What it is like to be a Dialetheia
The Ontology of True Contradictions

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According to Dialetheism some contradictions *(p&~p)* are true. What would the world be like if this were the case? Radically indeterminate, according to a venerable answer. This follows from a tacit conflation of the principle of contradiction (PNC) with the Principle of Identity (PI). Accordingly, transcendental arguments (elenchos) purport to show the unassailability of PNC by showing the unassailability of PI. We agree that if PI were to fail, PNC would fail too; but this is not the only way in which PNC might fail. Dialetheias are two-footed creatures in that their truth requires the existence of two conflicting facts: one making p true, the other making *~p* true. Our answer to the question is that PNC can fail also if the world is over-determinate, rather than in-determinate. We conclude that Dialetheism lives and dies with the prospects of a positive account of negative truths.

Keywords:
Contradiction, Identity, Dialetheism, Truthmakers, Elenchos

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1. Introduction

In his Metaphysics, Gamma, Aristotle put forward what is perhaps the most famous and thorough formulation and defense of the principle of contradiction (PNC). In its ontological formulation, the principle says that "For the same thing to hold good and not to hold good simultaneously of the same thing and in the same respect is impossible (*Met.,* 1005b, 18-20; tr. Kirwan). Its logical variant affirms that "The opinion that opposite assertions are not simultaneously true is the firmest of all" (*Met,* 1011b, 13-14).

As scholars have pointed out, various formulations of the PNC are found in Aristotle's works, not all of which converge. Starting at least from Łukasiewicz's analyses (1910, 1971), subsequently elaborated by others, it is customary to distinguish the ontological formulations (which refer to things and their characteristics), from the semantic ones (which refer to the notions of true and false), logical-syntactic, psychological (it is impossible to explicitly *think* of something contradictory), and pragmatic (in real life we guard against dangers). Furthermore, even the famous canonical formulation actually seems to incorporate two distinct laws: what we would call today, respectively, the law of contradiction and the law of the excluded middle, integrating them into an overarching principle that has been dubbed the 'principle of contradictory pairs'. Since the purpose of this essay is not historical, we can leave aside the examination of the various Aristotelian passages and stick to what tradition has handed down as the canonical formulation of the principle[1]. As it is

1 On the complexity of Aristotelian formulations of the principle of non-contradiction, see, in addition to the classical works of Łukasiwicz (1910, 1971), the extensive essay by W. Cavini (2007-8), as well as E. Severino (2005), part I.

most often done, we shall take the ontological, or object-theoretic formulation to mean that:

[PNC] For any object, it is impossible that the same characteristic belong and does not belong to it at the same time.

Very few philosophers took seriously the idea that the principle may be false, since questioning it threatens to blow a fatal strike at the heart of rational thinking itself. It is unfortunate that the few philosophers who took up the challenge of denying it – most notably Heraclitus and, according to some interpretations, Hegel – are among the most obscure and cryptic thinkers of all times. The logician and philosopher Graham Priest, in more recent times, devoted a good part of his career to the herculean task of raising the vague contention that (some) contradictions might be true to the highest standards of clarity and analytic thinking. He calls the view that some contradictions are true *Dialetheism*, and true contradictions themselves *Dialetheias*.

This unprecedented accomplishment was made possible, among other things, by the discovery and development of logical systems that block the Principle of Explosion (*ex contraditione quodlibet*), according to which from a contradiction any proposition whatsoever can be legitimately deduced. These systems, known as paraconsistent logics, opened the way for a non-trivial treatment of true contradictions, or dialetheias. One paraconsistent logic that is particularly apt for this purpose is the so-called *Logic of Paradox* (LP), introduced by Priest in his (Priest, 1979).

The general question that we shall try to answer in this paper is: what must reality be like (in general) for the PNC to hold, and what must it be like for the principle to fail? In other words, what commitments about the general ontological structure of the world come with the endorsement (and with the denial) of the PNC?

A few clarifying remarks are in order. In general, when one speaks of the 'ontological structure of the world', one intends to refer to reality and its internal articulation. Reality, in this sense, is whatever makes truths true. The intuition behind this notion is that truths are true in virtue of something which exists, or, as it is sometimes said with a slogan: truth depends on being.

> Throughout my philosophical development […] I have retained, in spite of changes, certain fundamental beliefs, which I do not

> know how to demonstrate, but which I cannot bring myself to doubt. The first of these, which seems so obvious that I should blush to mention it but for the circumstance that the contrary opinion has been maintained, is that 'truth' depends upon some kind of relation to 'fact'. (Russell, 1959: 117)

There are countless ways to spell out this realist intuition. Philosophers of realist inclination are divided on a number of questions. Which are the primary bearers of truth values? Sentences? Thoughts? Judgements? Propositions? What kinds of things make truths true? Facts? Objects? States of affairs? Tropes? It is common usage to call a thing whose existence makes a truth true, whatever it is, a *truth-maker*. A truth-maker is that in virtue of which something (a truth-bearer) is true. There is disagreement about what kind of relation (if it is a relation) obtains between truths and their truth-bearers, but it is generally recognised that it is a trans-categorial asymmetric relation which obtains between something which exists and a truthbearer. The relation is 'trans-categorial' in that, generally, truth-makers are not themselves truth-bearers or truth-apt. The view that (at least) certain kinds of truth require something to make them true is known as the Truth-maker Principle.

A further question that divides philosophers and that is relevant for us is the exact scope of the truth-maker principle. This is the question of which kinds of truths require a truth-makers. All truths? Or only some particular kinds of them? Only contingent truth? Only particular truths? Only positive truth? At the maximalist end of the spectrum one finds the view that *all* truths require a truth-maker:

[Truth-maker Maximalism] "A truth, any truth, should depend for its truth for something 'outside' it, in virtue of which it is true" (Armstrong, 2004: 7).

Various authors have objected on various grounds that this principle is too inclusive[2]. Wittgenstein, for example, maintained that tautologies (contradictions) are not made true (false) by anything. He, and Russell

2 Theories of truth-making which limit the scope of the maximalist principle are collectively known as 'truth-maker optimalism' (see MacBride, 2020).

too, also argued that 'molecular truths' (truth of the kind: 'the rose is red *and* scented') do not require proprietary truth-makers, over and above the truth-makers for their conjuncts. Some have argued that only *contingent* truths require truth-makers. Others contended that general truths (e.g. 'all men are mortal') do not require truth-makers over and above the singular truths that make them true. Finally, and most importantly for our concerns, is the question of *negative* truths. A positive claim is a claim that an object has a certain (positive) characteristic, such as the claim that a particular rose is red. Negative claims are the negation of positive ones, such as the claim that a given rose is *not* red[3]. The question of interest to us is whether negative truths require truth-makers, over and above the fact that their correlative positive propositions ('the rose is red') *lack* a truth-maker. At the opposite, degenerate end of the truth-maker spectrum, finally, one finds the view that *no* truth requires a truth-maker (e.g. Dodd, 2007).

Now we are in the position to clarify the question that we wish to ask. To each answer to the above questions there correspond a different view of what the world (or reality) is like. Although we shall mention several arguments in favour and against some views of truthmaking, here we shall not argue for or against any of these options. We shall limit our survey of positions to the various scopes that the truth-maker principle might take. Our question is rather: which theories of truth-making are hospitable, and which inhospitable, to Dialetheism? Or, equivalently: if there were dialetheias, what must their truth-makers be like?

3 It has been often noted that there might not be a syntactic characterization of this distinction. Some syntactically positive claims are patently negative, as for example the claims that a given rose is odourless, or that a man is blind. Others are overtly negative, but conceptually positive, as for example the claim that a man is not blind. However, it is generally recognised that there is a (conceptual) distinction to be made, at least in most cases. The claim that there are Arctic penguins is made true by actual Arctic penguins. But the claim that there aren't Antarctic penguins is made true by… what? An absence of penguins?

2. The Principle of Contradiction and the determinacy of the world

A) The classical answer: an incoherent world is an indeterminate world

To answer our question we shall start by considering and critically evaluating Aristotle's own answer, as well as that of the Italian philosopher Emanuele Severino. Both philosophers agree that the denier of PNC is committed to the view that things are radically "indeterminate" (*aorista*). In general, these advocates of the PNC claim that the determinacy of things (in the broad sense of the term) stands and falls with it. For this reason, they think that the PNC is a necessary condition for the possibility of thought and language.

The notion that things are *determinate* (*hōrismena*) has been variously elucidated. Aristotle, for example, characterized the view that things are indeterminate as the view that things are not unitary (1007b26), in contrast with his own view (1006a 31-4, b7-10); or as the view that things do not have an essence (1007a 20-21), in contrast with his view (1006a32-34); or as the view that things are not definable, rather than definable (1012a 21f.) (on this and on the notion of indeterminacy in Aristotle's, see Politis, 2004: 147). This characterization exposed the Aristotelian defense of PNC to some criticisms, since it would presuppose unwarranted assumptions, such as the theory of substance, essentialism, etc., which are somewhat questionable. Be that as it may, the core of this idea can be reformulated in the following way, which aligns with Severino's understanding of the PNC (we shall call this the *Principle of Ontic Determinacy*):

[POD] Everything is what it is and it is how it is, and it is neither another thing, nor it is different from how it is.

This principle has often been unpacked into a positive and a negative part: the so-called Principle of Identity (PI) and the Principle of Double Negation (PDN) respectively:

[PI] Everything is what it is and how it is. (Sometimes confusingly formulated as: A=A)

[PDN] No thing is what it is not (sometimes formulated as: A is not A)

B) The elenchos

Both Aristotle and Severino agree that the PNC is too fundamental to be susceptible of a proof in the standard sense. However, they both think that the principle can be "shown" to be universally valid by showing that its deniers must use it and hence presuppose it in order to even express their denial. This sort of transcendental reasoning, known as the *elenchos*, comes in various flavors but its general strategy is this. First, to argue that the denier of PNC is *eo ipso* a denier of POD, and then move on to argue that the denier of POD cannot even univocally express this denial without using the principle. To better appreciate how the *elenchos* is supposed to work, consider the following reconstruction of Aristotle's 1006b18-34 offered by Politis (2004: 147):

P1. PNC is not true of things if, and only if, things are indeterminate.
P2. If things are indeterminate, then it is impossible to think and speak about things.
P3. It is possible to think and speak about things. Therefore,
C. It is not the case that PNC is not true of things; i.e. PNC is true of things.

