Flow Fragmentalism

Giuliano Torrengo, Samuele Iaquinto

Penultimate draft. Final version to appear in Theoria

Abstract: In this paper, we articulate a version of non-standard A-theory – which we call *Flow Fragmentalism* – in relation to its take on the issue of supervenience of truth on being. According to the Truth Supervenes on Being (TSB) Principle, the truth of past- and future-tensed propositions supervenes, respectively, on past and future facts. Since the standard presentist denies the existence of past and future entities and facts concerning them that do not obtain in the present, she seems to lack the resources to accept both past and future-tensed truths and the TSB Principle. Contrariwise, positions in philosophy of time that accept an eternalist ontology (e.g., B-theory, moving spotlight, and Fine's and Lipman's versions of fragmentalism) allow for a "direct" supervenience base for past- and future-tensed truths. We argue that Flow Fragmentalism constitutes a middle ground, which retains most of the advantages of both views, and allows us to articulate a novel account of the passage of time.

Keywords: Fragmentalism - Presentism - Supervenience - Temporal passage - Tense realism.

1 Truth and Facts

In this paper, following Fine (2005), we will distinguish between the two theses of Ontic Presentism (OP) and Factive Presentism (FP), whose conjunction can be seen as presentism (P) as ordinarily understood:

(OP) Only present entities exist.

(FP) Only tensed facts obtaining at present constitute reality.

(P) Only present entities exist and only tensed facts obtaining at present constitute reality.[1]

[1] As Fine (2005: 300) notes, FP is compatible with the negation of OP. The moving spotlight view and the growing block view, for instance, can be seen as combining a non-presentist ontology with a privilege for presently obtaining facts.

OP is an ontological thesis, that rules out the existence of past and future entities. FP is a metaphysical thesis, that rules out that facts that constitute reality can obtain at past and future times. Besides, usually FP is understood as a form of tense realism, the latter being the thesis that tensed facts are fundamental and non derivative on tenseless facts. Imagine a situation in which Socrates is sitting at t, and later on, at t', is standing. If tensed facts are fundamental and FP holds, then when t is present, the tensed fact that *Socrates is sitting*, which presently obtains, constitutes reality. An anti-realist with respect to tense would hold instead that it is the tenseless fact that *Socrates is sitting at t* that constitutes reality.

In the context of FP, the idea that truth supervenes on being can be understood as the claim that

> (TSB) There cannot be a difference in which propositions are true without a difference in which facts constitute reality.

TSB can be naturally read as the thesis that while the truth of present-tensed sentences supervenes on present facts, the truth of past-tensed and future-tensed sentences supervenes, respectively, on past and future facts. Notoriously, the presentist has a problem with such a reading. Assume bivalence for future contingents,[2] and that it is true now that in few minutes Socrates will be standing: can the presentist accept the future fact on which such a future-tensed truth supervenes? It depends on how we read 'future fact'. A future fact in a *weak sense* is a future-tensed fact that obtains at present. If Socrates will be standing in a few minutes, the fact that *Socrates will be standing* obtains at present (and hence it constitutes reality now). A future fact in a *strong sense* is a present-tensed fact that will obtain in the future. If Socrates will be standing in a few minutes, the fact that *Socrates is standing* will obtain in a few minutes, but not at present. Thus, if FP holds, it does not constitute reality. In other words, it is incompatible with FP to accept future facts in the strong sense; and analogously for past facts in the strong sense. Note that, for the standard presentist (that is, for someone endorsing the conjunction of OP and FP), future facts in the strong sense are not facts at all: i.e., the extension of the very concept is empty. The facts that obtain at present are the facts that obtain *simpliciter*, and that constitute reality, namely the only facts there are.[3]

[2] In what follows, in order to keep things simple, we take the future to be linear. However, those who embrace a branching time model can reformulate our arguments by employing only past-tensed sentences as examples. Likewise, we set aside any complications due to relativistic considerations, taking them as immaterial to our main point.

[3] Here we are concerned with *tensed facts* only, which are the only kind of facts for which it makes sense to distinguish between facts that obtain in the present, in the past, and in the future. Tenseless facts, such as the fact that *Socrates is sitting at t* and the fact that *Socrates is standing at t'*, are such that either it does not make sense to talk about them as obtaining in the present rather than in the past or the future, or they obtain indifferently in the past, in the present, and in the future. For a detailed discussion of the distinction between weak and strong future facts see Ciuni and Torrengo (2013).

Factive Presentists can accept past and future facts in the weak sense, since they are facts that obtain at present. If we read 'past' and 'future', respectively, as 'past in the weak sense' and 'future in the weak sense', then FP is compatible with the claim that while the truth of present-tensed sentences supervenes on present facts, the truth of past-tensed and future-tensed sentences supervenes, respectively, on past and future facts. That is, FP and the reading of TSB presented above are compatible.

