



SOMETHING NEGATIVE ABOUT TOTALITY FACTS

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ABSTRACT

Armstrong famously argued in favour of introducing totality facts in our ontology. Contrary to fully negative (absence) facts, totality facts yield a theory of “moderate” or “partial” negativity, which allegedly provides an elegant solution to the truthmaking problem of negative claims and, at the same time, avoids postulating (many) first-order absences. Friends of totality facts argue that partial negativity is (i) tolerable vis-à-vis the Eleatic principle qua mark of the real, and (ii) achieves a significant advantage in terms of ontological parsimony. But are totality facts, which are partially negative, really more ontologically acceptable than fully negative facts? In this paper, we argue that, comparatively, the case for totality facts is weaker than commonly assumed and that, ultimately, the answer is negative.

Keywords: *totality facts; Armstrong; negative facts; truthmaking; causal powers.*

1. Introduction

What determines the truth of negative claims is a daunting and lively problem in truthmaking metaphysics. It is significantly exacerbated if truthmaker maximalism is placed at the core of truthmaker theory (see Molnar 2000; Armstrong 2004; Merrick 2007; *inter alia*). The matter has elicited a range of responses. Some deny that there are negative truths (Mumford 2007), while others deny the need for truthmakers for the negation of atomic propositions (see Tallant 2010). For some others the quest for truthmakers is essential, but the project must not be pursued using negative facts; they do not deserve a place in our inventory of the world (see Rodriguez-Pereyra 2005, 31). As Varzi puts it, “we often talk *as though* there were such things, but deep down we may want our words to be interpreted in such a way as to avoid serious ontological commitment” (2006a, 132).¹

Negative facts are not without defenders, though their supporters are partitioned among those, like Russell, who accept the existence of absence-negative facts, and others, like Armstrong, who favour limit-negative facts (Armstrong 2004, 53).² Assume, for example, the truth of “our roses are not blue”. One candidate truthmaker is the absence-negative fact that [our roses lack blue]. Under the assumption that negative and positive facts have constituents, one is here called to bite the Meinongian bullet: these facts must have non-existent constituents. In fairness, it is a path that only a few braves have pursued. Alternatively, negative facts can be understood as primitive, *sui generis* facts. Still, as Molnar argues, “[t]his would be a particularly deep primitiveness, since negative states are not only a new kind of thing, they are a new kind of kind of thing” (2000, 77).

Armstrong famously advocates for another strategy where negativity is but one part of the solution to the truthmaking problem. Upon closer inspection, what makes our negative proposition true is what our roses are positively like, rather than what they lack: the conjunction of all their positive facts—e.g. that they are red, 1 mt. tall, standing in a white vase, and so on. Nevertheless, on the assumption that a truth-maker must necessitate a truth, we include in the conjunction a high-order, general fact: that the conjunction contains all the positive facts about our roses (see Armstrong 2007, 99). This particular fact is *negative*, since the high-order

¹ Others who resort to resources different from negative facts are Demos (1917), Heil (2000), Merrick (2007), Cameron (2008), Schaffer (2010), Beall (2000), *inter alia*. The attempt to avoid postulating negative entities is very often rooted in a general uneasiness famously described by Russell: “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” (1989, 217).

² Others who defend the view that absences are truthmakers for negative truths include Martin (1996) and Kukso (2006).

general fact that the first-order facts are *all* the facts just is the fact that there are *no more* facts. But, unlike absence-negative facts, this fact does something different than denoting an absence: it limits the number of first-order facts about roses. As Armstrong puts it, a limit-fact involves negation of a different sort: it does not involve a fact such that every rose is non-blue but one such that every rose is *different* from a blue rose, a “Plato’s difference” (Armstrong 2004, 71). By Armstrong’s admission, the solution does not dispel negativity altogether.³ Limit-facts are as negative as absence-facts. However, limit-facts can only exist together with the positive facts that they limit because they denote a relation—the *-ally* or *totality* relation—that takes the aggregate of all the first-order states of affairs and totals them. As Armstrong puts it:

