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## INTRODUCTION: TRUTH MAKER AND ITS VARIANTS

PETER FORREST AND DREW KHLENTZOS

An entity  $X$  is said to be a truth maker for  $p$  if the existence of  $X$  *necessitates*  $p$ ; that is, if it is impossible for  $X$  to exist without  $p$  being true. Truth Maker in its simplest form is the thesis that every truth has a truth maker. Let us call this Extreme Truth Maker. A minor variant is that for every truth  $p$  there are one or more things  $X, Y$  etc whose joint existence necessitates  $p$ . But we may ignore this variant if we allow that  $X, Y$  etc have a mereological sum which would then be the truth maker.

Truth Maker may be weakened so that only some truths, the *primary* ones, have truth makers, while other truths and falsehoods are derivable from the primary truths by means of truth-conditional semantics. Let us call this Moderate Truth Maker. A rather more significant variation, originally due to Bigelow and advocated by Lewis, is that *truth supervenes on being* in the sense that the only ways in which something which is true could not have been true is for something which did exist not to have existed or vice versa. Let us call this Supervenience Truth Maker.

An even more significant variation states only that the instantiation of various properties and/or relations by various things necessitates the truth of  $p$ . It also comes in Extreme, Moderate and Supervenience versions. Lewis refers to it as Ostrich Realism and asserts it within the scope of the supposition of universals. So let us call it Ostrich Truth Maker. In this volume it is held in different ways by Min in Simons' dialogue, by Drew Khlentzos and by Denis Robinson, and perhaps by Chris Daly.

Notice that neither Truth Maker nor its Ostrich variant need be thought of as a theory of *truth*. For we could adopt a minimalist theory of truth without trivializing those theses. Thus instead of asserting that every truth has a truth maker we could assert that for all  $p$  if  $p$  then there is some  $X$  whose existence necessitates  $p$ . In his paper in this volume Chris Daly goes further and argues that even sentences which lack any truth value, such as, on some views, subjunctive conditionals, should still be *grounded* in reality.

Although seldom made explicit it is usually assumed that if  $X$  is a truth maker for  $p$  then  $p$  is true *because*  $X$  exists. So truth makers explain truths. Contrast this with the Tarski-inspired thesis defended by Davidson that the

state of affairs that snow is white just *is* the truth that snow is white — i.e. that all talk of states of affairs is pleonastic.

### *Why believe in Truth Maker?*

There are two seminal papers in the current debate "Truth-Maker" by Kevin Mulligan, Peter Simons and Barry Smith<sup>1</sup>, and "Truthmaker" by John Fox<sup>2</sup>. But, as Armstrong relates it, his demand for a truth maker, predating both these papers, arose from Charlie Martin's objection to Rylean Behaviourism, according to which truths about the mental were paraphrased in terms of the ways people would or might behave if ... Likewise instrumentalists sought to paraphrase truths about unobservable particles as truths about what would or might be observed if ...

Such explanations were based upon complacency about the truth of subjunctive conditionals, but Martin and Armstrong pressed the question of just what made these subjunctive conditionals *true*.

However, as Chris Daly points out, Ryle in analyzing conditionals as inference tickets could be interpreted as denying their truth or falsity, and rather thinking of them as assertible just in case when added to the rest of the belief system they license inferences with true conclusions. This seems to be what he meant when he talked of inference tickets. Daly argues plausibly that we should still ask what it is about the world that makes the inference ticket a reliable one. So even if subjunctive conditionals lack truth-values we may still require that they have an assertibility-ground.

There are other arguments for holding a truth maker theory. One is that the Correspondence Theory of Truth has obvious intuitive appeal and so we might seek to rescue as much of it as possible from the pressing objections to it — such as that the language-world connections required by that theory are wholly mysterious.