In this section we shall discuss how proposition P1 should be interpreted and the virtues of some arguments put forward in favor of it. After a brief historical interlude (sec. C), we shall consider Łukasiewicz's objections to the classical integration of PNC and POD (sec. D) and then mention some considerations which mitigate his severe conclusion that the conflation is based on a confusion (sec. E-G).

C) A brief history of the principles of identity and non-contradiction

The view that the PNC is equivalent to, if not synonymous, with POD was not new in Aristotle's times. Parmenides famously claimed that those who, like perhaps Heraclitus, deny that reality conforms with the PNC, are "dazed, undiscriminating hordes [who believe] that to be and not to be are the same and not the same" (From fr. 6; see G.S. Kirk et al., eds., 1983, 247). This view as to the equivalence of the PNC and the POD had a long standing influence on most subsequent Western philosophers, and it remained the (often unargued for) received view at least until the development of modern logic.

The POD seems to be the result of an integration – or, critics would say, of a confusion – between the laws of contradiction and identity. Indeed, scholars have shown how the law of identity, which Aristotle did not explicitly formulate, first flanked and then absorbed the law of non-contradiction, starting from the Middle Ages up to the metaphysics of the moderns. We give here only some examples. Aquinas believed that, in the order of knowledge, the principle of contradiction followed from the apprehension of the self-identity of entities: "Our intellect, therefore, knows being [*ens*] naturally, and whatever essentially belongs to a being as such; and upon this knowledge is founded the knowledge of first principles, such as the impossibility of simultaneously affirming and denying, and the like" (*S.c.G.* II, c. 83, 31). Along similar lines, Antonius Andreae, a pupil of Scotus, referred to the principle of identity as a foundation of PNC: "I say that this principle: 'it is impossible that the same thing simultaneously be and not be', is not absolutely first, that is, firstly first. [...] if you ask which is the first complex […] I say that it is this: 'an entity is an entity [*ens est ens*]'" (Antonius Andreae, quoted by Göldel, 1935: 72).

Leibniz, in his second letter to Clarke, claimed that "The great foundation of mathematics is the principle of contradiction *or of identity*, that is to say that a proposition cannot be true and false at the same time; *and that thus A is A and not non-A.*" (Leibniz, Clarke, 2000, p. 7). Kant, in an important pre-critical essay, after denying that there can be a single supreme principle, states that "there are two absolutely first principles of all truths. One of them is the principle of affirmative truths, namely the proposition: whatever is, is; the other is the principle of negative truths, namely the proposition: whatever is not, is not. These two principles taken together are commonly called the principle of identity" (Kant, 1992: 7). Kant subsequently changed this formulation, reaching the canonical one, which is found in the *Critique of Pure Reason*, according to which: "the proposition that no predicate pertains to a thing that contradicts it is called the principle of contradiction" (B 190, Kant, 1998: 279). Finally, although it is controversial whether or not Hegel endorses the principle of non-contradiction, it is certain that he follows the formulations of modern metaphysics, and in particular the Kantian distinction according to which the principle of identity is articulated in the positive form (A = A) and in the negative one, also called the principle of contradiction, so that A cannot be together A and non-A (see Hegel, 2010: 360).

To sum up, the historically received answer to our question about the ontological commitments of Dialetheism is that it is committed to the

view that things are radically indeterminate, or, equivalently, to the view that the Principle of Identity is false. We agree with Aristotle and Severino that the view that things are radically indeterminate is implicitly committed to trivialism: the claim that everything is true. And we also agree that if dialetheism was committed to trivialism it would be self-defeating. However, there is another option open for the dialetheist. This is the view that things are *over-determinate* in the sense that incoherent facts can determinately coexist. If we are right, this makes elenchtic arguments of the kind mentioned above insufficient to show the universal validity of the PNC (beyond the scope of the determinacy of all things, including states of affairs).

To anticipate, the thrust of our criticism is that these transcendental arguments prove the determinateness of the various parts of reality (the truth-makers) but not that these parts must necessarily cohere.

D) Łukasiewicz's objection: is the conflation of the principles based on a confusion?

Before discussing our view, let us dispel some potential misunderstandings. To a modern mind, the claim that the PNC, in either its ontological or logical formulation, is equivalent to or even synonymous with the Principle of Identity (or of Double Negation) will sound straightforwardly false, or at best confused. There is, in fact, a patent difference of logical form between the PNC and the POD. As Łukasiewicz once noticed: "The principle of identity is different from the law of contradiction. The principle of contradiction cannot be formulated without the concepts of negation and logical multiplication, which are expressed in the words 'and at the same time'; while the principle of identity holds very well without recourse to those concepts." (Łukasiewicz, 1971: 494). In another, more extended analysis of Aristotle's treatment of contradiction, Łukasiewicz puts forward an argument to the effect that the PNC is neither synonymous nor equivalent to the PI. It is worth quoting him in full:

> The principle of identity affirms that if [an object] K has b, then it has b, and if at the same time it does not have b, then it does not have b. From these propositions one cannot deduce that K cannot simultaneously have b and not have b. The principle of contradiction therefore does not follow from either the principle of double negation or from the principle of identity. It follows a fortiori that

> neither of the latter principles is synonymous or equivalent to the former. (Łukasiewicz, 1910: 64, our translation from Italian)

While these considerations appear rather unassailable in their simplicity, we disagree with Łukasiewicz on his diagnosis of the once ubiquitous conflation of the two principles:

> Philosophical logic simply had no appreciation for the finer conceptual distinctions because it did not operate with sharply delineated concepts and unambiguously determined symbols; rather it sank into the swamp of the fluid and vague speech used in everyday life (Łukasievicz, 1971: 494).

Some mitigating considerations are in order and are relevant for what follows. We shall concentrate on the case of Leibniz and Severino, but analogous considerations could be made about most of the authors that we cited.

E) First mitigating consideration: Leibniz conception of truth as identity

As we have said, Leibniz gives several formulations of PNC. Some are canonical in modern terms, such as[4]

[PNC1] "For any proposition p, p is not both true and false".
Others are much closer to what we have called de Principle of Identity:

[PNC2] "For any proposition p, if p is an identical proposition, then p is true".

Now, is it plausible to think that Leibniz did not have the conceptual distinctions that are required to see that PNC1 is not an identical proposition? We think not. As many have noted, there are several ways to explain Leibniz's conflation of PNC1 and PNC2, short of questioning his clarity of mind. First, Leibniz (as Severino) held a view according to which all truths, including contingent ones are identities, in the sense that the predicate is contained explicitly or implicitly in the concept of

4 These quotations are taken from Rodriguez-Pereyra (2018: 46).

the subject. The truths that are not patently identical, according to this view, can be reduced to identities by analysis and definitions. The difference between contingent and necessary truths concerns the finite vs infinite number of steps of such demonstrations.

In what appears to be a transcendental argument for PNC not dissimilar from Aristotle's and Severino's, Leibniz claims that the principle is presupposed by any rational thinking, since otherwise one would be able to defend the opposite of what one is defending. Now, given the view that all demonstration is a reduction to the identity between the predicate and a part of the complete concept of the subject, it is easy to see why he should think that no demonstration would be possible if PNC2 were false (cf. Rodriguez-Pereyra, 2018).

It is very important for our purposes to consider how Leibniz thought that PNC1, which is patently not an identity, might be reduced to one. Leibniz (Ibid.) notices that if we define 'False' as 'Not true', PNC1 turns into an identity of truth-values:

[PNC3] "For any proposition p, p is not both true and not true".

This is of paramount importance for our concerns since, as we shall see, the prospect for dialetheism hinges on the possibility to distinguish False from Non-True.

F) Second mitigating consideration: from inconsistency to non-identity via indiscernibles

As a second mitigating consideration, it is worth noting that assuming the plausible principle that if things have different properties they cannot be identical, it follows that any violation of PNC1 would *eo ipso* constitute a violation of PNC2. The converse of Leibniz's principle of identity of indiscernible, sometimes called the Principle of Indiscernibility of Identicals, affirms that $x=y \rightarrow (Fx \leftrightarrow Fy)$. By contraposition one gets the principle that if $\sim(Fx \leftrightarrow Fy)$, then it cannot be true that x and y are identical: $\sim(Fx \leftrightarrow Fy) \rightarrow x \neq y$. Now, a violation of PNC1 takes the form (Fx&-Fx), from which one derives $\sim(Fx \leftrightarrow Fx)$. A simple application of the principle of indiscernibility of identicals then entails that if one is prepared to countenance violations of PNC1, one must thereby also countenance a violation of the PI. This is interesting for us since the above considera-

tions appear to vindicate the view according to which the PNC could only fail if the world was indeterminate (*aorista*)[5].

G) Third mitigating consideration: Severino's Principle of Identity

As regards Severino's position more specifically, it is certainly true that his formulation of the PNC ('Being is not not-Being', or: 'the positive is not the negative', see Severino, 2016: 56) is unusual in the eyes of contemporaries. It might seem that he has only in view the principle of self-identity of things, x=x, which concerns the identity function expressed by the verb to be, rather than its function as copula or of as predication involved in the PNC. This is partly true, in the sense that for Severino self-identity and the PNC are cognate, being integrated in the POD (see, also for Severino's interpretation of Aristotele, Severino 2005: part I, esp. 33ff., 69). Yet, Severino's principle "Being is not not-Being" is general enough to encompass all the specific senses of the verb 'to be': identity, copula and existence. Nonetheless, one can still be perplexed about the fact that a violation of the usual PNC (e.g. the cat is and is not on the sofa) would constitute *per se* also a violation of the principle of self-identity[6].

Why saying that the cat is and is not on the sofa is a violation of self-identity? Of what with what? The cat is the cat and the sofa is the sofa, even in cases where the cat could contradictorily be and not be on the sofa. In his contribution to this volume, Priest moves precisely this objection to Severino: that it is not true that a contradiction involves a semantic collapse for which different things (individuals, universals) would be identified. "That something is *F* and not *F* does not entail that either the universals *F*-ness and (not-*F*)-ness, or their extension, are identical" (§ 3.1). Or again: "Even if $A\&\neg A$ is true *A* means, in general, something different from $\neg A$." (§ 3.4). A detailed answer should consider not only

5 As we have already said, we disagree with Aristotle and Severino that the only way in which the PNC could fail is if the world was indeterminate (we shall argue that it can also fail by being over-determinate). The point we wish to make here, however, is that the association of the two principles cannot be dismissed as easily as Łukasievicz thought.