However, accepting such past-tensed and future-tensed facts is not devoid of problems for someone who also accepts OP, namely for a presentist *tout court* (the follower of P). If facts are complex entities, as most agree (see Correia and Mulligan 2013), the most plausible and natural candidates as constituents of past-tensed and future tensed-facts are – respectively – past and future entities. If so, accepting that among the facts that presently obtain there are past-tensed and future-tensed ones would entail accepting that past and future entities exist, contrary to what OP claims.[4]

Many strategies have been explored by presentists to solve this predicament. In particular, the approaches we are going to recall aim to offer metaphysical reasons to accept that reality is indeed constituted by past and future facts in the weak sense, but not in the strong sense. Or so they can be interpreted. "Lucretian" presentism (Bigelow 1996), for instance, claims that the mereological sum of all the presently existing entities presently instantiates properties like *being such that the Trojans were conquered* or *being such that outposts on Mars will be teeming with humans*. Such properties, which are taken to be an irreducible part of reality, would provide a supervenience base for the past-tensed proposition *that the Trojans were conquered* and the future-tensed proposition *that outposts on Mars will be teeming with humans* by being presently exemplified by that sum. No non-present entities would be required to allow the supervenience of truth upon being. Rather, past-tensed and future-tensed truths would supervene on how the world is now, namely on past and future facts in the weak sense. Alternatively, a presentist may adopt a *haecceitist* version of OP, which treats past and future entities as uninstantiated "thisnesses" (Adams 1986, Keller 2004, Ingram 2016a, 2016b).[5]

In more general terms, these options aim to show that, in accounting for the truth of past- and future-tensed sentences, there is no need to resort to past or future entities. By inflating the ontology with entities that stand proxy for past and future objects, or by refining the ideology with new properties, a standard presentist have the tools to

[4] Factive Presentists who deny OP (e.g., moving spotlighters; see Cameron 2015) do not have a problem here. A further option may be to maintain that facts are "simple" entities with no constituents (although such a way out seems ontologically very costly). Would deny the existence of facts altogether solve the problem? We do not discuss this option here. Suffice to note that, although we are endorsing "fact"-talk in the whole paper, nothing substantive hinges on the acceptance of facts as an ontological category, and talk of facts could be replaced by talk of entities instantiating fundamental properties and relations, or also in terms of things being (related) in such and such a way, together with an "in reality" sentential operator (see Fine 2005: 268).

[5] Of course, there are other approaches too, which we do not need to recall here. For an exhaustive list, see Ingram and Tallant (2018).

show that her position with maintaining both TSB and that there are truths about the past and the future. In what follows, we will not discuss these options further; rather, we will only point out a problematic feature that they all seem to share. If (past- and) future-tensed facts are made up exclusively of things or properties that are *kosher* for the presentist (i.e., presently existing things and presently instantiated properties), the presentist is bound to give up the following requirement of "aboutness" (ABT) concerning what tensed truths supervene on:

(ABT) Past-tensed or future-tensed truths are *about* past or future entities and what properties they exemplify (respectively), and not about presently existing things and what properties they exemplify.

Now, it is notoriously difficult to pin down the notion of aboutness.[6] However, it seems to us plausible to maintain that any construal of 'about' should have it that a metaphysical theory T conflicts with ABT, if T is compatible with truths $p_1, p_2, \ldots, p_n$ but not with the existence of the entities $p_1, p_2, \ldots, p_n$ are about. If so, P, TSB and ABT form an incompatible triad. We are not claiming that this is a knockdown argument against presentism. Rather, we are just stressing that the presentist is bound to face this predicament, if only to provide reasons to modify our understanding of the requirement of aboutness. Notoriously, this situation has lead some presentists to argue that "upstanding" versions of presentism – roughly, versions of presentism that accept TSB – are plagued with difficulties, and presentists should go "nefarious" and drop TSB.[7] To sum up, three options are on the table:

Non-presentism:	Dropping OP, while maintaining TSB and ABT.
Upstanding:	Maintaining OP and TSB, but dropping or weakening ABT.
Nefarious:	Maintaining OP and ABT, but dropping TSB.

What about non-standard versions of tense realism, as they are discussed in the literature following Fine (2005)?[8] As we will see, they must radically modify P. In so far as those modifications are seen as entailing an outright rejection of OP (coupled with a modification of FP), non-standard versions of tense realism fall within the Non-presentism option. However, we argue that there is a version of non-standard tense realism, which we call *Flow Fragmentalism*, which constitutes a fourth option that is worth exploring. Roughly, we will argue that Flow Fragmentalism combine a modification of FP to be found in the literature, with a weakening of OP that does not correspond to an outright denial of it. In so doing, it allows us to accept (past and) future facts in the strong sense, and thus to keep TSB and ABT.

[6] For a recent book-length attempt, see Yablo (2014).

[7] See Merricks (2007: 137-38) and Sanson and Caplan (2011). The distinction upstanding vs. nefarious is in Tallant and Ingram (2015).

[8] Non-standard tense realism is discussed by Pooley (2013), defended by Lipman (2015), and criticised by Tallant (2013). Tallant (2015) defends a view that can be seen as a form of non-standard theory.

