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**Tense and Truthmaking:**

*Addressing the Problem of Tense After the Ontological Turn*

by

Elliott M. Risch

B.A. Philosophy, University of Missouri-St. Louis, 2013

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partial fulfillment of the requirements for the degree  
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### **Abstract**

The vogue position among many philosophers and physicists is that the perceptual appearance of tensed properties, e.g. was past, is present and will be future, involves a perceptual illusion at a certain level of complexity within our physical system. This position leads to the problem of tense, where the truth of judgments based upon tensed properties is called into question. After appraising several received solutions to the problem of tense, I argue that each is guilty of implicitly assuming a certain estimation of what counts as a truth-maker for tensed judgments. This estimation is reliant upon an entailment relation holding between linguistic representations and states of affairs in the world. Following John Heil, I reject the amicability of such an entailment relation holding in the act of truthmaking. Finally, building upon Heil's own work in the study of truthmaking, I argue that tensed properties and the judgments that follow from their perception could be made true by the physical processes that bring about the appearance of these properties. In the competition of this task, I provide a new solution to the problem of tense.

## AN INTRODUCTION TO THE PROBLEM OF TENSE

You're crossing the street. Unbeknownst to you, a bus turns the corner onto the same street. Maybe you can't hear it. Maybe you have your headphones in. Maybe the driver is daydreaming. Maybe she doesn't see you. You turn your head. You see the bus bearing down upon you. You make a quick calculation concerning its path and velocity. You lunge forward toward the sidewalk. The bus careens past. Your hands shake a little, but you're ok. You continue on towards your final destination.

Before you decided to lunge toward the sidewalk, you had a series of perceptions regarding where the bus *was*, where the bus *is* and where the bus *will* be. We call these perceptions 'tensed perceptions.' The italicized verbs are what we call 'tensed verbs.' These tensed verbs correspond to 'tensed properties'— *was* 'past', *is* 'present' and *will* be 'future'. The only sort of objects to which tensed properties— past, present and future—belong are 'enduring objects.' Enduring objects are objects that move through time as wholly existent entities. To be alive now, you made a series of judgments based on the assumption that the bus endured as a single object through time. We call these judgments 'tensed judgments.'

The majority of philosophers and physicists tell us that tense, and tensed properties, don't exist at the fundamental level of reality. Time, they posit, does not move around us as we exist in it as substantive wholes. Instead, at any time in which we exist, there is only a part of us in existence. Who we are, on this account, is the mereological sum of all of these temporal parts when taken together. This fact has led many philosophers to bend over backwards attempting to explain how we make true

judgments based upon perceptions of properties that do not exist. For all we know, tense is an illusion. Furthermore, if you had misjudged where the bus was, is and will be— if your perception had been skewed— would that have been an illusion as well? If both circumstances depict illusory perceptions yielding false judgments, then why in one circumstance are you still alive and not in the other?

What I have roughly conveyed to you above is the problem of tense. True judgments regarding tense seem to be important for your continued survival. However, conventional wisdom tells us that for a judgment to be true, the perception upon which the judgment is based must be veridical, i.e. it must represent the true nature of the world. But if tense has no part in the true nature of the world, what makes some tensed judgments more accurate than others?

My position is simple: true judgments concerning tense need not necessitate that tensed perceptions are veridical— or at least not in the way veridicality is conventionally understood. Put another way, true predications concerning tense need not necessitate the existence of tensed properties— nor enduring entities.

While my position is simple, it is far from uncontroversial. It is a cost taken upon an ontology in order to be able to dissolve the problem of tense. But it is not the only option open; there are many. To grasp my position fully follow me as I explore the many hidden costs of tensed judgments.

## **OUTLINE**

I argue that judgments concerning tensed perceptions are made true by the arrangement of qualitative and powerful ways that substances are. This position is

consistent with our fundamental physics and the truth of the B-theory of time. It provides an explanation for the distinction between veridical and falsidical perceptions of time, which allows for an account of true and false judgments of tense. All of this is achieved by replacing a certain estimation of truthmaking that requires truth-makers to be inseparably connected to the ontological status of subjects and properties. In its place, my account follows John Heil (2003) in positing that the truth-makers for a named appearance should be considered those elements of our world that actually bring that appearance about. These elements need not be ontologically rich isomorphic properties corresponding to portions of our language, but may be the interaction of qualitatively powerful simple substances at a certain level of physical complexity.

I begin by presenting and reviewing the received solutions to the problem of tense (Section I). These solutions include: tense nihilism, presentism, weak tense emergence and strong tense emergence. Tense nihilism, I argue, fails to solve the problem of tense but seems to remain consistent with the truth of the B-series of time and our best physical account of the world. Presentism solves the problem of tense by rejecting the truth of the B-series of time that is supported by our best physics. Weak tense emergence seems to solve the problem of tense, but runs afoul of the problem of temporary intrinsics. Strong tense emergence solves the problem of tense while presupposing the truth of the B-theory of time, but rejects that all properties result from a solely physical processes (property-physicalism).

I then argue that each of these accounts relies upon the assumption that each true predicate entails some ontologically robust property out in the world (Section II).

I further argue that this assumption leads to the scaffolding of one's ontology into downwardly dependent levels of being. This maneuver leads to additional questions concerning over-determination and what downwardly dependent supervenience relations actually amount to. Following Heil (2003), I advance the position that this whole enterprise of truthmaking depends upon an unexplained relation of entailment between articles of representation and states of affairs in the world.

I continue in following Heil (2012) by rejecting this assumption and turning to the actual processes that bring the appearance, that is denoted in our language, about (Section III). This account of what counts as a truth-maker allows for a simplified ontology, which only posits qualitatively powerful modes of substances. I argue that, on the basis of propertied substances alone, I can account for truths concerning complex objects and relations— both spatial and causal.

This new outlook on truth-makers allows for the reevaluation of what makes tensed judgments true (Section IV). I argue that tensed judgments are made true by tenseless features of our world. To accomplish this, I employ a mechanism provided by the Scalar Expectancy Theory of time perception that has been implemented by some weak tense emergentist accounts (Brogaard and Gatzia 2014) to give a plausible story for how interrelated propertied substances collectively provide the condition for the possibility of the appearance that we linguistically refer to in our tensed predications. I conclude by explaining the theoretical costs and advantages of my account in comparison to tense nihilism, presentism, weak tense emergence and strong tense emergence.

## SECTION I: RECEIVED SOLUTIONS TO THE PROBLEM OF TENSE

Following J.E.M. McTaggart (1908), we have predominantly thought of time as existing in one of two ways: as an A-series, where time is a dynamic and directional flow of instants, or a B-series, where time is a static series of eternal temporal points. Along with each theory comes a certain set of temporal properties. The A-series ascribes tensed properties—‘being future’, ‘being present’ and ‘being past’. The B-series ascribes tenseless properties—‘being earlier than x’, ‘being concurrent with x’ and ‘being later than x’.