6 Incidentally, this relation between the PNC and self-identity is the pivotal point of Severino's defence of the PNC (See Severino, 2016: 64 ff.), directed against the partial denier of the PNC, as a dialetheist might be.

Returning to Parmenides (Severino 2016: sec. 6), but also Severino's analysis of many Aristotelian passages concerning the PNC and the notion of truth. It is not possible, however, to undertake this task here, due to lack of space (See Severino, 2005: 30-34). We limit ourselves to sketch a formulation that seems to us to express the gist of Severino's theoretical and exegetical arguments.

One can use a spatial metaphor, as Wittgenstein did. A spatial object (say two-dimensional, for convenience) has recognizable boundaries, that is, it is *determined* by a figure which distinguishes the object from what it is not. Now, what about a proposition and its denial? Wittgenstein (in some writings preceding the *Tractatus*) assimilated predicates to lines that divide a plane in two parts, and names to points that lie on one side or the other (See Wittgenstein, 1969: 100). In another passage, he similarly compared a proposition to a vertical line that bisects the (logical) space: "the form of a proposition is like a straight line which divides all points of a plane into right and left" (Ibid. 97). Wittgenstein will not fully retain this metaphor in the *Tractatus*; yet, it remains useful for present purposes. An object has a shape, has contours that identify it; analogously, also a state of affairs, a fact has contours in logical space: the line of Wittgenstein's metaphor, which distinguishes the left and right points representing, respectively, affirmation and negation. Understanding the meaning of a proposition is seeing this outline in logical space; it is contrasting one half of the plane with the remaining one. A contradiction, in this metaphor, cancels the line, because it jointly considers both the partitions that that line should divide. In this sense, no more determinate figure is left, logical space is no longer bisected and it turns out to be indeterminate. In other words: self-identity, both of objects and of states of affairs, is their having "boundaries". This is the alleged common root of both self-identity and the PNC. If these fall, their identity (i.e. the numerical identity of things, the numerical identity of states of affairs) is lost and the world turns out to be indeterminate.

Now, all that was said does not vindicate the view that the PNC is equivalent or synonymous with the POD (unless one is prepared to buy Leibniz's and Severino's peculiar analysis of contingency); nor that the PNC can be shown to be universally valid by showing that POD is universally valid. However, we think that these considerations show that the two principles are intimately related, and that care must be taken if the dialetheist wishes to resist committing to the indeterminacy of the world.

Summing up, while there is a grain of truth in the Aristotelian view

that the PNC and the PI are intimately related, we agree with Łukasiewicz that such relation is less intimate than the Aristotelian defender of the PNC may have hoped for. The lesson we wish to draw from Łukasiewicz's observations is twofold.

H) Our thesis: how to build a dialetheia

Firstly, we shall argue that the ontological ground of true contradictions (if there are any), i.e. their truth-makers, reflect their superficial logical form, α&β, even more than one can think at first glance. Dialetheias, so to speak, are necessarily *two-footed creatures* in the sense that the ground for their truth must consist in the obtaining of *two* ontologically determined and mutually independent facts: one making p true, the other making ~*p* true (or, equivalently, p false). Thus, in a sense, our answer to the question of how reality must be like if dialetheism is true will be that it must be *over-determinate*, rather than in-determinate. That these contradictory facts conform to the PI (or, equivalently, of POD), that is, that they determinately exist and have the characteristics that they have, we shall see, is essential for the existence of a dialetheia: if either fact was not determinately existing, if either was not definitively what it is and as it is, it could not fulfil the truthmaking role that it is called to play.

Secondly, we shall argue that whether one should be prepared to admit (some) true contradictions or not depends on one's view of what makes negative truths true. In particular, we shall see that the view according to which negative claims are made true by the mere absence (i.e. non existence) of a truth-maker for the positive claim are highly inhospitable to dialetheism. The account of negative truths that will emerge as most hospitable to dialetheism, we shall see, is the opposition account (sec. 6-9).

3. The tractarian view of negative truths and why it is inhospitable to dialetheism

Let us start by considering if one could take Łukasiewicz's observations as direct evidence for our thesis that dialetheias are essentially two-footed creatures. Contradictions, the argument goes, are essentially of the form p&~p. Therefore, if (contingent) propositions are made true by corre-

sponding states of affairs, or facts, a contradiction can be made true only by the existence of *two* facts, making respectively *p* and ~*p* true.

Most likely this argument will strike our reader as a *non sequitur*. Even granting that all positive (contingent) claims must be made true by dedicated parts of reality, and therefore that any proposition of the kind *p&q* (where p and q are logically independent propositions) must be made true by the existence of two such facts, why concede that this is the case also for pairs of *contradictory* propositions? If a proposition is made true (by a fact), isn't its negation automatically made (only) false by the existence of that very fact? As Russell (1919: 4) once put it, "there is implanted in the human breast an almost unquenchable desire to find some way of avoiding the admission that negative facts are as ultimate as those that are positive".

One clear statement of this conception of propositions and of their relation to reality can be found in Wittgenstein's *Tractatus* (4.0621) "It is important that '*p*' and '-*p*' can say the same thing. For it shows that nothing in reality corresponds to the sign '-'. As Simons (2008: 14) aptly put it: "This is the truth-maker end of Wittgenstein's insight that propositions are bi-polar: if a proposition has one truth-value, however it gets it, its contradictory opposite has the opposite truth-value without further ado". This mechanism (which Simons calls "truth by default") by which a negative proposition gets its truth-value "for free", so to speak, is supposed to explain how negative claims can be true (or false) without corresponding to proprietary, positively existing facts: "it seems more adequate to regard sentences of the given kind as true not in virtue of any truth-maker of their own, but simply in virtue of the fact that the corresponding positive sentences have no truth-maker" (Mulligan, Simons, Smith, 1984: 315).

Before discussing the difficulties of this intuitive picture of false-making, let us make some of its consequences explicit. An obvious consequence, as Stevens (2008) noticed, is that if a dialetheist were to adhere to this tractarian picture she would have to countenance situations in which reality simultaneously contains and does not contain the very same fact (as opposed to containing two facts opposing each other). Now, it is interesting for our purposes to notice that this comes close to admitting that the dialetheist is committed to the indeterminacy of the world, as Aristotle and Severino contend: whether a fact belongs to reality or not would not be an absolute matter. As we shall argue, however, the dialetheist should do well to stay away from such concession.

Notice, in fact, that the truth of either *p* or *~p* is essential for making the molecular proposition *p&~p* true. Therefore, to the extent to which the truth of *~p* entails that the truthmaker for *p* does *not* exist (and vice versa), it also entails that *p&~p* is *only* false, and hence not a dialetheia at all. Put differently, if the only way in which reality can make one of the conjuncts *p* or *~p* true is by failing to produce a truth-maker for the other, then it will never yield a truth-maker for the contradiction *p&~p*. If we are right, the prospects for dialetheism live and die with the prospect of resisting this tractarian picture of truthmaking and false-making. Priest (2006: 51) admits that this is the case: "A correspondence theory of truth requires an account of [truth-makers]. One of the most sophisticated accounts ever given is undoubtedly that of Wittgenstein's *Tractatus*. And certainly, according to this, there are no contradictory facts".

There are also more recent attempts to satisfy the desire to do without negative facts. The idea, also known as *Truth-maker Optimalism*, and often advertised with the slogan 'truth supervenes on being', is to suppose that negative states of affairs merely *supervene* (rather than depend) on positive ones, and to build the truthmaking relation on this supervenience relation. This is the truthmaking principle that ensues:

[Truth supervenes on being] "If something is true then it would not be possible for it to be false unless either certain things were to exist which don't, or else certain things had not existed which do" (Bigelow, 1988: 133).

In short, as it happens in the tractarian view, negative (and general) truths would be true not because some positive truth-makers exist, but because "they lack false-makers" (Lewis, 1992: 216, 2001: 610). All these variants of the tractarian view are equally hostile to Dialetheism.

4. Breaking Wittgenstein's dream

A) Living without negative facts

Fortunately for the dialetheist, however, the tractarian view is deeply problematic. Shortly after commenting on our unquenchable desire to do without negative facts, Russell observes that:

> There might be an attempt to substitute for a negative fact the mere absence of a fact. If A loves B, it may be said, that is a good substantial fact; while if A does not love B, that merely expresses the absence of a fact composed of A and loving and B, and by no means involves the actual existence of a negative fact. But the absence of a fact is itself a negative fact; it is the fact that there is not such a fact as A loving B. Thus, we cannot escape from negative facts in this way (1919: 4-5).

The belief that truth must depend somehow on some relations with the facts stems from the observation that the mere existence of a thing and of a property does not suffice for making it true that that thing *has* that property. Something more is needed to explain how reality makes it true that the property is instantiated. The gist of Russell's objection is that the mere existence of the object and of the property are not suffice to make it true that the object does *not* have the property either. Reality must make its positive contribution either way, as it were.

It should be clear that the view that truth supervenes on reality is equally exposed to to this sort of objection. Martin, for example, has objected to Bigelow's optimalism (in a Russellian spirit) that the statement that something is absent is itself a negative statement in need of truthmaking, and that for this reason it "can't be used to explain or show how [a negative truth] needs no truth-making state of the world for it to be true" (Martin, 1996: 61).

Bigelow's theory has a further problem. While the above condition certainly states a *necessary* condition for any realist theory of truthmaking, many have objected that it cannot also state a *sufficient* condition. Molnar, for example, objected to this view on the grounds that "[t]ruthmaker theory is a theory of the groundedness of truth-values. Minimally, such a theory should enable one to identify whatever it is that explains why the truth-bearers have the truth-values they have" (Molnar, 2000: 82).