2 Non-standard Tense Realism

FP can be seen as the standard form of tense realism. According to Fine (2005: 270-72), standard tense realism can be characterised as the tenet that tensed facts constitute (in an absolute sense) a coherent reality; i.e. as the conjunction of the following three claims:

Realism:	Reality is constituted of tensed facts.
Absolutism:	Constitution of reality is not irreducibly relative; i.e. its relative constitution must be explained in terms of its absolute constitution.
Coherence:	Reality is not irreducibly incoherent; i.e. its constitution by incompatible facts must be explained in terms of its constitution by compatible facts.

As Fine (2005: 271-72) argues, those three tenets are incompatible with the idea that facts obtaining at any time constitute reality in the same way, namely the following thesis:

Neutrality:	With respect to what facts constitute reality, no time is privileged.

Without going into the details, it is easy to see why Realism, when coupled with Absolutism and Coherence, will give rise to a contradiction in the presence of Neutrality. According to Fine (2005: 270-272), what follows can be taken as a version of McTaggart (1908)'s argument against the reality of tense. Assuming there is some qualitative variation through time, incompatible tensed facts will constitute reality at different times. For instance, at *t* the fact that *Socrates is sitting* constitutes reality, and then at *t'* the fact that *Socrates is standing* constitutes reality. If both Neutrality and Absolutism hold, the two facts constitute reality in the same way (i.e. absolutely speaking, and not with respect to a time). And if Coherence holds too, reality cannot be constituted by incompatible facts, such as the fact that *Socrates is sitting* and the fact that *Socrates is standing*.

Standard forms of tense realism reject Neutrality. Standard presentism, as we saw, rejects it in favour of the conjunction of FP and OP. If the present time is privileged, only the facts that obtain at present constitute reality. Thus if Socrates is sitting and then is standing, it won't be the case that the fact that *Socrates is sitting* and the fact that *Socrates is standing* will both constitute reality.

Non-standard forms of tense realism stick to Neutrality, but reject either Absolutism or Coherence. *External Relativism* is the rejection of Absolutism: constitution of reality is an irreducibly relative matter (Fine 2005: 278). That is to say that there is no single reality constituted by all the tensed facts, but rather a whole plethora of *perspectives* relative to which different facts constitute reality. In each perspective we find the tensed facts which obtain at a time, and which constitute reality relative to such a time. Crucially, there is no overall perspective encompassing all perspectives.

Fragmentalism is the non-standard view that keeps Absolutism but rejects Coherence. The idea is that reality is constituted by tensed facts that obtain at different times

in an absolute sense; hence it is constituted by incompatible facts, *even though* it is not the case that incompatible facts obtain together. According to Fragmentalism, reality is not "of a whole", but it is rather constituted by different "fragments", that is, maximal collections of tensed facts (Fine 2005: 281). Each fragment is internally coherent, but the whole of reality is not. Hence, although the fragmentalist gives up the idea of a reality that is coherent as a whole, she is not compelled to endorse the conclusion that a "conjunction" of incompatible facts can obtain. For instance, if Socrates is now sitting and then standing, both the fact that *Socrates is sitting* and the fact that *Socrates is standing* constitute reality in an absolute sense. However, the fact that *Socrates is standing* obtains in a fragment of reality different from the one in which the fact that *Socrates is sitting* obtains. In contrast to the standard tense realist, who takes obtainment in the present to be obtainment *simpliciter*, the fragmentalist thinks of obtainment as always *limited to a given fragment*.

Among the forms of non-standard tense realism, we now explore what we call Flow Fragmentalism. In Fine's paper, non-standard versions of tense realism are discussed, but the idea of OP in a non-standard framework is not articulated. It is clear that a presentist who endorses a non-standard version of tense realism must reject FP, which is incompatible with Neutrality and the idea that no time is privileged (which is characteristic of non-standard forms of tense realism). In particular, according to the fragmentalist variety of non-standard theories, facts that obtain at times different from the present constitute reality in the same sense as facts that obtain at the present time (i.e., absolutely). However, as we have just underlined, within each fragment not all such facts obtain, otherwise fragments wouldn't be internally coherent. In other terms, not all facts that constitute reality obtain in all fragments. There are different ways to capture this idea. For instance, Lipman (2015) expresses it by adopting a background logic able to block the inference from (1) Socrates is sitting, and (2) Socrates is standing, to the conclusion (3) Socrates is both standing and sitting.[9] We will adopt a different strategy, and exploit expressions such as "within a fragment F" and "within each fragment" to work as operators that qualify claims about what facts *obtain*, as distinct from claims about what facts *constitute* reality. In our regimented language, thus, *no* fact obtains *simpliciter*, although facts constitute reality absolutely speaking (and hence *simpliciter*).

This way of articulating Fragmentalism allows us to capture what we take to be one of the main motivations for embracing tense realism in the first place, *viz.* the thesis that reality is irreducibly and fundamentally dynamic. If Neutrality holds and no time is privileged over the others, it is tempting to read the tensed facts as somehow "static", and each fragment as a universe "frozen" in a everlasting present. But this would be a mistake.[10] A way to resist the collapse of the view on a scenario of frozen fragments

[9] A similar strategy can be found in Loss (2017).

