to cat-fusions is not a *further* commitment. The [cat-] fusion is nothing over and above the cats that compose it. It just *is* them. They just *are* it. Take them together or take them separately, the cats are the same portion of Reality either way. Commit yourself to their existence all together or one at a time, it's the same commitment either way. If you draw up an inventory of Reality according to your scheme of things, it would be double counting to list the cats and then also list their fusion. (Lewis 1991: 81, his italics; similarly, Armstrong 1997: 12–13)

It looks innocent. Thus, if reality consists in two angels, then the two angels are the one mereological fusion that obtains; each angel is a disjoint part of the one fusion; the fusion is just where the angels are. You get the fusion of the angels just by taking the *two* angels as *one* whole or aggregate. What is not innocent is the metaphysics involved in the claim that reality is made of two angels. This is

a substantial claim. But once we recognise that the two angels are our domain of universal quantification, mereology takes care of itself. Given that reality is two angels, some bits of mereology will apply, some others not. For instance, such a world is not *gunky*,⁶⁵ since everything indicates that angels are metaphysical atoms, hence mereological simples. Similarly, such a world is not *junky*,⁶⁶ since there is one maximal whole: the fusion of the two angels. And, allegedly, there is no ontological increase: the fusion of the two angels is not something like a third angel. Granted that there is an ontological commitment to angels, a commitment to angels-fusions is not additional commitment. Once you fix your ontology, your mereology is fixed.

I have no objection against this ontologically innocent way of taking mereological-talk. But, if so, we cannot take it, strictly speaking, as expressing substantial ontological truths. Otherwise, there is confusion. In fact, against mereological-talk applies, *mutatis mutandis*, what I said against supervenience-talk (§1.1): if Y supervenes on X, then supervenience is ontologically innocent (a free lunch, no real addition of being) iff Y and X are *identical*, that is, if the name ‘Y’ and the name ‘X’ are just two different modes of presentation of the very same object. Thus, to know what you have, first you need to be clear about the supervenience base, since that is, strictly speaking, *all* what you have. And so with mereology. Because if mereology is really ontologically innocent, then it can only be taken as a way of talking about many *as if* they were one, or about one *as if* it were many, depending on which substantial ontological commitments are made *before* counting. But this is just what the compositional nihilist says! Namely, that composition (or decomposition), strictly speaking, never occurs; and that quantification is singular when is over one simple and plural when is over many simples, but never singular when is about many simples or plural when is about one simple. This means that in our

⁶⁵ Gunky world=a world without atomic parts. Everything in such a world is a whole with proper parts (parthood ‘all the way down’).

⁶⁶ Junky world=a world without a maximal whole. Everything in such a world is a proper part of some whole (parthood ‘all the way up’).

two-angels world, when I quantify universally, I count two objects, period. There is angel₁ and there is angel₂, each of them numerically identical with itself. I can talk about the two angels collectively, as when I call them ‘they’, but then I am using plural quantification: ‘they’ is not a singular name for a singular object but a plural name for a plurality; because *they* are not *one* (Bohn 2012, Simons 2003). ‘They’ works just like ‘flock’ or ‘The Beatles’. The true metaphysical unities are the *two* angels and their fusion is only *one* by courtesy.

When mereology is taken seriously then it ceases to be innocent. Schaffer admits this. For there being a whole that is ontologically prior to some parts, there must exist both the whole and the parts, and they must stand in a relation of asymmetrical dependence. In fact, whenever a metaphysician looks to our two-angels world and counts three objects (namely: angel₁, angel₂ *and* the whole or fusion angel₁+angel₂), then mereological talk ceases to be ontologically innocent. And only after parts and wholes are recognised as distinct objects in their own right, the question of what is ontologically prior to what can appear. This is where PM and PP emerge as alternative ontologies. In sum, if mereology is really ontologically innocent, then it collapses into compositional nihilism and there are no parthood relations and no distinct layers of objects. If not, then we must be offered an explanation about why is it that one layer grounds the other one and not the other way around. In either case, we need clarity about what is the basic ontological inventory *before* counting: in PM and PP we need clarity about what is the fundamental level of existents; in EM and EP we need clarity about the exclusionary existents.

5.3.2 *Against composites*

PM and PP embrace a layered ontology of composite objects, where both whole and parts exist, and either parts are prior to whole or whole prior to parts. Of course, they still need to say more about what falls under ‘whole’ and

what falls under ‘part’ (spirits, sets, strings, etc.). As it happens, I don’t see any convincing reason for taking composites or aggregates as serious individuals. Hence, I don’t see any reason for accepting P1 and P2 as offering anything like an insightful metaphysics. I will not go into the details of the arguments for compositional nihilism. There is good contemporary literature supporting this position (Horgan and Potrč 2008, Rosen and Dorr 2002, Sider 2013, Unger 1979, van Inwagen 1990, 1994, 2002), and still much better and more insightful discussion in the classical texts of Leibniz and Spinoza (Bennett 1984: ch. 4, 2001: chs. 7 and 12, Jolley 2005: ch. 2, Mason 1967: 94–95, 120–22, Spinoza 1994: IP12–13, IP15s, Woolhouse 1993). I will only make a brief summary.

(i) *Real individuals*. First, there is a metaphysical consideration to reject material composites as serious individual objects. As Leibniz said: ‘what is not truly *one* entity is not truly one *entity* either. It has always been thought that ‘one’ and ‘entity’ are interchangeable’ (Mason 1967: 121). The existence and identity of material composites seem always to rest on the existence and identity of their components; or, as Spinoza will approve, the concept of a material composite presupposes concepts of its components, while a real substantial unit can only be conceived through itself (Spinoza 1994: ID3). That is, if there are individual objects at all, then these should exhibit a true and non-arbitrary kind of unity. But material composites do not exhibit it. Pace Arnauld, when Leibniz asked of real substances to be truly one, he wasn’t imposing arbitrary restrictions but only making explicit the ultimate consequences of the Aristotelian criterion according to which individual substances are ultimate subjects of predication:

[W]hat constitutes the essence of an entity through aggregation is only a state of its constituents; for example, what constitutes the essence of an army is only a state of being of the constituent men. This state of being therefore presupposes a substance whose essence is not a state of being of another substance. (Mason 1967: 121)

Thus, according to Leibniz, an army is not a true individual object because it is finally the result of many soldiers being certain ways. And so with all composites. The difference is only a matter of degree of cohesion of the components, of how close they stand to each other, but, ultimately, there is no substantial difference between a block of marble and a heap of sand. All material composites, regardless their degree of cohesion, are pluralities, just like flocks of sheep. Material composites are never ultimate subjects of predication, because they are predicable of other ultimate subjects of predication: their components (Jolley 2005: 39). For there being aggregates at all, there must be ultimate parts that are not aggregates.⁶⁷ But material things, qua extended things, seem always to be entities by aggregation! Leibniz's search for real substantial units took him through the following path: (i) for there being material composites, there must be ultimate parts that are not composites, i.e., there must be real individual substances; (ii) whatever is material is extended; (iii) whatever is extended has proper parts, therefore is the result of those parts being certain ways; (iv) whatever is material is not a real individual substance; therefore, (v) real individual substances are immaterial. The search for real substantial units led Leibniz to embrace an ontology of unextended and immaterial atoms (monads), and to reject

⁶⁷ In the *Monadology*, Leibniz takes this to be an a priori requirement: 'There must be simple substances, since there are compounds, for the compounded is but a collection or an *aggregate* of simples' (Leibniz 1989: 655, emphasis in the original). In the same spirit, the early Wittgenstein: '... we realize the existence of the simple object—*a priori*—as a logical necessity... the *simple* object is *prejudged* in the complex' (Wittgenstein 1979: 60, emphases in the original).

composites (material aggregates) as substances and regard them, in the best case, as well-founded phenomena.⁶⁸

A similar type of reasoning led Spinoza to embrace one extended simple as the only real individual. A monist like Spinoza would have no problem with talking about soldiers and pebbles as if they were individual objects, but only as a way of speaking with the vulgar, since for him soldiers and pebbles were not real individuals but finite modes of the one real individual, God-Nature (Spinoza 1994: ID5, IP15, IP25c). Like the swirls of a river, modes are not individual objects in their own right since they do not have determinate identity-conditions and countability. There is no fact of the matter about what counts as *one* swirl, or about where it starts and where it ends, or about what is its intrinsic nature. Not because there are infinite swirls nor because counting swirls involves a super-task, but because what we call a swirl of a river is a more or less convenient abstraction from the river itself. Correctly, Spinoza thought that modes were not the result of *real* distinctions, but the result of distinctions of reason or imagination (more on this in §6.2). Only God-Nature is said to enjoy substantial unity because it is an extended simple. But how can something be extended and enjoy simplicity at the same time? Only if that extended thing is very special, like *space* is. Space is neither divided nor

⁶⁸ See Bennett (2001: ch. 12), Jolley (2005: 39–41), Leibniz (1989: 454, 503–4, 530), and Mason (1967: 94–95, 107–12, 120–22, 133–34, 152). This passage is very representative of Leibniz's thought: 'I therefore maintain that a marble tile is not a single complete substance, no more than would be the water in a pool with all the fish included, even if all the water with all these fish were frozen; or a flock of sheep, even though these sheep should be bound together to such an extent that they could walk only at the same pace and that one could not be touched without all the others crying out. There is as much difference between a substance and such and entity as there is between a man and a community, such as a people, army, society or college, which are moral entities, where something imaginary exists, dependent upon the fabrication of our minds. Substantial unity requires a complete, indivisible and indestructible entity . . . a soul or substantial form after the example of what one calls *self*. These are the only truly complete entities . . . Now, the above-mentioned *self*, or its counterpart in each individual substance cannot be made or unmade by placing the parts nearer together or farther apart, for this is totally foreign to the question of what creates substance' (Mason 1967: 94–95, emphases in the original). And so is this one: 'I believe that *where there are only entities through aggregation, there will not even be real entities*; for every entity through aggregation presupposes entities endowed with a true unity, because it obtains its reality from nowhere but that of its constituents, so that it will have no reality at all if each constituent entity is still an entity through aggregation; or one must yet seek another basis to its reality, which in this way, if one must constantly go on searching, can never be found' (Mason 1967: 120, emphases in the original).

divisible into proper parts (wait and see). Alright, but how can the *contents* of space resist metaphysical divisibility? By being *identical* with space, by rejecting the superfluous distinction between the container and the contained. Hence, we have in Spinoza a version of what is now called *supersubstantialism*. Thus, not only space is a substance in its own right, as in substantialism, but the contents of space are also said to be identical with it. The question that seems to have worried Descartes, i.e., the question about what is the status of finite material bodies (one or many objects? only one stuff?), is totally irrelevant for Spinoza, since he followed to the end the conceptual implications of the identity between space (extended substance) and matter (corporeal substance) that was already approved by Descartes.⁶⁹ No piece of matter, regardless how tiny, how thick and impenetrable, can guarantee metaphysical simplicity. But if the material contents of space are identical with space, then the problem vanishes. Because if space is a substance, then it is an *extended simple*. It is simple because it is not *composed* of other objects nor *decomposable* into other objects: the concept of it can only be obtained through itself. It is a clear unity, an undivided and indivisible one, an *individual* object. Obviously, if space is a substance, it is not composed by regions in the sense in which a heap of sand might be said to be composed by grains of sand. If space is a substance, it is continuous and extended, because if it were discrete then it would collapse into many objects, like many grains of

⁶⁹ See Bennett (1984: ch. 4, 2001: ch. 7), Descartes (1985: II.11–12), Spinoza (1994: IP12–13, IP15s), and Stuart (1999).

sand, and this would mean the immediate restoration of a form of relationalism between those many discrete elements.⁷⁰

But aren't regions of space proper parts of space? Aren't they *posterior* or *dependent* individual objects, as PM suggests? No. Any individual object, whether basic or not, whether composite or not, whether concrete or abstract, whether universal or particular, whether material or immaterial, must fulfil at least one requirement: have determinate identity-conditions and countability. Yet the so-called 'parts' of space do not fit the bill. First, because if space is an extended substance it makes no sense to ask whether a region is identical to itself or distinct to a second region *before* making an arbitrary carving of space

⁷⁰ This is the key text where Spinoza argues for the simplicity of the One substance and the identity of matter with extension: 'And indeed it is no less absurd to assert that corporeal substance is composed of bodies, *or* parts, than that a body is composed of surfaces, the surfaces of lines, and the lines, finally, of points. [...] For if corporeal substance could be so divided that its parts were really distinct, why, then, could one part not be annihilated, the rest remaining connected with another as before? And why must they all be so fitted together that there is no vacuum? Truly, of things which are really distinct from one another, one can be, and remain in its condition, without the other. Since, therefore, there is no vacuum in Nature (a subject I discuss elsewhere), but all its parts must so concur that there is no vacuum, it follows also that they cannot be really distinguished, that is, that corporeal substance, insofar as it is a substance, cannot be divided. [...] For example, we conceive that water is divided and its parts separated from one another—insofar as it is water, but not insofar as it is corporeal substance. For insofar as it substance, it is neither separated nor divided. Again, water, insofar as it is water, is generated and corrupted, but insofar as it is substance, it is neither generated nor corrupted' (Spinoza 1994: IP15s; see also IP12–13). In Spinozistic vein, see also Bennett (1984: ch. 4, 2001: ch. 7), Campbell (1990: ch. 6), who talks of regions as 'quasi-parts' or 'pseudo-parts', Cover (1999), Clarke (in Alexander 1956: 22, 31, 48), Kant (2007: 69, 405), and Lowe (2002: 253–55, 271–72). The point is clearly stated in Clarke's replies to Leibniz: 'Space, finite or infinite, is absolutely indivisible, even so much as in thought; (to imagine its parts moved from each other is to imagine them moved out of themselves;) and yet space is not a mere point' (Alexander 1956: 22, punctuation as in the original). 'For infinite space is one, absolutely and essentially indivisible: and to suppose it parted, is a contradiction in terms; because there must be space in the partition itself; which is to suppose it parted, and yet not parted at the same time' (Alexander 1956: 31, punctuation as in the original). 'Parts, in the corporeal sense of the word, are separable, compounded, ununited, independent on, and movable from each other: but infinite space, thought it may by us be partially apprehended, that is, may in our imagination be conceived as composed of parts; yet those parts (improperly so called) being essentially indiscernible and immoveable from each other, and not partable without an express contradiction in terms, . . . space consequently is in itself essentially one, and absolutely indivisible' (Alexander 1956: 48, punctuation as in the original). In Kant words: 'Space is not a discursive or, as we say, general concept of relations of things in general, but a pure intuition. For, in the first place, we can represent to ourselves only one space; and if we speak of diverse spaces, we mean thereby only parts of one and the same unique space. Secondly, these parts cannot precede the one all-embracing space, as being, as it were, constituents out of which it can be composed; on the contrary, they can be thought only as in it. Space is essentially one; the manifold in it, and therefore the general concept of spaces, depends solely in [the introduction of] limitations' (Kant 2007: 69; see also Kant 1889: 196, quoted in §1.4.1 above, where he argues that Spinozism is the only real alternative to an idealistic conception of space and time).

(i.e., before we make a landmark and draw a system of coordinates). In fact, if space is an extended substance in its own right, then it has no real joints, there is no *right* way to carve it. Regions of it can only be singled out *after* mapping space by using an arbitrary system of coordinates. Hence, the individuation of regions is not grounded in a real distinction but subjected to pragmatic constraints; their names are only ‘convenient designators’ (see next paragraph). Because we could map space using a grid of ‘square’ regions or, if you prefer, using a grid of ‘hexagonal’ regions, and none of the models would deserve the status of the right one (Campbell 1990: §6.3). If regions were objects in their own right, yet ontologically dependent upon another prior object, as PM suggests, then their identity-conditions shouldn’t depend on such pragmatical decisions. However, neither the number, nor the size, nor the shape of regions seems to be objectively there in space; and this is so because they are not real distinctions but pragmatic posits. In fact, if regions within a spatial continuum were objects in their own right, there would be a fact of the matter about *where* a region ends and *where* another region starts. But how can there be a fact of the matter *before* an arbitrary abstraction is made from space? Regions can only be called ‘posterior objects’ or ‘proper parts’ of space if we force the meaning of words up to an absurd extreme. Secondly, it is not only that regions do not seem to be actual parts or real components of space, but also that it seems very clear that they are not even potential parts of space. Indeed, it seems to be a metaphysical and conceptual impossibility to think of removing a region from space and preserving the region and the rest of space unaltered, or to chop down space into regions. For these reasons, it seems at least distorting to say that there is both a space and its regions, and that regions are posterior objects grounded in the basic object which is space. What we call ‘points’, ‘lines’, ‘planes’ and ‘regions’ of space are abstractions from it. Regions, points, lines and planes deserve to be called objects only when talking *under the fiction of decomposition* of space. In this Spinozistic ontology there is only one individual object, and ‘quantifiers are useless, because there is no difference

between 'The thing is F' and 'Something is F' and 'Everything is F' (Bennett 1984: 96).