[t]he aggregate stands in a highly specific relation to the instantiated property (...) of being an electron. That property may be said to total or to *all* that particular aggregate. (Armstrong 2004, 73)⁴

The limit-fact is thus the (negative) fact that no non-electron is a member of the aggregate and thus, in conjunction with the aggregate, serves as a suitable ground for truths about what there is not. The resulting relational fact (i.e. the *totality* fact) is only partially—rather than fully—negative because its constituents are both *positive*—viz. the big conjunction of positive facts—and *negative*—the limit fact (see Armstrong 1989, 92–97; Armstrong 2004, 54–70).⁵

If the game is to go-big or go-home, perhaps some might find it more attractive to side with Schaffer (2010) or Cameron (2008), who argue that we can banish negativity altogether by placing a different totality, the actual world itself, as a truthmaker for negative truths.⁶ Nevertheless, for those who wish to defend negativity, totality facts seem *prima facie* more ontologically acceptable than fully negative facts. As Armstrong claims,

³ As Armstrong puts it “George Molnar argued that there are four extremely plausible theses, which, however, cannot all be true: (i) The world is everything that exists, (ii) Everything that exists is positive, (iii) Some negative claims about the world are true (iv) Every true claim about the world is made true by something that exists. Molnar left the problem there. He had no solution. I submit with respect that in this situation the least evil is to reject (ii). The postulation of totality states of affairs, or at least one such state of affairs, is my way of doing that. Limits, if not absences, are ontological realities” (2004, 81-82).

⁴ As Armstrong puts it, semi formally: *T* (aggregate of electrons, being an electron).

⁵ This point is echoed by Tugby, who argues that “The higher-order totality fact can only exist as a constituent in a complex fact which involves positive first-order entities. This is why I take the totality fact approach to be a more moderate theory of negativity than one which accepts the existence of first order negative facts” (2017, 472).

⁶ There are important differences between the two proposals. One above all is that, for Cameron, the (actual) world is constituted by the truthmakers for all positive truths (2008, 294). On the other hand, for Schaffer (2010) the world is the one fundamental substance that grounds all its proper parts.

they yield a “moderate” negativity that (i) is more tolerable vis-à-vis the Eleatic principle *qua* mark of the real, and that (ii) achieves a significant advantage in terms of ontological parsimony: “provided we allow ourselves general facts then no further negative facts are needed among our truthmakers” (Armstrong 2004, 54).

In this paper, we argue that, at scrutiny, the case for totality facts is weaker than commonly assumed and that, ultimately, totality facts are no more acceptable than fully negative facts. We are not the first to argue for this conclusion, which is one of the main take-home points of Molnar’s seminal paper (2000), *inter alia*.⁷ But Molnar’s rejection of totality facts is based on the assumption that there is no real distinction between partial and full negativity and, hence, arguments against fully negative facts, viz. absence-negative, apply *mutatis mutandis* to totality facts.⁸ We want to argue instead that even if the distinction between partial and full negativity is granted, totality facts are no more acceptable than fully negative facts: partial negativity is no better than full negativity.⁹

In § 2, we first argue that, based on Eleatic consideration, totality facts and fully negative facts are either equally ontologically unacceptable or equally ontologically legitimate. In § 3, we then proceed to present a truthmaking argument for the conclusion that the adoption of totality facts does not equate with an allegedly superior advantage in terms of ontological parsimony.

2. Totality and Causation

The original argument from the Eleatic principle was initially proposed by Armstrong (2004, 76-77), but a more recent instalment is offered by Tugby (2017). As Tugby puts it:

It is plausible that, unlike negative facts, totality facts satisfy Armstrong’s own criterion for ontological commitment, which is known as the Eleatic Principle (...). Suppose I touch a live wire which is conveying a total current of 100 milliamperes. Suppose that I get severe burns as a result but survive because only total currents above 100 milliamperes would kill me. Here it seems that the relevant totality fact has a distinctive causal

⁷ Another important paper in this respect is Barker and Jago (2012).