[10] Fine (2005) thinks that *standard* tense realism, with its rejection of Neutrality, has problem with differentiating its picture of the world from a frozen present scenario (see also Leininger 2015), and that

is to understand constitution not merely as absolute, but also as inherently *dynamic*. Tensed facts constitute a genuine flow of time by constituting reality in a way that warrants that when a future-tensed fact obtains within a fragment F, this is so because reality *will* contain the corresponding present-tensed version of it – that is, because a fragment that comes "after" F contains it; and when a past-tensed fact obtains within a fragment F, this is so because reality *did* contain the corresponding present-tensed version of it – that is, because a fragment that comes "before" F contains it.[11] From a global perspective, the flow is an incoherent amalgamation of incompatible facts, all constituting reality in an absolute sense, but at the level of obtainment, from the perspective of each moment, the flow is a coherent order. As we said, here we are taking the notion of obtainment to be genuinely distinct from the notion of constitution. Let us stress, once again, that this is in order to make sense of the idea that, even though tensed facts constitute reality in an absolute manner – as Absolutism requires – each fragment is internally coherent, and so there is no fragment where the fact that *Socrates is sitting and standing* can obtain. It is worth noting that this move seems particularly effective in avoiding Dummett (1960)'s version of McTaggart's argument. According to Dummett, the argument rests on the idea that there can be in principle a complete description of reality – one that is both maximal and independent of any particular point of view.[12] Given that the reality of time requires the reality of irreducible tensed facts, and that Socrates changes from being sitting to being standing, in offering a complete description of what is real we will be forced to accept both the fact that *Socrates is sitting* and the fact that *he is standing*. However, this is a problem only if "accepting" incompatible tensed facts entails that a contradiction obtains. But that is precisely what the view we are outlining here avoids. From the global perspective reality does *contain* incompatible facts, but in no fragment Socrates is both standing and sitting. The flow of time is globally incoherent, but from within the flow no incoherence shows up.

To stress again the core point, in saying that there is a global perspective, as opposed to the perspective centred on a given fragment, we are exploiting the resources of a pluralist view, that is, we are claiming that there are two *equally fundamental* ways to describe reality. When it comes to say what facts constitute reality, we adopt the perspective centred on the temporal dimension as a whole. When it comes to say what facts obtain, instead, we adopt a local perspective, that is, the perspective centred on

a non-standard form is better off in vindicating genuine passage. Tallant (2013) argues that Fine's version of fragmentalism fares worst with respect to temporal passage than standard tense realism. We agree with the main line of thought of Tallant, but we maintain that the version of fragmentalism presented here – flow fragmentalism – does not succumb to his criticism.

[11] A complete statement of the view requires that the fragments be somehow ordered in a series that mimics the temporal series that we find within each fragment (hence the scary quotes around 'after' and 'before'). We have explained how to order the fragments in such a way in a pseudo-earlier-than relation in Torrengo and Iaquinto *ms*.

[12] See Dummett (1960: 502-3). For more details, see Ingthorsson (2016: 68-69).

each fragment.[13]

Resorting to such a "perspective"-talk might prima facie recall Lowe (1987a, 1987b)'s characterisation of the flow of time.[14] He proposes to think of our life as a spacetime route, that is, an ordered sequence of the form $<(s_1, t_1), (s_2, t_2), \ldots, (s_n, t_n)>$, where the first member of each couple is a point in space (a spatial perspective), while the second one is a point in time (a temporal perspective). What differentiates time from space and makes time the dimension of change[15] is that, while the same subject can adopt the same spatial perspective in more than one time, there is nothing we can do to alter the sequence of our temporal perspectives. We may well imagine a route like: $<(s_1, t_1), (s_2, t_2), (s_1, t_3)>$, whereas a route like the following, barring the chance of a time travel, strikes us as absurd: $<(s_1, t_1), (s_2, t_2),(s_3, t_1)>$. Our life appears to be a fixed succession of *unrepeated* temporal perspectives (pp. 68-69). Nothing similar can be said of our spatial perspectives. Crucially, these routes should not be taken as descriptions of reality *sub specie aeternitatis* (p. 69), that is, as mere B-theoretical chains of spacetime locations. Rather, they must be conceived as descriptions of

> what it would be like ('from the inside') to experience the world from perspectives other than here and now. In other words, we must understand what it would be to use the words 'now' and 'here' *correctly* at other times and places–times and places which I cannot now refer to other than by recourse to other indexical expressions (p. 69, italics in the original).

Our distinction between a global perspective and the perspective of each moment bears similarities with Lowe's distinction between a description of reality *sub specie aeternitatis* and a description 'from the inside'. Still, there is a crucial difference. In contrast to Lowe, our perspective-talk rests on the pluralist assumption that reality exhibits two equally fundamental features: the absolute constitution of tensed facts as opposed to their limited obtainment. As we underlined above, such an assumption is introduced in order to articulate a non-standard framework, where Coherence is dropped in favour of Neutrality. As we understand it, Lowe's framework, on the contrary, falls within the standard ones in that it neither disputes Coherence nor adopts Neutrality. Reality is taken to be coherent *sub specie aeternitatis* as much as it is coherent 'from the inside': it does not contain incompatible tended facts at all. Lowe (1987a)'s aim, indeed, is precisely to show that contrary to McTaggart (1908)'s argument, describing time by

[13] For a detailed discussion on how to exploit the distinction between the general and the current perspective within a fragmentalist framework, see Iaquinto (2018).

