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Tensed Metaphysics and Non-Local Grounding of Truth

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Abstract

It is argued that the assignment of truth values to future contingents is threatened not by a tensed metaphysics but by a temporally "local" notion of truth, *i.e.*, by the assumption that whatever is true at a given time needs to be grounded in what exists at that time. If this assumption is accepted, tensed and tenseless metaphysics are equally vulnerable; if it is rejected, both can accommodate true future contingents. This means that semantic decisions are largely independent of metaphysical considerations. The work of Correia and Rosenkranz (2018) is a clear example of how the tensed metaphysics of the growing block can incorporate true future contingents. Two potential worries are discussed in the context of their work: (a) that their grounding strategy overgeneralizes and admits true counterfactual contingents; and (b) that the growing block theory lacks sufficient resources to distinguish the unique possible future course of events that is relevant for the grounding of future contingents.

Keywords

future contingents; grounding; growing block; metaphysics of time; semantics

Fabrice Correia and Sven Rosenkranz (henceforth, "the Authors") open their discussion of the semantic implications of the Growing Block Theory with the following proposal:

> (GP) *All truths*, qua truths, *are grounded in what there is and how it is*. (Correia & Rosenkranz 2018: 100; henceforth, C&R).

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At first glance, this principle might seem obviously correct, but it quickly becomes problematic if we follow the Authors and consider the following statement:

(ϕ) "It will rain tomorrow."

On the one hand, if you consult the grounding principle (GP), you might easily come to the conclusion that if this sentence is true, its truth needs to be grounded in how things *presently* are. Nonetheless, when you contemplate the content of the sentence, it becomes obvious that the state of things presently in existence is completely irrelevant. After all, the sentence is not a comment on the current state of affairs; it is explicitly about the weather *tomorrow*, so the present facts should not be relevant for its truth. We are instantly torn by two conflicting intuitions; whenever such a conflict arises, philosophy begins…

In what follows, I put my spin on the Authors' project. I suggest that by rethinking the nature of truth, they deflect one of the major objections against tensed metaphysics. Thus, they show that as far as the grounding of temporal truths is concerned, a tensed metaphysician is not worse off than her tenseless rival. Importantly, this result extends to truths concerning contingent future events. Since true future contingents are useful for many philosophical projects, it is relieving (and revealing) that their truth-aptness is compatible with various metaphysical positions. Near the end of the piece, however, I play devil's advocate and challenge the Authors' idea in some respects.

For now, let us return to the grounding principle above. As is well recognized by the Authors, it suggests what I call a temporally "local" notion of truth. Under the local reading, what is true at a given moment should be grounded in what exists at that moment. More specifically, this principle suggests that what is true now should be grounded in what now exists (in the context of the discussion of future contingents, the local notion of truth was recently explicitly endorsed and used to argue against true future contingents by Belnap et al. 2001: 168).

When you follow this line of thought, you might easily conclude that there can be no truths regarding the weather tomorrow, since no facts concerning the future weather exist as of now. More radically, since the future does not exist now, no statement regarding the future may be true right now. This conclusion sounds radical, and if it were the price to pay for one's metaphysical beliefs, these beliefs would be rather costly.

One way to soften this blow is to look for presently existing facts that ground truths about the future. There are some natural candidates. In his famous speech on determinism, Łukasiewicz (1970) discussed a prediction of a temporally distant eclipse of the Moon

and the Sun. He argued that the truth of such a prediction can be grounded in presently existing astronomical conditions taken jointly with the presently existing laws of nature.[1] Alternatively, we may say that presently existing causes are sufficient to bring about the eclipse in the future, therefore they ground the truth of this prediction. We may also observe that given the present state of the world, it is settled that the eclipse will happen and this sort of necessity can be used for the purposes of grounding. The goal of all such attempts is to preserve (some) truths about the future while holding the grounding principle intact.

There is a feature of the aforementioned strategies which the Authors focus on: they all exclude true future contingents. To be frank, the proponents of temporally local truth rarely shy away from this conclusion. Quite the contrary, they often openly advocate that future contingents have a third truth value, lack a truth value, or are all false. This is not the place to assess all the potential drawbacks of each of these solutions, but let me mention just a few. First, if one "goes local", one needs to accept the rather discouraging semantic consequences (see, *e.g.*, Peirceanism of Prior 1967), sacrifice bivalence (cf. supervaluationism of Thomason 1970), or both (*e.g.*, Łukasiewicz 1970b). Moreover, assuming that the truth is a norm of assertion, a conflict with everyday practice arises as people are frequently willing to assert future contingents (see Besson & Hattiangadi 2014). Lastly, when the local notion of truth is held dear, truths regarding the past quickly become as problematic as truths regarding the future. If some past events left no traces in the present, the reports of these past events need to be treated semantically on a par with future contingents, and they need to be considered untrue.[2]