⁸ For a similar argument see also Dodd (2007, 389).

⁹ The claim that partial negativity is as objectionable as full negativity has been recently adumbrated by Ingram (2016, 1278).

power: since the current was at 100 milliamperes and no more,
I was burned rather than killed. (Tugby 2017, 473)

At least *prima facie*, Tugby's articulation of the Eleatic criterion closely aligns with the original Platonic formulation—"whatever has the ability to affect and be affected is a real being" (Plato, Sophist 247d-e). Accordingly, totality facts are *causal*—and hence real—in the sense of causally active or causally operative; *qua* causes, or *qua* bearer of causal powers, they are related to the effect by a relation of causal production.¹⁰

However, a second reading of the argument suggests that his formulation is also compatible with a second, "weaker" version, employed by Armstrong in his original argument (Armstrong 2004, 76-77; see also 1978, 25).¹¹ The causality of this "weak" principle is not a relation between cause and effect but instead between explanans and explanandum (see Molnar 2000, 78). Armstrong's favourite rendition of the Eleatic criterion attributes reality to something if it "makes a difference to the causal powers of something" (Armstrong 1997, 41). A property instantiation, for instance, can make a difference for the powers that a particular exhibits, but in itself does not cause the powers of the particular.¹² A property instantiation is instead a part of the causal explanation of how the particular comes to bear certain powers.¹³

Discussing a similar version of the principle, Molnar—building on Lipton (1993)—notices how it is often deployed when the explanation is contrastive, i.e. when the explanandum's relevance is compared with some other event (2000, 78-79). So, according to this version of the Eleatic principle, a totality fact is not causally active or operative but causally *relevant* because it explains why X came to have certain powers simpliciter, or why X occurred rather than Y—e.g. why "I was burned rather than killed" (Tugby 2017, 473). Both Tugby and Armstrong, independently, seem to agree in recognising the superiority of totality facts over negative facts vis-à-vis any formulation of the principle. The superiority depends on the failure of negative facts and the success of

¹⁰ Cowling recasts the platonic formulation in terms of causal "activity"—"Necessarily, some entity x exists if and only if x is causally active" (2013, 307)—while notoriously Molnar do so in terms of causal "operativity" (2000, 77).

¹¹ For a similar formulation see Martin (1996), Molnar (2000, 78), Jackson & Pettit (1990, 115-116), and Lipton (1993).

¹² Notice that if one holds the view properties are just clusters of powers (see Mumford 1998; 2007; *inter alia*), the current example would not be explicative of this second formulation.

¹³ The same definition is inherited in Armstrong (2004), where it is discussed in terms of counterfactual difference (2004, 77). A somehow similar formulation of the principle in terms of difference-making can also be found in Mumford: "for any intrinsic non-abstract property P, P exists if and only if there are circumstances C in which the instantiations of P have causal consequences" (2004, 190).

totality facts in passing the Eleatic test. Nevertheless, we believe that under no interpretation of the test this alleged superiority can be established.

Armstrong is sceptical of the possibility of totality facts being power-bestowing factors.¹⁴ He defends the reality of totality facts via the weaker Eleatic formulation, which only requires that totality facts make a causal difference. In fairness, Armstrong does not discuss his defence at length, but the idea is roughly the following. Let us suppose that by saying that there are only two pots on my desk I denote a (totality) fact [there are two pots on this table and no more]. This particular totality fact makes a causal difference because, had this fact not been obtained, the table would have contained more (or less) pots. The same goes for the “biggest, world-embracing” totality fact that actually obtains:

had [it] not obtained, the world would have been bigger or smaller. If smaller, then this would presumably have made a difference, if only here and there, to the way the remainder of reality behaved. If larger, presumably that would have made a difference also. (Armstrong 2004, 77)