According to most truthmaker theorists, though, the relation that truthmakers bear to the truthbearers they make true can be explicated in terms of a very well understood relation — that of *entailment*: the mere existence of its truthmaker *entails* that a truthbearer is true. If these theorists are right a standard criticism of the Correspondence Theory can be answered.

The Correspondence Theory of Truth's appeal, according to many supporters, lies chiefly in the fact that it alone vindicates metaphysical realism.

<sup>1</sup> *Philosophy and Phenomenological Research*, 44 (1984): 287–321.

<sup>2</sup> *Australasian Journal of Philosophy* 65 (1987): 188–232.

This last claim seems mistaken as a matter of fact. If metaphysical realism requires language-world connections these are readily supplied by deflationary theories of truth which define truth for a given language  $L$  in terms of reference and then use language-world connections to specify  $L$ 's reference relation — reference being that relation which holds between  $t$  and  $x$  when  $t$  is 'Tarski' and  $x$  is Tarski or when  $t$  is 'Kripke' and  $x$  is Kripke or ...

Some see an even more direct relation between Truthmaker and realism — to believe in Truthmaker is to commit oneself to realism. This again seems wrong. Idealists need not deny that truths require truthmakers. It is just that for them these truthmakers will be mental or otherwise mind-dependent entities. This point has led some such as Davidson and Rorty to believe that refusing the demand for truthmakers can transcend the realist/anti-realist debate.

Whilst there is something to this way of thinking, it is far too hasty. For whilst anti-realists may indeed heed the demand for truthmakers, they *need not* do so. It is true that Michael Dummett's anti-realist castigates his realist opponent for believing that sentences such as 'Parmenides first walked on his first birthday' are, if true, made true by states of affairs we have no prospect of ever confirming. It is true also that anti-realists regard states of affairs that are humanly surveyable — such as, in our example, a reliable history of the famous monist's life from cradle to grave — as in *some* sense grounding the truth of our sentences.

What is not so clear is that the anti-realist's ersatz truthmakers — records and other traces in the case of claims about the past — are so much as intended to be truthmakers *in the sense of Truthmaker Theory*. For if anything is uncontentious in the vexed dispute between realists and anti-realists it is this: the relation that confirming evidence bears to a given claim *cannot* be one of necessitation. The most complete fossil record cannot possibly *entail* that 'Dinosaurs roamed the Earth millions of years ago' is true. The support provided by the fossil record is intrinsically probabilistic, hence non-monotonic.<sup>3</sup>

Perhaps the strongest argument for Truthmaker is one that is largely independent of issues to do with realism or the Correspondence Theory of Truth. It is that enough entities should be believed in on other grounds to provide all the truth makers required for Moderate Truth Maker. In particular, some truths are made true by objects. A domestic cat for instance is an excellent truth maker for the truth that it is of mass less than 100 kilos Moreover the

<sup>3</sup> Anti-realists argue that in the absence of any such evidential warrant for its truth (or falsehood), we are not justified in holding that 'Parmenides first walked on his first birthday' is either true or false. Hence Bivalence is not generally warranted according to them and we must eschew classical logic in favour of some non-classical alternative such as intuitionistic logic.

sorts of thing proposed as truth-makers for subject/predicate truths such as Armstrongian states of affairs, tropes, situations or events are might well be granted to exist for reasons quite independent of truth-making. Thus Armstrong has a complete systematic metaphysics in which states of affairs play a central role.<sup>4</sup> Having granted such items we then notice, rather than hypothesize, that these make true many subject predicate truths for which objects are inadequate truth-makers. And that is all that is required for Moderate Truth Maker.

For instance if we reject Humean accounts of causation then its simplest analysis requires the existence of causes and effects, and they are usually not conceived of as objects. Rather, causes and effects would seem to be states of affairs, tropes, events, or situations, which will serve to make true subject/predicate truths. And this is no accident. For if we ask how entities can make propositions true then we are likely to invoke causal chains connecting these entities to mental states.