Therefore, I agree with the Authors that excluding any true future contingents is a considerable theoretical cost. What can be done, then, to save future contingents from the threat posed by the grounding principle? A way to get around this problem is to invite some unexpected additions into one's metaphysics. For example, it may be assumed that presently existing entities possess so-called Lucretian properties. To use the Authors' example, the truth of sentence ϕ "can be grounded in the fact that water molecules that are now dispersed in a gaseous state presently have the property of going to form raindrops one day hence" (C&R: 101). I should add that the molecules have this property contingently because ϕ is a

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[1] For this idea to work, we need to assume that the laws of nature are "wholly present" at each moment of time. Thus, this semantic idea presupposes a non-Humean analysis of the laws of nature.

[2] Łukasiewicz (1970) was apparently willing to bite this bullet (see pp. 38–39). However, he must have hesitated about this, since he had previously professed that all truth is eternal—what was once true, remains true forever (Łukasiewicz 1970: 22).

future contingent. Thus, the present state of the world by no means settles whether the molecules presently have this property. This additional property can be used to ground future contingents (and their past analogs), but the problems are not difficult to find. Not only are there many unexpected properties, but they also seem like entirely *ad hoc* additions introduced solely to save truths about the future (and past).

Tensed metaphysics, when supplemented with the grounding principle, apparently results in either bizarre semantics or bizarre metaphysics. Given the intuitive nature of the grounding principle, we are led to a seemingly inevitable conclusion: tensed metaphysics needs to be abandoned. After all, the whole controversy was sparked by the question of whether entities that exist now are sufficient to ground present truths regarding other times. Many problems could be avoided (or so it seems) if we gave up the idea of time-relative existence and accepted that fundamental facts are tenseless; then, the ground instantly becomes more hospitable to many truths. It seems, therefore, that as soon as we accept the grounding principle, we are instantly attracted towards a tenseless, B-theoretic, world.

Let us briefly inspect this route. Firstly, the fact that one endorses a fundamentally tenseless reality does not force one to accept a tenseless notion of truth. In line with the new B-theory (cf., *e.g.*, Oaklander 1991), one can have both if a bridge is built between tensed truth and tenseless metaphysics. This can be elegantly achieved when the notion of the context of use is utilized. The truth value of the sentence "It's raining in Geneva" changes its truth value from one temporal context to another, but tenseless facts can still be used to ground its truth:

> (A) The sentence "It's raining in Geneva" is true when used in the context of time t, in virtue of the (tenseless) fact that it is raining in Geneva at t.

This strategy naturally extends to future-tensed sentences:

> (B) The sentence "It will be raining in Geneva in two hours" is true when used in the context of time t, in virtue of the (tenseless) fact that it is raining in Geneva at t', where t' is two hours later than t.

Thus, as soon as tenseless metaphysics is introduced, the grounding principle can be easily accommodated, which is a solid argument in favor of this metaphysics.

The issue is more complex, however. Consider case B once again. The tenseless fact does play a significant role in this example, but another element is of even greater importance.

Observe that when the truth value of a sentence used in the context of time *t* is assessed, we help ourselves with a tenseless fact which concerns time t'. This idea is very natural, but we should not ignore the fact that this is an additional substantial assumption which is by no means obligatory. The extra premise is that the truth *is not* temporally local, which means that what is true at *t* might substantially depend on facts which concern times other than *t*. If this extra assumption were dropped, the problems we discussed before would equally arise within the framework of tenseless metaphysics. To see this, consider an alternative *local* grounding strategy: the truth at *t* needs to be grounded in tenseless facts concerning *t* uniquely. In particular:

> (B′) The sentence "It will be raining in two hours in Geneva" is true when used in the context of time *t*, in virtue of a set of (tenseless) facts, all uniquely concerning time *t*.

If you accept such a principle, tenseless metaphysics is of no help as we run into the exact difficulties discussed before. In particular, we need to:

> i) conclude that there are no true future contingents because the only facts concerning time t that are robust enough to ground the truth of the prediction of rain are the facts which already at *t* guarantee that it rains in Geneva at t' (sufficient causes existing at *t*, initial conditions occurring at *t* + laws of nature existing at *t*, etc.);
>
> ii) introduce some controversial additions into tenseless metaphysics. For example, it can be assumed that it is a fact concerning t that it is raining at t'. Thus, one may introduce tenseless analogs of the Lucretian properties discussed above. In this case, I am inclined to agree with the Authors' brief suggestion (C&R: 101) that if the tensed Lucretian is cheating, her tenseless counterpart is equally unfair.