Similarly, the fact that the current was 100 milliamperes and no more does indeed make a difference to the fact that someone was burned rather than killed. Essentially, however, it is not so evident that totality facts surpass negative facts according to this formulation. Molnar notices (2000, 78-79) that we sometimes say of an absence or a negative object that is causal in the sense captured by Armstrong. Because Molnar thinks of this sense as an inappropriate reading of the Eleatic principle, he concludes that negative facts do not pass the test, and hence are not real. Armstrong thinks his reading is legitimate, and according to this reading totality facts are indeed Eleatically kosher. But, on the same ground, so are negative facts. Suppose we say that the absence of 100ml of water per day causes a plant to die. We are certainly denoting a negative fact, but we might agree that the only powers involved in the possible death of the plant are those involved in the biochemical process—viz. the negative fact is not causally operative. A negative fact is, however, causally relevant in that it can explain why the plant died rather than dried. Assuming that an absence of 50ml of water per day would have dried, rather than killed, the plant, the negative fact can be deemed Eleatically kosher because it makes a causal difference to the world.

¹⁴ Armstrong does not offer any argument against using the first formulation to assess the reality of totality facts. He merely briefly claims that: “A difficulty that may be (indeed, should be) proposed is that totality states of affairs fail the Eleatic Stranger’s plausible demand (Sophist, 247e) that it is a mark of the real that it should bestow power. That all things of a certain sort are indeed all of that sort does not seem to be a power-bestowing factor in the way the world proceeds” (2004, 76).

Tugby's argument for the reality of totality facts is more optimistic than Armstrong originally intended. Totalities can be deemed real because they can bestow causal powers. So, let us examine the other formulation of the Eleatic principle and grant more generally, alongside Tugby and Armstrong, that negative facts lack causal powers.¹⁵ It is relatively easy to see why many are unconvinced by the possibility of negative facts bestowing causal powers and why some others, on the same ground, might be keen on attributing powers to totality facts. When we say "the absence of clouds in the sky", we denote an absence-negative fact that [there are no clouds in the sky]. Like any facts, whether positive or not, negative facts are not the kind of things that can instantiate powers directly.¹⁶ At best, particulars, not facts, instantiate powers. So, if negative facts bestow powers, it is because their constituents do so. Compositionism, indeed, has it that facts are complexes that contain properties/powers and (thin) particulars as *parts* (Armstrong 1986). But the constituents of our negative fact, the clouds, do not exist and consequently cannot bestow causal powers. So negative facts do not bestow causal powers.¹⁷

On the other hand, positive first-order facts have "positive" constituents, i.e. particulars, their properties, and their powers.¹⁸ Assuming powers to be parts of first-order facts and first-order facts to be parts of the totality fact, the totality bestows powers (indirectly) in virtue of constituent facts (indirectly) bestowing powers—by the transitivity of part-of relation.¹⁹ Nevertheless, attributing the parts' powers to the fact they compose is unlovely in the first place. The difficulty lies in the transitivity of part-of. As Frege first adumbrates, if Vesuvius consists of solidified lava, and Vesuvius is part of a fact, "the fact would thus also consist of solidified lava. This would not seem correct to me" (1919, 20). The problem with the fact [Vesuvius' being a volcano] is that, in order to consist of lava, it must be true that facts have some properties, such as extension, that we won't attribute to facts *qua* facts in the first place. Likewise, suppose that a particular glass is fragile, and both the glass and its fragility are part of the fact [this glass' being fragile]. Transitivity then has it that [this glass' being fragile] is itself fragile. But this is absurd. Some, like Vallicella (2000) and Lowe (1998), take the transitivity problem as evidence that

¹⁵ On the alleged lack of causal powers by absences, see Hall (2004), and Dowe (2001; 2009), *inter alia*.

¹⁶ This can be disputed, especially if, following Armstrong (1997, 169), we take facts to be particulars.