In this way, independently plausible accounts of causation imply at least Moderate truth Maker, taking the primary truths to be the existential ones together with the subject/predicate ones (including ones with polyadic predicates.) For example the mereological sum of cat and mat is not a truth maker for "The cat sat on the mat", but the state of affairs or trope or event or situation of the cat sitting on the mat is, and, the argument goes, we need to posit some such item as the *cause* of the mat's being covered by cat hairs.

One of us (Forrest) holds that Truth maker in some form is also required if we are to give a unified account of propositional knowledge and knowledge by acquaintance. The idea is that the non-inferential knowledge that *p* is always grounded in knowledge by acquaintance of a truth maker for *p*, for which, in some cases at least, we may give a causal analysis. This coheres nicely with the paper by Barry Smith and Berit Brogaard. It also helps explain the otherwise quite puzzling remark that Truthmaker requires us to adopt a "God's eye point of view". This would seem to be based upon a dubious theology according to which God knows all truths, combined with the tacit assumption that the divine knowledge is by acquaintance. For that would imply Extreme Truth Maker. If, however Moderate Truth Maker holds then we should instead infer that God knows only the primary truths and that the truths derivable from these by semantics are human truths. Extraterrestrials, nay postmodernists, could then have a different semantics from ordinary human beings and provided it was grounded on the same primary truths it would be as true but not necessarily as good as ours.

<sup>4</sup>D.M. Armstrong, *A World of States of Affairs*, Cambridge University Press, 1997. Notice that Armstrong's theory of structural universals requires states of affairs if it is to handle David Lewis's methane example. (See *A World of States of Affairs*: 33–37).

*The Objections*

The best-known objection is that it is notoriously difficult to find truth makers for universal generalizations and for negative truths. Consider Lewis's example 'There are no arctic penguins'. Suppose we list all the penguins there are Alistair, Beatrice, etc. Then there may well be truth makers for 'Alistair lives in the Galapagos islands' 'Beatrice lives in Antarctica etc'. But even if we take the geography for granted the sum of all the truth makers for 'Alistair lives in the Galapagos islands' etc. is not a truthmaker for 'There are no arctic penguins'. For, in addition, we needed the truth that *these are all the penguins there are*.

This problem has led Armstrong to posit the totality state of affairs, also known as the Porky the Pig fact ('That's all folks'), namely the state of affairs that ... are all the things there are. Call this PP. It seems to have a mysterious capacity to *prevent* other things existing. Moreover it is reflexive in that one of the things listed has to be itself.

We have then a dilemma: either the long list of items listed as constituents of PP *includes* PP itself or not. In the first case PP has the unlovely characteristic that one of its constituents is itself. In the second case it is quite mysterious how PP excludes the truth of all other propositions.

To be sure we *may* be able to avoid the dilemma by distinguishing different orders of truth makers.<sup>5</sup> In that case there are PPs of various orders where the first order PP makes it true that there are no further first order items. In this way PP would be the state of affairs that there are no other first order states of affairs. Unfortunately that sets up a regress, because then it would be true that PP, and any other second order states of affairs are the only ones. Hence there would have to be the third order state of affairs PP' that PP (and perhaps some others) are the only second order state of affairs. The resulting multiplication of PPs is not a vicious regress but it is a spendthrift ontology.

Because of this sort of difficulty Bigelow, Lewis and others have resorted to Supervenience Truth Maker. Unfortunately this seems to undermine the case for truth makers. For it fails to do justice to the correspondence intuition. Moreover it is contrary to an otherwise suggestive analogy between truthmaking and the converse of reference.

We might well prefer Simons' character Mid's more specific suggestion in "Truth maker Optimalism": Mid grants that in general truth supervenes on being but hold the truth maker thesis itself for atomic truths, relying on truth-conditional semantics rather than truthmaking to account for other truths. In that case "There are no arctic penguins" is true because "There are Arctic penguins" is either true or false and it turns out not to be true. Perhaps

<sup>5</sup> Though for scepticism on this score see Khlentzos's article this volume.