[14] We would like to thank an anonymous referee for suggesting us to develop this point, as well as to take Dummett's point into consideration.

[15] Lowe discusses mainly change, but his focus is temporal flow as such. See "[…] the problem of change (or, as I would prefer to call it, the problem of *flux* or *flow*, since my concern is with an intrinsic feature of time rather than with a feature of objects which they possess by virtue of inhabiting time) […]" (p. 68, italics in the original).

resorting to tensed notions yields no contradiction whatsoever. And this is so, crucially, because when it comes to what facts constitute reality, the perspective from the present time *is* privileged. Rather than a multiplicity of fragments reflecting a multiplicity of perspectives, there is one changing perspective and many "potential" contexts of utterances:

> [...] when I say that *e will happen*, I am not implying that *e* is happening now in the future, though I *am* implying that in the future it will be possible to make a true statement by saying '*e* is happening now'. (p. 66, italics in the original)

Now, to come back to our main point, our idea is that a non-standard tense realist can cash out the idea of a primitive flow that "fragments" reality in coherent local perspectives, by applying the presentist idea of a ever changing present within each fragment as follows:

Ontic Flow Fragmentalism:	(a) Within each fragment F, only present entities exist. (b) Within some fragments that are "before"/"after" F, past/future entities exist.
Factive Flow Fragmentalism:	(a) Within each fragment F, only presently obtaining facts obtain. Call the class of all presently obtaining facts in F, P_F. (b) Within some fragments that are "before"/"after" F, present tensed versions of the past-/future-tensed facts in P_F obtain.

Suppose that within a fragment F we find both the present-tensed fact that *there are no outposts on Mars* and the future-tensed fact that *there will be outposts on Mars*. From Factive Flow Fragmentalism, it follows that there is at least one fragment F_1, which is "after" F, in which the present-tensed fact that *there are outposts on Mars* obtain. And, in accordance with Ontic Flow Fragmentalism, within F_1 outposts on Mars exist.

Once again, note that, even though for the fragmentalist there is no obtainment *simpliciter*, but only *within a fragment*, constitution is taken to be absolute (contrary to what the external relativist maintains), and so past and future facts in the strong sense *are* facts, since they constitute reality, even if they do not obtain at present.[16]

In what follows, we will focus on this version of Fragmentalism (i.e., the conjunction of Ontic Flow Fragmentalism and Factive Flow Fragmentalism), and argue that it preserves the idea of a genuine flow of time understood in presentist terms (as ever changing reality), while being compatible with TSB and ABT, since it entails the claim that past- and future-tensed truths supervene on past and future facts in the *strong* sense.

[16] One may have the worry that Fragmentalism entails some form of commitment to non-existing objects in order to avoid contradictory talk, but this is not so. While present-tensed facts about the first child born in the next century constitute reality as much as the present-tensed fact that she or he does not (yet) exist, it is not the case that she has a certain property *and* she does not exist, since facts about her non-existence never obtain in the same fragments in which facts about her having certain (present-tensed) properties obtain.

3 The Argument from Truth

In order to see how Flow Fragmentalism is compatible with the idea that past- and future-tensed truths supervene on past and future facts in the strong sense, it will be useful to summarise Fine's discussion of the so-called Argument from Truth against tense realism (due to Mellor 1986, 1998), and the solution that both External Relativism and Fragmentalism can provide.

Consider someone who makes an utterance, U_1, of the sentence "Socrates is standing" now while Socrates is standing, and who has made an utterance U_2 of the same sentence earlier, while Socrates was sitting. It seems correct to say that U_1 is true, while U_2 was false. Assume that both U_1 and U_2 state the tensed proposition that Socrates is standing, which – like all tensed propositions – does not encode information about the specific time of the occurrence of an utterance that states it. Finally, suppose that the following general principles hold:

Truth-Value Stability:	If an utterance is true (false), then it is always true (false).
Content Stability:	If an utterance states that P, then it always states that P.
Link:	An utterance is true if and only if what it states is verified by the facts.
Relevance:	A tensed utterance is only verified with the help of tensed facts.

The argument from truth aims to show that these four principles entail a contradiction. Let us see how. Given that U_1 is true and states the proposition that Socrates is standing, by the left-to-right direction of Link, there are facts, $f_1, \ldots, f_n$, that verify that Socrates is standing, and given Relevance those facts are tensed. Since U_2 stated the proposition that Socrates is standing, by Content Stability, U_2 states that Socrates is standing. Given that $f_1, \ldots, f_n$ verify that Socrates is standing, by the right-to-left direction of Link, U_2 is true. But *ex hypothesi* U_2 was false and hence, by Truth-Value Stability, U_2 is false.