(ii) *Lack of criterion of composition.* A second argument against composites is that there seems to be no adequate criterion of identity for composite objects (§5.1). The criterion of unrestricted composition accepted by the mereologist is clear and non-vague, but obviously arbitrary: it counts as one object the fusion of my right toe and the morning star. On the other hand, restrictionists fond of commonsensical intuitions who complain that unrestricted composition includes too many arbitrary objects and that compositional nihilism includes too few, offer no clear criterion to distinguish when two things compose a third thing. But if there are material composites, then they have determinate identity-conditions. The problem is that material composites, the posits of commonsensical realism, which is the view that restrictionism embraces, do not exhibit sharp identity-conditions and we fall into paradox when trying to individuate them (Horgan and Potrč 2008: §4.5.1, Unger 1979). Because there seems to be no fact of the matter, no real boundary that sharply demarcates a material composite from a distinct material composite, a boundary that can clearly tell us how many drops of water are necessary and sufficient to have one cloud, or *where this* cloud ends and *that* other cloud starts, or whether *that* cloud is *one* single cloud or *many* clouds that share most of their drops except a few number of them. After all, one single drop is sufficient to make the difference between one cloud and a different cloud, one composite and a different composite. And what goes for clouds goes for cats, stones, planets and all material composites. Thus, my response to the restrictionists is that they cannot offer a criterion of composition because there is no such criterion; and there is no such criterion because there is no real distinction that can sustain it; and common sense has nothing to worry about because it doesn't need such a criterion for making its way through life. A pragmatical criterion, a criterion that works for determinate purposes, is perfectly sufficient for ordinary life, as it is proved by so many people who couldn't care less about metaphysics and

still get to understand each other perfectly well—indeed, achieving more agreement and successful communication than metaphysicians. Thus, following the teachings of the Buddhist monk Nāgasena, I prefer to say that names for composites are only ‘convenient designators’, and the statements that use them can only be ‘conventionally true’; on the other hand, those names that refer to non-composites are ‘real designators’, and the statements that use them—and *only* these statements—can be ‘ultimately true’ (Siderits 2007: §§3.5–3.6). These last statements are what we expect from metaphysics; the first ones are what we expect from ‘common sense’. And there is no need to force metaphysics and common sense into marriage, since they obey different intellectual impulses and have different explanatory goals. This was also the way in which Spinoza and Leibniz faced the puzzles of fundamental cardinality. They both recognised different levels of discourse and thought, but no metaphysical levels of individual objects (Bennett 2001: 147). And they both were in the need to argue for the metaphysical indivisibility of their simples, since lack of metaphysical simplicity ultimately entails lack of true individuality (!). But this cannot be true, because someone is writing these lines; hence, at least one individual object exists.

(iii) *Parsimony*. Thirdly, there are methodological reasons for rejecting a metaphysics of levels and for embracing the exclusionary simplicity of compositional nihilism. Ockham’s razor or parsimony is perhaps the main one: in our theories, we should avoid positing explanatory redundant entities (Horgan and Potrč 2008: chs. 5 and 7, Nolan 1997, Rosen and Dorr 2002, Schaffer 2007, Sider 2013). Both qualitative and quantitative parsimony should be preferred when qualitative and quantitative extravagance are explanatory superfluous. Thus, if the evolution of the world can be explained in terms of non-composite objects, then there is no need of including composite objects in our ontology, since they are explanatory redundant. If non-composites carry the weight of all the necessary and sufficient causal contribution to that evolution, then there is no extra causal weight around to be carried by composites. If this

argument is sound, then the layered metaphysics of PM and PP should be rejected in favour of the exclusionary simplicity of EM or EP. And, *ceteris paribus*, if we run again the argument of parsimony in order to choose between EM and EP, the choice is clear: EM (Schaffer 2007). Notice that I say ‘*ceteris paribus*’. Our world is not necessarily a simple world. I take that considerations of parsimony offer a good reason to reject the metaphysics of levels, since such a metaphysics is, for me, simply like double-counting, but I am not sure that we can decide between EM and EP based on considerations of parsimony alone. I think it is unavoidable to make a decision informed by empirical considerations.

5.3.3 *Gunk, junk and simplicity*

Now imagine that none of the arguments given in §5.3.2 succeeds and that the world does have mereological structure. The question is why should we accept the particular mereological model accepted by Schaffer in P1? That is, why should we assume that there is a *maximal* whole?

Here is one reason. Schaffer has argued that gunk—i.e., parthood ‘all the way down’, infinite metaphysical divisibility—is metaphysically possible. In fact, this is one of his main arguments for PM (Schaffer 2010a: §2.4).⁷¹ Schaffer’s argument works under the (controversial) assumption that a metaphysics of levels is true, i.e., that either PP or PM is true about the realm of concrete material objects, and under the (uncontroversial) assumption that the claims of metaphysics are necessarily true if true at all. Given these two assumptions, the argument goes like this: (i) gunk is metaphysically possible; (ii) if gunk is metaphysically possible, then PP is not necessarily true as it is meant to be, hence not true at all, since, possibly, there is no bottom level of atoms capable of grounding all being; (iii) if the whole is fundamental, gunk is still

⁷¹ In favour of the possibility of gunk, see also Schaffer (2003, 2007), Sider (1993; but see his 2013, where he regrets it) and Zimmerman (1996). The possibility of gunk is nothing new (what is new is the horrible terminology!). Descartes accepted it (Descartes 1985: II.20).

metaphysically possible; (iv) in a metaphysics of levels, there must be some fundamental object (in fact, this is a condition of sense of both PP and PM); therefore, (v) the whole is fundamental. But for there being a fundamental top level, a whole that grounds all the parts, that whole cannot be in itself a proper part: it must be *maximal*.

But the argument from gunk seems quite arbitrary. I see three possible objections against it. First objection: It can be said that PM is equally threatened by the possibility of gunk, because if the whole of PM has parts, then it is a composite. And composites, as Leibniz argued, seem to obtain their reality and identity from their components. So there must be some non-composite or true individual object for there being any composites. Because if everything were a composite, then there would be no objects at all. PM can insist: 'gunk is possible and there must be at least one object; hence, the whole is fundamental!' But this is no real solution to the lack of an ultimate non-composite individual capable of grounding composites. Because calling a whole 'maximal' or 'fundamental' doesn't make it less a composite: it still has parts, it is not a metaphysically indivisible unit. And if it is a composite, in what sense it can be prior to its parts? In what sense the whole does not depend upon its parts to be what it is? Maximality does not guarantee metaphysical indivisibility, nor a basic or fundamental status: a maximal whole is still *made of* parts. This is precisely why Leibniz posited immaterial units and why Spinoza accepted the material world as an extended simple.

Second objection: PP might even the score. That is, taking for granted that reality has mereological structure, why should PP accept the standard mereological principles used by Schaffer? In particular, there seems to be no privileged reason to prefer a mereological system that accepts gunk and assumes as an axiom the idea of a *maximal* whole over a system that accepts junk and assumes as an axiom the idea of *minimal* parts (atoms). Recall that in a junky mereology there is no maximal element: every whole is a proper part

of some whole. And a junky mereological system is as consistent as one with a maximal whole. (Moreover, mereology can play with both gunk and junk, and without maximal whole and minimal parts: these are requirements of the metaphysics of levels, not of mereology, which is neutral on these matters.) In fact, the argument of the possibility of junk has been directed against PM by Bohn (2009, 2012) and Morganti (2009), and I see no way in which PM can block it.⁷² Thus, PP, sharing the same metaphysical assumptions of PM, can argue in the opposite direction: (i) junk is metaphysically possible; (ii) if junk is metaphysically possible, then PM is not necessarily true as it is meant to be, hence not true at all, since, possibly, there is no maximal whole; (iii) if the atoms are basic, junk is still metaphysically possible; (iv) in a metaphysics of levels, there must be some basic objects (in fact, this is a condition of sense of both PP and PM); therefore, (v) the atoms are basic.

The possibility of junk accepts mereological structure but puts P1 into question by taking for granted the opposite metaphysical axiom. If the world is junky, then there is no maximal whole, since every whole is always a proper part. And if there is no maximal whole, there is no maximal overlapper, and Schaffer's P1 simply does not hold and his argument fails for assuming wrong principles. If one is willing to accept the possibility of gunk, then there are no a priori reasons for rejecting the possibility of junk. Insisting in something like P1 is just dogmatism. Why should we accept a *maximal* whole instead of a junky world? If PM can make such an incredible assumption as P1, why shouldn't PP be allowed to assume, as an equally (im)plausible dogma, that there are *minimal* parts? True, the metaphysics according to which mereological atoms are prior to any wholes is threatened by the possibility of gunk. This is a scenario that mereology tolerates, but that PP, qua ontology, is forced to reject in order to make sense. In contrast, Schaffer's ontology, whatever this means, is threatened by the possibility of junk, a scenario that mereology also tolerates, but that PM, qua ontology, must reject in order to make sense. But

⁷² As with the possibility of gunk, the possibility of junk is also an old idea. It was also recognised by Descartes (1985: II.21). See also Leibniz (1989: 504) and Whitehead (1925).

now it seems that PM and PP are on a par: the possibility of gunk threatens PP, while the possibility of junk threatens PM. Once a layered ontology is accepted, the most we can do is to insist that there must be one fundamental level, either a maximal whole or some minimal parts; but the crucial problem, of course, is *which* one, since there seems to be no reason to prefer one over the other (Tallant 2013). This is evident: *ceteris paribus*, to prefer a gunky mereology over a junky mereology, is like preferring Euclidean geometry over Differential geometry as an adequate tool to map the Earth without taking a look at the Earth. Mereology itself cannot give us more help than providing consistency; it is ontologically uninformative. Just like we cannot infer what is the case by having clarity about what is consistent to say, we cannot infer a concrete ontology from mereological principles. We need to know something more about the ontology of the domain. But what is Schaffer's prior whole? Not clear at all.

Third, there is an external objection, which consists in reconsidering the virtues of the exclusionary simplicity of EM and EP. This means a general attack on the metaphysics of levels embraced by PM and PP. If this attack succeeds, priority between objects does not obtain, parthood does not obtain, and both PP and PM are wrong. There might be fictions of composition and decomposition, but the real dispute is between EM and EP, since there is either one indivisible simple (finitely or infinitely extended, it doesn't matter) or many maximally divided and indivisible simples (finite or infinite in number, it doesn't matter), but nothing vulnerable to metaphysical division. Arguments for the exclusionary simplicity of EM and EP have already been provided (§5.2.1), and the fact that PP and PM are now equally threatened, is a good reason to reconsider those exclusionary ontologies. But aren't Leibniz's (EP) and Spinoza's (EM) ontologies threatened by the possibilities of gunk or junk? No, their ontologies block from the very start those possibilities, because no composite enjoys the status of a true individual object. Hence, neither part-whole relations nor prior-posterior relations obtain between real individual

objects. This is not to say that their ontologies are actually true, but to say that, if they were true, then gunk and junk would be nothing but fictions. But how could these ontologies block these possibilities?

Leibniz succeeded in blocking the possibility of gunk (the one that threatens pluralism) because he excluded matter and posited a nature that was maximally divided into metaphysically indivisible atoms. He rejected material atoms precisely because they didn't offer guarantees of sufficient unity and indivisibility (i.e., of true individuality), and embraced soul-like entities because these were the only objects capable of guaranteeing that. As I said, this is not to say that this is actually case. But, if it were the case, gunk would be ruled out as impossible: there would be nothing there to chop down. Infinite cardinality, yes, but not infinite divisibility, since Leibniz's nature is already infinitesimally (maximally) divided into unextended units. Can a materialistic pluralist block the threat of infinite divisibility? I don't think so. Ultimately, material atoms cannot but be extended things, otherwise no number of them could ground extension; and if extended, then they can always be thought as being composed of parts into which they could be divided. The sole idea of a materialistic atomism seems contradictory (because if these atoms are material, then they are extended; and if extended, then divisible). And a plurality of extended simples, pace McDaniel (2007) and Simons (2004), seems arbitrary: why *this* particular extension of the minimal units and not *that* one? Or why not each plural a different minimal extension? Hence, the threat of infinite divisibility is real. However, this is not a problem for atomism in general, but a problem for *materialistic* atomism. Now see how radical is Leibniz's move: ruling out the possibility gunk means ruling out the existence of matter! Leibniz bites the bullet and gives his back to the material world. Bold, consistent, and beautiful. But true?

Spinoza's EM also has the resources to guarantee the metaphysical indivisibility of the one individual object and for explaining composition/

decomposition as fictions. EM rules out the problem because it treats space, whether infinite or not, as an extended simple which is identical with the matter that fills it. Space might be infinite in extension, though this doesn't affect the main point of its metaphysical indivisibility and simplicity. If it is, it is simple; and if it is so, it is necessarily so. Spinoza's way, just like Leibniz's way, rules out the possibilities of gunk and junk. Bold, consistent, and beautiful. But true?

How can we decide? Spinoza's EM and Leibniz's EP seem both safe from the threats of gunk and junk, but only make sense with the existence of either one or many simples. And if they both seem equally consistent and possible, but only one of them can be true, which one has the privilege? It doesn't seem that we can make the decision based on more metaphysical considerations! (Don't say that realism about matter trumps idealism, because this is still a metaphysical consideration! As Carnap would say, this is an *external* question.) We have reached rock bottom. Showing the map of consistent alternatives is as far as we can get. It seems that we need to bring in considerations of a different sort. Empirical considerations should play a decisive role. As I will argue in the next chapter, there are strong empirical reasons to believe that a Spinozistic metaphysics makes better sense of things. Though provisional, they are still good reasons, perhaps as good as they can get.

5.4 Basicness and modal freedom: Against A3

Another central assumption of Schaffer's argument is A3, the idea that basic objects must enjoy modal freedom—where basic objects, according to the tiling constraint, do not overlap and together cover the whole cosmos, and modal freedom is understood as Humean free recombability. Thus, according to Schaffer, things that do not enjoy modal freedom are not basic. I think Schaffer's inference from lack of modal freedom to the status of basicness is unjustified.

Here is my view. Humean free recombability, which is Schaffer's idea of modal freedom, is not a direct consequence of being a basic or fundamental object; it is a consequence of the nature or real definition of those basic objects. Thus, I take a basic object to be an irreducible ontological item, something whose essence or real definition cannot be given in terms of the essence or real definition of other entity, something of which everything else is made. Whether we are talking about a layer of basic things or an exclusionary layer of things in which everything that exists is thereby basic, in all cases we get to know whether an entity is modally free or not only *after* having a real definition of it. Thus, *what a thing is* is something prior to the modal conclusions that we can make of it, because through essence we get necessity but from necessity we don't get essence (Fine 1994). This is precisely why one cannot infer the existence of a more basic object from the lack of Humean modal freedom of a determinate pair of objects.

Let's illustrate this point with some counterexamples. Take, for instance, Armstrong's N-type relations. According to Armstrong (1997: ch. 15), in addition to first-order states of affairs, there are second-order states of affairs of the form $N(F,G)$, where N stands for a second-order relation between the universals F and G . N is an external relation, a non-supervenient and contingent addition of being of irreducible nomic character. $N(F,G)$ is not a *necessary* state of affairs, but, given that $N(F,G)$ is actual, then the F s *necessitate* the G s. Thus, the existence of N-type relations brings pervasive modal constraints to the world. But N is not part of the intrinsic nature of the first-order states of affairs x_F and y_G . In fact, since laws are external and contingent, there are Hume-worlds where x_F and y_G stand totally unregulated. N is neither internal-Moore, nor internal-Russell, nor internal-Bradley. As it happens, it is wholly external; as it happens, it also qualifies as internal-Schaffer. Taking for granted, for the sake of argument, that there are atomic first-order states of affairs and that every singular causal relation is an instance

of an N-type relation, as it is in Armstrong's ontology, we have universal internal-Schaffer relatedness. But nothing like the existence of one prior concrete material object, upon which many atomic states of affairs (thick particulars) like xF and yG depend, follows from that. In Armstrong's ontology there is universal internal-Schaffer relatedness, but this follows from the nature of one type of his basic ontological items, namely N-type relations. But an N-type relational network is not a prior concrete material object. Is N mysterious? Of course, and Armstrong has many problems to deal with, not only because of the brute modalities that N-type relations introduce, but because these are *external* relations, and these are totally mysterious entities to which the modern metaphysician gives substantial status. But isn't Schaffer's prior whole equally or more mysterious? After all, isn't the asymmetrical dependence that allegedly holds between a prior whole and its many dependent parts also a mysterious necessary connection between distinct existents? If one has Humean suspicions against de re modalities, the mysterious character of N-type relations cannot work as a positive argument for PM, but only as a consideration against Armstrong's ontology. The Humean is satisfied with appearances and cosmic coincidence as ultimate explanations, and he must recognise that the existence of a prior concrete material object, the maximal overlapper of PM, is at least as suspicious as brute de re modal constraints. From a Humean point of view, both moves are wild, and the move of PM just replaces one metaphysical mystery with another one. On the contrary, if one is free from Humean skepticism, then the motivation for explaining away brute de re modalities by PM loses its initial force. The point that I am trying to make is that Schaffer's reverse strategy is not a good way of inferring a determinate ontology. Humean free-recombination of the plurals follows from the Lewisian basic ontology. But from the lack of modal freedom of two things doesn't follow any determinate ontology.