B-series properties are understood to have several advantages over A-series properties. First, while both A-series and B-series properties appear to be consistent with our best physics, it is generally understood that the physical theory of space-time only directly empirically supports the existence of B-series properties (Monton 2010). While this, obviously, does not exclude the possibility of tensed properties, the existence of such properties would have to be properly motivated independently of our best physics. Second, A-series properties require enduring objects as property bearers. Enduring objects are, on some accounts, necessarily ruled out if the B-series of time is true at the fundamental level of reality (Lewis 1986).

These considerations, and others, have led many theorists to dismiss perceptions of tensed properties as being non-veridical, or illusory, features of reality.<sup>1</sup> I call this position *tense nihilism*. The tense nihilists argument seems to run as follows:<sup>2</sup> physics is not committed to the existence of the tensed properties of

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<sup>1</sup> See e.g. Oaklander 1993, Dyke 2002, Skow 2011, Prosser 2012, Ingthorsson 2013 and Yehezkel 2013.

<sup>2</sup> I am indebted to Brogaard and Gatzia (2014) for this synthesis of tense nihilist views.



ordinary experience. Any property of ordinary experience that is not one to which physics is committed is an illusory property. Therefore, tensed properties are illusory properties.

If tense nihilism is true, this leads to the further conclusion that all judgments predicated on the perception of tensed properties lack adequate ontological grounding. Truths about tensed judgments would not exist because the presumed truth-makers for tensed judgments, i.e. tensed properties, do not exist. This account fails to explain the apparent accuracy of some tensed judgments as opposed to others. By the tense nihilist's lights, all judgments concerning tense are equally false regardless of their outcomes. Thus, the tense nihilist rejects that the problem of tense is a problem worth solving.

A divergent path would be to appeal to the thesis of *presentism*. On a presentist picture of time, only one time, the 'now', exists (Markosian 2004). This is in opposition to the presumption of eternalism, i.e. the position that all times exist equally, that is normally ascribed to the B-theorist's picture of time. On a presentist picture, all tensed judgments are made true by reduction to the now. Tensed predicates of the form 'the bus was crossing Euclid' are hashed out in terms of the present, e.g. 'presently the bus had crossed Euclid.' That is, the truth-makers for tensed judgments are tensed properties held currently by some enduring entity.

If presentism is true, tensed judgments are spared at the cost of the truth of the B-theory of time. The B-theory of time, which we believe is empirically supported by our best physics, is normally considered to espouse eternalism, i.e. the belief that all times are equally existent and equally real. These two theses—eternalism and

presentism—logically exclude one another. Thus, an appeal to presentism is the rejection of eternalism, which is presumably supported by our best physical account of time. To jettison our best physical account of time on the basis of one philosophical problem seems to be tantamount to throwing the baby out with the bathwater. That being said, it is possible that a nuanced version of presentism might allow for the presentists and the B-theorists to live in peace (Brogaard 2000).

*Tense emergentist* views reject the tense nihilist's assumption that if a property is not one to which our best physics is committed then it is illusory (Brogaard and Gatzia 2014). They also accept the truth of the B-theory of time at the fundamental level of reality. For a tense emergentist, the truth-makers for tensed judgments are ontologically salient tensed properties that emerge at a certain level of physical complexity as novel elements within the system.

Tense emergentists views come in two varieties. *Weak tense emergence* follows from the thesis of weak emergence, which asserts that truths about emergent properties may be, at least theoretically, reduced to, deduced from, or explained in terms of, truths that hold at the fundamental level of reality (Chalmers 2006). Solidity is often touted as the poster child for weak emergence. The truth-maker for the predicate 'is solid' is the property of solidity itself. However, we may explain the existence of solidity by appealing to facts about the distribution of particles, electromagnetic fields and charges at certain locations in space-time and the laws that govern the relations between them. Weak emergence has long been considered as being consistent with property-physicalism, the view that all properties are

completely explainable without positing non-physical entities within our ontology (ibid.).

*Strong tense emergence* follows from the thesis of strong emergence, which posits that not all truths about emergent properties may be reduced to, deduced from, or explained in terms of, truths that hold at the fundamental level of reality (ibid.). There has been some debate in the philosophy of mind over whether properties of consciousness are not strongly emergent properties (ibid.). On such an account, the predicate ‘is red’ would have truth-makers that were, at base, *sui generis* properties, i.e. non-physical. As opposed to weak emergence, strong emergence entails the falsity of property-physicalism.

Berit Brogaard and Dimitria Gatzia have recently entertained the thesis of weak tense emergence in their article, “*Time and Time Perception*” (2014). They argue that if a reasonable account of the weak emergence of tensed properties may be given, then the philosophers who accept other weakly emergent properties, like that of solidity, would have no recourse but to accept tense as well.

Brogaard and Gatzia posit the possibility that dynamic tensed properties are the result of tenseless B-theoretical properties being in some way ‘response-dependent’. This means that tenseless B-theoretical properties have the disposition to cause the experience of tensed properties in ordinary perceivers like us. A possible account of how this exchange could happen is found in the Scalar-Expectancy Theory of Perception, or SET for short.

On modern SET accounts, the existence of a clock-like mechanism internal to the brain generates “subjective temporal values that are typically correctly related to

real time” (ibid. p. 4). This mechanism is composed of several modules: a pacemaker, a switch, and an accumulator, as well as working and reference memory banks with a comparator. The linear perception of time is accounted for by a pacemaker, which produces consistent pulses and an accumulator that stores these pulses in the working and reference memory. When an event is being timed the switch allows the accumulator to collect the pulses emitted by the pacemaker. At the end of the timed event, the resulting number of pulses is compared with another reference time. This process produces perceptions of different time intervals in the working memory. These perceptions are important in many temporal tasks, such as comparing differential intervals for similarity. These comparative readings are then stored in the reference memory. The longer the durations of perceptions range, the more pulses will accumulate.

The SET brain clock mechanism is taken to establish one possible explanation for why some tensed perceptions come out as veridical while others may be considered falsidical. The experience of successive readings accounts for the way in which we experience events as being successive. However, a variety of other factors may affect one or more of the functioning modules of this mechanism. This would result in a malfunction within the mechanism, which would produce false readings. Falsidical perceptions of tense are then understood to be result of false readings within the perceptual SET mechanism.

The SET account provides Brogaard and Gatzia with a possible means for explaining tensed perception that is both consistent with property-physicalism and our best physical account of time. However, they admit that there is a larger theoretical

concern looming. If tensed properties are posited then they must, by necessity, belong to enduring entities, a possibility undermined by the problem of temporary intrinsics, given the truth of the B-theory of time.