The problem is that the theory merely specifies that if a proposition is true in a world and false in another, there must be *something* that exists in one but not in the other or vice versa. Molnar's objection is that the view does not specify *what* this something is. For example, the truth that there is no wine on the table, intuitively, must be made true by something that has to do with wine, not just by *anything*. The worry is that in an attempt to specify this condition of relevance the view would relapse into some more maximalist theory. It has also been argued, finally, that

the supervenience version of the truth-maker principle makes the relation of truthmaking symmetrical, which flies in the face of the intuition that it is *reality* which grounds (and determines) truth, not vice versa.

Here we shall not take a definite stance about these theories of truthmaking. We content ourselves with the observation that, if some variant of it turns out to be the correct account of negative truths, then so much the worse for the dialetheist friend of truth-makers.

B) The Achilles' heel of the Tractatus: formal and material incompatibility

The tractarian project runs into further difficulties precisely at the juncture where dialetheism may find its logical space. As Wittgenstein soon realised, not all potentially contradictory proposition are of the form $p\&\sim p$, nor would be ultimately reducible to propositions of this form. Wittgenstein's project to reduce all alethic contradictions into truth-functional ones had to confront the problem of empirical incompatibilities, which turned out to be so intractable that Wittgenstein was later driven to abandon the tractarian project altogether. The claim that a given patch in the visual field is wholly blue and wholly red, for example, is contradictory, since it entails that it is both blue and not blue. Now, while the latter claim is certainly a transparent contradiction, what would make it true (if indeed this was a dialetheia) would be *two* positive states of affairs: that the patch is blue and that it is red. If things were so, reality would be making a contradiction true not by being indeterminate as to which facts belong to it (i.e. in the sense that one and the same fact both exists and does not exist), but, on the contrary, by being over-determinate, i.e. by determinately containing two facts that – though existentially independent from each other –, mutually oppose each other. The patch could be either only red or only blue, without one fact presupposing, implying or requiring the existence of the other. In an early commentary on the *Tractatus*, Ramsey appears to be acutely aware of this problem:

> Mr. Wittgenstein admits that a point in the visual field cannot be both red and blue; and, indeed, otherwise, since he thinks induction has no logical basis, we should have no reason for thinking that we may not come upon a visual point which is both red and blue. Hence he says that "This is both red and blue" is a contradiction. This implies that the apparently simple concepts red, blue (suppos-

> ing us to mean by those words absolutely specific shades) are really complex and formally incompatible (Ramsey, 1923: 473).

It is instructive to notice that Wittgenstein appears also to be aware of the problem, since he attempts (unsuccessfully) to reduce the phenomenal difference to other, presumably more basic distinctions, in the hope that this will reveal the tautologous essence of the contradiction. Ramsey, understandably, puts pressure on Wittgenstein's maneuver. Here is how he expresses the worry:

> He [Wittgensetein] tries to show how this may be, by analysing them in terms of vibrations. But even supposing that the physicist thus provides an analysis of what we mean by "red" Mr. Wittgenstein is only reducing the difficulty to that of the necessary properties of space, time, and matter, or the ether. He explicitly makes it depend on the impossibility of a particle being in two places at the same time. These necessary properties of space and time are hardly capable of a further reduction of this kind. For example, considering between in point of time as regards my experiences; if B is between A and D and C between B and D, then C must be between A and D; but it is hard to see how this can be a formal tautology (Ibid. 473).

To anticipate our diagnosis, contingent contradictions of the above kind should be thought of as two-footed creatures with regard to their ontological ground. It should be clear that in these circumstances, the opposition between the two conflicting states of affairs does not consist in the impossibility of their co-existence as absolute parts of the same reality, but in that they *jointly* make it simultaneously true and false that something is the case.

C) Existential, material and alethic opposition

To prepare the ground for our analysis, let us make the following distinctions. When two (possible) facts f_1 and f_2 are such as to make a proposition p and (respectively) its negation $\sim p$ true, we shall say that f_1 and f_2 are in *alethic opposition*. This may happen for two reasons.

In the first scenario, the existence of either fact excludes the existence of the other. In this case we shall say that f_1 and f_2 are in *existential opposition*. Clearly, if the possible truth-makers of, respectively, p and $\sim p$

are in existential opposition, they are also in alethic opposition, since whenever one of them exists to make p or $\sim p$ true, the other fails to exist (thus failing to make it true), and therefore p and $\sim p$ cannot be simultaneously true. If our analysis is right, however, the dialetheist must think that the converse implication may fail: sometimes (when a contradiction is true) the grounding facts must be in alethic opposition without being in existential opposition.

In the second scenario – the only one compatible with dialetheism, we argue – f_1 and f_2 are in alethic opposition, i.e. they make p and $\sim p$ respectively true, but they are *not* in existential opposition, i.e. they are capable of co-existing. In this case we shall say that the two facts are *materially opposed* but not *existentially opposed*.

There are two ways in which such material opposition can be operative in making a negative sentence true. The opposition can occur (1) among positive facts, like when an object is said to be *not* square because it is round; or (2) among a positive and a negative fact, like when the truth that there are no Arctic penguins is supposed to be made true by the negative fact that there are no Arctic penguins. We shall consider these scenarios in turn, starting from the first (sec. 7-8).

5. The opposition between facts

A) Preparing the ground: primitive oppositions

An early attempt to obviate to the difficulty of accounting for negative truths by resorting to a primitive relation of "opposition" between propositions can be found in Demos 1917. This relation is primitive in that it is indefinable, but its crucial characteristic is that no two such opposite propositions may be simultaneously true:

> The relation of opposition is such that, if p opposes q, p and q *are not both true* (at least one of them is false). This must not to be taken as a definition, for it makes use of the notion "not" which, I said, is equivalent to the notion "opposite". In fact, opposition seems epistemologically to be a primitive notion (Demos, 1917: 191, our emphasis).

Notice that this view, if correct, would exclude the existence of dialetheias by default. It is therefore interesting for our purposes to see why

it fails. Indeed, the possibility to account for negative truthmaking in terms of this sort of alethic opposition alone is the first option that Russell 1919 considers and quickly dismisses on the way to his reluctant acceptance of negative facts. In objecting to Demos' proposal, Russell advances a circularity objection similar to that raised against the simple "absence" view of false-making:

> Usually it is said that, when we deny something, we are really asserting something else which is incompatible with what we deny. If we say "roses are not blue," we mean "roses are white or red or yellow." But such a view will not bear a moment's scrutiny. *It is only plausible when the positive quality by which our denial is supposed to be replaced is incapable of existing together with the quality denied* (Russell, 1919: 4, our emphasis)

Clearly, Russell's last caveat is meant to ensure at the same time that (1) the relevant facts are indeed alethically opposed to each other, e.g. that the fact that roses are red entail that it is false that they are blue; and (2) that these facts all cohere with each other (PNC). If there is any logical space for true (contingent) contradictions, we argue, there must be a fact which makes wannabe contradictory states of affairs alethically opposed, without making them "incapable of existing together". It is plain that this possibility entirely depends on the details of one's theory of false-making and on one's account of what makes opposing facts "incompatible". Russell justifies his dismissal of this kind of opposition as a candidate for an ultimate explanation of negative truths thus:

> The only reason we can deny "the table is square" by "the table is round" is that what is round is not square. And this has to be a fact, though just as negative as the fact that this table is not square. Thus it is plain that incompatibility cannot exist without negative facts (Ibid.)

In short, one can account for the truth of $\sim p$ by making reference to the truth of p only if p and q are incompatible, that is only if the proposition 'p and q are not compatible' is true. But this is just as negative a fact as that which makes $\sim p$ true (see also Grossmann 1992 and Molnar 2000: 78 for analogous arguments). Here we are not interested in Russell's conclusion that negative truths must be made true by negative facts. Be that as it may, the admission that blue and red are not *logically* op-

posed – so much so that their opposition would require a mysterious negative fact to be made true – entails that their hypothetical coexistence is *also* not a logical truth-functional contradiction. And this, we argue, creates the logical space for a form of dialetheism that appears to evade standard transcendental arguments against it.

The admission that blue and red are not *logically* opposed, and that no amount of analysis could make them so, in fact, entails that their co-existence is *also* not a truth-functional contradiction. This means that the mere fact that blue and red are alethically opposed – that if it is true that something is red then it is false that it is blue, and vice versa – is not sufficient to prove that the two opposing truth-makers cannot co-exist, thus producing a contradiction. To be sure, nothing we said makes it at all plausible that they *can* so co-exist. As a matter of fact, no one has ever suggested that these phenomenal facts are actually compatible in the relevant sense. All that follows from these observations is that such plausible existential exclusions between facts is not something that can be achieved without argument, for free.

To illustrate our thesis, we now turn our attention to two concrete proposals: Priest's Hegelian account of motion (sec. B) and Fine's Fragmentalism (sec. C).

B) The opposition between spatial locations: Priest's Hegelian account of motion

Zeno's arguments appear to show that time and change are contradictory. At the beginning of last Century, Russell believed to have finally found a solution to these ancient antinomies. It consisted of an application of basic notions of calculus, as these had been recently rigorized by Cantor, Weierstrass and others. Some have argued that the main attempt to remove these contradictions without denying time and change altogether, the now widely accepted Russellian account, proves to be at best a restatement of the problem (see for example Arntzenius 2000; Tooley 1988; Bigelow and Pargetter 1990; Carroll 2002 and Boccardi 2018). We are thus faced with a dilemma. Either accept the phenomenological datum that things change and time passes, at the cost of accepting that at least some contradictions are true; or hold fast to the PNC, and repudiate time and change as mere appearances. Priest (1987) has shown that the first option is not as abhorrent as one may think and that it ought to

be seriously explored. This will be our first concrete example of an opposition ontology for dialetheism.

If an object *is* determinately at one location, then it is *not* determinately at another disjoint location (and vice versa). Drawing from familiar and venerable considerations dating back to Zeno of Elea, and inspired by Hegel's thoughts about change, Priest put forward an account of motion (and of the passage of time) which postulates that objects in motion are inconsistently, simultaneously located at different places. A brief discussion of Priest's Hegelian account of motion should help clarify how alethic (but not existential) opposition is supposed to give rise to true contradictions.