A more clear case of pluralism coexisting with internal-Schaffer relatedness can be found in the classical pluralistic ontology of Leibniz (see Jolley 2005:

ch. 2, Leibniz 1989: 303–30, 643–53, Mates 1986: chs. 2 and 4, Rescher 1979: chs. 5–6, Russell 1937: §29). In this case, failure of free recombination follows from the real definitions of the basic plurals. Leibniz’s monads are internally-Russell related individuals, insofar as all relations are grounded in their monadic natures. According to Leibniz, there is a ‘complete individual notion’ of any possible monad. A complete individual notion is an exhaustive essence. Thus, Plato’s complete individual notion involves that he is disciple of Socrates and master of Aristotle, that he inspires Whitehead’s work, that he is the author of the Republic, and so on. Everything true about Plato is contained in his complete individual notion. An individual of whom any of that is false would not be Plato because it is of the essence of Plato to be the person that lives Plato’s life. Of course, we don’t know everything that is true about Plato, but when God decided to create Plato he had in mind a complete individual notion of him, and Plato cannot but fulfil such complete individual notion on pain of Plato not being Plato. Before deciding to create the actual world, God had in his mind many possible worlds. Each possible world is a plurality of complete individual notions. The complete individual notions that inhabit a possible world mirror each other: while Plato’s complete individual notion involves influencing Whitehead, Whitehead’s complete individual notion involves being influenced by Plato. This means that, though there are many possible individuals, not all of them are ‘compossible’, as Leibniz puts it. And not being ‘compossible’ has, as a consequence, that they are not freely-recombinable, i.e., that they are internally-Schaffer related. For instance, Plato could not have existed in a world where Whitehead didn’t exist. Because each individual has a complete individual notion and all relations are internal-Russell, Plato would not have being himself nor a duplicate of himself if he were to exist in a world where Whitehead didn’t exist. In fact, each complete individual notion can belong only to one possible world. Each possible world is maximal because each of them is a plurality that contains all and only those complete individual notions that are compossible. Thus, Leibnizian possible worlds are systems of compossible essences or ‘mutually exclusive, jointly exhaustive sets of

concepts' (Mates 1986: 44). Though every individual notion that is not self-contradictory is possible, not every possible individual notion can coexist with everything: it can only coexist with those other notions that are compossible with it. And no fragment of the actual world is freely recombinable in the Humean sense, because the actual world contains everything that is compossible and only what is compossible with what it contains. Nothing belonging to other possible worlds is compossible with something actual. To be sure, in contrast with Lewis' metaphysics, in Leibniz's metaphysics we cannot freely recombine Plato with other things because being compossible requires much more than occupying different positions; in fact, we cannot duplicate Plato without duplicating Plato's world. Does this obvious failure of modal freedom mean that the actual Leibnizian world is a prior concrete object upon which the plurality of monads depends? No. The organic character of the Leibnizian pluralistic system obtains thanks to the universal reciprocity of the complete individual notions of monads. But *they* are *many*, and they are not posterior parts of a prior concrete object, as PM suggests. In fact, created monads are not even a proper part of God, the monad upon which their existence depends. By coming into existence, created monads—unlike possible monads—are no longer contained in God's mind.

Something quite similar happens with Whitehead's pluralistic metaphysics. His basic building blocks are 'actual occasions'. Actual occasions 'are the final real things of which the world is made up' (Whitehead 1929: 24). Atomism is endorsed by Whitehead: an actual occasion is an extended simple event. Whitehead's actual occasions are internally-Moore related, insofar as they are conceived as relationally constituted (Whitehead 1926: 114, 154–56, 198–206; 1929: 69, 154, 205, 334–38, 409). Thus, 'atomism does not exclude complexity and universal relativity. Each atom is a system of all things' (Whitehead 1929: 49). Apart from the relations that help to constitute its nature, an actual occasion would not be what it is but a mere abstraction. In fact, an actual occasion 'in virtue of being *what* it is, is also *where* it is' (Whitehead 1929: 82).

Yet the cosmos, being Whitehead a convinced relationalist, is obviously not a substance, but a relational network of actual occasions. What makes Whitehead's world an organic whole is the fact that these relations are not external but internal-Moore and that each actual occasion is like a moment of experiential synthesis, where previous actual occasions (all those in the back light cone) are perceived by an actual occasion, who then becomes object of perception of others. The great mystery, of course, is how this perception of distinct existents takes place, i.e., how can actual occasions make ingression into another actual occasion yet all these still remain relata-in-relation, or how can an actual occasion be constituted by other actual occasions that lie outside it. However this happens, the fact is that the organic character of the world is not due to the existence of a prior concrete material object, as PM suggests. In fact, in Whitehead's system, the whole of PM is excluded from the start, because Whitehead's cosmos is conceived as junky.

There is an obvious sense in which both monads and actual occasions are basic: each of them is an irreducible building-block of an ontological system, their real definitions are unique, they cannot be given in terms of other real definitions. In particular, because both monads and actual occasions are perspectival and experiential units. More important: without their contribution, there would be no world at all, so the world depends upon each one of them. Conversely, each one of them depends on the rest. Thus, despite being basic, they are not freely recombinable, i.e., they are internally-Schaffer related. It is also more or less clear that this lack of modal freedom is a direct consequence of the real essence of those basic units, i.e., of what they are: monads are internally-Russell related, actual occasions are internally-Moore related. What happens in these pictures is that the basic units lack the ontological independence or the unconditioned and self-sufficient character expected from substances. But this is not a reason for inferring that monads or actual occasions co-depend upon a more basic concrete material object, as suggested by PM. What happens with internal-Moore or internal-Russell related terms is

that they exhibit *reciprocal dependence* for their identity and existence (Fine 1995: 282–85). Their essences are either relational (as in internal-Moore relatedness) or contain all relations in the way of monadic properties (as in internal-Russell relatedness). Since they are reciprocally dependent, the world can only come into existence as a package, but only because the whole is nothing but *all* of them, like an orchestra. *They* (monads, actual occasions, musicians) are *many*. And they do not co-depend upon a more basic concrete object. For Leibniz and Whitehead, ‘world’ is a plural term, like ‘orchestra’, like ‘flock’, like ‘We, the people...’. Neither a Leibnizian world nor a Whiteheadian world is a basic concrete object, and certainly not ‘material’, as PM depicts the world. Of course, the lack of existential self-sufficiency of monads and actual occasions might be seen as a downside of these views. They cannot but exist together. This fact makes them mysterious individuals. Internal-Russell relatedness makes the fact of universal coordination of monads to look miraculous and capricious. Internal-Moore relatedness makes the essence of each individual still more mysterious: somehow, an individual is constituted by what is outside it, yet it still remains a distinct individual. These of course are good reasons for rejecting these ontologies (in fact, this unstable character of internal relatedness is what led Bradley (1930: 26–27) to reject them and to offer instead a self-sufficient, non-relational unit), but they do not provide any base for inferring the existence of an additional layer of being, a prior object upon which they all co-depend. In reciprocally dependent pluralities there is no basic and self-sufficient individual but many basic individuals that only together, in joint effort, can exist and be what they are.

In sum, we cannot infer a determinate ontology from lack of modal freedom of many plurals. For a start, lack of modal freedom can be the result of external but irreducibly nomic relations (as in Armstrong’s metaphysics), of internal-Russell relatedness (as in Leibniz’s metaphysics), or of internal-Moore relatedness (as in Whitehead’s metaphysics). If these are mysterious ontologies, then we have good reasons to look elsewhere, but not a reason for

adding an extra basic layer as the one suggested by PM. In particular, because it is not clear how can parts be ontologically dependent upon a whole without the whole also being ontologically dependent upon the parts. (Think: can the whole be what it is if one of its parts is removed?) And because it can still be the case that the apparently related terms are not proper terms at all but only abstractions from a self-sufficient unity, as in the internal-Bradley relatedness that takes place in EM. In the latter case, internal-Schaffer relatedness is nothing but the result of wrongly taking as relata-in-relation what is really not.

5.5 Internal-Schaffer relatedness unpacked: Against A1

Schaffer's prior whole does not exhibit a clear nature. If it has proper parts that compose it, then it is not clear in what sense that whole is ontologically more basic than those parts. Perhaps we can get a more clear idea through the development of stage II of his argument; perhaps the particular candidates that Schaffer considers for an internal-Schaffer relation reveal something more specific about the nature of the whole of PM.

As I said before, Schaffer thinks that there are at least three plausible candidates to fulfil the role of a sufficiently pervasive internal-Schaffer relation: Causation—given causal essentialism (R1); spatiotemporal relatedness—given supersubstantivalism about the relation of objects and regions, and structuralism about the essence of regions (R2); and being world-mates—given counterpart theory (R3). As I will show now, none of these candidates speaks in favour of PM.

5.5.1 *Against R1 as a sign of PM*

To be clear, I am not disputing or defending R1 here. What I am disputing is Schaffer's understanding of R1 and his use of it as an argument for PM. The label 'causal essentialism', as used by Schaffer, makes reference to DE, the

view that we discussed in chapter 3, and in particular to the variant that I called ‘relational essentialism’ in §3.2 (Schaffer actually quotes some holistic remarks from Mumford 2004 and Ellis 2001; see Schaffer 2010b: 364–65). Schaffer thinks that if things have their causal powers essentially, then causation will generate necessary connections between distinct things. Thus, according to Schaffer, under this conception of causal powers, two causally related things do not enjoy modal freedom. Since causation has good credentials for being a sufficiently pervasive relation that relates all things, it can be said that all things are R1-related. Or so Schaffer argues.

But DE is not what Schaffer says it is; and even if DE were what he says it is, it would not be a sign of a prior whole of the type that he is suggesting. In the first place, DE is a view about properties, not about actual causal relations. Relational essentialism is the holistic variant of DE according to which all properties are dispositions, and the nature of a property is determined by second-order relations to other properties. But the instantiation of a first-order property is ontologically independent from any other property-instantiation. When fragility is instantiated by a vase, the identity of such a property is determined by second-order relations to other properties that are not instantiated: a non-actual hit, a non-actual breaking. Thus, a disposition can be instantiated without necessitating any further property-instantiations. In particular, dispositions can be instantiated without anything like occurrent *causation* taking place. What DE offers us is simply a relational way of fixing the identity of properties. In a clear sense, the second-order relational network, the power-net, is a ‘whole’ that enjoys ontologically ‘priority’, since only after we have fixed its identity we can fix the identity of a first-order property that belongs to that power-net. But certainly is not the type of whole in which Schaffer is thinking, i.e., a basic concrete material object. Rather, it seems to be the opposite kind of whole: abstract and immaterial. When an object instantiates a first-order disposition what occurs is that a node of such abstract relational structure is instantiated, and, as far as I can see, this structure can

only be Platonic in character (§3.2). This instantiation involves nothing more than the instantiation of a pure potency, and this is a fact that obtains with ontological independence from everything else. This is an essential feature of it. DE might be an inadequate ontology, but at least we need to be clear about its content before supporting it or rejecting it. Thus, DE is not what Schaffer thinks it is.

What Schaffer seems to be thinking about is in two objects that are actually constituted by their causal relations. But then he has something different from DE in mind. He might be thinking in something closer to MOSR, where there are objects yet relations take the place of intrinsic properties (Esfeld 2004, Esfeld and Lam 2008, Teller 1986). If so, objects have relational natures, they are wholly relationally constituted, they are internally-Moore related. And it is only *because* objects are internally-Moore related that they are internally-Schaffer related: modal constraint is a consequence of essence. Objects are mere placeholders of a relational structure. There is also an obvious sense in which such a structure is a ‘whole’ which is ‘prior’ to its ‘parts’, since the existence and identity of the relata is dependent on the existence and identity of the structure, just like for the mathematical structuralist the existence and identity of a natural number depends on the existence and identity of the whole relational structure of natural numbers. But how can we call such a prior relational structure a ‘basic concrete material object’, as Schaffer’s prior whole is supposed to be? In what sense a relational structure is a basic individual object? In what sense a relational structure is ‘concrete’ (cf. §1.4, §4.4)? Still worst: in what sense a relational structure is ‘material’? On the other hand, in what sense those placeholders of relations deserve the name of ‘posterior concrete material objects’ (as Schaffer understands the parts of his prior whole), when they literally lack any intrinsic nature? In fact, once we think of an object as relationally constituted, what is left for itself in order to deserve the name of an individual object in its own right? Surely, OSR in all its variants is a puzzling ontology, as I argued in ch. 4. And it is puzzling because relations

in general are puzzling. But these are different questions. To make things clear: neither DE nor ontic structuralism (OSR or MOSR) endorse something like internal-Schaffer relatedness. What they do is endorsing at different levels the idea of relational constitution expressed by internal-Moore relatedness. Internal-Schaffer relatedness obtains in virtue of internal-Moore relatedness. Relational constitution is mysterious because relations are mysterious. Yet I don't see how we can infer something like Schaffer's prior whole (a basic concrete material object) from relational constitution (whether of properties, objects, or the world as a whole).

5.5.2 Against R2 as a sign of PM

R2 is a double-thesis which involves an essential tension. On one hand, R2 affirms supersubstantivalism about concrete material objects and spatial regions (I will talk about classical 'space' for the sake of simplicity of exposition; the extension of the argument to 'space-time' is direct and obvious). On the other hand, R2 affirms the idea that regions have their relations of distance essentially.

As we saw before (§5.3.2), supersubstantivalism, as a species of substantivalism, rejects the idea that space is a system of bodies in relations of distance, and attributes space a substantial status, at least in the technical sense that the conditions of existence and identity of space are not only determinate but also independent of the existence and identity of other entities. The prefix 'super' of 'supersubstantivalism' stands for an identity thesis: the rejection of the idea that there are both space *and* material occupants, the container and the contained. I am not going to discuss the reasons in favour of supersubstantivalism here (wait for ch. 6). I just want to argue that there is no clear sense in which this thesis is a sign in favour of PM, and that there is a clear sense in which it is in tension with the second claim made by Schaffer, according to which there are 'relations of distance' between regions of space.

First, once supersubstantivalism is accepted, it is hard to take regions as ‘posterior objects’, as PM says. If space is a substance and there is identity between it and its contents, then everything indicates that we are in front of an extended simple, as EM says and as we already argued. Because if space is a substance, it is not a composite of elements: it is actually undivided and potentially indivisible into components. In fact, regions of space are pure arbitrary carving and do not fulfil the minimum requirement for being real individual objects. But PM needs the real existence of both one prior and many posterior individual objects so the former can be prior to the latter.

The second idea, the idea that regions have their relations of distance essentially, is either a relational way to describe something that is not relational or a way of collapsing supersubstantivalism into some form of relationalism. In the former case, of course any arbitrary point of space is where it is essentially. If space is a substance, and there is no distinction between the container and the contained, then we do not have a region or a proper part of space before making an arbitrary carving. After making a couple of arbitrary carvings in order to abstract two parts of space we can say that their identity is fixed by its spatiotemporal relations to other regions. But when space is a substance, and there is no distinction between it and its contents, the whole idea that relations of distance play a constitutive role is misleading. Because, as Bradley would say, there are no real *terms* for the spatial relation *before* making the arbitrary abstraction. In fact, as I will argue later in more detail, if space is a substance, then relations of distance, like their relata, are mere abstractions or derivative notions, since what really *connects* any arbitrary region with any other arbitrary region is a continuous *path* of the same continuous and common space, like a highway literally connects two cities, not like a relation, allegedly, relates two bodies.

Now, if relations do play a constitutive role in space, then it is not clear anymore in what sense space is a substance and not a bunch of relations. As far as I can see, R2 either collapses into a space without proper parts, or into some form of structuralism where relations have a constitutive role. If the former, then R2 is a sign of EM, not of PM, and relations of distance are internal-Bradley. If the latter, then R2 is a sign of MOSR or OSR, hence a type of relationalism, where relations of distance are not external (as in the realistic relationalism of Armstrong and Lewis), nor internal-Russell (as in Leibniz's idealistic relationalism), but internal-Moore. In any case, R2 is neither an internal-Schaffer relation nor a sign of PM, i.e. of a concrete material object which is prior to many posterior concrete material objects. If things seem internal-Schaffer related is either because they are mere abstractions from an underlying unity or because the constraint is a consequence of relational constitution. There is no space enough for PM.

5.5.3 Against R3 as a sign of PM

According to Schaffer, the third type of relation that can plausibly fulfil the role of an internal-Schaffer relation for A1 is 'being world-mates', given counterpart theory. Since according to counterpart theory all things are world-bounded, they are all internally-Schaffer related: two things that are world-mates can only be found together in one world. I think R3 is only a sign of two confusions. First, if R3 counts as an internal-Schaffer relation, then we don't know what Schaffer means by modal freedom or free recombination anymore. Second, R3 only begs the question of what ontology underlies PM, i.e., what is the nature of Schaffer's prior whole. After all, 'being world-mates' says nothing about what exactly is supposed to be a 'world' for those mates nor in what sense that 'world' is ontologically prior to them.