There seems to be two possible ways that a material body may be understood to persist through time (Lewis 1986). The material body may either ‘endure’, if it is wholly present at each and every time that it is said to exist, or ‘perdure’, if it possesses different temporal parts that each exist at different locations in time. This distinction comes into play when we think about the intrinsic properties that an entity only holds temporarily. Sometimes I am sitting down in a bent position while at other times I am standing up in a straight position. I cannot possess both properties— being straight and being bent— intrinsically because they are mutually exclusive, thus contradictory if held together.

If a B-theory of time is true, and temporal locations are both distinct and eternal, the thesis of perdurantism blocks the contradiction because only one temporal part of me possesses any given intrinsic property at any given temporal location. This fact entails that the truth of perdurantism follows from the truth of the B-series. That is, if the B-series account of time is true, then perdurantism had better be true on pain of contradiction. On the view that I endure, however, where I am wholly present at each and every time that I exist, it is not altogether clear why I may possess contradictory intrinsic properties at different times.

The problem of temporary intrinsics only takes hold when the temporal theory that you are presupposing understands each time as being ontologically respectable. This fact entails that if the B-series account of time holds at the fundamental level of

reality, then perdurantism must also be true. Thus, Brogaard and Gatzia (2014) concluded that, “if there are any enduring entities, then there are ontologically primitive or irreducible, A-theoretical properties”(Ibid, p. 9). That is, if our tensed perceptions are veridical and the B-theory is true, then tensed properties must be primitive and irreducible, strongly emergent, properties.

You can deny the existence of tensed properties and remain consistent with our best physics. However, this tense nihilism will cost you the ability to make sense of why some tensed perceptions and judgments are more accurate than others. You could posit tensed properties as features of the fundamental level of reality. But this comes at the cost of remaining consistent with our best physical theory of time. Finally, you can posit the existence of tensed properties as strongly emergent, fundamental, entities of our world. This solves the problem of tense while remaining consistent with the truth of the B-series and our best physics, but at the cost of positing entities into our ontology that are not, strictly speaking, physical. Is solving the problem of tense worth jettisoning property-physicalism?

I am inclined to think not. I am also inclined to believe that there is a fourth solution— a solution that not only solves the problem of tense but also remains consistent with the truth of the B-theory of time— thus physics— and property-physicalism. But it’s not free. In the following section, I turn to the work of John Heil (2003) who offers a critique of the received view of how truth-makers operate within truthmaking. In the next section, I then turn to his positive account of what truth-makers might amount to (Heil 2012) in order to provide a new outlook on what

truthmaking might actually require of an ontology— an outlook that I argue allows us to make this fourth solution a reality.

## **SECTION II: THE PICTURE THEORY OF LANGUAGE**

Each theory presented above implicitly presupposes that the truth-makers for tensed judgments must be tensed properties. The tense nihilist denies the existence of tensed properties, thereby denying the veridicality of tensed perceptions and proposing the falsity of all tensed judgments. Presentists presuppose tensed properties to be real at the fundamental level of reality. Weak tense emergentists ran into a contradiction because they presupposed ontologically salient, if not reducible, tensed properties. Strong tense emergentists go so far as to presuppose the possibility of fundamental non-physical properties in order to posit tensed properties.

I believe this implicit presupposition follows from what John Heil (2003) terms ‘the Picture Theory of language’ (PTL). The PTL is a conception of how truth-makers operate that presumes true representations (linguistic or otherwise) ‘read off’ features of reality. That is, the PTL presupposes that truths dictate the architecture of our ontology. Heil’s contention is not that contemporary philosophers explicitly accept the PTL, but that they suppose it as an unproblematic norm pertaining to ‘*realism*’.

It is not strange at all for contemporary philosophers to conceptualize realism about a given domain in terms of commitment to the fact that true predicates in the domain ‘pick out’ distinct properties in the world. For instance, to say you’re a realist about value is to say that you suppose normative predicates designate true, or

authentic, properties possessed by subjects. In the same way, to say you're a realist about mental states is to say that you believe true predicates concerning mental states to entail genuine properties held by a mind.

This view of how truth-makers operate results from the blind acceptance of the PTL and a corollary correspondence principle:

*(Φ): When a predicate applies truly to an object, it does so in virtue of designating a property possessed by that object and by every object to which the predicate truly applies (or would apply).<sup>3</sup>*

This principle (Φ) conveys the thought that if a predicate 'F' is true, it is true in virtue of some object bearing the property, F, and any other object that might hold the property, F.

The PTL and the corollary principle (Φ) set a rather high bar for what can actually count as a truth-maker. There seem to be very few properties that actually live up to principle (Φ). Take the predicate 'is blue'. We might ask if the predicate 'is blue' truly picks out some one property. If we think so, then we might think that 'is blue' does truly apply to many objects, thus accepting (Φ). But can you really think of a single property that all blue things share and by which they all satisfy the predicate 'is blue'? In the same way, we might ask if 'is in pain' picks out some one property. Many different sorts of critters experience pain: dogs, lizards and maybe even aliens experience pain. None of these critters—dogs, lizards or aliens—share anything close to perfect physiological uniformity with the others. There is no single unified, or identical, physical property to which we could ascribe the function of outputting pain.

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<sup>3</sup>This formulation is taken from Heil (2003) and Heil (1999).

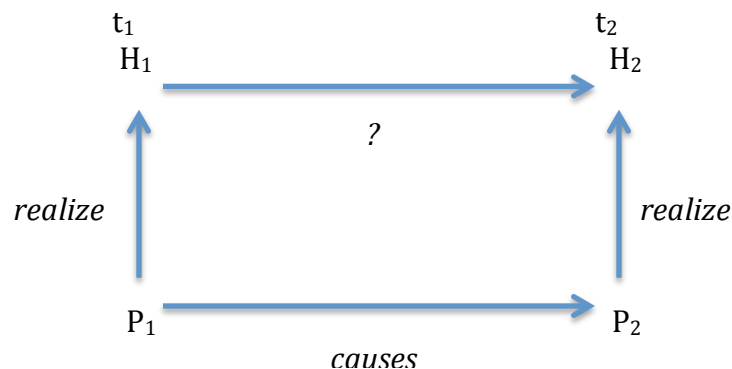


That is, there is not a single ‘type’ of physical property that is symmetrical with a ‘type’ of pain property.

To live up to this high bar, philosophers have had to turn to ‘multiple realizability’ in order to produce adequate properties. For every instance, or ‘token’, pain property there is a corresponding instance, or ‘token’, physical property that realizes the pain property. If this is correct, the realizing property token, i.e. the physical property token, could vary from life-form to life-form while the realized property, pain, remains a singular property throughout. On this account, if being in pain is a property, then it is a ‘higher-level’, realized, property.