"There are Arctic penguins" is atomic. If it were true then it would have a truth maker, say Zoe a penguin living on Baffin Island.

This position in turn faces the objection that there is no clear-cut class of atomic truths. Indeed one person's atomic truth, say about a musical chord, may be for someone else a conjunction of truths.

This objection may be met by restricting the *demand* for truth makers to atomic truths rather than restricting the truth makers to them. Then the truths with truth makers are the *primary* truths, which will include, but not be restricted to, the atomic truths. (This is the position of Mulligan, Simons and Smith in "Truth Maker".)

Another familiar objection is that the truthmaking relation is after all mysterious. To be sure it sounds trivial that the *state of affairs that Jack loves Jill* necessitates that "Jack loves Jill" is true, but that is just a consequence of referring to states of affairs by the propositions they make true. Suppose instead we simply refer to it as JJ then why should it not be possible for JJ to exist even though 'Jack loves Jill' is false?<sup>6</sup>

Perhaps the most straightforward response to this problem is to think of the nominalization of p as *referring* to the truth maker for p. Now reference is not without problems but we know we can refer, so we are entitled to use reference in other cases too. Hence the states of affairs that Jack loves Jill would be the referent of the nominalised sentence "Jack's loving Jill." Then if the sentence is not true it fails to refer.

The paper by Barry Smith and Berit Brogaard, "A Unified Theory of Truth and Reference" may be interpreted as dealing with the context-dependence and indeterminacy of this kind of reference.

One thing that can be said of the truthmaking relation is this. Whatever necessitation relation it turns out to be it cannot be explicated simply by classical or intuitionistic entailment since these entailment relations permit entities quite unrelated to designated truthbearers to function as truthmakers for them.

In fact it is an open question, which John Heil pursues in his "Truthmaking and Entailment" whether the truthmaking relation is (or grounds) any sort of entailment between the existence of its truthmaker and the truth of a truthbearer at all.

<sup>6</sup> Indeed there is a very simple way in which this could hold — if instead of propositions, we take sentences as truthbearers and imagine that 'Jack loves Jill' were to mean that penguins are poisonous rather than that Jack loves Jill (all else in the world remaining constant). This sort of consideration should prompt the truthmaker theorist to relativize truthmaking to interpreted languages, we think. Many theorists feel compelled to select abstract entities in the form of immutable propositions to rule out this sort of case but as several of our authors argue (Simons, Heil, Forrest, Khlemtzos) propositions in this sense do not clearly serve the truthmaker theorist's best interests. The relativization to languages solution is simpler and, pending some very convincing arguments for believing in propositions, preferable.

One reason for scepticism on this score is this. If, as we believe, dinosaurs once roamed the earth then God knows they did. Further, 'God knows dinosaurs once roamed the earth' is not mere *evidence* (however strong) that dinosaurs roamed the earth but *entails* it — on any account of entailment. Yet it surely isn't God's knowledge of this fact that makes it true. To the contrary had it not already been made true that dinosaurs had roamed this planet God could not have known they did.

Truthmaker theorists who seek to explicate the truthmaking relation by means of entailment thus have far more work to do once they have settled on their favoured type of entailment relation. John Heil presents a powerful case for believing the truthmaking relation cannot be explicated in terms of any sort of entailment relation.

A rather different objection is the dilemma of whether the truthmaker thesis holds only for contingent truths. If not then some sort of relevance constraint is required to prevent the triviality that the existence of any thing makes true any necessary truth. And this complicates the truth making theory. But if we do restrict it to contingent truths then mathematical and moral truths, both of which seem informative, are exempt from the truth maker requirement.

Perhaps the dilemma is best handled by extending Truth Maker to cover all synthetic truths, even necessary ones. This would be a further reason for holding Moderate Truth Maker. For the truth-conditional semantics would generate the analytic truths.