To illustrate my objections I'll make use of Lewis' metaphysics for the actual world. Humean Supervenience is a Humean metaphysics in the most obvious

sense: everything is loose and separate (i.e. externally related). Because everything is externally related there are no modal constraints for free recombination: everything could have coexisted in a different arrangement or have failed to coexist. The only restriction to free recombination is colocation. This loose and separate coexistence is what permits exact duplication of individuals, where duplication is understood as sharing of intrinsic properties, and the intrinsic properties of an individual are understood as not including its relations to wholly distinct individuals (of course, because relations are external). Now, it is true that in the Lewisian metaphysics all individuals are world-bounded because no individual has transworld identity or lives two parallel lives. But still there is a clear sense in which those world-bounded individuals are actually part of a world which has no more structure than a heap of sand. And it is because the world is like a heap of sand that everything is freely recombinable via duplication. So, in the Lewisian metaphysics, it is actually true that Plato and I are not standing two feet apart. And it is also actually true that Plato and I *might* have been standing two feet apart (Lewis 1986a: §4.1). And this modal claim is actually true because in other world, as concrete as this one, there are exact duplicates of Plato and I actually standing two feet apart from each other. But of course *we*—Plato and I—are not sitting next to each other: exact duplicates of us are doing so. This is not a particular downside of Lewis' theory, because it is something common to any theory that attempts to offer an analysis of modality. (Thus, an ersatzist, instead of duplicates, would use some abstracta, but certainly neither Plato nor I are those very same abstracta.) The central point is that Lewis' modal metaphysics is grounded in a Humean conception of the actual: since everything is *actually* loose and separate, everything *could* have failed to exist or *could* have been differently arranged without affecting the existence, position or intrinsic nature of other things. Thus, what is actually *before* could have been *after*, what is *here* could have been *there*. And this is exactly what it means that the actual arrangement is a loose and separate metaphysical accident and that all things are modally free.

I have exposed Lewis' understanding of modal freedom and Humean free recombination, which is also the understanding that Schaffer accepts at the beginning of his paper before running his argument of internal relatedness (Schaffer 2010b: §1.4). But now Schaffer seems to be flipping because he is telling us that the fact that Plato and I are world-bounded means that we are internally-Schaffer related, i.e., that we are not freely recombinable (!). And what explains our world-bounded character is, allegedly, the fact that each of us 'is a dependent fragment of that world' (Schaffer 2010b: 369). But if Schaffer thinks that being world-bounded is to be internally-Schaffer related, then my question to him is what sense of modal freedom and free recombination has he in mind now? That is, if the very champion of modal freedom and free recombination (Lewis) counts also, under Schaffer's lights, as a champion of modal constraint, one expects some guidance from Schaffer about what he understands by modal freedom and free recombination now. We have no clue. And we have no clue because if the actual world were in fact an externally related heap of sand (as Lewis' actual world is), and Schaffer's mereological assumptions and metaphysical principles were accepted, then the actual world would satisfy the proof for PM: (i) there is both the heap of sand and its grains; (ii) the heap is maximal; (iii) if the grains were basic, then any grain of sand that does not overlap other grain of sand would be modally free; (iv) but any two grains of the heap are world-mates, hence they are internally-Schaffer related, hence they are not basic; (v) but there must be something basic; therefore, (vi) the heap is prior to the grains. PM is true if the world is an externally related heap of sand! Well, if this counts as an organic unity, then something is wrong with PM or PM is just a fancy name for restating the fragmented world. Unless the whole posited by PM enjoys the same kind of organic unity that enjoys a heap of sand (that is, none), R3 cannot be accepted as a suitable candidate for A1. Because if Lewis' fragmented world counts as a case of PM, then I don't know anymore what is to be a monist.

The central point of my criticisms is that we don't have a clear idea of what is the nature of Schaffer's prior whole. Again, Lewis' ontology can help us to highlight Schaffer's confusions. Lewis' thesis of Humean Supervenience can be seen as a clear case of PP. We may disagree with the thesis, but at least we have clarity about the basic ontology posited: point-like individuals with intrinsic natures standing in external relations of spatiotemporal distance. And this ontology is fixed before any mereological story is told. Each constituent is ontologically independent from its surroundings. If there is any composite at all, then its real definition can only be obtained through the real definition of its constituents. Every whole is just a metaphysical accident, because all the basic ontology has no more structure than a heap. Everything is loose and separate. This is why the principle of separability or independence rules, and this is why Lewis can make free use of duplication and Humean recombination. Lewis ontology is not gunky. Not because mereology cannot play with gunk, since mereology can play with anything (atoms, gunk, junk or a mixture of these), but because the thesis of Humean Supervenience is an *ontological* thesis, not just vacuous mereology. And that's it. Without those basic constituents the world would vanish, because all composites—the world included—are ultimately grounded in them. If we don't take mereological talk seriously, then Lewis' world is still there, but it is just the existent plurality, without giving place to any mereological fusions. If, in contrast, we think of a mereological fusion as real addition of being, then we can still understand what elements of being ground or are prior to any mereological fusion: the externally related atoms. Is there a *maximal* fusion? Maybe, maybe not. Lewis can leave that question open, since his basic constituents can ground an infinity of wholes. Humean Supervenience does not necessitate, for internal consistency, the idea of a *maximal* whole (P1). After all, saying that the world is a whole offers very little metaphysical insight about its constitution. Think: the plurality of all possible worlds is also a mereological whole, and any world is part of it. Lewis knows this. And he is explicit: the criterion of demarcation that he offers to distinguish one world from another is a piece of ontology and not a piece of mereology,

namely: spatiotemporal relatedness (Lewis 1986a: 70). Things are part of the same world *because* they are spatiotemporally related. The fact that worlds are not spatiotemporally related is what makes them different worlds. And spatiotemporal relations, according to Lewis, are external! And the fact that these relations are external relations is what makes a world a recombinable heap, a ‘unity’ that is only so by metaphysical accident, a ‘one’ only by aggregation. Of course, it is very puzzling how can external relations relate things if they are not part of their intrinsic nature. More than that: it is mysterious how external relations can be said to be instantiated at all and at the same time be wholly external to the relata. But still, there you have the ontology: a world is a spatiotemporally-related plurality, an *externally* related plurality.

But in Schaffer’s case, what is a world? We know that is a maximal fusion, but that is only mereology, and is ontologically uninformative. A fusion of what? Of concrete material objects, as far as we know. Thus, it is a composite, not the extended simple individual of Spinoza. But if it is a composite, in what sense can be said to be prior to its component parts? In what sense its conditions of existence and identity do not depend on the conditions of existence and identity of its parts? The asymmetrical dependence embraced by PM is obscure, as all relations of asymmetrical dependence are, since these always introduce necessary connections between distinct existents. After all, if the world is a whole with parts, then why should we say that the parts asymmetrically depend upon the whole and not the other way around? As far as we can tell, it seems that the whole would not be what it is if one of its parts were removed. Thus, if there is a whole and its parts, and there is ontological dependence upon them, then that dependence seems to be reciprocal or symmetric. Otherwise, it seems quite arbitrary and obscure to choose only one direction of priority. Mereology is not helpful here. Mereology does not distinguish between organic or inorganic fusions: every fusion is equally a good whole for its neutral purposes. In Lewis’ case, nature is divided into points-like entities. The possibility of

gunk threatens the grounding capacity of these thin atoms (§5.3.3). But what about Schaffer's world? It only raises doubts. Is it divided or undivided? If divided, in what sense it is still one? If undivided, in what sense it is many? And which is Schaffer's criterion for distinguishing what belongs to his prior whole? Being world-bounded, as he suggests? But this is begging the question, since what we are asking is precisely what counts as a world for those purposes. In Lewis' metaphysics this is clear: a world is an externally related heap. What about PM? In what sense PM differs from the Lewisian world? Are the parts of PM externally related (recall that internal-Schaffer relatedness allegedly leaves room for external relations)? Do the parts of PM admit duplication? If they admit duplication, in what sense they are not freely recombinable? And if the parts are externally related and recombinable via duplication, then in what sense they are not basic or prior to the whole? What sense of modal freedom, if not free recombination via duplication, has Schaffer in mind? If the whole, being the only basic object, is the only thing that enjoys modal freedom, then it is free *from what*? Not from its parts! Recombinable *with what*? No answers. We cannot say that a mereological fusion is ontologically prior to its parts if we haven't been told what is the ontology that underlies the fusion. After all, neither mereology nor internal-Schaffer relatedness offer a guide to any specific ontology; they don't provide real distinctions.

6 Existence monism: The non-relational One

I started this investigation by raising objections against the two main ingredients of the dominant fragmented ontology: self-contained plurals and external relations. We have seen that neither DE nor OSR nor PM are self-sufficient and coherent alternatives. It is time to examine our final holistic candidate, the one that in §5.1 I distinguished as Existence Monism (EM). In §6.1 I will explain the content of the thesis. Throughout §§6.2–6.6 I will support it and develop its consequences, although an important part of the job has already been anticipated in previous arguments. As it happens, EM vindicates my favourite conception of relations: internal-Bradley relatedness. And as I hope to show, the internal coherence of EM and the arguments for it are signs of its relative superiority, at least when compared to the other alternatives discussed here. However, I still remain *very* suspicious. The relative victory of EM, if victory at all, has a Pyrrhic taste. Yet this is not EM's fault in particular. My skepticism is the result of the vices that EM shares with ontology in general. The ascent that culminates in EM simply reveals those vices in a more clear way. I leave these skeptical remarks for the Epilogue.

6.1 Undivided wholeness

According to EM, the actual world is a single concrete individual object, since no other concrete entity but the world enjoys determinate identity-conditions and countability. Supporters of EM speak of one dynamic 'blobject' or 'jello' (Horgan and Potrč 2008, Potrč 2003), or of one 'Undivided Wholeness in Flowing Movement' (Bohm [1980] 2002: 14), or of one 'God' or one 'Nature', indistinctly (Spinoza 1994). For short, I will call it ONE. ONE is concrete, extended and qualitatively rich. It is undivided and indivisible (a true *in-dividual*); it cannot be said (meaningfully) to be composed by, or decomposable into, a plurality of other objects, i.e., it is an extended simple.

EM is exclusionary: since ONE is *one* object, it is not *many* objects. There might be levels of discourse and thought, but not levels of objects. According to EM, all composition/decomposition is fictional discourse, the product of what Bradley called ‘vicious abstraction’. A fortiori, ONE *is not* a basic object upon which many other objects depend, as PM says. According to EM, the asymmetrical dependence embraced by PM is an obscure and spurious solution for an inexistent problem. The problem that PM faces does not exist, because without composites no problem of composition ever arises and, a fortiori, no problem about which one is more basic, whether the composite or the components, whether the whole or its parts, ever arises (recall the arguments stated in ch. 5 against composites in general and against PM in particular). According to EM, no object short of ONE has a real definition, since nothing but ONE is in itself and can be conceived through itself, and everything short of ONE can only be and be conceived through ONE (Spinoza 1994: ID3). Furthermore, ONE is the only substance, in the technical sense that it is the only entity that enjoys *independent* conditions of identity and existence.

Is ONE particular or universal? As I said before (§3.4), one cannot but realise how little insight provides the universal/particular distinction when applied to a concrete individual object. If you think that a universal is a numerically one that runs through many, then ONE cannot be just one among many particulars, since it is the only clear individual object around; but it might well be considered a universal, since ONE runs through the many attributes into which ONE can be divided through abstraction. If you prefer, you can think of ONE as an Aristotelian substantial form, like Socrates (better: Socrateshood), which is not a bare substratum but the substantial form itself (§2.1.3); or, following some British idealists, you might prefer to call ONE a ‘concrete universal’ (see Stern 2007). Is ONE material/physical? Yes, but only if this also means being experiential (more about this in §6.6).

EM reaches the highest point that the dialectic process of overcoming fragmentation can reach: ONE is neither a plurality of externally related objects, nor a plurality of internally-Moore or internally-Russell related objects, nor a pure internal-Moore relational structure, nor many internally-Schaffer related objects that co-depend upon a more basic or fundamental object. Just the exclusionary and all-embracing ONE. ONE has place only for internal-Bradley relatedness, where both relata and relations are better understood as fictions of decomposition, as abstractions from the unbroken substantial unity that ONE is. Intrinsic nature is something that can only be enjoyed by ONE, since it is not divided by internal boundaries and there are no externally related objects within it, no 'loose and separate' building blocks available for playing the lego-game of free recombination. The doctrine is the complete opposite of Humean Supervenience: the world is one and relations are internal-Bradley.

Two traditional objections have been raised against EM. First, that EM cannot explain the heterogeneity that the world exhibits. Second, that EM is *shocking*, since it denies Moorean truths like this one: 'Here is my right hand! Here is my left hand! There you have it: there are at least two concrete individuals.' None of these objections is compelling because both of them apply with equal force to *any* sparse ontology in the market, and in particular to all the other ontologies examined in this work. Hence, what is a common or shared vice cannot be used as a reason to dismiss EM without dismissing the other alternatives. Firstly, it is not the number of individuals what explains heterogeneity but the qualitative richness of each one of the individuals admitted. Thus, the problem of accounting for heterogeneity is equally pressing for the pluralist, since a world of many externally related atoms, all of them having the same colour, mass, smell, etc., is as boring as each of the atoms that compose it. Nor the mere introduction of the relation of 'difference' can do the trick: imagine that relation and wait for difference to arise... Secondly, all the ontologies examined here equally offend common sense, and they do so

because *any* kind of revisionary metaphysics offends common sense. After all, according to Humean Supervenience, two hands are just like two clouds of dimensionless pixels, and those are not the kind of hands that come as obvious to common sense. What the revisionary metaphysician is asking to Moore is this: What do you really mean by ‘a hand’? By answering: ‘Well, I mean this: a hand’, Moore is begging the question. It is objecthood or individuality itself that is under discussion, that is, we are examining what counts as a legitimate ‘term’ and whether there are any real items like ‘relations’ holding between any pair of them. It might be very wise to stop right where the commonsensical fellow stops, but this is precisely what the revisionary metaphysician doesn’t do, for better or worse. Schaffer, Lewis and other post-Quinean–yet still scholastic–metaphysicians usually like to picture themselves as in agreement with the commonsensical fellow, and one cannot avoid the thought that they must be joking. Just try to name one ‘commonsensical fellow’ who believes in four-dimensionalism, or in eternalism, or in a plurality of worlds, or in universalism about composition, or in *pointillisme*. The ‘commonsensical fellow’ is an anti-metaphysician per excellence: he stops asking right where Moore stops asking.

In the following sections I offer what I would prefer to call ‘signs’ in favour of EM. I use the word ‘sign’ because the arguments that I will offer here are more like *symptoms of* rather than *conclusive reasons for* EM. Of course, the fact that EM survives the criticisms raised against the weaker holistic ontologies previously exposed is already a consideration in its favour, but much more work would be needed in order to build a positive, fully articulated, and conclusive case in favour of EM. In particular, because it is not clear whether these various signs in favour of EM can be put together under a single theoretical framework. For instance, there are signs of EM in General Relativity and in Quantum Theory, but, as it is well known, although these two theories are the best we have, they are incompatible and we still have no theory that can put them together. Maybe this incompatibility is also a sign, a sign that

a new kind of order is needed, as Bohm insists. After all, despite their incompatibilities, both theories have something in common: they both give signs of undivided wholeness and this common aspect is perhaps the best point to start such a new order (Bohm [1980] 2002: 223, Bohm and Hiley 1993: §15.2). Given that science does not and cannot tell us the whole story, we should also take the answers of science as indicators or symptoms and not as final truths.

6.2 Space and its occupants, continuity and plenitude

I argued that non-Leibnizian relationalism about space is mysterious because real relations are mysterious (§1.4.1, §4.3, §4.4), and this is a consideration that indirectly favours either Leibnizian (idealistic) relationalism or substantivalism. I also argued that if space is an individual object in its own right (substantivalism) and not just a relational order of some sort (relationalism or structuralism), then the best way to understand that object without falling into incoherence is as an extended simple, not as a composite having proper parts ('regions' or 'points') standing in any sort of real relations (ch. 4, §5.3.2, §5.5.2). Of course, this second argument was not an argument for substantivalism itself, but only an argument for the way in which substantivalism should be understood. I also said that if substantivalism is the case, then the indivisibility of the material contents of space obtains via supersubstantivalism. Supersubstantivalism, as I said then, is the monistic version of substantivalism according to which there are no material objects 'occupying' space, since there is no real distinction between the container and the contained, between extended substance and corporeal substance (Descartes 1985: II.10–11). If so, then material objects do not 'occupy' space nor they go from a fixed spatial location to another spatial location. What is really going on is that space or extended substance as a whole stops being 'watery' around here and becomes more 'watery' around there, or stops being 'massy' around there and becomes more 'massy' around here, but 'corporeal substance, insofar as it

is substance, cannot be divided' (Spinoza 1994: IP15s). It happens that EM understands the world just like that: neither as objects-in-relations, nor as relations through-and-through, nor as a space-and-objects-occupying-it, but as one extended simple, a non-composite object that directly, without the mediation of 'occupiers', enjoys qualitative richness. There is simply a continuous, extended and indivisible plenum, a qualitatively rich ONE.

Now I am offering a reason for supersubstantivalism as understood by EM. The reason is empirical: the best and more comprehensive theories about the material world that we have, i.e., General Relativity and Quantum Theory, support it. Although these two theories are not compatible and we are still waiting for a unified theory, both of them point in the same direction of understanding: first, spatial extension has features that cannot be captured by relationalism but only by substantivalism (e.g., certain topological features); second, there are no material objects 'occupying' space. What we have is space with its all-pervading field-like energy.