For the tense anti-realist the problem does not get off the ground, since clearly Relevance is a principle she will not accept. According to her, tensed claims, even granting that they express tensed propositions, are verified by tenseless facts. For instance, assuming that U_1 takes place at time t_1, expresses the tensed proposition that *Socrates is standing*, and it is true, the fact that verifies it is the fact that *Socrates is standing at* t_1. In general, for any utterance U of a tensed sentence S, the anti-realist will provide a recipe to identify a *tenseless fact* that verifies the proposition expressed by U – depending both on the time of utterance and on the tense(s) in S. Since U_1 and U_2 are utterances of the same (present-tensed) sentence, but they occur at distinct times, the tenseless facts that verify U_1 are not facts that can verify U_2 as well. Therefore, neither Truth-Value Stability nor Content Stability will raise problems in presence of Link.

The standard solution for the tense realist (e.g. Priest 1987) consists in denying Truth-Value Stability. Fine (2005: 295) has arguments against a solution of this kind which we do not need to consider here. What we are interested in is the non-standard

solution which he defends, and which consists in denying Link and endorsing Relative Link instead:

> *Relative Link*: An utterance is true if and only if what it states is verified by the facts that obtain at the time of utterance.

Again, in the spirit of the non-standard construal of tense realism, the assumption that there is a single coherent reality is dropped. Consequently, there is no single set of facts that verifies any utterance. What Relative Link states is that the appropriate set of facts for verifying an utterance varies with the utterance. According to the external relativism, facts never belong to reality in an absolute sense, but only relative to a temporal perspective or another. And only the ones belonging to the perspective of an utterance can verify the proposition expressed by U. According to the fragmentalist version, facts belong to reality absolutely speaking, but they do not constitute a coherent reality, and they do not always obtain conjointly. Given two facts that constitute reality, it may be that they do not obtain together, but only within two distinct fragments.

We suggest that the flow fragmentalist can adapt Fine's non-standard solution to the argument from truth by replacing Link with the following:

> *Fragmentalist Link*: An utterance is true if and only if what it states is verified by the facts that obtain within the fragment in which the utterance takes place.

Hereinafter, we will assume that an utterance U takes place in a fragment if and only if the fact that U is presently occurring obtains within it. As we said, Flow Fragmentalism maintains that facts constitute reality all in the same sense, but this does not entail that, if two facts belong to reality, then they both obtain in the same fragment. Thus, our version of Fragmentalism posits that the facts able to verify a given utterance belong to the fragment in which the utterance obtains. In other words, whether or not an utterance is verified is relative to the fragment in which it takes place. Note that from a metaphysical point of view to say that a given fact verifies an utterance is to say that *the fact grounds the truth of that utterance*. More precisely, the truth of the utterance is grounded in the facts obtaining within the fragment which the utterance belongs to. Thus, in the light of the framework we are describing, given a true utterance the grounding relation is always limited to the fragment in which the utterance takes place. This should not be surprising; after all, we are trying to preserve one of the idea at the root of presentism (even thought we are not claiming that our framework can be labelled as properly presentist): looking at reality from the local perspective, nothing but the present exists, and so at the level of obtainment nothing but the present can function as a ground (bear in mind Ontic Flow Fragmentalism and Factive Flow Fragmentalism). In the fragmentalist idiom: within a given fragment nothing but the present exists; then, for each true utterance obtaining within it, nothing but the fragment itself can function as a ground.

For example, a true utterance *U* of "Socrates will be standing" is verified by the future-tensed fact that *Socrates will be standing*, which obtains in the same fragment in which facts about *U* (presently) occurring obtain. We will work with the assumption that, in general, it is future facts *in the weak sense* that ground the present truth of future-tensed true utterances.

4 Verification and Supervenience

Our discussion of the argument from truth might seem to have led us to a dead end. We were looking for a connection between true future- (and past-) tensed propositions and future (and past) facts in the *strong* sense within a non-standard framework, in order to account for the supervenience of the truth of the former on the latter. But we ended up with a link – a grounding relation – between future- (and past-) tensed propositions and the facts that obtain in the fragments in which the utterances that express them take place. And given that Factive Flow Fragmentalism tells us that within each fragment only presently obtaining facts obtain, such facts can be past or future only in the weak sense, as noted at the end of the previous paragraph.

However, the fact that Fragmentalist Link does not make reference to facts that do not obtain in the present, and hence to past and future facts in the strong sense, is not incompatible with the claim that past and future facts in the strong sense are *the supervenience base* of the truth of past- and future-tensed propositions. As should be clear from the above discussion, according to Fragmentalism, reality is not confined to one fragment and the facts that obtain within it: it is a whole constituted by all facts that obtain within any of the fragments, although there is no global perspective from which we can say that all facts that belong to reality obtain. As Fine (2005: 297) has it: "In stating that a fact belongs to reality, we adopt a general perspective, but in stating that a fact obtains, we adopt the current perspective". Note that what Fine here calls the "general perspective" is *not* an über fragment, that is, a fragment within which other fragments can obtain. If there were such a fragment in which all facts that constitute reality obtain, it would contain facts that are incompatible, so violating the assumption that each fragment is internally coherent (Fine 2005: 281). In our take on the position, as we repeat, the global perspective is the flow as seen from no moment in particular, namely what makes it the case that facts obtain *only within fragments*; and what past- and future-tensed facts obtain in a fragment is (non causally) determined by what present-tensed facts obtain in fragments that come "after" and "before".