Unlike Russell, Hegel did hold a state of motion to be intrinsic: there is an instantaneous difference between a moving body and a stationary one. As Hegel himself puts it in *The Science of Logic*: "motion is itself contradiction's immediate existence. Something moves, not because now it is here and there at another now, but because in one and the same now it is here and not here" (Hegel, 2010: 382; cf. Priest, 1987). Hegel is not denying that if something is in motion it will be in different places at different times. Rather, the point is that this is not *sufficient* for it to be in motion. What is required for it to be in motion at a certain time, according to this view, is for it both to occupy and not to occupy a certain place at that time:

> So let us inquire why, exactly, Hegel held this view of motion. The reason is roughly as follows. Consider a body in motion – say, a point particle. At a certain instant of time, t, it occupies a certain point of space, x, and, *since it is there, it is not anywhere else.* But now consider a time very, very close to t, t'. Let us suppose that over such small intervals of time as that between t and t' it is impossible to localise a body. Thus, the body is *equally* at the place it occupies at t', x' ($\neq$ x). Hence, at this instant the body is both at x and at x' and, equally, not at either. This is essentially why Hegel thought that motion realizes a contradiction (Priest, 1987: 176, our emphasis).

A few considerations are in order. First, notice that the sort of dialetheia that motion would realize if the theory was correct is of the two-footed kind that we have been discussing. The body is "equally" (though inconsistently) at *all* the locations it occupies at any given time. It is essential, for this to be the case, that *all* the facts which correspond to the

various locations occupied at a time determinately co-exist at that time. In our terminology, these facts are materially (and hence alethically) opposed, but not existentially opposed. If they were existentially opposed – say because the existence of the fact that the body is in position x at t entails that the fact that it is in x' at t does not exist – the proposition that the object is in x would not be (also) false. As Zeno thought, the object could not move.

Second, as the expression "*since* it is there, it is *not* anywhere else" makes clear, the body being located in x at time t is simultaneously the truthmaker for the proposition that it is located in x *and* the false-maker for the proposition that it is located elsewhere (say, in x'). This is precisely the sort of material opposition between positive facts that we are suggesting constitutes the grounds for all (possible) contingent dialetheias.[7] As we shall see in a later section, this view is passible of two interpretation, depending on whether the relevant material oppositions are supposed to obtain between positive facts (as we have assumed here), or between positive and negative facts.

We shall now turn to another example of a view according to which the world determinately contains incoherent truth-makers: Kit Fine's Fragmentalism.

C) One step away from dialetheism: Kit Fine's Fragmentalism

Another (related) domain of facts which has been argued to engender contradiction is the domain of tensed facts. Tensed facts – also known as A-facts – are the truth-makers of propositions that make (implicit or explicit) reference to when events are located relative to the present. Whatever fact makes it true that Napoleon's death occurred in the past, for example, is a tensed fact, since it mentions the tensed property (A-property) *being past*. That this death occurred *before* your birth, instead, is not a tensed fact. If it is true that time passes, it seems natural to suppose that this is because temporarily present facts become objectively past, that is, because A-determinations keep shifting. McTaggart (1908) famously claimed that it is impossible that events instantiate shifting A-properties. This would require them to inconsistently instantiate each of the *incom-*

7 In Boccardi 2019 one of the authors of this paper has argued that Priest's account is insufficient to overcome the objections levelled against the rival Russellian account.

patible determinations of pastness, presentness and futurity (the A-determinations). It is of no use to insist that these determinations are never had *simultaneously*, he thinks. To point out that, for example, the presentness of your existence succeeds that of the French revolution does nothing but re-propose at a second order level the same predicament that afflicted us in the first place: it is tantamount to saying that the presentness of your existence was future when that of the French revolution was present etc., and so on *ad infinitum*.

Kit Fine (2005) has advanced a similar argument to the effect that the reality of temporal passage entails the obtainment of incoherent states of affairs. Your breakfast yesterday, for example, has been present. Since it has been true for you to say: "I'm having breakfast", there must have been a fact making this proposition true. This fact is incompatible with the (different) fact making now true that yesterday's breakfast is past. But yesterday's breakfast *is* past! For reasons that need not detain us here, Fine believes that the ontology that is most hospitable to the view that time passes (called *Fragmentalism*) is one according to which all these conflicting facts obtain, or coexist (2005: 281):

> Reality may be irredeemably incoherent. […] Under such a view, reality will be fragmentary. Certain of the facts constituting reality will 'cohere' and some will not. Any fact is plausibly taken to belong to a 'fragment' or maximally coherent collection of facts; and so reality will divide up into a number of different but possibly overlapping fragments.

He proposes that we take this relation of coherence between facts as a primitive notion (Ibid.). It is by this coherence relation that the maximal 'fragments' are individuated. Now, this is a perfect example of a contradiction that would emerge out of the material incompatibility of (positive) facts. A fundamental pillar of this ontology is the determined (co-)existence of all the opposing facts: "The constitution of reality is an absolute matter" (Fine, 2005: 271). Incoherence emerges out of an over-determination of reality, not out of an indetermination. Once again, the logical space of dialetheism is found inside the cracks of the tractarian account of tautologies and contradictions.

To be precise, Fine does not think that the co-existence of incoherent facts gives rise to dialetheias (and for this reason his ontology does not require the adoption of a paraconsistent logic). What blocks the derivation

of true contradictions of the form p&~p, as noted by Lipman 2015, is that the coexistence of incoherent facts, i.e. the fact that they belong to different fragments, does not entail that they obtain *together*, or that they "co-obtain": formally, if we indicate the relation of co-obtainment by the symbol '∘' this amounts to the fact that co-obtainment does not satisfy adjunction: p,~p⊭p∘~p.

Thus, there might be a fact making true that you are sitting and also one making true that you are not sitting; but it doesn't follow from this that you are ever both sitting and not sitting. Of course, this puts some pressure on fragmentalism: in what sense are two incompatible facts incompatible?[8] What is important for us, however, is that Fine's fragments are in *alethic* opposition according to our definition, since there are in reality both truth-makers and a false-makers for the same propositions. To make Fragmentalism into a full-blown dialetheist picture, one just needs to postulate a relation of co-obtainment that allows adjunction and adopt a paraconsistent logic to block explosion. This is a paradigmatic case of the kind of opposition view we are suggesting dialetheists should favour.

If we are right that the prospect for making dialetheism true (in the robust, truth-maker sense) live and die with the prospect of a material opposition view of negative truths, then the scope of dialetheism, i.e. which kinds of truths are apt to engender dialetheias, is equally bound to the scope of material opposition. The account we are considering proposes to make (logical) room for dialetheias by postulating relations of material opposition between *positive* facts[9].

D) Negative facts

Let us take stock. We have said (section 5) that the tractarian, sheer absence views of negative truths are inhospitable to dialetheism. In a tractar-

8 As Lipman (2015: 3125) puts it: "The fragmentalist must offer some understanding of incompatible facts that allows us to see how two incompatible facts can both belong to reality. The most promising proposal is that facts are incompatible if and only if it is metaphysically impossible that they cohere".

9 It should be noted that, as many have observed (e.g. Molnar, 2000), the opposition between positive facts is confined to the opposition between determinate properties (e.g. between being red vs being blue), and does not occur between determinable properties (e.g. between being a scented liquid vs being an odourless liquid). If this is so, the view under consideration here would restrict the possibility of dialetheias to the case of determinate properties only.

ian world, a true contradiction would be impossible for it would require the simultaneous presence and absence of the facts which make it true. We argued that an account of negative truths based on the notion of opposition between simultaneously existing facts is more promising for dialetheism. In the last two sections we discussed a version of this idea based on the material opposition between *positive* facts. We discussed some of its shortcomings and potential limits: it probably still requires a (further) negative fact to make the oppositions themselves true (Russell, 1919; Grossmann, 1992); and it appears to be limited to the case in which the negated properties are determinates of determinables (Molnar, 2000).

The variant of the opposition account that we shall consider here exploits the Russellian idea that reality comprises *sui generis* negative facts. We have already discussed some of the reasons which might force us to postulate these admittedly mysterious entities. To be clear, 'negative facts' are called 'negative' only because they make *negative* truths true. However, *qua* entities, they are just as positive as apples are. But what sort of things can they be? How do they differ from positive facts? Commenting on the natural repugnance one has about negative facts, Priest says:

> What is this repugnance? One source of it is, I suspect, the obvious truth that everything that exists is. Add to this the thought that negative facts are not, and it follows that no such facts exist. This is a confusion, however as old as Parmenides: negative facts are not, in the sense that they ground truths of the form 'it is not the case that so and so', but they are in exactly the same way that all existent things are, viz. they are part of reality (2006: 53).

Another similar objection to negative facts stems from considering their putative internal structure. Although *positive* facts are themselves theoretical constructs mysterious enough to a minimalist mind, they are yet familiar enough as to contain entities, properties and relations as their constituents. "But the things, properties, and relations which are the supposed constituents of negative states of affairs, do not exist. Should we therefore say that negative states of affairs are complexes of non-existent elements? It seems that only Meinong had the courage to bite this bullet" (Molnar, 2000: 77, see also Findlay, 1963, pp. 50-58)[10]. This objection,

10 It is interesting to notice that Priest manifested sympathies for a Mainongian picture of non existents (cf. Priest 2005).

we think, must be qualified. Granted that negative facts are rather mysterious entities, why assume that the things, properties, and relations which are the supposed constituents of them do not exist or that they are not part of negative facts? Sure, this *may* be the case, but it need not be. It is the case, for example, of the truth that the golden mountain does not exist. But it does not appear to be the case of more mundane negatives, such as the claim that the train has not arrived yet. As the view presented in the next section illustrates, it is the latter kind of negative truths that are the best candidates to be involved in dialetheias.

E) Priest's polarity view of facts

To better appreciate how a theory of negative facts might work in more details, we shall consider a view developed by Priest 2000 and Beall 2000: the Polarity Theory. A standard model of a (positive) fact is the ordered tuple $<R_n,o_1,...,o_n>$, where R_n is a (n-ary) relation and $o_1,...,o_n$ are objects. This standard view is clearly unsuitable to model negative facts in any straightforward fashion. The Polarity view, instead, proposes to model positive facts as tuples of the form and negative ones as tuples of the form $<R_n,o_1,...,o_n,+>$. The burden of distinguishing the obtaining from the non-obtaining of the fact is (formally) left on the undefined polarities '+' and '-'[11].