¹⁷ A similar argument for the conclusion that absences cannot be truthmakers can be found in Dodd (2007, 388).

¹⁸ We use *parts* and *constituents* interchangeably. For a distinction between the former and the latter see Russell (1919, 278) and Armstrong (1989, 92). For a discussion within the context of the debate over Extensionalism and non-Extensionalism about facts' composition see Betti (2015, 68-70).

¹⁹ Arguably, any fundamental parthood relation is transitive. For an extensive defence of transitivity, see Varzi (2006b).

Compositionism is guilty of misapplying mereological principles to objects whose components belong to a different ontological category altogether.²⁰ If the mereological principle for facts' composition yields the wrong result, totality facts cannot bestow powers in the way indicated above.

In fairness, some have followed the late Armstrong (1989, 88-93; 2004, 141) in denying Compositionism, arguing instead that facts are not mereological sums but unified objects—viz. their composition is unmereological or non-mereological—that differ from the collection of their constituents, taken separately.²¹ Within this camp, some, like Elder-Vass (2010), claim that in virtue of being non-mereological complexes, the powers of the facts are *distinctive* and “over and above” that of the parts. Setting aside the alleged plausibility of the notion of non-mereological composition—notoriously controversial—we believe that trying to establish that facts are bearers of distinctive powers by using such a notion is problematic for at least two reasons.²²

Firstly, non-mereological composition is introduced as a primitive notion to explain how given a property *F* and a (thin) particular *a* we get that [*a* is *F*]. But then, as Jago has pointed out:

it can't be intrinsically objectionable to accept a further primitive notion of non-mereological composition which takes *F* and *a* and gives us the state of affairs that *a* isn't *F*". (Jago 2018, 206-207)²³

Hence, if we accept that the non-mereological composition *alone* is responsible for conferring powers to positive facts—on the same ground—friends of negative facts can equally make use of their antithetical notion to establish that also negative facts bestow causal powers.

Secondly, even if positive facts acquire their powers via non-mereological composition in a way that does not grant the opponent the same advantage, it is not at all clear that totality facts would acquire *distinctive* causal powers, i.e. powers over and above the powers bestowed by first-order facts. This is obvious if we consider what totality facts are: complexes of

²⁰ For more recent criticisms of Compositionism in Armstrong's account of facts see Bynoe (2011).

²¹ On the ontological distinctiveness between sums or aggregates, and unities see also Russell (1903, 136).

²² Non-mereological composition is generally met with skepticism. Lewis famously denies any room for non-mereological composition (1992). Further discussions about Armstrong's compositional pluralism and the issues surrounding non-mereological composition can be found in McDaniel (2019), Maurin (2013), Vallicella (2000), Simons (2009), and Betti (2015).

²³ See also Barker and Jago (2012, 3-4). A similar point is made by Tallant (2017, 56).

first-order facts plus the high-order negative fact that first-order facts are all there are. For a big fact of this sort to have *distinctive* causal powers, something more than the powers of the first-order facts must be available. On the one hand, the high-order negative fact cannot contribute to any power because, as a limit-fact, its negativity is no different from an absence-negative fact. And if the latter does not bestow powers, the former does not either.²⁴ On the other hand, it is not clear that we can retrieve more powers from the alleged powers of positive first-order facts. Even if first-order positive facts bestow powers, it does not follow that these powers are bestowed by the totality fact rather than by first-order facts. Indeed, what the totality fact itself states is precisely that there are no more facts, and so no more powers, than the one appearing in the positive conjunction.