In this scenario, present-tensed facts co-vary with facts about the truth-value of past- or future-tensed utterances as required by a supervenience relation between past- or future-tensed utterances and the past or future facts in the *strong* sense which they correspond to. So, for instance, if no fact that *Socrates is standing* were to obtain in some of the fragments that come "after" the fragment within which an utterance *U* of "Socrates

will be standing" takes place, U would not be true.

Someone might now object that, much as the grounding relation, supervenience cannot hold between two different fragments, for – as we have just underlined – there is no über fragment that can function as a metaphysical "bridge" between them. It follows that we cannot find a supervenience base for past- and future-tensed propositions in a fragment different from the one in which the utterances expressing them take place. Our reply is that, while a grounding claim expresses a relational "second order" fact (i.e. the fact that a fact x grounds a different fact y), a supervenience claim merely expresses a *modal correlation* between facts, or between certain facts and the truth-values of certain claims.[17] More specifically, the set of facts S that constitutes a supervenience base for a set of truths P are the facts such that, for each truth p in P, it is impossible to have a change in the truth-value of p without having a corresponding change in some of the facts in S.

But the claim that there is supervenience between facts in different fragments does not entail that there is a fact binding the different fragments in an incoherent whole; supervenience just requires that, *within each fragment*, the facts behave in certain ways, *viz.* they co-vary as described. And it is the clauses (b) in both Ontic and Factive Flow Fragmentalism that warrant such correlation. Crucially, the idea of a primitive flow in which facts *constitute* reality is captured by the clauses that govern the correlation between what facts *obtain* within each fragment. In other words, what facts obtain from each local perspective is not independent of what facts constitute reality absolutely speaking.

Therefore, in the framework of flow fragmentalism, it is perfectly coherent to claim that the present truth of a past tensed- or future-tensed proposition supervenes on facts that obtain in a fragment *different* from the one in which the utterance that expresses the proposition takes place.[18] What might seem problematic is to couple such a claim with Fragmentalist Link, that states a verification link between a true utterance and the facts that obtain in the fragment in which the utterance takes place. But there is an (almost) obvious strategy to carry over this, that is, to claim that the facts that verify an utterance expressing a true proposition are *not* necessarily those on which the truth of the proposition it expresses supervenes. The problem, then, is to distinguish between the verification link and the supervenience base for the truth of past- or future-tensed propositions.

As we have just pointed out, the facts in the supervenience base of a proposition p do not need to obtain within the fragment in which an utterance U that expresses p

[17] Alternatively, one might accept cross-temporal grounding relations (as in Merlo 2013). We won't consider this option here.

[18] In order to avoid to be overly pedantic, we are a bit sloppy in shifting between talking of true utterances and of true propositions. The relation between the two should be clear: an utterance U takes place within a fragment F and expresses (or states) a proposition p, and U is true if and only if p is verified by the facts that obtain within F.

takes place. But the verification relation, as stated in the various versions of the Link theses in the previous section, is a relation between an utterance U that expresses a true proposition and a set of facts that obtain in the fragment in which U takes place. Thus, supervenience and verification cannot be identified (not even extensionally).

That may seem rather puzzling. It is clear from the discussion of the argument from truth that the verification relation is not a merely epistemic link between evidence and true utterances: it is rather a grounding relation between the truth of the utterances and a given set of facts. Hence, it would be strange if the facts that verify an utterance are not *also* facts upon which the truth of the proposition expressed supervenes; if only because the verification link is, strictly speaking, stronger than a supervenience relation (it entails it without being entailed by it; see Rodriguez-Pereyra 2005: 19).

We agree: the past and future facts in the weak sense that obtain in the fragment in which the utterance takes place co-vary modally with the truth of the utterance, as we should expect in a case of supervenience. If in a fragment F the present utterance U of "Tomorrow it will rain" is true, Fragmentalist Link tells us that within F the fact that *tomorrow it will rain*, which verifies U, presently obtains. But if U were not true, that future fact would not presently obtain within F. However, in order for a proposition P to be true, all we need is that the supervenience base of the truth of P is *a* set of facts such that it is impossible to have a difference in truth-value of P without having a corresponding change in some of the facts in the set. The set of facts that verify the utterance U that expresses p is one such set, we agree, but it is not the only one. It may be, and probably is, the only one containing only facts that obtain within the fragment in which U takes place. But there is a set of facts among those that do *not* obtain within the fragment in which U takes place which are obvious candidates for providing a supervenience base for the truth of p as well: intuitively speaking, the present-tensed facts that obtain in the fragment in which the time the utterance is talking *about* is present.