Many have objected that this set-theoretic model of negative facts does nothing to answer the metaphysical question of what kind of entities negative facts are. Are the polarities '+' and '-' mere models, or are they supposed to correspond to something in reality (Dodd, 2007: 390)? Priest and Beall are well aware that their account is explanatorily unsatisfactory. However, they note that many respectable theoretical constructs share the same mysteriousness:

> It is certainly the case that this polarity is built into reality. But there are lots of polarities built into physical reality (like, for example, being a left hand or a right hand, or the spin of an atomic particle). I do not see why metaphysical polarities should be any worse than these (Priest, 2000: p. 318; see also Beall, 2000: p. 26).

11 Cf. Priest, 2000: pp. 315-316; Beall, 2000: 265.

This response is likely to make many metaphysicians raise their eyebrows. After all, we have an empirical concept of a left hand, and we know that spin is a *physical* property. What kind of thing is a polarity? "What is lacking", contends Dodd, for example, "is an account of the nature of these polarities, and it is this […] that provides a decisive disanalogy between Priest and Beall's polarities and the polarities to be found in physical reality" (Dodd, 2007: 290).

We think that this objection has some teeth, but that some considerations are in order. True, Priest and Beall don't tell us what kind of thing polarities are. But, for that matter, typical accounts of truth-makers in terms of facts don't tell us what kind of things facts are, other than that they are perhaps abstract entities, and that they "glue" relations and objects together into a single unity. Isn't *this* mysterious too? One plausible rationale for postulating (positive) facts is that the mere existence of the objects and of the relations does not suffice, alone, to make it true that these objects truly *stand* in that relation. As we have already noted, however, the mere existence of the components does neither suffice to make it true that they do *not* stand in the relation: that the objects and the relations are separated, rather than united. Why shouldn't we take the negative polarity to signify such primitive notion of separation? A spatial metaphor may perhaps be of help in clarifying this consideration. That two objects are adjacent to each other is a (contingent) fact that needs to be made true by a truth-maker (the position of the objects, or their distance, say). But surely, also the truth that the objects are *not* adjacent, that is, that they are separated is equally in need of being made true by a similar truth-maker (again, plausibly, the position or distance between the objects).

F) Rewriting the Tractatus

A potentially more serious objection against Priest and Beall's polarity view is that it is compatible is compatible with the idea that negative truths are made true by the sheer lack of a truth-maker.

> [T]he important question is whether the polarity theorist can offer a suitable account of the nature of polarities that succeeds in representing them as anything more than absences. To do that they must reveal what more they are. But here polarity theory runs out of explanatory resources. The problem is that all attempts to define polarities so as to avoid the above criticism are doomed to circularity (Stevens, 2008: 299).

If this criticism were sound, this would be disaster for the prospects of applying the polarity view to dialetheism (for example, to Priest's Hegelian account of motion). However, we think that more needs to be done to show that the polarity account relapses to the mere absence view of negatives. It is true in a sense that, as Stevens observes, "the polarities of facts signal nothing more than the instantiation or non-instantiation of properties and/or relations" (Ibid.: 299). But this statement has to be qualified. In fact, one could raise the same objection against good old *positive* facts. What does a standard tuple $<R_n,o_1,...,o_n>$ signal, any more than that the objects $o_1,...,o_n$ stand in the relation R_n? We could not agree more with Stevens when he claims that "[u]nless ~A is understood as having a truthmaker distinct from the mere absence of A's truthmaker, there is surely no conceivable way in which reality can produce a truthmaker for A ∧ ~A." (Ibid.: 294); but we disagree that Priest's and Beall's account is implicitly committed to this a view, or incapable of excluding it. Interestingly, Priest observes that one could rethink the tractarian world to make room for negative facts: "[i]ndeed, as far as I can see, one could simply rewrite Tractatus substituting the above theory of facts for the one given there. The result would be almost exactly the same, except that the logic of the world would be first-degree entailment and not classical logic." (Priest, 2000: 316). One could squeeze negative facts into a tractarian world, thereby obtaining a dialetheist version of it.

Here we shall not pursue this matter further, other than by noting that Priest's and Beall's insistence that realism about negative facts is an optimal ontological environment for Dialetheism is in line with our overall analysis: Dialetheism can afford truthmakers only by endorsing an opposition theory of false-making. After considering and dismissing a number of proposals Molnar concludes on a pessimistic note:

> The Holy Grail of positive truthmakers for negative truths remains undiscovered. We need positive truthmakers for negative truths but we have no good theory of what these might be. That is the sad conclusion from the arguments of this paper. I have criticised proposals by other philosophers for solving the problem of negative truths, but that criticism must be tempered by the acknowledgment that where they have failed, so have I. It is an impasse and at present I cannot see the way out (Molnar, 2000).

If Molnar is right about the prospect of the opposition theories, then equally undiscovered are the possible truth-makers of dialetheias. There

remains the option of abandoning the idea of truth-makers altogether. Dodd, for example, arguing that the problems that we mentioned are intractable, concludes that: "[s]ince there cannot be a truthmaker theory that solves the problem of negative truths whilst remaining well motivated, we should give up on truthmaking altogether." (Dodd, 2007: 400) Surely, a view that denies that even contingent truths need truth-makers is more hospitable to dialetheism than its rivals. Notice, in fact, that of all three notions of opposition that we have discussed – alethic, material, and existential –, only the first makes any sense in a world without truth-makers. And since, as we have seen, there are contradictions that are not tautologous, only a classical preconception about how truth values and negation work could block the conclusion that some contradictions may be true. Now, we find this draconian move unpalatable to the extreme, especially in the case of contingent truths. But we won't argue for this thesis here, leaving it to the reader to pick up his or her favourite theory of negative truths.

6. Single fact contradictions

A) Logical and semantic paradoxes

If we are right, dialetheias could only be made true by the existence of two facts (either both positive or of different polarities). At this juncture one may reasonably ask why a single determinately existing fact could not make simultaneously true a proposition *and* its negation, thus engendering a single-footed dialetheia. A friend of the tractarian understanding of propositions would surely bulk at this hypothesis. Propositions, according to this theory, only have one slot to which a truth-value can be assigned, so to speak. Once a proposition is made true (by a fact) there is simply no more room for another assignment: the falsity (indeed, untruth) of its negation is assigned by default, with "no further ado". Now, this defence would simply begs the question if it were thought of as a defence of an elenchtic "proof" of the universal validity of PNC. To claim that propositions can get at most one truth-value, in fact, is tantamount to claiming that dialetheias cannot be true, that is to a logical formulation of the PNC.

It is interesting to notice, however, that in cases where a proposition logically entails its negation ($p \supset \sim p$), we have a guarantee that any truth-maker for p would thereby (by default) be a truthmaker for $\sim p$ as well,

with no further ado. This is clearly the case (perhaps only the case?) of the logical paradoxes. These include the semantic paradoxes of truth, denotation, predication (the liar, Grelling's, Berry's, Richard's, Köenig's, etc); and the set-theoretic ones of membership, cardinality, etc (Russell's, Cantor's, Burali-Forti's, Mirimanoff's, etc.).

The dialetheist strategy, in these cases, is to take the formulation of these arguments as *bona fide* sound arguments (cf. Priest, 1987). These cases appear to contradict our thesis that dialetheias are necessarily two-footed. Although a detailed treatment of these cases will have to wait for another paper, let us make a couple of considerations.

First, as many have argued, it is not clear that these paradoxes *can* be taken as *bona fide* arguments, since the contradictory propositions in question may be plausibly argued to simply lack an ontological ground (truth-makers). This is, for example, Kripke's influential response (see Kripke, 1975: 57). However, it appears as a weak response to the dialetheist proposal, since arguably the sole ground for supposing that these propositions lack truth-makers is that if they did they could produce true contradictions. As Kirkham put it: "Kripke's solution is no more and no less ad hoc than is […] Tarski's. He has no independent reasons, other than to solve the paradox, for placing the restrictions he does on what can and cannot have a truthvalue." (Kirkham, 1992: 291).

A second response would be to claim that the truth-maker principle should be limited to contingent truths. Necessary truths, such as the truths of mathematics and logic, according to this less than maximalist truth-maker principle, do not stand in need of truth-makers. The rationale for this restriction of the principle is that necessary truths are true not in virtue of how the world is, but *however* the world may be: they don't need any contribution from the actual world.

Now, one must be careful, in a post-tractarian era, to qualify this statement. If necessary truths don't need a contribution from the world, this is not in virtue of them being modal claims *per se*. As we have seen, pace Wittgenstein, there may well be necessary truths that *do* need such a contribution. What makes these tautological truths vacuously true, or "true by default", is rather that in these cases truth and falsity might be argued to exhaust the whole logical space, not leaving any room for a distinction between untrue and false. This would clearly block the dialetheist maneuver. But it would also clearly beg the question against it. The sole reason one has to argue that the logical space in these cases is exhausted by

the exclusion of truth and falsity, in fact, is the requirement that these behave classically.

A better response, we think, is to claim that what makes a self-referential non-empirical proposition true (if it is true), is whatever proof we have for its truth. As Stevens suggests, for example: "the proof of the Liar sentence in a semantically closed language L is its truth-maker, and that the proof of the falsity of the sentence in L is the fact which shows the Liar to be false" (Stevens, 2007: 294). Now, it is true that, as Stevens immediately notices, if this was the appropriate response in these cases it would contradict the postulation of *sui generis* negative facts (e.g. the Polar View). However, nothing forces the dialetheist to endorse a single unified account of *all* truth-making. It is rather plausible, we think, to assume that, if non-empirical truths need truth-makers at all, these would not be the same kind of entities as those needed to make empirical propositions true. For our concerns what matters is that under this account the truth-makers of dialetheias would be two-footed, rather than based on the simultaneous presence and absence of a single truth-maker.

So much for the possibility of one-footed, non-empirical dialetheias. What about *empirical* ones?