The same observation can be made in terms of the “totality” relation. As said above, this relation serves to total the first-order facts and so, alongside these facts, serves to ground the truth that there are no other objects. Consider Armstrong’s example of the property *being an electron*. This property (i) gives electrons their powers (e.g. to repel like-charged particulars) and (ii) totals the aggregate of electrons (2004, 73). But totalling is not a distinctive power over and above the power conferred by the property of being an electron.²⁵ Totalling might be relevant for the fact that no non-electron is a member of the aggregate, but it does not confer non-electrons any power such that they are not members of the aggregate; nor does it “do” anything so that nothing other than the aggregate exists. Quite the opposite, the totality relation is in place *only because* there are no more things instantiating the property than there actually are—i.e. it is because non-electrons already do not have electrons-powers that they are not *all* by the property.

It seems that totality facts cannot have *distinctive* casual powers; if they have causal powers, they bestow the powers of first-order facts only. Consequently, only the first-order facts satisfy the Eleatic principle, not the totality. And if Tugby’s totality fact does not confer any more causal powers than those needed to reach the current of 100 milliamperes, then Tugby’s totality fact is no more ontologically acceptable than a negative fact vis-à-vis bestowing powers.

²⁴ Armstrong seems to acknowledge this point when he claims that “It is important to realise the ‘no more’ that these facts or states of affairs involve should not be thought of as additions of being. ‘No more’, after all, is the rejection of any addition” (2006, 245-246).

²⁵ In other words, totalling is not something that the property does but, as Armstrong puts it “where the aggregate is, the corresponding property has instances, and has them no where else” (2004, 73).

To sum up, solely on the Eleatic considerations, we cannot establish the superiority of totality facts over negative facts. They are either both unacceptable or equally acceptable.

3. Totality and Explanation

Even though totality and negative facts seem equally acceptable, partial negativity might still be deemed more ontologically acceptable than full negativity. Armstrong (2004, 70) famously argues that this is because partially negative fact removes the need for many fully negative facts, and so further negative truthmakers. Hence, according to the principle of ontological parsimony, totality facts as truthmakers are a more acceptable ontological posit than fully negative facts. We will now argue that that is not the case.

We believe that anyone offering explanations based on totality facts should also endorse the following principle:

(Closure): For all complexes of positive first-order facts T_i , and some fact v , T_i explains v iff:

- i) there is no complex of positive first-order facts T_j that includes T_i and that explains v .
- ii) there is no complex of positive first-order facts T_h that is included in T_i and that explains v .

Why is (Closure) an appropriate testbed for totality facts? Because (Closure) encapsulates two widely endorsed features of explanation—whether or not based on totalities—and, at the same time, one crucial task of truthmaking strategies—whether or not totalities are taken as truthmakers.

(Closure) captures the (i) non-monotonicity and the (ii) minimality of explanation (see Woodard 2003; Fine 2012a), expressed here in terms of totalities, i.e. complexes of first-order facts. Firstly, explanations are non-monotonic in that information contained in the explanans must be relevant to explaining the explanandum. Hence, the fact that [the mug is maroon] obtains explains why the fact that [the mug is red] obtains, but it is not the case that [the mug is maroon and that it is made of metal] explains why [the mug is red] obtains. The mug being made of metal does not contribute to the mug being red. Explanatory relations, like determination relations, are non-monotonic in this sense. Secondly, explanations are minimal in that every piece of information in the explanans must jointly suffice to

bring about the fact explained. The fact that an object is round and elastic explains why it is a football, but it is not the case that the fact that it is only elastic explains why it is a football. The fact that it is round cannot be subtracted from the explanans without it ceasing to explain the explanandum. Hence, jointly expressed in (Closure), minimality and non-monotonicity work to ensure that no more and no less than what is needed to explain the explanandum is contained in the explanans.