Multiple realizability maintains principle ( $\Phi$ ) quite neatly by creating a scaffolded conception of reality that incorporates irreducibly ‘downwardly’ dependent levels of being. Every level depends on the level below it while ontologically existing on its own. In this way, the levels of reality, are ‘asymmetrically downward dependent’, i.e. dependent on what is below but not what is above. As useful as this appears, it has paved the way for a number of difficulties.

One difficulty with this view is causal over-determination. That is, what distinctive causal contribution could higher-level properties provide to the picture that are not pre-empted by the lower-level ‘realizing’ properties? Take Jaegwon Kim’s formulation of the problem of causal relevance, as seen in figure 1 (Kim 1993):



Here Kim presupposes that mental properties are higher-level properties ( $H_1$  and  $H_2$ ), realized by lower-level physical properties of the nervous system ( $P_1$  and  $P_2$ ). That is, the mental properties are realized by physical states, i.e. states of the nervous system. Now, suppose you are in possession of some mental property  $H_1$  (being in pain) and this property in some sense causes another mental property  $H_2$  (the desire to find some aspirin).  $H_2$ , however, is also realized by a physical property,  $P_2$ . Also, physically speaking,  $P_1$  is the physical cause of  $P_2$ . So, the question stands: in what sense does  $H_1$  really cause  $H_2$ ? If the physical state realizing the appearance of pain causes the physical state realizing the appearance of desire, does the higher-level appearance possess any causal relevance whatsoever?

A further difficulty stems from the ambiguous supervenience relations presupposed to hold between different ontological levels (Heil 2003). Higher-level items, e.g. objects and properties, are—on the leveled view—supposed to be distinct from but ‘realized by’, i.e. dependent on, some way lower-level items are. This relation is sometimes referred to in the literature as a ‘supervenience’ relation. That is: some item, A, supervenes on another item, B, just in case any change in B necessitates a change in A. Or, put another way, A ontologically depends on B. If there is a change in B, the base, it follows that there will also be a change in A, the

realized property. Heil provides us with a supervenience principle of the following form:

*(S) Necessarily, if anything,  $x$ , has  $\alpha$  in  $A$  then there is a property,  $\beta$ , in  $B$ , and, necessarily, if any  $x$  has  $\beta$ ,  $x$  has  $\alpha$ .<sup>4</sup>*

Principle (S) captures the sort of idea we have been presupposing is true of higher-level properties when we say they are realized by lower-level properties. Heil, however, is quick to notice that principle (S) is dead silent when it comes to giving an account of the nature of the dependence determination relation that such a notion requires. The difficulty presents itself clearly when we ask why (S) is true. Principle (S) could be made true by a variety of means:  $A$  could supervene on  $B$  because  $A$ s just are  $B$ s, or because  $A$ s and  $B$ s are both caused by a third variable,  $C$ s.

Furthermore, these are just the supervenience relations that could hold apart from what the level-theorist has in mind when they appeal to ‘realization’. For the levels to be ontologically distinct— ‘realized’ items— such items must not be identifiable or caused by lower-level items (Heil 2003). In this way, the worry is not principle (S)— *qua* principle (S)— but the grounding for principle (S): the truth-maker for (S). What accounts for dependence across levels?<sup>5</sup>

While these difficulties are not conclusively damning, Heil believes these discrepancies issue from a deeper difficulty within the PTL itself. The contention of

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<sup>4</sup> Heil (2003): This formulation of (S) expresses ‘strong supervenience’. Nothing Heil has to say here, he argues, depends, in any way, on which formulation of supervenience is presupposed (Footnote 8, p. 37)

<sup>5</sup> One defense (Chalmers 1996), is to regard higher-level properties as the result of a *sui generis* conception of dependence. This *sui generis* conception would have to take the form of law like relations that hold vertically between higher and lower-level properties. Regarding further explanation of this brand of the dependence the defenders remain silent.

the PTL is that when a representation—a sentence, predicate or thought— is true this is true due to some way the world actually is. If this idea is left to its own devices, principles of the form  $(\Phi)$  emerge. Principle  $(\Phi)$  issues claims of the following form:

*(T) 'a is F' is true if and only if a is F.*<sup>6</sup>

This claim might, for some, be regarded as a harmless truism. Heil, following C.B. Martin (2000), disagrees. If we read the biconditional right-to-left, it appears to imply that for every way the world is, there corresponds a representational truth-bearer—a sentence, a thought, etc. That is, that for every way the world is, there must exist a representation that such a state of affairs necessarily entails. This point, for Heil and Martin, seems rather unlikely (Heil 2003). There would be many states of affairs in the world that did not have a truth-bearing representation. Furthermore, there is the more problematic notion that the identity of truth-makers can be hashed out in terms of some kind of entailment relation, i.e. that truth-makers are entailed by truths, to begin with. At the least, this form of entailment should be accounted for in some way— not implicitly presupposed in every instance of truthmaking!

Heil argues that the idea that truths entail states of affairs in the world is inherently problematic due to the nature of how entailment itself is conventionally understood. Suppose we take certain ways the world is as the truth-makers for certain other empirical assertions. For instance, my shirt being wet under the armpits might be a truth-maker for the assertion that 'Elliott's shirt is wet under the armpits'. However, it is hard to see how the assertion 'Elliott's shirt is wet under the pits', even if true, could be understood actually to entail anything beyond other linguistic

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<sup>6</sup> Taken from Heil 2003, p. 55.

assertions. Some state of affairs in the world—my shirt being wet under the pits—doesn't belong to a category that has historically been a candidate for being entailed. Entailment, Heil claims, is a relation of the sort that is normally thought to hold between representations or statements of a particular sort, e.g. logical statements. If there is entailment of any sort going on here, it is probably between the representative assertion 'Elliott's shirt is wet under the pits' and another artifact of language, logic, or itself—which it obviously entails. But if we reject that identifying truth-makers necessarily involves an entailment relation to hold between parts of speech and state of affairs in the world, what accounts for identifying truth-makers?

### **SECTION III: A NEW ESTIMATION OF TRUTH-MAKERS**

In rejecting the Picture Theory of Language, John Heil (2012) does more than refuse to accept that entailment can, or does, hold between articles of representation and the world. More importantly, he rejects the notion that language has anything to teach us about the architecture of ontology at all when he says, "...it is a mistake to imagine that we are in a position to extract ontological lessons from ways we talk about the universe" (ibid. p.152). In its place, he recommends that we look to the world itself to teach us about ontology. This is the crux of what Heil himself has termed "the ontological turn" in metaphysics.