B) Contradictory objects

Why shouldn't the dialetheist think that a *single* empirical fact could make a proposition simultaneously true and false? This would be the case, for example, if an individual entity could instantiate an inconsistent property. Now, in most cases where this has been suggested to be possible, the inconsistent property in question is not a simple property, but the logical product of two (or more) simple properties. Take for example the property of being a squared circle. Clearly this is a property obtained by conjoining the properties of being squared and circular. Thus, if an entity were capable of instantiating such a property, it could only do so by participating to *two* opposing facts. The dialetheia in question, that is, would be two-footed, in spite of the apparent superficial form of the proposition. We think that all plausible cases of empirical dialetheias will be seen to comply with this analysis, if properly construed.

A possible exception to our view is the case of gluons. Gluons are inconsistent objects postulated by Priest (2014) to solve the ancient paradox of the One and the Many: how can a whole be *one* if it consists of nothing but a *plurality* of parts? Merely invoking their unity doesn't solve

the problem, since it is merely a further element equally in need of being unified. Once again, in the face of a paradox, Priest's strategy is to bite the bullet and accept that reality is contradictory. Gluons are identical to all their parts, by definition. But they are also not identical to their parts, since they have properties that none of their parts have (like being identical to the *other* parts). They are therefore identical and not identical to their parts. Isn't this an exception to our view?

Our response to this challenge is analogous to the one we gave in the case of semantic and logical paradoxes. In non-empirical cases such as this, where the entities involved are theoretical constructs and abstract definitions, it is plausible to suppose that the truth-makers of true propositions (if there are any) are their proofs themselves. In discussing the case of semantic and logical paradoxes we noted that this view fits well with our contention that dialetheias are necessarily two-footed. Just like it happens in the case of Kantian antinomies, in those cases the reasons for believing a proposition (its proof) were never identical to the reasons for believing its negation. We think that the case of gluons is analogous in this respect. The reason for stating that a gluon is identical to its part is the definition of gluon, while the reason for supposing that it is *not* identical to them is a more or less complicated chain of deductions. Never does the same proof support both p and $\sim p$. At any rate, nowhere in Priest's treatment does it appear that what makes it true or false that gluons are different from their parts is the absence of a truth-maker for it.

Let us now conclude our survey with a few considerations about the nature of the opposition relation. This relation, we have argued, is the Holy Grail of dialetheism.

7. Opposition and exclusion

A) The intuition of exclusion

It is interesting to ask what – short of a formal tautology – could make it true that two states of affairs are alethically opposed to each other. Surely it must be a fact, albeit perhaps a brute fact. Before we try to answer this question, however, let us test the tenability and the scope of this account of negative truths. What could the relation of material opposition consist of, if it is to guarantee alethic opposition without excluding coexistence? Surely, there is a sense in which two materially opposed facts are compat-

ible, since they can coexist. Yet, in another sense, they must also be incompatible, since they are alethically opposed.

Let us answer this question by first digging dipper into the role that the relation of opposition is supposed to play. Pondering on how we should conceptualise the negation operator, Sainsbury claimed that our grasp of incompatibility is more basic than our grasp of truth and falsity:

> Understanding negation involves a sensitivity to incompatibility, but this notion does not have to be specified [by direct reference to truth and falsity]. For instance, one might suggest that the basic notion of incompatibility in directly semantic terms consists in the fact that incompatible sentences must have opposite truth values, which makes true contradictions conjunctions of incompatibles. However, one might prefer to avoid an account of understanding which involved attributing such semantic notions to speakers, for example on the grounds that the account would not be neutral with respect to realist and intuitionist preconceptions (Sainsbury, 1997: 224)

Indeed, as Francesco Berto (2007: 304) rightly observes commenting on this passage, an account of incompatibility that made direct reference to what we called alethic opposition, i.e. an account according to which two facts are incompatible if and only if they make a proposition respectively true and false, might not be neutral with respect to dialetheist preconceptions too, which is our concern here. Sainsbury continues to argue that our experience of incompatibility is more primitive than our use of negation, and that the use of the negation operator may plausibly be "explained initially as a means of registering (privately or publicly) a perceived incompatibility" (Ibid.: 226-8).

Could we use this primitive notion of incompatibility to characterize our notion of material opposition? Not without substantial disambiguation, we think. As we have already mentioned, the notion of incompatibility becomes ambiguous in the context of assessing the virtues of dialetheism. One must clearly distinguish the incompatibility which ensues from existential opposition from that which ensues from mere material opposition[12]. To which notion should we take Sainsbury's primitive incompatibility to correspond?

12 This ambiguity is analogous to one we mentioned when talking about Kit Fine's

Prima facie, given the reference to "perceived incompatibility" we may take it to correspond to our notion of existential opposition. As we said, in cases where two facts are existentially opposed, dialetheias are excluded by default, since the candidate dialetheia necessarily lacks one of its required feet. Indeed, building on Sainsbury's considerations, Berto suggested that dialetheists should construct a notion of negation (NOT) which captures the classical notion of *excluding* incompatibility. It is worth delving into some details of this proposal, since it shall be useful for expressing our view in a concise manner.

Many have noted that, since dialetheists refuse to ascribe to the negation operator its standard excluding role, they would have a hard time expressing in what sense they disagree with their opponents. After all, how is a dialetheist to disagree with Aristotle, for example, if not by claiming that the PNC is *not* universally valid? And how is she to exclude that by making this claim she is not (also) agreeing with Aristotle? Priest's response to this objection on behalf of dialetheism is two-fold.

On the one hand, since the PNC, in its formal guise $\sim(p\&\sim p)$ is an axiom also in most paraconsistent logics (including LP), it is argued that the dialetheist is not committed to the claim that the principle is false but only to the claim that it is *also* false (Priest 1987: 284). This manoeuvre, however, is unlikely to satisfy the critic. Shouldn't the dialetheist at least be capable to disagree with *something*? As Berto put it: "Wouldn't it be nice to find *at least* a formulation [of the PNC] which the dialetheist is forced not to accept?" (Ibid., p. 301).

Here enters Priest's second combatting manoeuvre. This is to claim that the "not" of natural language is ambiguous between a content modifier (which behaves paraconsistently) and the act of denial, i.e. a force/speech act indicator. The advantage of this strategy is that speech act indicators cannot be embedded into the contents of propositions: "a force operator does not interact with the content of what is uttered" (2006: 208; see also Berto, 2008). In short, the idea is that the dialetheist can *reject* the universal validity of the PNC, but this rejection cannot be unambiguously captured by the standard negation operator. It is crucial for the

Fragmentalism. There, the issue was to distinguish the compatibility between facts belonging to a same fragment ("co-obtainment") with the compatibility between different fragments (co-existence). Here, instead, we are in the business of distinguishing material incompatibility from existential incompatibility.

success of Priest's manoeuvre that acceptance and rejection be *not* compatible. And this time it better be the case that this incompatibility be *exclusive*, i.e. that it be made true by the facts of acceptance and rejection being *existentially* opposed. These pragmatic acts are supposed to bear the whole burden of exclusivity. But how could Priest even express *this*?

B) The excluding negation: NOT

Berto proposes an interesting way to get away from this impasse, which we think can be useful to clarify the distinction between existential and material opposition. Drawing from a suggestion originally made by Dunn (1996), Berto recommends that the dialetheist avail herself of an exclusive negation (denoted by NOT), which substantially behaves like a classical negation. Dunn's idea is that "one can define a negation in terms of one primitive relation of incompatibility […] in a metaphysical framework (1996: 9). This idea stems from the notion of ortho-negation introduced by Birkhoff and von Neumann (1936) and Goldblatt (1974) in the context of quantum logic. Berto's proposal is to exploit ortho-negation (indicated by the symbol $\perp$) to build an exclusive negation as follows. Given the ordered pair $<S,\perp>$, where S is a set of properties, the exclusive negation operator is: $NOT\, P_1\, x =_{def} \exists P_2\, (P_2\, x \,\&\, P_1 \perp P_2)$.

Our suggestion is to take the operator NOT as signaling, at the sematic level, the contrast between *True* and *Untrue* (lack of truth); and at the ontological level the contrast between the existence and non-existence of a truth-maker. In other words, if it is the case that $NOT\, P_1\, a$, that is, if $NOT\, P_1\, x =_{def} \exists P_2\, (P_2\, x \,\&\, P_1 \perp P_2)$, then $NOT\, P_2\, a$ is true and $NOT\, P_1\, a$ untrue (not merely false). In this case, the facts that would make $P_1\, a$ or $P_2\, a$ true are in *existential* opposition. However, if we only know that $\sim P_1\, a$, then we do not have enough information to deduce that it is also the case that $NOT\, P_1\, a$, that is, that there doesn't exist a truth-maker for $P_1\, a$. To express the thought that two facts $P_1\, a$ and $P_2\, a$ are in *material* but not existential opposition, the dialetheist will have to supply the further information that they are NOT (mind the capital letters!) in existential opposition: NOT $(P_1 \perp P_2)$.

It is not clear whether in order to accept this strong form of negation the dialetheist needs to give up the pragmatic/psychological understanding of exclusion (see Berto 2007: 311). On the one hand, one could argue that unlike a force indicator the 'NOT' operator *does* interact with the content of the proposition negated: it must interact in a way that is

different from that of '∼'. On the other hand, this concession threatens to open the way to reformulations of the paradoxes of self-reference against which the dialetheist's weapons would be blunted (see Carrara, Martino 2017). We wish to remain neutral about this issue. For our part, we have introduced the exclusive negation to capture the two sides of the debate in a concise manner, not to suggest that the dialetheist should commit to two possible ways of being false. The dialetheist might want to avoid this conclusion. This depends on whether she concedes that sometimes (when the excluding negation is involved) negative truths are made true by the sheer absence of a false-maker or not. We have seen that there are reasons to resist this concession. One may think of three reasons why two propositions are alethically opposed: (1) because their possible truth-makers are materially opposed, (2) because they are existentially opposed, or (3) because one of the propositions (the negative one) does not need a truth-maker to be true. What we are saying here is that accepting to use the excluding negation does not *per se* force the dialetheist to choose between existential exclusion (options 2) and the tractarian alternative (option 3) as its proper ontological underpinning. Bearing this in mind, let us apply these notions.

C) Using exclusion to formulate the PNC

Using the operator NOT, Berto (Ibid.: 315) moves on to express the PNC in terms of it:

[Exclusive-PNC] For any object, it is impossible that the same characteristic belong and NOT belong to it at the same time.