A totality truthmaking strategy, such as the one marshalled by Tugby or Armstrong, should adhere to (Closure) not only on the grounds of non-monotonicity and minimality of explanation but also because, crucially, any truthmaking strategy should result in the individuation of truthmakers that are *exact*, i.e. they must guarantee v 's truth as well as being wholly or strictly relevant to it (Fine & Jago 2019). For example, take the fact that x is an apple and assume that x is an apple is made true by facts about its microstructure y . Let us assume a further physical fact that makes true facts about the apple's microstructure. For example, we can notice that x has a microstructure y is true iff y has definite values O_i for any quantity O measured. And, further, that y has a definite value O_i for any quantity O iff there is a state $|\psi\rangle$ that is an eigenstate of O —the eigenvalue-eigenstate link principle. While facts about the microstructure y are strictly relevant to x being an apple, facts about eigenvalue-eigenstate are not, because they make true many other facts about many other macroscopic entities. That is, the eigenvalue-eigenstate link principle is non-discerning between the truth about the apple and other truths—viz. about this chair, that table, and so on. However, to discern truths in this way is the job of *any* truthmaking strategy (Armstrong 2004, 18; Tahko 2013, 336-7; *inter alia*), and insofar as the strategy of the friends of totality facts is a truthmaking strategy, they shall meet the task too. Put in another way, (closed) totality facts are *exact* truthmakers (Fine 2017; Fine & Jago 2019; *inter alia*) if they are truthmakers at all: they must guarantee v 's truth as well as being wholly relevant to it.²⁶ Thus, as Tugby suggests, we should expect them to satisfy (Closure). Unfortunately, totality facts, such as the one provided in Tugby's electric current example, violate both non-monotonicity and minimality.

²⁶ The case for exact truthmaker semantics can be traced back to van Fraassen (1969), but has been developed more extensively by Fine (2012b, 2014, 2016) and, further, by Correia (2016), Yablo (2014, 2018), van Rooji (2017), *inter alia*. The benefits of the exact truthmaking relation have been advocated both in the realm of everyday semantic theorising (see Moltmann 2017; *inter alia*) and in its foundational ground, as a *ur*-theory capable of constructing possible worlds semantics, standard situation semantics, and the familiar notion of inexact truthmaking (Fine 2020). For an argument that inexact, rather than exact, truthmaking semantics should play a foundation role see Deigan (2020).

Let us take T_i to be the mereological complex of positive first-order facts consisting of (units of electrical current, burning). As per the standard reading, the mereological object consisting of the units of electrical current *total* the property of burning, so that 100 units and no more explains why I was burned rather than killed. Given minimality, there should be no T_h that is included in T_i that would explain this occurrence. Put simply, nothing short of 100 milliAmps should explain why I was burned rather than killed. Crucially, however, there *is* a T_h included in T_i such that it violates minimality. The mereological object consisting of 99 milliAmps, like the previous one, explains why I was burned rather than killed. Given that both T_h and T_i explain why I survived, an explanation based on T_i fall short of minimality. A case can be made for the conclusion that T_i falls short of non-monotonicity too. Basic knowledge from electronics has it that electrical current cannot flow without voltage, whether deadly or not. A live wire is a wire where voltage is present and current flows. So given T_i (units of electrical current, burning), we can take T_j to be the mereological complex of positive first-order facts including T_i and consisting of (units of electrical current, burning, *and* units of voltage). Put simply, we now have a mereological object that includes the former and that total the property of burning. It makes sense to generate something like T_i because there is no current without voltage, facts about the first are strongly connected with the second. However, this cannot be right: it is not the voltage but the current and Amp value that explain why I was burned rather than killed. The fact that there is voltage—that the wire is live—is evidence supporting the explanation of me being burned because of the current, but it is not itself part of the explanation (we can, in fact, have voltage without current).

There is something significant we can learn from the failure of the totality fact. Going back to the current example one last time, Tugby takes the totality fact to be the total current fact, and we made this more explicit by equating that fact to a complex of positive first-order facts consisting of (units of electrical current, burning). The obvious upshot is that we have neglected that the totality fact is a complex of first-order positive facts *plus* a high-order negative fact that *no more is there than what there is*. The complex T_i should have been what *total* the property of burning (the units of current) together with the high-order fact that nothing else totals the property. Reintroducing the negative fact has different consequences depending on how we interpret its role. If it is interpreted as representing the fact that the *-ally* relation instantiated by the first-order facts is such that these are the *sole* facts that total the property (see Armstrong 1989, 93-94), then nothing more *and* nothing less total the property. Thus, interestingly, by adding the negative component back into the totality fact,

minimality and non-monotonicity are easily met; they are packed, so to speak, in the negative component. If nothing else totals the property of burning, nothing more and nothing less than the current magnitude of the property explain why I was burned rather than killed because those are the sole facts that can do so.