Adopting an "ontological" estimation of truth-makers is more than adopting a new set of entities (or substances) to use as truth-makers for our factual claims. The ontological enterprise for truthmaking is an overhaul of the apparatus for identifying truth-makers themselves. Where in the past we have posited a predicate or subject to

designate some appearance and then sought to find such an item in the world, Heil suggests we pay closer attention to the underlying “bringings about” of the appearances that we are quantifying over in order to discover their true nature. In this discovery, we find the ontologically deep story behind the appearance while at the same time setting the bar for what sort of stories might make it true that some “future” appearance is of the same, or a similar, ilk. On this account, the deep story, i.e. the actual state of affairs in the world, serves as the truth-maker for the linguistic term, not some theoretical entity the question of whose existence we set out to find in the first place.

Ontology, Heil posits, builds from the bottom up. This requires that he follow the empirical work being done concerning the most basic “level” of reality.

Fundamental physics has the final word concerning what we consider the “deep story” regarding a term. But this does not mean that all truths in the world reside at the subatomic level. Physics is itself a work in progress. However, whether the basic constitutive pieces of the world are corpuscular subatomic particles, quantum waves, or even just a monistic space-time whole, each posits the existence of a substratum—a simple substance. This is all Heil believes he needs to jumpstart a new account regarding truth-makers.

Substance plays a major role in Heil’s account of truth-makers. Substances ultimately answer for all true designations in language. But as I said, Heil does not believe physics to possess a monopoly on truths. Nevertheless, a deeper understanding of substance is required for a full picture of a non-PTL account of truth-makers.

To be is to be some way or other. While this slogan might very well paint the banners of future proponents of the ontological turn, it is also a truism about substance. Substances must be some way or other. Or, in another way, substances must exist in some mode. We will adopt talk of properties here, but be clear these properties bear more resemblance to the ‘tropes’ of trope theory than to the robust universals of Armstrong.

Heil’s properties have a barrage of idiosyncrasies that have been adopted from established theories and synthesized together. To begin with, properties are not separable from substance. Substance and property exist as correlative categories—virtually inseparable in all but thought. Substances must be some way; properties are just particular ways that substances are. In addition, properties, i.e. particular ways substances are, have two features. First, properties are qualitative. That is, there is something that it is like to possess or perceive a property. Properties are also powerful. That is, properties may act with other properties to manifest differential outcomes. Finally, only substances have properties. Substances are the way they are; these ways— modes or tropes— are properties. Properties do not belong to things that are not rightfully substances; things that are not rightfully substances do not possess properties. The picture of properties that emerges is one where substances are particular ways that are not only qualitatively rich, but also full of power. This characterization allows for quite a breadth of explanatory power. But, for the whole story, we must turn our attention back to truthmaking.

An example might be helpful to bridge the gap between what I have already said regarding substance and what I intend to say about truth-makers. Truthmaking

after the ontological turn behaves a lot like how we act when stargazing. We look up at the brilliant night sky and notice certain patterns. We see lions, men, women and scales. We call them out by names— ‘Leo’, ‘Orion’, ‘Andromeda’ and ‘Libra’. Our reference, it would seem, is not a single star, but a star collection— a small set of stars that are most vivid to us. We might say things like, “Andromeda appeared earlier this year” or “Libra seldom makes an appearance in the southern hemisphere during summer.” What makes this the case? Is a constellation a singular entity, or is it a collection of stars? In our language, we often make true statements about the astrological tendencies of constellations, but to what do we refer; what makes the reference true? There are near infinitely many ways to cut up the sky. Which ones are the true divisions; which the false?

While the PTL might have us looking for people and objects in the sky, we should be able to see the forest for the trees. The reference is a collection of stars, duly positioned and organized. The collection is no more or less real than a single star. The collection is no more or less a functional entity than the star. We often use constellations for entertainment and navigation, which might be impossible if we were only aware of single (non-brilliant) stars. What I want you to do is imagine for a moment that a collection of stars could be quantified over truthfully under a single true nominal designation. If you can grant me this, I think I can get you the rest of the way.

We live in a world of substances, not stars. Each substance is a particular way. Much like stars, collections of substances might have a different importance to us depending on how we perceive it and at what level of scrutiny. Which levels count?



Which produce true perceptions? The answer could be all of them. The answer could be none of them. Or the answer could be that we need to call into question the need for extra reality at any level whatsoever.

We commonly note, and then seek to communicate, important patterns by way of an internal or external sign, a thought or an utterance with certain conditions for application. This is the role of language. The application conditions of language dictate what appearances fall under what utterances. But this does no more than mark similarities in the manifold of appearances. The complex interaction of substances, or the modes of substances, answers for whether the appearance in question should truly fall under this or that linguistic utterance. These are the reasons for the sign's placement. These are the building blocks of a deep ontological story for the perceptual appearance in question. Why can't the truth-maker for a named appearance just be the propertied substances that actually bring the named appearance about? An account of this process is what has been called up to this point the ontologically "deep story" concerning truth-makers.

Truths follow from the manifestation conditions of an appearance. The utterance 'Tomato', for instance, could stand for a general sort of appearance. 'Tomato' is an article of language that picks out a certain sort of appearance. We are not left in confusion when someone talks about a tomato. We seem to have a pretty good idea as to what such an utterance refers. What makes it true that it is a 'tomato' is a certain story regarding the similarities of its manifestation with other such manifestations. If we were to index the subject to 'this tomato', this utterance, too, has a certain extension to a certain set of substances and their mutual manifestation.

This process extends to what might be considered “normal” properties, as well. Utterances like ‘red’, ‘round’ and ‘firm’ all pick out manifestations of substances, or the properties of substances, engaging in formulations of reciprocal action. In this way, complex “properties”, like red, round and firm, differ very little from complex “subjects”, like tomatoes, bicycles and dandelions. Neither modes of utterance need pick out ontologically distinct wholes, i.e. they need not pick out substances. Instead, these utterances pick out mutual manifestations of substances—or many ways the substance is, or substances are. The truth-makers for all non-substance terms rely on the mutual manifestation of powerful ways the substances are—or the substance is. All assertions implementing such utterances are, or can be, literally true.

From this account, it would seem that we need two things in our ontology—propertied substances and relations. I have already given an account of what the ontological status of substances amount to. But what is the ontological status of a relation?

Assertions regarding relations, much like assertions regarding ordinary objects in the special sciences, are made true by certain dynamic arrangements of the fundamental substance, or substances. That is, relational predications like, ‘Copenhagen is north of Florida’, ‘Simias is taller than Socrates’ and ‘Dianna is the mother of William’ are made true by non-relational facts about the world. That is, relational truths have non-relational truth-makers. If, as Heil has posited, true predicates need not entail the existence of certain properties, then we are left in a

position to provide our own account of truth-makers for certain predicates— including relational predicates.