An evident way out of these problems within the framework of tenseless metaphysics is to abandon the local nature of truth and accept that the truth of a sentence used at *t* might well depend on facts concerning other times. When you do this, you can have true future contingents without cheating. This sounds like a fair bargain.

Two can play this game, however. As soon as we realize that it is not tenseless metaphysics as such but the non-local notion of truth which is responsible for the success of B-theoretic grounding, we can revisit the problem of grounding within the scope of tensed metaphysics. In particular, we can explore the idea that that *present* truths can find their

grounds in *future* facts; namely, import the idea of non-local truth into the tensed setting. It is my understanding that this is exactly what the Authors did, and I find this effort most applaudable. They explicate that truths about the past and future may well depend on what happened in the past and on what will happen in the future. There are good reasons why the non-local notion of truth is universally accepted in tenseless metaphysics, so it seems advisable that tensed metaphysicians should follow suit.

The Authors' project reveals that the grounding problem has its roots neither in tensed metaphysics nor in the idea of grounding as such. The problem lies in the local conception of truth, which is implicitly imported into the grounding principle. When we free ourselves from this prejudice, we can finally appreciate that future contingents are indeed about the *future*, and it becomes clear which facts should serve as grounds for their present truth: if it is true today that there will be a sea battle tomorrow, this truth "will be grounded by what there will be and how it will be" (C&R,: 110). More generally, it is a mistake to look for grounds of truths regarding other times at the present moment. Instead, we should realize that "the grounding requirement is properly construed as demanding no more than that every truth sometimes be grounded in what there then is and how it then is" (C&R: 111). Importantly, the Authors do not stop at idle declarations, nor do they satisfy themselves with deflationary accounts of the cross-temporal grounding of tensed truths. Quite the contrary, they provide a robust story outlining the details of the relation. For those interested, I highly recommend the seventh chapter of *Nothing to Come*. The main lesson I found for myself, however, is that it is the idea of local truth rather than tensed metaphysics which stands in the way of true future contingents.

Before I move on to my objections, let me first fend off a potential[3] attack against the Authors' position. Tenseless metaphysicians might insist that they have the upper hand in the whole controversy since they ground the truth at *t* of "There will be a sea battle" in what (tenselessly) exists. Meanwhile, the relevant ground does not (tensefully) exist (at *t*) for the Growing Block Theorist. I see the appeal of this line of thought, but I am not entirely convinced. I find this a strong argument when I hear the tenseless "exists" as "exists at *t*" or "already exists" (then, I imagine the entire block laid out "out there", just waiting for (my) present moment to catch up with what is *already* in existence). So, the idea is appealing since we can combine local truth with grounding: what is true at *t* is grounded in what already exists at *t*; however, the tenseless metaphysician cannot read

[3] I should instead say "actual", since two of the reviewers raised this issue in their reports.

"exists" along these lines. After all, what grounds the truth of "There will be a sea battle" at t does not exist at t; it rather (tenselessly) exists at t^{+1day} (to say that it also exists at t is to endorse tenseless Lucretian properties). When one realizes this, the tenseless existence of the ground is no longer so appealing. To my ear, that there will (tensefully) be a sea battle in one day is just as good (or bad) a ground for a future contingent as that there (tenselessly) is a sea battle one day later. A more robust argument is needed to show that the tenseless grounding is preferable—an argument which shows that tenseless metaphysics is a better (simpler, stronger, more elegant, etc.) overall theory than its tensed rival. In the absence of such a general argument, insisting that a fact that tenselessly exists at a later time is a better ground for truth than a fact that will tensefully exist at a future time sounds like an unjustified prejudice against tensed metaphysical theorizing.

Let me finish this short note with a comment and two challenges concerning the Authors' proposal. The comment is mostly a side note: I want to claim, against the Authors' conviction (C&R: 105), that a growing block theorist can choose to be a supervaluationist. Admittedly, the growing block theory is incompatible with one interpretation of the branching structure that underlies supervaluationism—the interpretation according to which the elements of the structure represent times. This is indeed the reading initially suggested by Thomason (1970), but this interpretation is not obligatory. Even Thomason abandoned it in his later development of the theory (Thomason 1984). The elements of the branching structure can be alternatively understood as *possible states* of a system. These states can even be viewed as purely abstract entities, like sets of propositions representing temporally non-extensive possible situations. Then, these states can be ordered in a tree-like fashion (one state is above another if the first *could* follow the second). Commitment to such abstract entities does not seem incompatible with the metaphysics of the growing block theory. These entities can be even helpful to a growing block theorist when explicating the contingency that is inherent to future contingents. Anyhow, a growing block theorist can use these entities and endorse supervaluationism: a sentence ϕ is true iff it is true in every *possible* continuation compatible with the actual (present and past) state of the world. More generally, it appears that a view on the metaphysics of time is independent from a decision made on the semantic level (some choices might seem more natural, but—as the Authors' book makes clear—even these appearances might be misleading). Regardless of the metaphysical background, it can be accepted that all future contingents are false, that they lack truth values, that they have a third truth value, or that some of them are true. One needs to find reasons outside of metaphysics of time to motivate one's semantic position.