5 Conclusions

The conjunction of Ontic Flow Fragmentalism and Factive Flow Fragmentalism, which we labelled 'Flow Fragmentalism', exploits the presentist idea of a ever changing present in order to describe a primitive flow that "fragments" reality in coherent local perspectives. This view is compatible with both TSB and ABT. The flow fragmentalist can accept past and future facts in the *strong* sense as the supervenience base of truth. A true utterance of a past- or future-tensed sentence is *about* the past or the future in that the supervenience base of its truth is the set of present-tensed facts obtaining in the fragment in which what the utterance describes is present.

References

Adams, R. 1986. 'Time and Thisness'. In P. French et al., eds. *Midwest Studies in Philosophy*. Minneapolis: University of Minnesota Press, pp. 315-329.

Bigelow, J. 1996. 'Presentism and Properties'. *Philosophical Perspectives* 10: 35-52.

Cameron, R.P. 2015. *The Moving Spotlight: An Essay on Time and Ontology*. Oxford: OUP.

Ciuni, R., Torrengo, G. 2013. 'Presentism and Cross-temporal Relations'. In R. Ciuni, K. Miller, G. Torrengo, eds. *New Papers on the Present: Focus on Presentism*. Munich: Philosophia Verlag, pp. 212-252.

Correia, F., Mulligan, K. 2013. 'Facts'. In E. Zalta, ed. *The Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/archives/spr2013/entries/facts/>.

Dummett, M. 1960. 'A Defense of McTaggart's Proof of the Unreality of Time'. *The Philosophical Review* 69: 497-504.

Fine, K. 2005. 'Tense and Reality'. In K. Fine. *Modality and Tense. Philosophical Papers*. Oxford: OUP, pp. 261-320.

Iaquinto, S. 2018. 'Fragmentalist Presentist Perdurantism'. *Philosophia*. Online first.

Ingram, D. 2016a. 'The Virtues of Thisness Presentism'. *Philosophical Studies* 173: 2867-2888.

Ingram, D. 2016b. 'Thisnesses, Propositions, and Truth'. *Pacific Philosophical Quarterly*. Available online from 6 December 2016. DOI: 10.1111/papq.12181.

Ingram, D., Tallant, J. 2018. 'Presentism'. In E. Zalta, ed. *The Stanford Encyclopedia of Philosophy* <https://plato.stanford.edu/archives/spr2018/entries/presentism/>.

Ingthorsson, R.D. 2016. *McTaggart's Paradox*. Routledge: New York and London.

Keller, S. 2004. 'Presentism and Truthmaking'. In D. Zimmerman, ed. *Oxford Studies in Metaphysics, Vol. 1*. Oxford: OUP, pp. 83-104.

Lipman, M. 2015. 'On Fine's Fragmentalism'. *Philosophical Studies* 172: 3119-3133.

Loss, R. 2017. 'Fine's McTaggart: Reloaded'. *Manuscrito* 40: 209-239.

Lowe, E.J. 1987a. 'The Indexical Fallacy in McTaggart's Proof of the Unreality of Time'. *Mind* 96: 62-70.

Lowe, E.J. 1987a. 'Reply to Le Poidevin and Mellor'. *Mind* 96: 539-542.

Markosian, N. 2013. 'The Truth About the Past and the Future'. In F. Correia, A. Iacona, eds. *Around the Tree*. Berlin: Springer-Verlag, pp. 127-42.

McTaggart, J.M.E. 1908. 'The unreality of Time'. *Mind* 17: 457-474.

Mellor, D.H. 1986. 'Tense's Tenseless Truth-conditions'. *Analysis* 46: 167-172.

Mellor, D.H. 1998. *Real Time II*. London: Routledge.

Merlo, G. 2013. 'Specialness and Egalitarianism'. *Thought: A Journal of Philosophy* 2: 248-257.

Merricks, T. 2007. *Truth and Ontology*. Oxford: OUP.

Meyer, U. 2013. *The Nature of Time*. Oxford: OUP.

Pooley, O. 2013. 'Relativity, the Open Future, and the Passage of Time'. *Proceedings of*

the Aristotelian Society 113: 321-363.
Priest, G. 1987. 'Tense, Tense and Tense'. *Analysis* 47: 184-187.
Rodriguez-Pereyra, G. 2005. 'Why Truth-makers?', in H. Beebe, J. Dodd, eds. *Truth-makers*. Oxford: OUP, pp. 17-31.
Sanson, D., Caplan, B. 2011. 'Presentism and Truthmaking'. *Philosophy Compass* 6: 196-208.
Sider, T. 2001. *Four-Dimensionalism*. Oxford: Clarendon Press.
Tallant, J. 2013. 'An Heterodox Presentism: Kit Fine's Theory'. In R. Ciuni, K. Miller, G. Torrengo, eds. *New Papers on the Present*. Munchen: Philosophia Verlag, pp. 281-306.
Tallant, J. 2015. 'The New A-theory of Time'. *Inquiry* 58: 537-562.
Tallant, J., Ingram, D. 2015. 'Nefarious Presentism'. *The Philosophical Quarterly* 65: 355-371.
Torrengo, G., Iaquinto, S. *ms*. 'The Invisible Thin Red Line'.
Yablo, S. 2014. *Aboutness*. Princeton: Princeton University Press.