The view that we have argued is most inhospitable to dialetheism, i.e. that all negative truths are made true by the sheer absence of a truth-maker, could be characterised as:

[The tractarian view of negation] Necessarily, for all proposition p, *not* p if and only if *NOT* p.

We have argued that tractarian views make dialetheias impossible. The reason is that they make it impossible that false-makers co-obtain with truth-makers: they impose falseness to be equivalent to absence of truth. The tractarian theorist will then take the exclusion version of the

PNC as equivalent to the standard version, and will agree with the claim that abandoning it would amount to abandoning the Principle of Ontological Determinacy (POD). As a consequence, we recommended that dialetheists adopt an *opposition view* of negative truths. This can be characterised as the negation of the tractarian view. It is based on the recognition that some necessities – and therefore some contradictions – are not truth-functional necessities (contradictions). Parts of the world which determinately exist (they do NOT *existentially* oppose each other) may nonetheless be *alethically* opposed. This relation is what we have called: *material opposition*. As we have seen, opposition views come in two varieties, depending on whether the co-obtaining opposing facts are positive (as in Fine's Fragmentalism) or negative (as in Priest's Hegelian account of motion if one adopts the Polarity View of negative truths).

Should the dialetheist reject these exclusion principles? Arguably not. First, note that Exclusive-PNC is weaker than plain PNC, for it excludes less things: precisely the simultaneous co-existence of facts in existential opposition. We have seen that the dialetheist should better reject that *these* contradictions are ever possible. She should therefore accept this formulation of the principle, lest she wants to refuse to use or conceive the exclusive negations *tout court*. As noted by Berto, however, the option to eschew this stronger notion of exclusion altogether is not an advisable manoeuvre for the dialetheist: "If the dialetheist refuses to subscribe to the characterization of NOT by the intuitive notion of exclusion, she actually seems to end up as unable to express the exclusion of any position (is she trying to exclude exclusion?)" (2007: 316) The dialetheist is then well advised to concede this minor victory. As Grimm (2004: 68) claimed, commenting on a negation operator very similar to Berto's NOT:

> One option for the dialetheist is to concede a minor battle and hold out for victory in a larger way. The victory of the [PNC] applies only to a particular form of the [PNC] phrased in terms of that sense of contradiction [that expressed by NOT]. Any defeat for dialetheism is therefore a minor defeat.

D) What is the disagreement about?

Granted this, what then *should* the dialetheist reject? We think plausible that dialetheists should concentrate their limited use of the exclusive negation to *exclude* that the tractarian picture of facts is correct. Something that can be done in many ways. These two are particularly interest-

ing. She can either exclude the formal characterization of the tractarian picture itself: 'It is NOT the case that for all proposition p, *not* p if and only if *NOT* p'; or, equivalently, she can exclude that violations of the PNC be impossible:

[STRONG-PNC] For any object, it is NOT possible that the same characteristic belong and not belong to it at the same time.

Surely this *is* a principle that the dialetheist should want to reject. Once again, the elenchtic defender of the PNC, given her commitment to a tractarian worldview, will find that there is no difference in content between this and the standard formulation. But the formulation is interesting because it highlights the extent of the dialetheist's disagreement. It is also interesting because it expresses neatly the fact that in a tractarian world, which makes this principle true by default, there is no logical space for dialetheias. Moreover, STRONG-PNC encapsulates in one breath all the three classical laws of thought: PNC, PI and the Excluded Middle. This is just what scholars have found to be the case of Aristotle's formulations of PNC (see Cavini, 2007-8: §2). This indirectly vindicates the correctness of our characterisation.

E) Are existential diealetheias banished by default?

The dialetheist's rejection of STRONG-PNC simply signals the possibility of true contradictions, but it doesn't tell us which propositions *could* actually be made true. All? Could the world be such as to make *all* propositions true (trivialism)? It should be clear that we are not asking whether there are reasons for thinking that trivialism is true. There probably aren't. (See Bueno, 2007 for an opinion to the contrary). We are asking if rejecting the strict tractarian diet doesn't commit the dialetheist to a total liberalism about the possibility of dialetheias. To illustrate the problem, consider the case of existential contradictions, e.g. that there are and there aren't any Arctic penguins. Could *this* be a dialetheia? As with any other contradiction this one could be made true only by two facts. In this case these will be a positive fact (plausibly the penguins themselves) and a negative existential fact, i.e. a fact whose existence guarantees that there are no Arctic penguins. Moreover, these two facts must be able to coexist side by side in order to make the dialetheia true: they must be in alethic but not in existential opposition. Now, this is surely repugnant. In what sense

could the negative existential fact be *that* particular fact it is (an anti-penguin fact) if it exists next to the Arctic penguins, i.e. next to the very things that it should guarantee do not exist? It seems that the dialetheist friend of trumakers will have to live without existential dialetheias.

However, there are also reasons for thinking the opposite. Suppose that there was only one red rose left on earth, which happens to be at the same time also yellow, i.e. it is red and not red. And suppose we were to claim that there is a red rose. Now, this would be made true by the only rose that exists, since it is red. But it would also be made false, because the rose is also not red: the red rose exists and does not exist. Generalizing, for any predicate involved in a dialetheia, there are objects that fall and at the same time do not fall within its extension. It seems that if dialetheias are possible at all then *existential* dialetheias must be possible too. This is puzzling.

We cannot say *of* an object that *it* exists and does not exist, but we can say *that* an object that satisfies a given description exists and does not exist. However, this is only an apparent paradox. As Ayer once said in criticizing the view that existence is a property: "when we ascribe an attribute to a thing, we covertly assert that it exists: so that if existence were itself an attribute, it would follow that all positive existential propositions were tautologies, and all negative existential propositions self-contradictory; and this is not the case" (1936: 26). If the quantificational understanding of existential propositions is correct, we never say *of* a thing that it exists, but always that there is something which satisfies a given description. Existential dialetheias then do not affirm *of* an entity that *it* exists and does not exist, but that there is an entity that satisfies and does not satisfy the description. The truth-maker of the proposition that there are elephants in Africa would not be the elephants themselves, but the fact that certain entities satisfy the description of an elephant. Analogously, the truth-maker of the proposition that there are no Arctic penguins is the fact that entities there don't satisfy the relevant description. If something were to determinately satisfy and not satisfy the description, it would be true to say that Arctic penguins exist and not exist.

Notice that what needs to exist in order for it to be true that there are Arctic penguins is a (positive) fact to the effect that certain entities have the relevant property; and what needs to exist in order for the proposition to be false, is not the sheer absence of those very same entities, but the existence of a (negative) fact to the effect that the inhabitant of the Arctic *do not* have this property. In short, existential di-

aletheias are not forbidden in a non tractarian world. Again, what is forbidden is that some existential claim be true and simultaneously fail to be true. This would require that the *same* fact simultaneously exist and fail to exist.

Finally, we have said that Priest manifested Meinongian sympathies. Now, in a Meinongian world existence *is* a property. Does this jeopardise our response? No. In a Meinongian world the quantificational conception applies not to standard existential claims, but to everything that is. Thus this view escapes from Ayer's objection: it is not tautological to say that something exists, because not all that is necessarily exists. Once again, the only kind of dialetheia that is banished by default is one to the effect that something simultaneously is and fails to be.

F) The real achievement of elenchtic arguments

At the beginning of this paper we discussed at length the complicated relationship between the PNC and the Principle of Identity (PI). In criticizing Aristotle, we have seen, Łukasiewicz put forward a simple and sharp argument to show that the two principles are neither synonymous nor equivalent:

> The principle of identity affirms that if [an object] K has b, then it has b, and if at the same time it does not have b, then it does not have b. From these propositions one cannot deduce that K cannot simultaneously have b and not have b.

Indeed, one cannot. And from this simple formal observation alone, perhaps, one could glimpse the fatal rock over which the Wittgensteinian project stumbled. If one adopts a wittgensteinian stance, then one is going to interpret the principle of identity thus:

[Exclusive Principle of Identity] If an object K has b, then it has b, and if it does NOT have b, then it does NOT have b.

Now, the standard PNC does not follow from this principle (without assuming the equivalence of 'NOT' and 'not'). What does follow, though, is the Exclusive PNC, which affirms that K cannot simultaneously have and NOT have b. If one assumes the tractarian view of negative truths, a proposition can be false *only* if it fails to be true, and it can

fail to be true *only* if fails to have a truth-maker. This makes it impossible for it to be *also* true, for reasons that should be familiar by now.

As it happened for the exclusive version of PNC, also in this case the dialetheist should accept this version of the principle. At the level of the constitution of reality by the facts, this principle affirms that if reality contains a fact, then it does contain that fact: it does not also fail to contain that same fact. *Vice versa*, if reality fails to contain a fact, then it does not also contain it. We have already seen that the dialetheist should commit at least to *this* version of the Principle of Ontic Determinacy. On this, we argue, everybody should agree. And this is, in our view, the proper achievement of the elenchtic arguments that we have mentioned. However, the ambition of elenchtic arguments is to achieve more than this: they aim and fail at showing that PNC, and not only STRONG-PNC is universally valid.

8. Conclusions

The question we asked in this paper was: what must the world be like for the PNC to be false? The classical answer to this question is that it must be radically indeterminate. According to these views, the dialetheist would be committed to deny the POD. It comes as no surprise, then, that these authors are persuaded by those transcendental arguments that purport to show the unassailability of PNC by showing the unassailability of the POD.

We agree with these authors that if the POD were to fail, the PNC would fail too, and that if the PNC were to fail for *this* reason, then rational thinking or even the mere possibility to meaningfully talk about the world would be jeopardised. However, we disagree that this is the *only* way in which the PNC might fail. We have argued that a much more promising ontology for dialetheism – one which appears to have escaped these authors – is one according to which the world is *overdetermined* by containing mutually incoherent facts. In our terminology, these facts are in material opposition but not in existential opposition: they do determinately coexist. Material oppositions can obtain either between positive facts (as is the case in Fine's Fragmentalism), or between a positive and a negative fact (as in Priest's account of motion if one adopts his polarity view of negative facts).

In a nutshell, we have argued that Dialetheism lives and dies with the prospects of a positive account of negative truths.

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