The difficulty with relations results from relations being dependent on their relata. That makes them look like modes (properties). On the other hand, they don't seem to belong to any of the related members, individually. If we ask, "who bears the relation?", it seems to belong to the area between the relata, a separate thing. If the area between the relata can bear properties—if there is something that it is like—it starts to look like a substance. So relations seem to operate as both substance and property.

We have a choice of whether we want to invite relations in as a fundamental part of our ontology— joining propertied substances— or whether we want to accommodate them some other way. As I mentioned before, Heil is committed to a very basic account of ontology that only includes propertied substances. Thus, he chooses to accommodate judgments concerning relations by asserting that such judgments are made true by virtue of non-relational features of the universe—namely, propertied substances.

Heil's dialectic goes as follows (Heil 2012): if we choose not to eliminate relational predicates, our first thought is that the truth-makers for these relational truths must be relations themselves—thus adding a new fundamental category to our ontology. If we find this picture unappealing, the weight falls on us to explain how non-relational features of the universe could provide truth-makers for every single relational truth. Heil suggests we focus on 'internal relations' and build out from there. We can consider six's being greater than five as an internal relation, i.e. a

relation that seems to stem from the very essence of these numbers themselves. Relations, if understood this way, necessitate that you could not have five and six without having six's being greater than five. If you have the relata, A and B, you could not help but have relation, R. If you could, then the relation is not internal. To put this thought in another way, "non-relational features of relata are truth-makers for truths concerning internal relations"(ibid. p. 145). By virtue of all the objects existing, all the internal relations exist, with no addition of being required.

Returning to our Simias and Socrates example: Simias being taller than Socrates is merely a matter of understanding Simias to be a certain height and Socrates to be a certain height. Let's say Simias is six feet tall and Socrates is five feet tall. By Simias being six feet tall, he is taller than five foot tall Socrates. If you have the intrinsic features of the relata, you have the relation. Internal relations are founded on non-relational, intrinsic, features of the relata. It now seems that we could plausibly have relational truths in an ontology that fails to include relations as independently existing entities. But to succeed in accounting for all relational truths we must turn our attention to external relations.

Paradigm cases for irreducible external relations include spatial, temporal and causal relations. As far as spatial relations are concerned, let's take our favored example, 'Copenhagen is north of Florida', and consider the account of propertied substances already given. In having substances, you have the substances inhabiting a certain location in space-time— regardless of whether the substance is corpuscular or the pervasive whole. By having the substance, you have its location. Florida, if treated like a substance, inhabits a definite position in space. Likewise, Copenhagen,

if treated like a substance, also inhabits a definite position in space. By having both Florida and Copenhagen, we have two substances located in different regions of space. Within the application conditions for ‘north’ we have in mind a certain directional orientation. It just so happens that according to our directional orientation, Copenhagen ends up fulfilling the conditions of being north of Florida.

Nothing was added except the application conditions for ‘North’, i.e. what it would take to be north, which is a mere matter of linguistic convention. What remains salient are the positions of both Copenhagen and Florida, which are, on this view, intrinsic features of Copenhagen and Florida themselves. If you have Copenhagen at a determinate location in space and you have Florida at a determinate location in space, you have the spatial relation between them—which by our convention is one of north and south. The truth-maker for ‘Copenhagen is north of Florida’ is the position of Copenhagen and the position of Florida; our conventional application condition adds no additional being.

If the dimension of time is understood to be akin to a spatial dimension, then this account should unproblematically extend to temporal relations as well. Let us use the relation ‘Abraham Lincoln’s death is earlier than John F. Kennedy’s death.’ Again, in having substances, you have the substances inhabiting a certain location in space-time— regardless of whether the substance is corpuscular or the pervasive whole. That is, by having the substance you have its location in the temporal dimension. If treated like a substance, Abraham Lincoln inhabits some definite extension in space-time. If we restrict our example even more and only appraise a single temporal part associated with the death of Lincoln, e.g. Lincoln on April 15

1865 at 7:22a.m., then we have a definite location on the space-time continuum inhabited by Lincoln. In the same way, if we appraise the temporal part of Kennedy that was concurrent with his death, e.g. Kennedy on November 22 1963 at 1:00pm, then we have another definite location on the space-time continuum, this time inhabited by Kennedy. By having both Lincoln and Kennedy, we have two substances located in different regions of space and time. Within the application conditions for ‘before’ we have in mind a certain directional orientation in time. It just so happens that according to our directional orientation, Lincoln’s death ends up fulfilling the conditions of being earlier than Kennedy’s death.

As was the case with spatial relations, nothing was added to the intrinsic locations of the substances appraised; besides the application conditions for ‘earlier than’, i.e. what it would take to be earlier than, which is a matter of linguistic convention brought about by the appearance of such A-series properties as an event’s being past or future relative to the present.<sup>7</sup> What remains salient are the positions of both Lincoln and Kennedy, which are intrinsic features of Lincoln and Kennedy themselves. If you have Lincoln at a determinate location in time and you have Kennedy at a determinate location in time, you have the temporal relation between them—which by our convention is one of earlier than and later than. The truth-maker

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<sup>7</sup> This harkens back, in some ways, to an argument given by McTaggart (1908), in which he argues that the truth of the A-series of time is essential to grant true directional relations in the B-series, i.e. those of ‘earlier than’ and ‘later than.’ However, instead of using this revelation to argue that an A-series is necessary for B-series relations, I only posit that the appearance of the A-series, i.e. of time flowing from future to present to past, is necessary to set in place the common practice of regarding time as having a direction. This I contend adds no additional being, thus no additional truth-maker to the relation. In the end, we have two definite portions of substance at two definite positions in time. To say one is earlier than another is just to grant additional conventional information without additional being. Just as if I were to give both positions a numerical designation and set the convention that numbers closer to ‘1’ were in a ‘prior to’ relation to those further from ‘1.’

for ‘Abraham Lincoln’s death is earlier than John F. Kennedy’s death’ is a determinate position of Lincoln and a determinate position of Kennedy; our conventional application condition adds no additional being, only conventional directional orientations.

The role events play in this account has yet to be mentioned. It stands to reason that using the deaths of Lincoln and Kennedy for my example above seems to beg the question concerning the existence of events. Following Heil (2012), events, rightly regarded, are a substance’s possession of a property at a certain time. He eschews the idea that an event could possess a property itself. This is due to the fact that properties, on Heil’s account, are ways that substances are and events are not themselves substances.