This is certainly the case in General Relativity. In Einstein's own words:

The combination of the idea of a continuous field with that of material points discontinuous in space appears inconsistent. [...] Since the theory of general relativity implies the representation of physical reality by a *continuous* field, the concept of particles or material points cannot play a fundamental part... (Einstein 1950: 14–15, his emphasis)

According to Bohm, one of the important implications of General Relativity is that it is strictly inadequate to think of space as a set of well-defined points in relations of distance (Bohm [1980] 2002: 210). Another important implication is that 'no coherent concept of an independently existent particle is possible, neither one in which the particle would be an extended body, nor one in which it would be a dimensionless point' (Bohm [1980] 2002: 220). The so-called 'particles' are simply ripples, wrinkles or vortices in a 'vast sea of energy' (Bohm [1980] 2002: 242), more or less stable patterns that occur when the concentration of energy reaches high values, certain 'kinds of abstractions

from the total field' (Bohm [1980] 2002: 158). The core idea that can be distilled from General Relativity is that 'neither the point particles nor the quasi-rigid body can be taken as primary concepts' (Bohm [1980] 2002: 157). And if one is tempted to replace 'particles' by spatiotemporal worms, chains of eternal and externally related stages or extensionless events, is totally misguided, and probably under the pernicious influence of what Bergson ([1911] 1998) denounced as 'the logic of solids'. Because the so-called 'worm', just like any other concrete individual short of ONE, can only be taken as an 'abstraction of a relatively invariant form' or 'more like a pattern of movement than like a solid thing that exists autonomously and permanently' (Bohm [1980] 2002: 157).

What happens in General Relativity also happens in Quantum Theory. Relativistic Quantum Field Theory is a theory without particles but only fields. It has no real meaning to talk about material particles 'occupying' space. Because what we take as particles are just more or less stable patterns in a 'vast sea of energy'. The particle-talk is strictly false because a 'particle' is only a convenient abstraction, fiction or idealisation. Strictly speaking, there are no such things. As Halvorson and Clifton put it:

RQFT [Relativistic Quantum Field Theory] does not permit an ontology of localizable particles; and so, strictly speaking, our talk about localizable particles is a fiction. (Halvorson and Clifton 2002: 23, *their emphasis*)

In similar sense, Zukav:

According to quantum field theory, fields alone are real. *They* are the substance [i.e. stuff] of the universe and not 'matter'. Matter (particles) is simply the momentary manifestations of interacting fields which... are the only real things in the universe. (Zukav in Bennett 1984: 92, *his emphasis*)

Cao also argues that, according to the most accepted interpretation of Quantum Field Theory since the 90s, the right ontology 'can only be the quantum fields' because 'while from fields we can derive all the aspects of particles, the physical content of the quantum fields is not exhaustible by particles' (Cao

2003: 63). Moreover, Zeh (2003) suggests to abandon the concept of material ‘particle’ altogether. After all, not even the number of particles of a system is frame-invariant (Schaffer 2010a: 54). Thus, Quantum Field Theory allows the particle-talk; however, this talk is not literally true but only true about a fiction or abstraction.

Alright. Let’s accept that there are no material occupants but only fields, and that point-like objects and particles are, strictly speaking, abstractions from the ‘vast sea of energy’ to which fields give place. But what do we mean by ‘fields’? In particular, how do they stand to space? This is very controversial. By pressing this question we might be again resurrecting the idea of relationalism. A field is supposed to be an essentially extended and unbroken actual force that pervades all space with different degrees of intensity but without gaps. Yet there is no obvious agreement about how we should understand this. Schaffer says that fields are the *properties* or *attributes* of space itself, and he takes space to be the one (‘prior’, we should add) *substratum* upon which fields inhere, understanding that this substratum enjoys independent existence from the fields (Schaffer 2009b: 142–44, with references). Campbell also takes fields to be *attributes* or *properties* (in Campbell’s case, these are supposed to be *tropes*), and he takes space to be not a substratum but also a sort of attribute, perhaps the most ‘ethereal’ of all, and understands that space and the fields together conform the single *bundle* that is this world (Campbell 1990: 147). As it can be appreciated, science might well accept that space is not merely a relational order but a substance in its own right, and then it might well reject familiar material ‘occupants’ and material ‘bodies’ in relations of occupation to space, and give us just one big object with many attributes or one huge bundle of fields. But we would be very fool if we take this as giving us some deep metaphysical insight into the nature of reality, since while dealing with space and its fields we are just dealing once again with the same metaphysical conundrum that troubled Bradley while observing a lump of sugar (Bradley 1930: ch. 2). Is the lump of sugar distinct from its hardness, its whiteness, and

its sweetness? If so, how does the object stand to those qualities? Are the lump, its hardness, whiteness and sweetness somehow related-in-relation? Or are hardness, whiteness and sweetness unified by a relation of bundling without the concurrence of a bare substratum? In sum, what makes the lump of sugar 'one' and not 'many'? The problem of Schaffer's and Campbell's understandings of space and the fields is the same old problem: they understand attributes as if they were wholly distinct related in a sort of relation ('instantiation' in Schaffer's case; 'compresence' or 'bundling' in Campbell's case). And my point is Bradley's: understanding space as an 'independently existent' substratum over which the fields are 'instantiated' is non-sensical, just like understanding space along with the fields as a bundle of attributes in relation of 'compresence' or 'bundling' is non-sensical. The unity of an individual (*any* individual) can never arise from some substratum being somehow related to its attributes or by some attributes being somehow related to each other. To keep it simple: Firstly, a lump of sugar is not an 'independently existent' substratum somehow 'related' to its attributes, because there is nothing left if we screen-off its hardness, its whiteness, and its sweetness. There is no 'that' without 'what'. Empty space is as absurd as a bare substratum or as the referent of a logically proper name; and fields that do not involve spatial extension are as absurd as extensionless paintings. Secondly, there is no way in which we could get the unity of *one* lump of sugar by magically 'bundling' what we take as numerically distinct attributes, namely hardness, whiteness and sweetness. How can these many attributes become *one* object? Bradley's central point is that the unity of an individual (*any* individual) can never be obtained if one starts from numerically distinct constituents. If the unity is there, then it must be recognised that the numerical distinctness of the so-called 'constituents' is only obtainable through abstraction from the unity. And if we pay attention, it does seem that the unity is already there, and that only analysis destroys it. If fields are all-pervading and they don't leave any vacua within the whole of spatial extension, if they are like superimposed layers of water in an ocean of energy, then how can we

legitimately conceive space and treat it as something distinct from the ocean itself? Or how can we legitimately identify *one* layer of water and treat it as a distinct existent? Or how can we legitimately think that space or any layer of water could be removed or swapped from the undivided plenum without altering all the ocean, the whole plenum of space-energy? In fact, we are not entitled to take layers of water or fields as ‘terms’ in their own right; when we do so, we are abstracting them from the ocean, from the space-energy, making an illegitimate cut into an already substantial unity that lacks internal boundaries (or can we really say that there is a point where *this* layer of water ends and *that* layer of water starts?). In a way, it is not surprising that there is still no ‘unified’ field theory. How could we ever get to that point if we start by taking space, the metric field, the gravitational field, the electromagnetic field, etc., as if they were numerically distinct relata somehow waiting to be related? Nothing can do the trick! Is like someone who wonders why he has a theory of whiteness, a theory of sweetness, a theory of hardness, but still no theory about how they stand together as a lump of sugar. Or a theory of the spatial extension and the layers of water of the ocean but no theory of the ocean. What does he expect after he has *destroyed* the unity of the lump of sugar, the unity of the ocean, through analysis and abstraction? That these separate elements will come back together as if by magic?

It is interesting to note that despite not being able to develop a unified field theory, Einstein himself was in speculative agreement with the fundamental unity of space and the energy that fills it and that space-energy was simply one field. For Einstein, the Field was the only reality and ‘the concept of space detached from any physical content does not exist’ (Einstein 1950: 15). The Field might have variable degrees of thickness or intensity, but it is always coincident with the whole of extension. Bohm, unlike contemporary philosophers that try to fit everything in the pigeon wholes of their set-theoretic prejudices, understood well that Einstein’s idea was to take ‘the total field of the whole universe as a primary description’ and that such a field was

‘continuous and indivisible’, so that we should take the world ‘as *an undivided and unbroken whole*’, where divisions represent only a ‘crude abstraction and approximation’ (Bohm [1980] 2002: 157–58). Thus, just like substantial space cannot be legitimately analysed into components (regions, points), the Field is not a series of point-like entities in any kind of relation. Just like space, the Field is essentially extended, undivided and indivisible. One of the oldest and more important tensions within the metaphysics of science is the one between atoms and plena (Hooker 1974), and Einstein definitely favoured the latter. He vindicated the old Cartesian and Spinozistic idea according to which the material world is a single extended and continuous plenum, without gaps and without vacua (Descartes 1985: II.16–18, Spinoza 1994: IP15s, Sachs 1976), ‘inasmuch as the so called ‘vacuum’ of present-day physics is seething with activity . . . and is defined simply as the lowest energy-state of the field system, which has no ‘holes’ or true vacua at all’ (Strawson 2006b: 202n). Thus, Einstein offered real remedies for those of us who suffer *horror separationis* and *horror vacuis*, diseases that a pluralistic metaphysics seems incapable to cure. In General Relativity there is just the Field and it is identical with space; the Field and space are not separate existents but simply two ways of naming the same thing. Thus, it has no real meaning to ask whether the world is substance-stuff or substance-thing or substance-process: the stuff *is* the thing and the essence of a thing *is* conatus. The world is an unbroken wholeness in which arbitrary divisions can be made, but where these divisions do not map *real* distinctions. According to Bohm, even the common notions of space and time seem to be obtained through abstraction from this unbroken wholeness (Bohm 1980 [2002]: xviii). Ultimately, as Spinoza would say, ONE is the only substance, because IT is in itself and IT can only be conceived (or *really*

defined) through itself (Spinoza 1994: ID3).⁷³ The ordinary individuals posited by common sense (including us), are better understood, if you prefer, as what Spinoza called *modes* or *affections*. In Spinozistic terms, *modes* or *affections* of the substance do not obey *real* distinctions, but only to distinctions of reason or imagination.⁷⁴ This is so because any individual object should at least enjoy determinate identity-conditions and countability, and there is no fact of the matter of what counts as a single wave or vortex within the ocean. Again, not because their number is infinite or because counting them involves doing a super-task, but because waves and vortices are not individuals that ‘compose’ the ocean, i.e., they do not have determinate synchronic/diachronic boundaries, nor determinate location, nor determinable number, nor a self-contained intrinsic nature that makes them ‘separable’ from the ocean itself. They are expression of the striving of the single ocean that is identical with all extension, that is, relatively stable patterns that arise from, and dissolve back into, an undivided, indivisible and always resonant plenum of energy. They are like grins or blushes in Socrates’ face, which can only be and be conceived through Socrates and are distinguished and separated from Socrates only by reason or imagination.

⁷³ Bohm insists that fragments of ONE are not individual objects in their own right (neither point-like stages of worms, nor rigid continuants, nor ‘posterior’ or co-dependent upon IT)—a fortiori, not objects-in-relations in their own right—but only abstractions or convenient fictions. We chop IT down for pragmatic reasons, since it would be impossible to deal with IT all at once, but this does not mean that IT is ‘loose and separate’ or a composite. As Bohm puts it: ‘The notion that all these fragments are separately existent is evidently an illusion, and this illusion cannot do other than lead to endless conflict and confusion. [...] Indeed, to some extent, it has always been both necessary and proper for man, in his thinking, to divide things up, and to separate them, so as to reduce his problems to manageable proportions; for evidently, if in our practical technical work we tried to deal with the whole of reality at once, we would be swamped.’ (Bohm [1980] 2002: 2)

⁷⁴ That categories applied in any fragmentary understanding of ONE (i.e., in any understanding that is not through ONE itself) are not *real* distinctions but the result of arbitrary or pragmatic projections of reason or imagination seems to be Spinoza’s position. Thus, he writes to Meyer: ‘[F]rom the fact that we separate the affections of Substance from Substance itself, and arrange them in classes so that we can easily imagine them as far as possible, there arises Number, whereby we delimit them. Hence, it can clearly be seen that Measure, Time and Number are nothing other than modes of thinking, or rather, modes of imagining.’ (Spinoza 2002: 789; see also Spinoza 1994: Part I, Appendix).

What leads some people like Schaffer to understand the continuous plenum endorsed by General Relativity, as a kind of composite of spatial points/regions and not as ONE? In my opinion this is just another consequence of set-theoretic and mereological prejudices, of the permanent temptation to analyse and domesticate under ‘the logic of solids’ what perhaps is ineffable but already clear to the intellect. This ‘analytical’ understanding of continuity is the legacy of the so-called ‘arithmetic tradition’. Within this tradition fall most of contemporary analytic metaphysicians, who follow the path of Cantor, Weirstrass, Dedekind and Russell, whose attempts of understanding the continuum were analyses of it in terms of discrete notions like ‘sets’, ‘points’ or ‘real numbers’.

In contrast, my understanding of real continuity follows the opposite tradition, the so-called (in Peirce's honour) 'synechist tradition'. We can count Aristotle, Brentano, Peirce, Poincaré, Brouwer, Weyl and Wittgenstein among its representatives. Members of this tradition understand that continuity resists analysis into discrete notions.⁷⁵ This understanding involves different degrees of strength, but what is common to the tradition is the claim that no plurality of extensionless points standing in external relations can do the trick. First, because from unextended simples one cannot conceive the birth of something extended: 0 multiplied by any quantity, no matter how large, is always 0. Second, because a continuum is an undivided and gapless one, so its parts, presumably, can be, in the best case, only *potential* parts, and, in the worst case, only abstractions obtained after a fictional cut. Thus, if one thinks that mathematics is supposed to represent reality, and not only to be a useful fiction or idealisation, then the arithmetic continuum is not a good representation of the real continuum, but only a 'fiction' or a 'misrepresentation', as Brentano thought. Under this conception, it is absolutely wrong to treat the continuum as a set of points, no matter how infinite in number are these. A real continuum has no proper parts *before* a cut is made in it. Does it have, then, *potential*

⁷⁵ See Aristotle (1941c: Book VI), Brentano (1988), Peirce (1935: 6.102–6.163). For a good survey of the continuum and the two opposite traditions mentioned above, see Bell (2010). For a good revision of the evolution of Weyl's enlightened thoughts on the continuum, which were inspired by Brouwer, see Bell (2000). For a defence of the Aristotelian account of space and continuity, see Hoffman and Rosenkrantz (1994: Appendix II). Against the arithmetical understanding of the continuum, Poincaré said: 'The continuum thus conceived is nothing but a collection of individuals arranged in a certain order, infinite in number, it is true, but external to each other.' (Poincaré in Russell [1903] 2010: §326) Wittgenstein, in various places, and evidently influenced by Brouwer's intuitionism, also complained about the arithmetic understanding of the continuum. For him, the inadequacy rested in using the tools of set theory to deal with *all* mathematical problems. He said: 'Like the enigma of time for Augustine, the enigma of the continuum arises because language misleads us into applying to it a picture that doesn't fit. Set theory preserves the inappropriate picture of something discontinuous, but makes statements about it that contradict the picture, under the impression that it is breaking with prejudices; whereas what should really have been done is to point out that the picture just doesn't fit, that it certainly can't be stretched without being torn, and that instead of it one can use a new picture in certain respects similar to the old one.' (Wittgenstein 1974: 471, his emphasis) In other place: 'Mathematics is ridden through and through with the pernicious idioms of set theory. *One* example of this is the way people speak of a line as composed of points. A line is a law and isn't composed of anything at all.' (Wittgenstein 1975: §173, his emphasis)

parts?⁷⁶ This might work for a continuous rope but it seems mistaken when applied to a continuous space, and, a fortiori, to corporeal substance when is identical with it. Because *after* a cut is made we no longer have one continuum but two continua, just like when we cut a rope into two. And if space and energy, the plenum of nature, were a real continuum, wouldn't we be in presence of two spaces or two worlds if a cut were made? Additionally, in cases like the one of space, such potential parts seem to be a metaphysical impossibility. What would be the result of removing a 'region' from the space in which it is embedded? Can we think of adding a brand new 'region' into space? Are these scenarios even conceivable? It seems clear to me that this is a metaphysical impossibility. It seems that space can only be created ex-nihilo and all at once, not brick by brick. Similarly, it is not (it *cannot* be) destroyed or decomposed by removing bits of it. If space is a continuum, then it has no real internal boundaries (unlike discrete or contiguous entities, which, presumably, do have boundaries): regions or points are just fictions of decomposition or limits reached through abstraction. Talking about them as if they were proper parts or individual objects in their own right yet dependent upon a prior whole, as Schaffer does, only offers us a distorting image of what seems to be the peculiar character of space. Hence, according to what I have argued, space is either *divided* or *undivided*. If it is *divided* into points or regions, then it is no longer a continuum but, at most, a plurality of discrete and contiguous units somehow 'unified' by—what else?—relations (!). If it is *undivided*, then it is an actual continuum. And since we are talking about space, it is not only actually *undivided* but also potentially *indivisible*. It can only be destroyed by its complete annihilation. An actual space is *one* by metaphysical necessity. Of course, we can still talk of regions or points of it, but that will be

⁷⁶ Aristotle seems to have understood the continuum as having only *potential* parts. Feyerabend makes an interesting point of Aristotle's insight, since it somehow anticipates the difficulties of measurement in quantum mechanics: 'Aristotle's interpretation of the continuum as a whole whose parts are created by cuts (temporary halts in the case of motion) and cannot be said to exist before a cut has been performed implies that a well-defined location and a well-defined state of motion exclude each other; this anticipates some very profound features of modern physics.' (Feyerabend 1999: 221)

only for pragmatic reasons. Parts of space are only abstractions under the fiction of decomposition.