Let me now turn to the promised objections. First of all, it may be argued that the

Authors' solution to the problem of grounding is almost too easy. Observe that their strategy of grounding future contingents can be naturally generalized and applied to counterfactuals. Consider the Molinist conditional of freedom:

(G) "Had Giuliano been to the party, he would have drunk a beer."

Assume also that nothing about Giuliano's character or the party would determine such an outcome. Now, when we try to ground the truth of G, we face a situation analogous to the case of future contingents. In particular, we can:

(A) stress the (modally) local nature of truth and

a. observe that nothing in the current situation settles conditionals of freedom, therefore all such conditionals are false, lack truth-value, have the third truth value, etc.

b. introduce some contentious facts into the metaphysics, namely actually existing Molinist facts or properties (the analogs of the Lucretian properties). *E.g.*, the actual world has a contingent "Giuliano-would-have-drunk" property that grounds the truth of *G* (incidentally, this property is epistemically inaccessible to humans, but it is allegedly a subject of divine middle knowledge);

(B) mimic the Authors' strategy and accept a non-local notion of truth, *i.e.*, argue that *G* can be true in virtue of what would have been the case had Giuliano been to the party.

In the case of counterfactuals, option B seems rather unappealing.[4] The worry is that the principle used in B is insufficient to designate the unique circumstances that are relevant for grounding. Among the relevant possibilities in which Giuliano is at the party, some involve beer and others do not. It seems that one cannot reasonably talk about *the* possibility that

[4] This might be even more evident when we consider other controversial examples.

- "Had Bizet and Verdi been compatriots, Bizet would have been Italian."
- "Had unicorns existed, they would have interbred with horses."

It is doubtful that we should ever consider conditionals of this sort true and grounded.

would have been realized had Giuliano been at the party. Therefore, we cannot point to this possibility as the source of the relevant ground.

I would be happy to hear whether the Authors share my impression that the non-local approach to the truth of counterfactuals is unacceptable. If they do, it would be instructive to learn what distinguishes grounding future contingents from grounding counterfactual contingents and why the non-local approach is acceptable in the former case but not in the latter. Also, it is worth considering if the growing block theorist has sufficient metaphysical resources to express the difference.

Let me finish with one more closely related challenge. The Authors' non-local modification of the grounding principle begins with the seemingly innocent phrase "One day hence, there will be things…" The appearance of innocence may be misleading since it is implicitly assumed that the future tense operator 'One day hence" is capable of identifying the unique circumstances relevant for grounding. To put it metaphorically, the operator can point to the precise destination where the ground is to be sought. This view might be challenged not only by those who stress that there is no future but also by those who focus on the abundance of possible futures. After all, one popular way to explicate the open future intuition is to say that the notion of "the future" is meaningless. All we can contemplate is the plenitude of possible future scenarios, none of which is metaphysically distinguished as the "real" future. Thus, the case of the future tense operator seems precisely analogous to the case of a counterfactual construction: neither of them can identify the relevant source of grounding, so the non-local strategy must fail in both cases.

If this line of thought is accepted, one of two solutions is available:

(a) One can effectively return to a local notion of truth and identify truth with settled truth; semantically, this signifies a return to Peirceanism, many-valued semantics, supervaluationism, etc.

(b) Alternatively, one can preserve true future contingents, even in the face of a multiplicity of equally possible futures, but absolute truth needs to be sacrificed (see Belnap 2001, MacFarlane 2014). This means that the cross-temporal grounding principle which the Authors recommend involves an element of relativity and there are no future contingents which are *simply* true. Instead future contingents are true (and grounded) *relative* to a possible future continuation.

On the face of it, there seems to be no trace of such relativity in the ideas advocated by the Authors. They seem to be perfectly happy to admit that a sentence like "It will rain

tomorrow" is *simply* true in virtue of what will happen tomorrow (unless the world comes to an end today). If I am correct and the Authors reject such relativity, my challenge is to explain how the notion of absolute truth regarding the future can be combined with the metaphysics of the growing block. In particular, does the growing blocker have sufficient resources to distinguish "the future" that is relevant for the grounding of future contingents among the multiplicity of possible futures that are compatible with the present (and past) state of the world?[5]

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