Now, however, we are saying that the only way to establish the explanatory power and the truthmaking role of totality fact is to appeal specifically to its negative part. In virtue of the high-order negative component, seemingly, totality facts regain their good standing. But this cannot be right if, per our original hypothesis, partially negative facts are better explanans than fully negative facts. This is because the negative component of a totality fact is a fully negative fact. Given that no other component of the totality contributes to it being a good explanans, we should then conclude that partially negative facts are thus no explanatorily better than fully negative facts.

However, we can entertain a more liberal interpretation, such that the limit-negative fact expresses the fact that nothing more *but not* nothing less than the current magnitude of the property explains why I was burned rather than killed. It is easy to see how this proposal offends against parsimony. Suppose our office contains only a chair, a desk, and a lamp. The corresponding totality fact is the aggregate of first-order facts—e.g. there being a chair in the office, there being a lamp in the office, and so on—plus the high-order negative facts that these are all the facts.²⁷ Suppose further that it is true that “There is no red carpet in this office” and that the totality fact is its truthmaker. Plausibly, the totality is a truthmaker for “There is no red carpet in this office” only if “There is no red carpet in this office” is true *in virtue of* the totality existing and guaranteeing its truth. The totality fact can guarantee the truth of the proposition only if there are no first-order facts such that it would make the proposition false—e.g. it necessitates the truth of “There is no red carpet in this office” only if [there is a red carpet] is not part of the aggregate. However, while the high-order negative fact so interpreted can establish that these are all the facts—it sets a limit—it does not, however, guarantee that the totality does not also contain such false makers. Now, these false makers can either be ruled out “from the outside” or “from the inside”. If they are ruled out from the outside, that must be because “There is no red carpet in this office” is true. But then the direction of explanation is reversed: it is the negative existential that explains why these are all the facts, rather than the other way around.

²⁷ Alternatively, we can represent the totality as: *T* (aggregate of furniture, being our office furniture).

However, to rule out such false-makers from the inside, and so to guarantee the truth of “There is no red carpet in this office”—or of “there is no cabinet in this office”, or of any other negative claim true of our office—requires assuming in advance that the totality contains the negative facts that the aggregate does not contain [there being a red carpet]—or a cabinet, a giraffe, and so on. But this is clearly an unwelcome result. If that is the case, the truthmaking role of totality facts is not supplied anymore by the one high-order negative fact, but by the many negative facts regarding what the positive totality does not contain. Thus, the alleged economic advantage vanishes because, after all, *pace* Armstrong, we still need many truthmakers and not one. On grounds of (quantitative) parsimony, friends of negative facts have at least equal standing.

4. Conclusions

In this paper, we have argued for a modest conclusion: that totality facts are no more ontologically respectable than negative facts. Although the conclusion is not novel (see Molnar 2000), we have proceeded in a novel way: by granting, instead of rejecting, the distinction between partial and full negativity. We hope to have shown that, nevertheless, there are reasons to reject the alleged ontological superiority of the former over the latter and, hence, of totality facts over traditional negative facts. We have proceeded in a systematic fashion by, first, arguing on the base of Eleatic considerations that totality facts and fully negative facts are either equally ontologically unacceptable or equally ontologically legitimate. Secondly, we have presented a truthmaking argument for the conclusion that adopting totality facts does not yield the desired alleged ontological parsimony. Our conclusion is that facts that are partially negative seem no better than facts that are fully negative.

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