The contemporary analytic philosopher wants to affirm at the same time claims that are in obvious tension: he wants to affirm both the continuity and the plurality of discrete elements, both the unity of the components and also their sharp distinctness. More consistent was Leibniz, whose pluralist ontology was a perfect realisation of infinitesimal fragmentation. His monads are infinitesimal unextended (hence, immaterial) units and all nature can be seen as an aggregate of these, in different degrees of cohesion. Given this ontology, Leibniz understood that there was no real place for the continuum and he understood it as a mere abstraction, as an imaginary limit, never to be found in nature, which is actually divided into infinite extensionless units (Leibniz 1989: 504, 535–536, 539, Levey 1999).

6.3 Distance

We have seen that relations of distance is what keeps the tiny individuals of Humean Supervenience entirely ‘loose and separate’ and amenable for duplication and free recombination. Take a simple Lewisian world, inhabited by two of those point-like things, x and y . Let’s say that they are three feet apart. This distance is an *external* relation. Allegedly, x and y could have both existed without being so related, but being, let’s say, seven feet apart, since each of these point-like things has a real definition, each of them is a substance insofar as each of them has independent identity-conditions. The key question is not how can we *complement* or *modify* this picture in order to avoid the puzzles of fragmentation. The question is why should we believe it in the first place? On what grounds should we believe that our world is a bigger version of this tiny model where x and y stand separated by a relation of distance?

Maudlin (1993, 2007) has convincingly argued that the answer to this last question should be that there are simply no empirical grounds for such a belief. And this should be enough for a naturalistic philosopher like Lewis. Because what we call a relation of distance is an abstraction from an underlying unity or total situation which is a continuous, unbroken and common space. That is, relations of distance, perhaps the only external relations around, are internal-Bradley. In Maudlin words:

Distance between two points is a metaphysically derivative notion. The primitive notion from which it is derived is the length of a path in space. The distance between two points is then defined as the minimal length of a continuous path that connects the points. [...] If two points cannot be connected by a continuous path, then *ipso facto* it is metaphysically impossible for there to be any distance between them. (Maudlin 2007: 87)

If distances between any two points are always derived from lengths of spatial paths, then any two arbitrary spatial points of which we predicate some distance must belong to the same continuously connected space (Maudlin 2007: 89). Hence, a world with two point-like objects needs *more* than an external relation of distance holding between them. Better: such a world needs to be something totally different, namely a real and continuous spatial continuum, just like the spatial continuum that obtains when two cities are connected by a highway. Using this metaphor of cities one can get a more clear idea of the full picture. What we call objects standing in relations of distance to other objects, or objects standing in relations of occupation to some place, are just fictions or useful abstractions. What we call a particular object is just like a city: it does not *occupy* some space but it *is* spatial extension, whose thickness in terms of energy concentration is particularly salient but which is continuously and really connected with neighbour cities, in such a way that any boundaries between them can only be conventional or fictional but not real. Two objects standing in a relation of distance are just like two cities connected by the same land in which they are embedded: to go from one to another you need to walk through a path. What we call objects standing in relations of

distance are a convenient idealisation derived from an underlying, pervasive and thick unity: an extended continuous plenum of space-energy.

The main problem with distances conceived as pure external relations is that they do not provide a good explanation of the so-called Triangle Inequality, while when they are conceived as derivative notions from substantial paths the explanation is nice and straightforward (Maudlin 1993, 2007: 86–96). According to the Triangle Inequality, if there are three points (A, B, C) standing in relations of distance, these must be constrained in the following way: ‘the distance from A to B plus the distance from B to C must be at least as great as the distance from A to C’ (Maudlin 2007: 88). Yet external relations of distance are supposed to hold without such constraints. Allegedly, an external relation is both indifferent to the intrinsic nature of the relata and to what happens elsewhere beyond the relata. Hence, from the fact that an external relation holds, we shouldn’t expect any constraints on the relata or on anything beyond the relata. That is, if distances were relations, then it should be possible for three objects, A, B and C, to stand to each other without being constrained by the Triangle Inequality. But distances—the paradigmatic case of external relations (and, according to many, the unique case)—do hold with such constraint. This constraint is easily accommodated if we, in contrast, understand distances not as relations but as derivative notions, as abstractions from spatial paths. So, if there is a distance between A and B, then this is so because there is a continuous path that connects A with B. Similarly, if there is a distance between B and C, then this is because there is a continuous path that connects B with C. If these two distances exist, then a path between A and C exists. Given A, B and C, and the paths that connect them, then the distance from A to C *must* be at least as great as the distance from A to B plus the distance from B to C. The constraint posed by the Triangle Inequality cannot but be respected: the length of the minimal path from A to C cannot be greater than the length of the minimal path that connects A with B plus the length of the minimal path that connects B with C. The existence of a common space in

which paths are embedded explains beautifully why the Triangle Inequality actually holds between any arbitrary three points: yet the points, like the distances, are also derivative notions from what is a common, connected and really continuous space-energy.

It is surprising how this conception of relations of distance, coupled with supersubstantivalism, vindicates Bradley's thoughts about what we really mean when we take a man and a billiard ball as free and self-contained terms standing in spatial relations: the so-called 'man' and 'billiard ball', just like the allegedly external relation of distance in which they stand to each other, cannot but be more or less valid abstractions from the unfragmented spatial whole in which all of them are embedded and from which they obtain their identity (Bradley 1930: 517–18, quoted in §2.2). Someone like Schaffer might insist that there are many objects dependent upon one basic object. But if the basic object has no room for relations of distance, then how can these pop-up at the level of the so-called 'dependent' objects? How can dependent objects enjoy privileges that the very basic object upon which they depend doesn't enjoy?

Leibniz saw the problem of the spatial vacuum and the location of relations, and he correctly gave them monadic foundations in infinitesimal unextended souls. Spatial relations were just relations of ideas. Kant also saw the problem: he saw that if relations were not in the head, then Spinozism was the alternative. Descartes and Spinoza couldn't but think of relations of distance as *modes* of extended (hence, corporeal) substance, *ways* in which the one extended substance expresses itself, just like finite bodies were *modes of* that very same substance, because there are no naked 'feet' or 'yards' but only 'feet *of* rope' or 'yards *of* land' (Bennett 1984: 99–100). The contemporary relationalist has no story for his relations: he wants to be a realist about them and embrace their external character yet, at the same time, he seems comfortable with, and unmoved by, the fact that those relations are somehow outside the relata, inhering in sheer nothingness.

6.4 Causation

Philosophers like Armstrong think that not only distance but also transeunt causation is external or, even more, that relations of distance somehow are grounded in causal relations. The point is that without there being external relations of distance, and, a fortiori, without spatially separated plurals to act as causal relata, it is very hard to find a place for transeunt causation. Commonly, causal talk assumes interaction or influence among distinct existents, yet modern Spinozism rejects this pluralistic picture. Once relations of distance are rejected in favour of paths within ONE, I think there are two alternatives, Parmenidean and Heraclitean monism:

(i) *Parmenidean monism (the eternal ONE)*. There is no place for anything like causation because ONE is a four-dimensional extended simple. We just need to extend our treatment of spatial relations to cross-temporal relations in such a way that we take spatiotemporal relations to be derivative notions from arbitrary chosen spatiotemporal paths abstracted from the eternal four-dimensional ONE. Rea (2001) defends the plausibility of this form of monism.

(ii) *Heraclitean monism (the present ONE)*. The only actually existent objects are present objects, and ONE is the only present object. There are no spatial relations because these are derivative notions from arbitrary chosen spatial paths of the present ONE, and there are no cross-temporal relations since ONE is the only present object and only present objects actually exist. In this second hypothesis, there can be no causal relations if we understand them as relations that involve cross-temporality, i.e., as relations that hold between actually existent *earlier* and *later* relata, or between actually existent *earlier* causes and *later* effects. If there is any place for something like causation in the present ONE, then this must be due to its own dynamic character. Same energy, same extension, in continuous flux. Just think in terms of liquids rather than solids. If

so, the Field cannot be a disposition or a relation or an impotent causal property, but actual force or striving, and what we call causation between distinct existents is simply an imperfect abstraction from the undivided process that is the striving of ONE, the lawful evolution of the undivided and active wholeness itself, its *immanent* unfolding. ‘Before’ and ‘after’, ‘cause’ and ‘effect’, can only be names for abstractions from that process of striving, more or less fixed and relational ways that try to express or to capture in inadequate terms what is essentially ongoing and non-relational: the *tensed* striving of ONE.⁷⁷⁻⁷⁸

My preferences are with the second alternative because the dynamics is evident from experience, and such a systematic illusion cannot be accommodated within an eternal ONE. However, I want to stress two important points. First, presentism itself doesn’t guarantee a dynamic reality. This depends on how presentism is constructed. Present objects may well be static and changeless objects that happen to come into existence and vanish in an instant. Second, the question of relational pluralism vs. non-relational monism is neutral towards the static or dynamic character of reality (as the worlds of Parmenides and Heraclitus themselves exemplify). In fact, true dynamic character can hardly be obtained by merely accepting relational pluralism. An entity is not dynamic in virtue of being ‘in relation’ to another entity. A dynamic view of reality needs to understand time itself not as a thing-like dimension or as a matter that arises in virtue of some entities ‘being in relation with’ some other entities (objects, places or times), but as an abstraction from irreducible process and change. If

⁷⁷ Both Bohm ([1980] 2002) and Spinoza (1994) can be seen as defending an essentially dynamic ONE insofar as both of them take that the essence of being is to strive, that being is acting. See Basile (2012) for a defence of this interpretation of Spinoza’s monism; textual evidence comes from various passages of the *Ethics*, in particular IP34, IP17d, IID2. Horgan and Potrč (2008) and Potrč (2003) also claim to defend a ‘dynamic’ ONE, but it is less clear to me whether they succeed in expressing this character.

⁷⁸ For the sake of simplicity, I have excluded the alternative of what it could be called the growing-block ONE. The growing block ONE is either a contradiction or an ecumenic mixture in which the treatment of relations offered by the eternal ONE applies for the eternal past, and the treatment of relations offered by the present ONE applies for the dynamic present. Whichever alternative, still no relations are involved. I am tempted to think that the growing block ONE lives in internal contradiction.

ONE is inherently dynamic, like a Leibnizian monad or an Aristotelian substantial form, then no relations can do the trick of expressing this tensed reality (as Leibniz's and Aristotle's simultaneous rejection of relations and embracement of dynamic pluralism shows).

Bohm speaks in terms of 'universal flux' or 'holomovement'. The holomovement is 'an unbroken and undivided totality' of which sometimes 'we can abstract particular aspects (e.g. light, electrons, sound, etc.), but more generally, all forms of the holomovement merge and are inseparable', and ultimately unbounded by concepts or measures: '*the holomovement is undefinable and immeasurable*' (Bohm [1980]: 191, his italics). The law of the holomovement, its 'holonomy', can only be understood in implicit terms (Bohm [1980] 2002: 199). This is not surprising: after all, there is no 'outside' here, no external standpoint for description. Spinoza said that 'God [-Nature] acts solely from the laws of his own nature, constrained by none' (1994: IP17) and that HE [IT] 'is the immanent, not the transitive, cause of all things' (1994: IP18), since nothing is *external* to HIM [IT]. Thus, if ONE leaves place for causation, then this cannot be understood as the 'cement' that comes to glue an otherwise loose and separate universe, since there is no 'loose and separate' universe in need for any relational glue. In a phrase suggested to me by Stephen Mumford, in an undivided universe, the popular idea of causation as a 'cement of the universe' (Mackie 1980) would be like a solution in need for a problem. In ONE, causation can only be the direct and immanent unfolding of IT, which can be taken to be an essentially active object (§3.5). Using a metaphor, we can think of the world as an unbroken tire, where ordinary objects are wrinkles or bubbles in its surface and distances between them are abstractions from continuous paths of the rubber. If there is any causal influence here, then it is direct and from within. Just like when you pump up the tire and some of its wrinkles are flattened, or when you deflate it and some new wrinkles appear. Of course, the metaphor requires to be qualified: there is no 'you' outside the cosmos to pump it up or deflate it. So causation within

ONE cannot be but an expression of its immanent activity, striving, conatus or effort. In an obvious way, the Humean dictum according to which there are no necessary connections between distinct existents is vindicated by ONE by denying that there are distinct existents. The necessity of ONE's unfolding can only come from itself: like a single monad, its immanent unfolding comes from its own essence, from being what it is, or, as Leibniz would say, 'from the depths of its own nature'.

This picture of *immanent* causation is vindicated by our understanding of *global* laws, as opposed to our understanding of *local* laws. Local laws of nature always seem to 'lie' (Cartwright 1983). This shouldn't surprise us. After all, local laws always seem to depend upon unexpressed conditions, i.e. they only hold 'ceteris paribus', because their very formulation is done after some idealisation is made, after some concurrent conditions are artificially blocked-off. In contrast, if *global* laws actually hold, then they seem to do so in an unconditioned way, since there is really nothing left that can condition their actual holding. They seem to describe the essence of a single object (Bigelow, Ellis and Lierse 1992: 384, Ellis 2001: 251, Maudlin 2007: chs. 1 and 6, Schaffer 2013). In fact, global laws have to do with the evolution of the world as a whole (e.g. Schrödinger's equation, conservation principles). As Maudlin puts it: '[T]he fundamental laws of nature appear to be laws of temporal evolution: they specify how the state of the universe will, or might, evolve from a given initial state' (Maudlin 2007: 172). Taking ONE as the source of global laws vindicates the Leibnizian and Spinozistic idea according to which to be a substance is to strive or to act from within, that to be a substance is to be an essentially active or restless object, a principle of activity, and that to be one is to act as one. Leibniz, qua substance-pluralist, needed a complicated system for coordinating the striving of his infinite monads and this fact, in an obvious way, introduces a systematic tension: Leibnizian monads are many but they act *as if* they were one: each one has its own program of unfolding but they co-evolve in magic coordination. Spinoza avoids all of these

complications: the world acts as ONE and this is not surprising because it is ONE. ONE strives without the help of external things and nothing external to it can hinder its striving. It is self-caused, self-determined. Its overall necessity can only arise from its own essence; its freedom consists in being self-caused and unconditioned by any kind of external conditions.

6.5 Entanglement à la Bohm

We just saw that the physics of space rejects the idea of pure external relations; in fact, relations of distance can only be seen as abstractions or derivative notions from a continuously connected thick space. We also saw that the great empirical challenge that affects the fragmented worldview is that contemporary physics suggests, uncontroversially, that reality is non-separable (§1.6). As we saw, the state of an entangled system of two particles simply cannot be explained by purely local and intrinsic qualities of self-contained tiny objects plus external relations of distance. Entanglement imposes some irreducible holism. The entangled world is a non-separable world whose total state is not analysable into local ‘intrinsic’ states. In fact, ‘no physical theory that takes the wavefunction seriously can be a Separable theory’ (Maudlin 2007: 61). And most current physical theories do take the wavefunction seriously. Why should one insist, then, on the plausibility of an ontology that has been superseded by empirical evidence?

What kind of holism? Is it a matter of modal relations without contact (at-a-distance) between particles or points, as might be suggested by OSR or DE? Or is it a matter of each of the particles being a dependent object of a larger object, as it might be suggested by PM? The problem with these solutions is that they don’t dispel the mysterious character of the correlation. Or they do so only by introducing darker ontological mysteries.