Events, like the directional flow of time, are conventional tools through which we individuate, measure and talk about propertied substances. It seems like when we talk about an event we are taking two things into account: how the substance is and where in the temporal dimension that substance is. I believe this is to talk about one too many things. As I have just argued, I believe a substance’s location in the temporal dimension is an intrinsic feature of that substance. In this way, where the substance is in time is a property of that substance. Thus, an event is just the appraisal of how a substance is with an eye toward the temporal dimension. In this way, the truth-maker for a true linguistic (or representational) judgment about an event would be some substance located in some way at some position in time, not an ‘event entity’ out in the world.

If we turn to causal relations, the “received view” of causation dictates that for causation to occur one event (a cause) brings about another distinct event (an effect). The relations between these events are: asymmetrical (linear, from cause to effect), nonreflexive (all effects have distinct causes), and transitive (if X causes Y and Y causes Z, then X causes Z). There is a plurality of ways that this appearance is conceived, but Heil believes all conceptions fall victim to the same sin of ignoring the meat of the issue, what he calls ‘causings’, for the sake of some form of universalization. That is, they miss the trees (the “deep story”) for the forest (a generalization concerning certain causal interactions). If Heil is right, the trees provide the all the truth-makers we need for the forest.

Examples for what Heil refers to as ‘causings’ focus on complex and continuous interactions between elements as partners in the bringing about of a certain situation instead of as actor and receiver. A favored example involves stirring salt into water, “(t)he received view might lead you to think that the water and the salt are related as agent and patient...perhaps the water possesses an ‘active’ power to dissolve salt, and salt, a complementary ‘passive’ power to be dissolved in water” (ibid. p. 118). But if we attend to what happens with an eye toward Heil’s account of properties as powerful qualities, it seems that certain powerful qualities of the salt are interacting with certain powerful qualities of the water. What is produced is a continuous, symmetrical relation between elements, not a sequential series of events— “(b)oth the salt and the water work in concert to yield a certain result...”(ibid). This interaction is referred to as a causing.



At one stage, the salt is crystalline; at another, it is saline. This sequence is far from being the true causal nexus— or the deep story of causation. Rather, the process is a continuous interaction between elements that produces the result. But what the salt and the water amount to, in this example, are what Heil refers to as ‘reciprocal partners’, each of which possesses ‘reciprocal powers’. The result of the interaction is referred to as a ‘mutual manifestation’, which possesses new dispositional powers that are capable of pairing with further reciprocal partners to produce further manifestations.

If we want to reconcile what has come before, with the “received” language, we can think of causation as having two elements: ‘causings’ (cause) and ‘outcomes’ (effects). Causings are the processes that bring about mutual manifestations through the reciprocal powers of reciprocal partners. Outcomes are the manifestations themselves. What Heil attempts to display in this recapitulation of causation is that, ontologically understood, causes and effects are not where the “action is”. The action belongs to the causings.

Several elements of ‘causings’ should be made clear. First, true causings are usually the interaction of many reciprocal powers. We often see an effect and look for the cause, as if causation is shaped like a train. Instead we should view causings as a web of interrelated reciprocal partners. On a related note—secondly— the so-called “status quo” is not a matter of reciprocal partners waiting to enter into a powerful relationship. Causation is a continuous endeavor, even in the absence of “action” the status quo itself is being sustained by the interrelation of reciprocal partners— a powerful, if not interesting, manifestation. Third, and finally, reciprocal powers

possess the ability to differentially manifest depending on the powers of their reciprocal partner. For instance, if I drop my salt into sand, the manifestation resulting would be different than that of dropping salt into water. All this to say, the same reciprocal power may produce different mutual manifestations.<sup>8</sup>

#### **SECTION IV: TOWARDS A NEW SOLUTION TO THE PROBLEM OF TENSE**

Tensed judgments are made true by tenseless features of reality. Qualitatively rich and powerful ways that substances interact in qualitative and powerful ways to produce manifestations of the sort that we linguistically demark with tensed language. If we adopt Heil's ontological account of what truth-truth-makers might actually amount to, tensed judgments are made true by the very process that leads to their manifestation in the first place.

For an account of how Heil's propertied substances could reciprocally manifest in such a way as to produce the outcome of the appearance that we have, until this point, labeled 'tense,' we need not look any further than the SET mechanism proposed by Brogaard and Gatzia (2014) in Section I. This mechanism was composed of several modules: a pacemaker, a switch, and an accumulator, as well as working and reference memory banks with a comparator. The linear perception of time was accounted for by a pacemaker, which produced consistent pulses and an accumulator that stored these pulses in the working and reference memory. When an event was being timed, the switch allowed the accumulator to collect the pulses that were

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<sup>8</sup> For more on 'causings' and Heil's argument against the "received view" see *The Universe As We Find It* (2012), Chapter 6 (pp. 117-134).

emitted by the pacemaker. At the end of the timed event, the resulting number of pulses was compared with another reference time. This process produced perceptions of different time intervals in the working memory. These perceptions were important in many temporal tasks, such as comparing differential intervals for similarity. These comparative readings were then stored in the reference memory.

The SET account of tensed judgments functioned very efficiently in the role it was created to serve, but had one serious flaw. Those implementing the mechanism believed the mechanism in question to be doing something that it could not. Namely, converting tenseless B-theoretical properties into dynamically tensed A-theoretical properties. This outcome could not be achieved because the existence of B-theoretical properties at the fundamental level of reality precluded the availability of tensed A-theoretical properties in the ontology. If, however, you are not wishing to posit A-theoretical properties, the SET mechanism provides a very helpful way to account for the appearance of tense and motion.

I am not in the business of looking for tensed A-theoretical properties to anchor true judgments concerning tense. The account that I presuppose, of what counts as a truth-maker, rests the condition for identifying the truth-maker upon the actual process that brings about the appearance that my linguistic utterance set out to demarcate— not an ontologically robust higher-level property. This being the case, the SET account provides me with a useful tool for explaining certain appearances by providing a portion of the deep story of tense. However, it is important to note that my account of tense does not rise and fall with the SET account. Such an account

could be supplanted in the wake of better science, which would in turn provide a new story regarding the appearance of tense.

If we do work under the assumption that the SET account captures the process of producing tensed appearance, the remainder of the story will be accounted for by explaining the manifestation of the modules we have presupposed in terms of the mutual manifestations of propertied substances. This process would be aided by identifying the physical realizers of the presumed modules in neuroscience.

Barring further neurological evidence, the best I can do is plot the deep story out theoretically. Qualitatively rich and independently powerful ways that substances are—or the substance is—mutually manifest in certain patterns as to produce a pacemaker, a switch, an accumulator, working and reference memory bank modules and a comparator. The abilities of these modules to work in concert are accounted for by the underlying way the interacting substances that compose them are. The mechanism reads off the positions of certain other complex manifestations in its readings. These are not the independently existent B-properties that we had assumed, but instead the manifestation partners that allow for B-properties to manifest. That is, the B-theoretical properties, which are relations, e.g. ‘x is earlier than y’, are the result of a manifestational pair of positions in space-time, which are the truth-makers for the relation. In this way, they are not all that different from what I argue A-theoretical properties amount to.