Here is a possible and very plausible interpretation of this mysterious feature of nature. It is Bohm's interpretation (Bohm [1980] 2002, Bohm and Hiley 1993; see also Albert 1996 for a sympathetic treatment), which favours the ONE of EM. Bohm thinks that this non-local correlation or spooky connection is a sign of something else, a sign of a higher-dimensional implicate order. This 'higher-dimensional reality' is the multi-dimensional and real wave-function, which Bohm takes with ontological seriousness.⁷⁹

The technical details of these matters are way too difficult and abstract, and far beyond my intellectual capacities. However, since I am only interested in the metaphysics embraced, here is a nice example used by Bohm that can illustrate in more familiar terms his interpretation of what is happening in entanglement and, in particular, in the EPR experiment. Bohm ([1980] 2002: 236-240) asks us to consider a transparent tank of water with a fish swimming inside it. Then we must add two video cameras, A and B, each of which shoots the tank from a different angle (let's say that one is directed to the front of the tank and the other one to the right side of it, covering both together a right angle of the tank). In addition, each of the cameras is connected to a different screen, screen A and screen B, where what is filmed is directly projected. Imagine that each of the cameras shoots, from its own perspective, the fish moving inside the tank. When the fish makes a movement, such movement is projected into the two screens from different angles. If you go and see what is projected in each of the screens you will find out that though the images look very different from each other, they reveal a magic correlation. Yet the truth is that each of the two screens is projecting in two dimensions what is really a higher-dimensional unity: the single three-dimensional fish. This kind of phenomenon, according to Bohm, is exactly what happens in quantum correlations: what we think are

⁷⁹ As Bohm says: 'All that is important here is that one finds, through a study of the implications of the quantum theory, that the analysis of a total system into a set of independently existent but interacting particles breaks down in a radically new way. One discovers, instead, both from consideration of the meaning of the mathematical equations and from the results of actual experiments, that the various particles have to be taken literally as projections of a higher-dimensional reality which cannot be accounted for in terms of any force of interaction between them.' (Bohm [1980] 2002: 236-37)

separate particles magically correlated are just projections of an undivided higher-dimensional unity. Such a real unity is not a mereological aggregate of two particles, and the apparent correlation is not a mysterious modal relation-at-distance or an interaction where one particle exerts magic influence over a different particle. Because the so-called ‘particles’ are imperfect abstractions from the undivided ONE. The particles-in-interaction-talk is just the way in which this undivided wholeness, this implicate order, is made explicit for explanation. The example involves familiar dimensions (two and three); we need to project this move into higher-dimensions. Expressing such an order already implies breaking it down into pieces. It implies, at least, as Bradley feared, the separation of system of thought from object of thought. Bohm—and Bradley would agree—thinks that we should distrust any analysis of the situation, because it would involve, inevitably, a fragmentary mode of explanation, which will make things easy to handle but that will hinder the understanding of what is essentially indivisible. Nor does the mereological and literal talk of ‘proper parts’ offers insight. According to Bohm, not only “‘particles’ are convenient abstractions from the whole movement” (Bohm [1980] 2002: 52), but also analysis into ‘parts’ is futile and meaningless, since parts are also abstractions from the undivided wholeness (Bohm [1980] 2002: 11–15, 25, 71, 74–75, 157–8, 169). What Bohm tries to show is that undivided wholeness was already present in General Relativity, but the mechanistic understanding of nature chopped down that unity into separate elements in external relations (e.g. dimensionless points or particles, fields as separate from each other and each one constituted by externally related elements, etc.). Quantum Theory once again points towards an undivided wholeness and posits a more serious challenge to the mechanistic way of thinking, because now ‘[u]ltimately, the entire universe (with all its ‘particles’, including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole...’ (Bohm [1980] 2002: 221). This undivided wholeness, this ONE, is what Bohm takes to be an ‘implicate order’, an order that cannot be understood but in an implicit way, since whenever we

attempt to make it explicit, fragmentation is necessarily involved (Bohm [1980] 2002: 226–27). Thus, the path of understanding ONE is the very opposite to the mechanistic approach, because every analysis of IT is distortion. Bradley will also agree, in the sense that everything less than the whole is a more or less valid abstraction from IT, useful for pragmatic purposes, but ultimately unreal. So it is not, as Schaffer claims, that there are tables and planets and pebbles, on one hand, and the whole universe, on the other hand. Ultimately, the referents of the words ‘table’, ‘planet’, and ‘pebble’ are more or less valid abstractions from ONE, fictions of decomposition that attempt to make explicit what can only be understood implicitly.

6.6 Experience: The Absolute sneaking through the backdoor

I have argued that the metaphysics offered by OSR has an intolerably abstract character that obviously clashes with the most uncontroversial example of concrete existence: experience (§4.4). I also said that any metaphysics (holistic or otherwise) should accommodate within it the obvious reality of experience. Thus, if the ONE of EM is a continuous and unbroken plenum of field-like energy, a physical ‘vast sea of energy’, then it is plausible to say that either (i) ONE is experiential, or (ii) ONE is non-experiential but somehow capable of grounding experience, or (iii) some experiential stuff exists apart from ONE.

Alternative (iii) has obvious undesirable consequences. It means, in the first place, the very recognition of the failure of EM as a metaphysics, since it would be to admit its incompleteness or its falseness, because either ONE is non-experiential or ONE is no longer alone (likewise, it means the failure of any other holistic metaphysics that can’t accommodate experience within its preferred ‘whole’). Indeed, under alternative (iii) it is free-floating experiential stuff apart from ONE what gives place to the experience that the non-experiential ONE is incapable to grant. Furthermore, if influence between plurals made of the same kind of stuff is already mysterious, stuff-dualism is

doubly mysterious because it involves influence between plurals made of distinct *kinds* of stuff. One could defend some kind of property-dualism, according to which ONE has both experiential properties and non-experiential properties. However, one cannot deal with property-dualism without collapsing this into substance-dualism. Property-dualism lives in tension because it assumes that properties are somehow numerically distinct beings that have autonomous and determinate identity-conditions and that a concrete individual is wholly distinct from its properties since it is somehow independently ‘related’ to them. This is the only way in which such individual can be non-experiential and experiential at the same time. But, as I have insisted, this is incomprehensible: it is not clear how a concrete individual can be distinguished from its nature nor how can those two type of properties coexist in one individual without contradiction or without collapsing into one of them. Because I cannot begin to understand how can we say without contradiction that the very same object can be at once both experiential and non-experiential. Alternative (ii) is utterly obscure. It shares the obscurity of metaphysical notions like those of ‘grounding’, ‘supervenience’ and ‘asymmetrical dependence’, that is, notions that introduce distinct levels of being and force their proponents either to deny the seriousness of the addition by qualifying it as ‘ontologically innocent’, or to accept its reality and then get involved in the insurmountable task of giving an account of the spooky character of the asymmetrical relation that allegedly holds between these two distinct levels. Thus, one might say that experience ‘is grounded in’, ‘supervenes upon’, or ‘emerges from’ non-experiential stuff, but mean nothing serious by this—because, after all, all what there really is is non-experiential stuff, since the supervenient or emergent level is really ‘no addition of being’. Or one might say that experience somehow ‘is grounded in’, ‘supervenes upon’, or ‘emerges from’ non-experiential stuff, and do mean something serious by this, and then try to give a presentable account of how is it that from something more basic and fundamental which is of non-experiential character can arise something less basic and less fundamental that does enjoy experiential character. As far as

I can see, this is incomprehensible. Alternative (iii) is the best alternative. As the hard problem of consciousness stubbornly shows, physicalism as currently understood has never been a serious alternative because it denies the reality of the first and most undeniable phenomenon which is experience, the point of departure of any inquiry into reality. I take that the only alternatives are idealism (which is a living and elegant option for me), some sort of dualism or some sort of panpsychism. As I said above, the problem of dualism in all its variants is that while it gives an answer to the *explanatory* gap left by physicalism, it does so at the price of introducing an *ontological* gap between two distinct kinds of substances/stuffs/properties. Panpsychism leaves no gaps but suggests that ONE is neither mental nor physical but something that transcends these descriptions or something that can be equally referred by using physical names and mental names. I think this Spinozistic neutral monism is a plausible option. Campbell suggests something similar: if physics teaches us monism and the hard problem of consciousness resists solution in terms of the physical, then it is very plausible to predicate consciousness of the whole world, understanding consciousness as if it were also field-like, pervading the whole world with different degrees of intensity (Campbell 1990: 151). Strawson, who believes that everything is physical and is sympathetic to both stuff-monism and substance-monism, concludes that physicalism entails panpsychism: if everything is the same fundamental physical stuff, then this sort of stuff must also be of experiential character (Strawson 2006a, 2006b). Now, if Spinozistic panpsychism proves to live in contradiction and we are forced to choose between an experiential ONE and a non-experiential ONE, then we better choose the experiential ONE, since experience is the one thing that cannot be excluded from any comprehensive metaphysics. As Schrödinger says, if we have to choose between the psychical and the physical, then there is really no contest:

If we decide to have only one sphere it has got to be the psychic one, since that exists anyway (*cogitat-est*). And to suppose that there is an interaction between two spheres involves something of a magical, ghostly sort; or rather, the supposition itself makes them into one single thing. (Schrödinger 1964: 63)

Now, if ONE is of experiential character, what distinguishes this monistic and realistic metaphysics that recognises the reality of experience from the panexperientialist monism defended by someone like Bradley? Very little, if anything, since in both cases reality is seriously indivisible and enjoys experiential character. In fact, there are two routes to vindicate Bradleyan absolute idealism. The first one is to start arguing for experiential idealism and arrive to monism, by arguing against the implausibility of pluralistic (i.e., subjective and transcendental) and non-experiential (e.g., Hegel's thought-like panlogicism) variants of idealism. This was Bradley's strategy, in times when some form of idealism was common currency and there was no need to argue for it. It is also the route taken by Sprigge (1983), who enthusiastically accepted the burden of proof in times where idealism was no longer dominant. A second route is the one that starts by accepting the (implausible) point of departure of current physicalist metaphysics, then argues that there are good reasons for accepting a physical ONE, and finally shows that, to have an adequate metaphysics, ONE must also be of experiential character. This is the route that we took here.

The latter point has been happily accepted by some of our best physicists with metaphysical inclinations, yet it is hardly acknowledged by self-proclaimed physicalists metaphysicians who insist in denying the reality of experience based on their alleged deference to physics. Up to a certain point it is simply embarrassing to see how dogmatic those physicalists philosophers are when, on the other side of the road, our best physicists keep their minds open. Indeed, physicalists metaphysicians are more physicalists than some of our best physicists. For instance, Bohm understands that the mental cannot be denied and that if physics gives us signs that show that the world is an undivided wholeness, then it better be the case that both mind and matter are abstractions from this undivided wholeness (Bohm [1980] 2002: xi, chs. 3 and 7). Eddington is another clear example. In his wonderful *The nature of the*

physical world, after discussing the implications of Relativity and Quantum Theory, he ends up concluding that ‘the stuff of the world is mind-stuff’ (Eddington 1928: 276), because mental activity is the only concrete existence whose reality cannot be denied, while everything beyond it (including the nature of space and time) still remains in the dark. The most eloquent, however, is Schrödinger (1959, 1964), who directly argues in favour of the doctrine of the Upanishads, according to which there is simply one indivisible mind, and the world is like the single mind of an hydra or like a single monad, and rejects the very precondition of standard realistic metaphysics, i.e., the external relatedness of mind and world, subject and object:

The world is given to me only once, not one existing and one perceived. Subject and object are only one. The barrier between them cannot be said to have broken down as a result of recent experience in the physical sciences, for this barrier does not exist. (Schrödinger 1959: 51)

According to the standard realistic account, a subject—in a magical way that, until now, has never been explained in clear terms—can experience an object that is *external* to it. The subject of experience and the object of experience lie outside each other and are independent of each other, yet they still manage to be ‘related’ in mysterious ways that don’t affect their distinctness and independence. An experiential ONE forces us to reconsider this standard model. ONE cannot experience an external world because there is no ‘outside’ IT.⁸⁰ IT can only *constitute* itself, as a monad does: from its own depths. Thus, if reality is like EM says, then it has no meaning to say that reality is distinct and independent from experience. Because if reality is as depicted by EM, then reality *is* experience. We took the long road. We could have started with the evident and stop asking right there. Because when one attends carefully to the most obvious inquiry, subject and object of experience never come apart. In fact, what Schrödinger says is just what Bradley said before him:

⁸⁰ A serious monistic metaphysics cannot be done *sub specie aeternitatis* or from the outside. This was indeed a defect of Spinoza’s monism, as Hegel thought: ‘Spinozism is a defective philosophy because in it reflection and its manifold determining is an *external thinking*’ (Hegel [1969] 2002: 536, his italics).

To set up the subject as real independently of the whole, and to make the whole into experience in the sense of an adjective of that subject, seems to me indefensible. And when I contend that reality must be sentient, my conclusion almost consists in the denial of this fundamental error. For if, seeking for reality, we go to experience, what we certainly do *not* find is a subject or an object, or indeed any other thing whatever, standing separate and on its own bottom. What we discover rather is a whole in which distinctions can be made, but in which divisions do not exist. And this is the point on which I insist, and it is the very ground on which I stand, when I urge that reality is sentient experience. [...] And what I repudiate is the separation of feeling from the felt, or of the desired from desire, or of what is thought from thinking, or the division—I might add—of anything from anything else. [...] But to be utterly indivisible from feeling or perception, to be an integral element in a whole which is experienced, this surely is itself to *be* experience. Being and reality are, in brief, one thing with sentience; they can neither be opposed to, nor even in the end distinguished from it. (Bradley 1930: 128–29, his emphasis)

This outlook, that I find evident in the most ordinary cases of experience, is vindicated by more sophisticated inquiry. As Bohm highlights, in the quantum context it makes no sense to divide the observing instrument from the observed object: they both are better seen as abstractions from an indivisible wholeness (Bohm [1980] 2002: 169). Just like we overcome the fragmentation of the realm of matter by understanding the material world as an undivided wholeness, so we extend this way of reasoning to other contexts where we have operated assuming a puzzling fragmentation (mind and matter, subject and object).

As I said, standard metaphysical realism works on the assumption that subject of experience and object of experience are distinct and independent (i.e. externally related), so when one experiences reality one does not constitute reality. But if physical reality is ONE, and ONE enjoys experiential character, then the subject of experience *is* the object of experience, and experience is no longer *about* reality but it *is* reality. This shouldn't surprise us. After all, the real enemy of monism is not metaphysical realism but pluralism, and the real enemy of idealism is not metaphysical realism but materialism. What monistic

idealism offers is a different ontology, but this doesn't mean that this ontology is less 'real'.⁸¹

Unlike his contemporary heirs, Russell understood very well the importance of external relations: without external relations, not only pluralism, but also atomic truths, standard realism (the fragmentation and independence in which thought and reality, subject and object, allegedly stand to each other) and the very possibility of standard philosophy are in trouble (Russell 1956a: 333, 1959: 62). What Russell didn't realise is that external relations can only offer us the mysteries of fragmentation and that empirical evidence might well go against them. Thus, if the world is in fact concrete and unfragmented, truths about IT that rest on abstraction and fragmentation cannot be literally true but only true under the fiction of decomposition that takes place after relational thought is unleashed. If ONE is concrete, non-relational and experiential, and if all forms of thought involve abstraction and are relational (as it seems to be the case), then the rich, concrete and unfragmented character of the experiential ONE is ineffable. We can only have understanding of IT through pre-relational experience (*before* the rise of relational and abstract thought) or through supra-relational experience (*after* relational and abstract thought is transcended, i.e. after thought's happy suicide).

EM seems shocking. In fact, it is shocking and I am sure that there is something wrong with it. But is it more shocking or wrong than any of the post-Quinean ontologies examined here? It doesn't seem so. Why is it more shocking and wrong than the world as depicted by Humean Supervenience, DE, OSR or PM? Or why is it more shocking and wrong than an ontology

⁸¹ See Stock (1998) for a defence of Bradley's 'realistic spirit'. Unlike the materialist, the idealist simply thinks that a world without mental character is completely absurd, so the relevant question is not whether there is anything mind-like, but simply up to what extent the world is mind-like. As Hegel would say, '[e]very philosophy is essentially an idealism or at least has idealism for its principle, and the question then is only how far this principle is actually carried out' (Hegel [1969] 2002: 154–55). The monistic idealist says that the world is one mind-like object. This doesn't mean that reality is less real. It simply happens that if we are metaphysical realists, and the world is one mind-like object, then we can no longer describe reality as if it were mind-independent.

according to which the world is only sets and nothing but sets—as Quine (1981) was tempted to think without ever clarifying what are the identity-conditions of the member of a singleton or what is membership? As far as I can see, all these ontologies offer us some ontological absolute, and any ontological absolute is equally shocking and wrong insofar as it is either obviously incomplete, inconsistent or unbearable.

Epilogue

As far as I can see, EM is the most stable, internally coherent, and empirically adequate holistic ontology examined here. If you are not convinced about its relative superiority, then you have my understanding, because even I have many doubts about it, as you will immediately see. However, if you don't think EM is any good, at least I hope to have convinced you that there are good reasons to reject Humean Supervenience and all the holistic alternatives to it that I have discussed here.

What might be wrong with EM? Here is what I think are its two main problems:

(i) *Qualitative richness and unity*. The central dilemma for an ontology of externally related plurals is to account for their unity. This certainly happens when we are trying to account for what makes things hang together in one world and not be isolated things-in-themselves. As I hope to have shown, relations are not a solution to the problem of unity, but only a different name for it. The problem persists even within a single individual when we think of its properties as somehow numerically distinct objects that conform a unity by standing to each other in a relation of bundling or by standing to a bare substratum or logical atom in a relation of instantiation (and, as we saw, similar problem arises within the nominalistic constructions of instantiation of properties in terms of membership or parthood, since these are also relations). How is it that from discrete wholly constituents like hardness, whiteness and sweetness we get *one* lump of sugar? Again, relations seem to be simply a name for an ontological gap, a name for a metaphysical vacuum. EM can account for the unity of the individual as no one else but only at the price of denying the literal truth of the relata-in-relation talk; thus, only by denying that properties are numerically distinct entities standing in any sort of relation. A

lump of sugar is one single individual from which hardness, whiteness and sweetness are abstracted by thought, they are only numerically distinct under the fiction of decomposition. But how can EM account for qualitative richness without collapsing ONE into a seamless, qualitatively undifferentiated, Parmenidean whole? That is, how can EM account for qualitative richness within ONE *without* accepting numerically distinct properties? If relata and relations and properties are only abstractions from ONE, are there any 'abstractable' aspects within IT? This cannot be the case. At least not if we don't want them to be the result of real distinctions. So unless there is a distinction that lies somehow between a real/substantial distinction and a conceptual distinction or a distinction of thought or imagination (that is, unless there is a distinction like Scotus', rather obscure, 'formal' distinction), then EM must accept that all relata-in-relation thoughts are purely arbitrary carving, conceptual fictions, abstractions that are more like projections of the mind into a world that, strictly speaking, is devoid of mind-independent relata-in-relations. While the pluralist cannot account for the unity of the many in one, the unity offered by the monist seems to put under risk real qualitative richness. Now, this shouldn't be a source of comfort for the pluralist. Because the pluralist has no better resources for accounting for qualitative richness. He certainly accepts, by definition, many objects. But what guarantees that the objects of the pluralist are not all of them a boring army of equals? Of course, he can rejoice himself in a brute fact. But brutality is a road that everyone can take. So can the monist.

(ii) *The place of relations.* EM says that relata and relations are abstractions from ONE. A fortiori, ONE is not a relational structure, nor a plurality of relata-in-relations, nor a basic object upon which many objects depend. All relata-in-relations talk is fictional or only true under the fiction of decomposition. Alright. This means that ONE in-itself lacks relations; that relational abstractions do not correspond to real distinctions within ONE. Being abstractions that are not grounded in real distinctions, they are more like

fictions or projections. But what is the place for fictions, projections or abstractions within ONE? Aren't fictions, projections or abstractions also existents? Don't they also belong to reality? Sure, they are probably not objectively real if by 'objectively real' you mean non-mental or mind-independent. But who says that mental or mind-dependent things are somehow less real, less part of our world, than non-mental or mind-independent things? Why do we insist in distributing ontological respectability in a way that we do leave portions of reality out of the picture? What—if anything—makes fictions, projections or abstractions less ontologically respectable than the non-relational ONE itself? If thought is done in terms of relational abstractions, haven't we accepted the existence of these already?

As far as I can see, there are two moves available for the supporter of EM to explain the place of relations within ONE, both of which are unsatisfactory. One move is to play again the Quinean card, and treat ONE as ontology and all relational thought as ideology. Admittedly, the Quinean thinks that all that ontology can do is to give a structureless list of what there is. The way in which we fill that list is by extracting from our best theory the values of its bound variables. And that's it. Thus, if our best theory (i.e., our best physics, according to the typical Quinean; say, for instance, Bohmian Quantum Theory or Einstein's Spinozistic General Relativity) quantifies only over ONE, then ONE is all that there is. All the rest—including all relational thoughts—is 'ideology'. The second move is to understand the Quinean route in a more moderate way, a way that rescues it from what it seems to be—as we will see now—a catastrophic consequence. Whichever move we choose, EM turns out to be either an incomplete or an incoherent metaphysics.

Take the canonical Quinean route, the one according to which ONE is all that there is and all the rest is mere ideology. This picture of reality cannot be true; it is simply madness. Schaffer, who follows Moore on this, is right: we cannot deny the existence of horses and apples and colours simpliciter, without being

involved in some kind of madness. But the canonical Quinean route leads us precisely to eliminate those ordinary things from reality. In fact,

[t]he Quinean method is eliminativist by design. After all, if one regiments physics into first-order classical logic (with no functorialist or fictionalist tricks), all one will have to quantify over will be whatever particles or fields or whatnot the physics invokes. One will certainly not have any people and horses, tables and chairs, or apples and pebbles. When Moore intones “Here is one hand ... and here is another” (1959: 146), such a Quinean must demur. This is madness. There may be a method to such madness, but madness it remains. (Schaffer 2009a: 372)

So the canonical Quinean move leads us to madness, it leads us to deny the existence of Moorean appearances. We need to amend it for its own good. To avoid the madness of eliminativism, we need (at least) to adjust the Quinean move with some operator that can give place to the existence of Moorean appearances. This is already admitting bits of a more Aristotelian way of understanding ontology, though not necessarily the whole Aristotelian package that Schaffer (2009a) accepts. Because for the Aristotelian there’s no doubt about the existence of ordinary things like horses and apples and colours. They obviously do exist—and, if so, they obviously are somehow related! The interesting bit for the Aristotelian is what *kinds* of things exist and *how* things exist. So in an obvious sense, questions of unqualified existence are trivial: horses, numbers, properties, persons, God, all of them do exist, of course. The problem is what *kinds* of things are these and *how* do they exist. For instance, the dispute between an atheist and a theist is not about the existence of God simpliciter, but about whether God is, for instance, a dependent fiction of the human mind or an independent and transcendental substance in its own right. Similarly, the dispute between the extreme nominalist and the Platonist is not about whether ‘blue’ exists or not. Of course it does! The point of real disagreement is that the Platonist takes blue to exist as a transcendental and mind-independent form, whereas the extreme nominalist takes blue to be a concept or a predicate that humans apply to things (a sort of projection of the human mind into a world devoid of the blue form; recall the brotherhood between nominalism and idealism to which I pointed before in §2.1.3).

So a reasonable defence of ONE needs to admit some kind of operator that avoids the madness of eliminativism without necessarily falling into Schaffer's full-blown neo-Aristotelianism (according to which all what we have called 'abstractions' from ONE are really dependent or derivative parts of one prior or fundamental substance). Typically, the neo-Quinean who wants to avoid both the madness of eliminativism and Schaffer's neo-Aristotelianism needs to add a fictional or a projectivist operator to his ontology. Thus, the compositional nihilist who denies that there are composite objects rejects the idea that composites are somehow grounded in prior parts or the idea that component parts are somehow grounded in a prior whole (contra Schaffer), but accepts that composites exist under the fiction of composition of many simples (if he is an existence pluralist) or under the fiction of decomposition of one simple (if he is an existence monist) (contra the mad eliminativist). So what the compositional nihilist really does is to deny that there are mind-independent composites, but this doesn't mean that there are no mind-dependent or mental composites. Here is where his disagreement with the composite-believer becomes substantial: not in the question of existence but in the question of what kinds of composites exist or how do composites exist, whether as mental fictions or as mind-independent things. Similarly, the dispute between the phenomenalist and the materialist is not about the existence of apples, but about whether these are mind-independent material objects or not.

Granted that the Quinean route only makes sense if it avoids the madness of eliminativism by adopting something like a fictional operator, the adoption of it is simply the covered adoption of an ontology that admits at least two kinds of things: mind-independent and fictional (or projective, or mental, or mind-dependent) things. If so, the project of ontology becomes just like an exercise of bookkeeping: if you remove something from the account of mind-independent things, then you better compensate it by adding something in the account of fictional things, and vice-versa. What is important is to keep the

entries well-balanced. After all, what is a fictional entity, a projection, an abstraction made by thought or imagination? What distinguishes it from the serious and sparse ontology posited by that strange utopia called ‘our best physics’? As we saw, mental abstractions, fictions or projections cannot be mere ‘ideology’ if this entails that they are eliminated from the realm of existence. This would be madness. But they can be called ‘ideology’ if under this label we include what exists not in an objective or mind-independent sense (i.e., not in the sense favoured by ‘our best physics’) but under a fictional operator or something similar (as fictions, projections or abstractions made by thought or imagination, that is, as mental or mind-dependent things; after all, as we saw in §1.1, even Quine himself thought of ‘ideology’ as the domain of inquiry about those ‘ideas’ that we can legitimately have or that form the base of our thoughts). But don’t these fictions, projections or abstractions also belong to reality? Sure, maybe fictions, projections or abstractions are mental or mind-dependent things, but mental and mind-dependent things exist nevertheless. In fact, being a mental or a mind-dependent thing and having no existence at all are two quite different things (in fact, two contradictory things, because something cannot be mental or mind-dependent and lack existence at the same time). And what about the fictions or abstractions that are the product of relational ways of thinking? Don’t they also belong to reality? Of course they do, as we have already admitted! If so, what is the place for relational fictions/projections/abstractions within the non-relational ONE?

When I raise these doubts about the Quinean canonical route I am questioning the idea that one can achieve in any ultimate sense ontological parsimony. What one can do is to move the bubble under the carpet, but one cannot get rid of it. One can move ‘blue’ from the Platonic heaven of forms to the realm of sets of the set-theoretical nominalist or to the terrestrial mental concepts of the extreme nominalist, but this doesn’t mean that one has eliminated ‘blue’ from reality. One has simply moved ‘blue’ from one realm to another one. Similarly, one can move relations from the realm of mind-independent things to the realm

of fictions or projections, but this doesn't mean that we have removed relations from existence altogether; we have only *qualified* their existence. Removing them from existence altogether would be madness. In fact, there is a clear sense in which no metaphysical theory is more simple than any other: as we can witness in the debates of composition, when the nihilist saves in objects, he spends more either in complex properties/relations or in ideology; when the composite-believer spends more in objects, he saves more either in complex properties/relations or in ideology (cf. Bennett 2009). And if you want to avoid the madness of eliminativism, you better understand that what you put under the account of ideology is just covered ontology, one that understands the existence of certain things under some fictional operator (or the like). And this means that when you save in non-mental or mind-independent ontology, you end up spending more in mental or mind-dependent ontology. But you don't get rid of anything 'just like that': you simply move things around.

Having said this, here is where I think EM cannot succeed, because it faces a fatal dilemma, a dilemma that represents the two temptations of ontology: including too little, so the picture is incomplete, or including too much, so the picture is either inconsistent or incomprehensible. First horn: We can try to defend EM by taking the route of the Quinean ontologist. The only serious relations are relations of distance and they do not have place within ONE. ONE is ontology and all relata-in-relations talk is ideology in the soft sense identified above, that is, the only sense in which we can avoid the madness of eliminativism: relata-in-relation talk refers to fictions, abstractions, projections, distinctions of thought or imagination. But then EM is not a complete ontology, because it leaves out of the inventory of reality those mental or mind-dependent pieces, which, as far as I can see, include countless more relations than distance, and are also real, as real as anything else. ONE may well be the only mind-independent thing, but this doesn't mean that ONE is all that there is. If ONE is the only mind-independent thing and we want to save the appearances and avoid madness, then we must admit that there are countless

other mental or mind-dependent things. And mental or mind-dependent things are not less ontologically respectable than mind-independent things; they are just different kinds of things. Second horn: We can try to defend EM by taking the Bradleyan route. This is an all-inclusive ONE. According to Bradley, the experiential ONE already insinuates itself in pre-relational experience, but relational thought makes abstractions and artificially chops IT down into distinct constituents. The non-relational unity of ONE can only be recovered by transcending relational thoughts and dissolving them in the supra-relational ONE, the Absolute. Thus,

[t]here is only one way to get rid of contradiction, and that way is by dissolution. Instead of one subject distracted, we get a larger subject with distinctions, and so the tension is removed. (Bradley 1930: 170)

But if this is the way in which we can get rid of relational thoughts, then EM is either internally inconsistent or simply incomprehensible. It is evident that relations do exist in the form of appearances or abstractions, *after* pre-relational experience and *before* supra-relational experience, in this sort of purgatory where all relational ways of thinking are deployed and then wait to be transcended. If so, then this stage of relational appearance is metaphysically distinct from that superior stage of supra-relational reality where relations are abandoned. And if appearance and reality are distinct ontological realms, then they must stand to each other in some—what else?!—relation. Bradley was suspicious about the distinction between appearance and reality precisely because if it were accepted then we would be looking for the relations between them. But he seems trapped by it. Because a non-relational ONE can only exist by its own where no relational thought takes place. Yet it is clear that whenever thought is deployed we have already abandoned pre-relational experience and it is not clear how this stage of relational thought can be dissolved into a supra-relational ONE, nor it is clear how could we pretend that it never existed or that it never had relational character. People like Bohm and Bradley take the fragmented talk of relata-in-relations as expressing more or less valid abstractions from ONE. What they cannot explain is why should ONE need to

start this sick game of fooling itself instead of staying quite. That is, they cannot explain why would a non-relational ONE ever get itself involved in ‘vicious abstraction’, unless someone else were trying to understand it from outside it. But then they cannot explain how does a separate being, a mind, can engage in abstraction without itself being the very result of abstraction. One could think of relational thought as a ladder that needs to be thrown away after we have used it. The problem with this type of metaphor, as Blanshard (1984) has argued, is that one cannot use and throw away the ladder unless this ladder somehow existed, at least as a disposable mean. If, as it seems to be the case, there are any relational thoughts at any stage, then an all-inclusive non-relational ONE cannot be defended with consistency, because it accepts distinct metaphysical realms, and at least one of this realms (the realm of fictions, of abstractions, of illusions, of appearances, you name it) is certainly of relational character.

One might be tempted to think the following: if the non-relational ONE needs to accept at some point the existence of relations, then better for relations and worst for the non-relational ONE! After all, if all thought is relational, why should we believe in any non-relational reality that resists to be thought? Against this, I can redirect the reader to all my (Bradleyan) suspicions against purely abstract modes of existence, as relations seem condemned to be. My main concern with this move is that if we think that reality is thought-like, i.e. relational-like, then something very rich, concrete and important is left out from the picture. I let Bradley speak:

It may come from a failure in my metaphysics, or from a weakness of the flesh which continues to blind me, but the notion that existence could be the same as understanding strikes as cold and ghost-like as the dreariest materialism. That the glory of this world in the end is appearance leaves the world more glorious, if we feel it as a show of some fuller splendor; but the sensuous curtain is a deception and a cheat, if it hides some colourless movement of atoms, some spectral woof of impalpable abstractions or unearthly ballet of bloodless categories. Though dragged to such conclusions we can not embrace them... They no more *make* that Whole which commands our devotion, than some shredded dissection of human tatters *is* that warm and breathing beauty of flesh which our hearts found delightful. (Bradley 1922: 590–1).

My worries against EM—specially the last one—are the byproduct of a more general worry against ontology in general. All ontologies seem to offer us absolutes of some sort that produce in us certain state of uneasiness. On one hand, there are metaphysical systems that sincerely try to leave nothing behind, as Bradley's. The problem, as we saw, is that such an enterprise is simply unbearable and is betrayed in the very minute in which one tries to put it into words. On the other hand, there are those ontologies driven by an insatiable desire of reduction or elimination (everything is sets! everything is water! everything is relations!), or a monarchic impulse for labelling some things as more ontologically respectable (fundamental, basic, prior, etc.) than others (derivative, dependent, posterior, etc.). The latter is the double-path followed by most of contemporary 'sparse' ontology. If Bradley's route is incomprehensible or contradictory, this second route is plagued of failures because (i) if we are told that we should exclude as 'mere ideology' thousands of things, then we *do* leave thousands of things out of the inventory, namely: thousands of ideas, thousands of mental pieces; and (ii) if we are told that a Royal Family of Being is capable of supporting over its shoulders all the Kingdom of Being, we are never told in clear terms how this asymmetrical ontological dependence is supposed to work, how such a family is capable of supporting more ontological weight than its own, how a Kingdom that overtakes the Royal Family can pop-up from it, or how is it that the Royal Family does not depend upon the Kingdom as well. Sometimes this claim of asymmetrical dependence is not made in serious terms, as when it is said that the Kingdom represents no real addition of being. In this case, the Royal Family supports no Kingdom over its shoulders since it *is* the Kingdom. Typically, when the claim of asymmetrical dependence is done in these confused terms, such ontology falls into the previous vice: the Kingdom is disregarded as mere ideology. In this double-path of contemporary ontology we find the efforts of keeping very light the account of ontology, as if elements in the account of ideology were not 'real' enough; the efforts of disregarding appearances as not really existent; the obsession of finding a 'respectable'

stock of truth-makers for countless truths, or an elite class of properties that can do the job of countless predicates, as if truth-makers were more respectable than truths, and properties were more posh than predicates; the obsession of ‘grounding’ the mental in something non-mental, or the causally active in the causally impotent, in a way that brings to our mind the image of Paracelsus attempting to restore the original rose out of the ashes of its combustion.

Metaphysicians seem to move between those two extremes, between the insufficient character of desert landscapes or sparse bases, and the unbearable character of the all-inclusive. EM does not escape from this tension. After all, this is a defect of *any* ontology. What happens is that a radical ontology like EM brings those defects to the light in a more obvious way. I am with Bradley in the sense that I think that no metaphysics is complete unless it is all-embracing, unless it includes all reality—and this includes appearances, errors, ideological discourse, abstractions made by thought, fictions, and the like. But I cannot see how one could ever have even the slightest possibility of completing, or even starting, such an overwhelming enterprise.

It seems that these two ways of doing ontology correspond to two distinct—but equally easy to cure—philosophical diseases. The way of sparseness is the result of what Wittgenstein called ‘an unbalanced diet’, which takes place when ‘one nourishes one’s thinking with only one kind of example’ (Wittgenstein 2001: §593). And the remedy for it is to start eating in a more balanced way. The all-embracing way is the result of a pointless suffering, like when one accepts to raise a heavy burden that needs not to be raised:

The strange thing about philosophical uneasiness and its resolution might seem to be that it is like the suffering of an ascetic who stood raising a heavy ball, amid groans, and whom someone released by telling him: “Drop it.” One wonders: if these sentences make you uneasy and you didn’t know what to do with them, why didn’t you drop them earlier, what stopped you from doing it? (Wittgenstein 1993: 175)

Obviously, the remedy for this second disease is simply to drop the heavy ball.
Better late than never.

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