When taken as a whole, positions of the substances in the dimension of time, the working memory, the reference memory and the comparator produce a manifestation of the perception of motion over time. This manifestation interacts with

the remainder of the brain to render judgments of where the object is, where it was and where the object will be. These manifestations are the deep story regarding the bringing about of tensed perceptions. Judgments based on these perceptions are what we have, up until this point, labeled tensed judgments.

The SET mechanism produces both the means for the deep story regarding true judgments of tense as well as false judgments of tense. The malfunctioning of the mechanism, or the addition of extra manifestational partners, result in different manifestations than what would be expected otherwise. The application conditions for the appearance of motion over time are accounted for by the function of the SET mechanism, a complex manifestation of propertied substances. This process is the truth-maker for the characteristics normally ascribed to objects in motion through time, i.e. tensed perceptions. When we make a judgment based upon the continued outcome of this process in the presence of an additional manifestation partner, our judgments are false.

This account of tensed judgments comes at the cost of the received view concerning what truth-makers actually amount to and the assumption of a certain understanding of substances—as being the bearers of certain modes of being that are both qualitative and powerful. The benefits of the ontological account of tense may be understood by comparison to the accounts given above. As opposed to the tense nihilist account, the ontological account just given remains consistent with our best physics while also giving an account of the differential accuracy of some tensed perceptions as opposed to others. This benefit was achieved by abandoning the position that truths regarding tense necessitated tensed properties. The rejection of the

PTL allowed for this maneuver. The adoption of qualitatively powerful ways that substances are allowed for the ability to differentiate between falsidical and veridical perceptions of tense, which allowed for true and false judgments concerning tense.

As opposed to the presentist account of tense, the ontological account remains consistent with our best physics while allowing for a deep story concerning the distinction between veridical and falsidical tensed perceptions. This was also achieved by replacing the PTL with an account of truth-makers that relied on qualitatively powerful ways that substances are to account for the appearance of tense.

My account adopts key features of the weak tense emergentist account while sidestepping the contradiction that rendered the account untenable. Because the weak tense emergentist account relied on the SET mechanism to produce tensed properties on the basis of the tenseless underlying level of reality, the weak emergentist account fell prey to the problem of temporary intrinsics. This weakness resulted from the need of this account to produce real tensed properties to make tensed perceptions veridical and tensed judgments true. I argue that this need results from an implicit assumption of the PTL, and the sort of truth-makers that it necessitates. By rejecting the PTL, I have borrowed the weak tense emergentist's SET mechanism to give the deep story regarding the appearance of tense.

A strong tense emergentist account never has time to get off the ground. This mode of accounting for tense relies, as with all the received views, on the implicit acceptance of the PTL, as well as the absolute necessity for favoring the B-theory of time and the importance of addressing the problem of tense. Unfortunately, this

account relied upon the addition of a new means for the arrival of properties that departed from a completely physicalist picture of the world. My account, if adopted, remains consistent with the truth of the B-theory of time, addresses the problem of tense and remains consistent with property-physicalism. This achievement rests solely upon the recapitulation of what counts as a truth-maker and the acceptance of qualitatively powerful ways that substances are. If these assumptions are adopted then I have successfully navigated a new solution to the problem of tense.

## **CONCLUSION**

Judgments concerning tensed perceptions are made true by the arrangement of qualitative and powerful ways that substances are. This position remains consistent with our fundamental physics and the truth of the B-theory of time. It provides an explanation for a distinction between veridical and falsidical perceptions of time, which allows for an account of true and false judgments of tense. This outcome is achieved by replacing a certain estimation of what truth-makers amount to that requires ontologically robust properties to account for true predications. In its place, my account follows John Heil (2003) in positing that the truth-makers for a given appearance should be considered those elements of our world that actually bring that appearance about. These elements need not be ontologically rich isomorphic properties corresponding to portions of our language, but the interaction of qualitatively powerful simple substances at a certain level of physical complexity (Heil 2012).

I began by presenting and reviewing received solutions to the problem of tense (Section I). These solutions included: tense nihilism, presentism, weak tense emergence and strong tense emergence. Tense nihilism failed to account for the problem of tense but seemed to remain consistent with the truth of the B-series of time and our best physical account of the world. Presentism accounted for the problem of tense but rejected the truth of the B-series of time supported by our best physics. Weak tense emergence seemed to solve the problem of tense, but ran afoul of the problem of temporary intrinsics. Strong tense emergence solves the problem of tense while presupposing the truth of the B-theory of time while rejecting that all properties result from solely physical processes. This outcome rejects property-physicalism.

I argued that each of these accounts relied upon a certain account of truth-makers that requires each true predicate to entail some ontologically robust property out in the world (Section II). I further argued that this account led by necessity to the scaffolding of one's ontology into downwardly dependent levels of being. This maneuver once posited leads to questions concerning over-determination and what downwardly dependent supervenience relations actually amount to. Following Heil (2003), I advanced the position that this whole enterprise of identifying truth-makers depended upon an unexplained relation of entailment between articles of representation and states of affairs in the world.

I followed Heil (2012) in rejecting this estimation of what it takes to be a truth-maker by turning to the actual process that brings the appearance— denoted by language— about (Section III). This account of truth-makers amounted to allowed for



a simplified account of ontology, only positing qualitatively powerful modes of substances. I went on to explain how, on the basis of propertied substances alone, I could account for complex objects and relations, both spatial and causal.

This new outlook on truth-makers allowed for the reevaluation of what makes tensed judgments true (Section IV). I argued that tensed judgments were made true by tenseless feature of our world. To accomplish this, I employed the SET mechanism that was previously implemented by the weak tense emergentist to give a possible story for how propertied substances could mutually manifest in such a way as to bring about the appearances that we denote using tensed language. I then undertook the explanation of how this mechanism could be the outcome of the mutual manifestation of propertied substance. I concluded by explaining the theoretical costs and advantages of my account in comparison to tense nihilism, presentism, weak tense emergence and strong tense emergence.

I advocate a new account of tensed perceptions and tensed judgments based upon a divergent estimation of what counts as a truth-maker for a given truth. My account involves the powerful arrangement of interacting propertied substances. When you say true things about the appearance of tense, the truth-makers for your judgments are these powerful arrangements. To accept this picture is to discover a new criterion for truth-makers and what tensed perceptions might amount to after the ontological turn.

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