The paper by Forrest discusses the further difficulty that it might turn out that there is only *one* truth maker for each backward light cone. Call these the big truth maskers. This result would trivialize Truth Maker except for giving an account of tense. If this does turn out to be the case it would support the Smith–Brogaard account according to which truthmaking is subtler than we have so far assumed. For the big truthmakers might be the only context-independent ones, although parts of big truth makers might be truth makers in contexts provided by other parts. This would parallel an account of causation, derivable from Russell, according to which, *strictly speaking* causes are similarly vast but in a given context we may call part of the cause *the cause*.

The paper by Khlentzos, "What In The World Could Correspond to Truth?" points out a further problem, namely that Extreme Truth-maker is susceptible to a truthmaker analogue of the Liar Paradox, which he claims, does not afflict rival accounts including his own. His own account is an interesting version of Ostrich Truth Maker in which what makes something true is not a states of affairs but the instantiation of a certain property by the World. Incidentally this meets Forrest's worry about there only being big truth makers. For we could modify Khlentzos' theory taking what makes something true

to be the instantiation of a suitable property by a backward light cone. Alternatively Khlentzos' objection may be taken as another reason for Moderate Truth-maker, with the Liar and all its variants being problems in semantics.

### *A New First Philosophy*

A moderate, context-dependant Truth Maker provides us with a new first philosophy in the sense of a framework for asking fundamental philosophical questions. This first philosophy has three parts. The central one is the truth making relation between truth makers and the primary truths. Then other truths depend on the primary ones in ways systematized by truth conditional semantics. The truth makers of the primary truths need not, however, be the most fundamental entities. For they may exist in virtue of others upon which they supervene. It is important that these parts overlap somewhat. For if the existence of X necessitates p and X exists in virtue of the existence of Y then it may well be that the existence of Y necessitates p too. Likewise if the existence of X entails the existence of Y which necessitates p then it may be that both X and Y are truth-makers for p. Moreover if truth-making overlaps with semantics there need not be a precise analytic/synthetic distinction among necessary truths.

If we add to this the account of propositional knowledge as arising from knowledge by acquaintance we have a way of integrating the most general and abstract branches of philosophy. Various positions may be seen either as developments of this first philosophy (e.g. Armstrong's impressive theory of states of affairs) or as variants on it (e.g. Ostrich Truth Maker).

### *The individual papers*

#### *Peter Simons "Truthmaker Optimalism"*

In "Truthmaker Optimalism" Peter Simons presents us with two dialogues, between Max and Mid and between Mid and Min. All three characters grant that some truths have truth makers. For it is trivial that if X exists X is a truth maker for "X exists". Mid differs from Max in resisting truth makers for universal generalizations and negative existentials. Min goes further than Mid and rejects truth makers for subject/predicate truths such as "the ball is red". While Min seems to be a predicate nominalist here we might prefer the position of Daly and of Khlentzos that "This ball is red" is made true by the instantiation of redness by this ball. As regards truth making this is like Min's position.



*Charlie Martin "On Lewis and Then Some"*

Charlie Martin in "On Lewis and Then Some" develops an account in which truths about possibility are grounded in actual dispositions and propensities. This is proposed as a thoroughly naturalistic account of mathematics and modality. It is also used to explain how it is that truth-bearers arise in the universe as ways of representing other portions of the actual. Hence truth making is treated as the converse of representation. We might object that we can represent possible situations for which there neither is nor ever was a tendency to exist, such as particles whose charge was  $\pi$  times that of an electron. Perhaps this objection could be met by denying the impossibility in favour of improbability.

*Barry Smith and Berit Brogaard "A Unified Theory of Truth and Reference"*

In "A Unified Theory of Truth and Reference", Barry Smith and Berit Brogaard provide a sophisticated account of vague reference which combines the supervaluation theory with context dependence. This paper is crucial to the truth maker thesis because, however we interpret the truth making relation, it shares with reference the problem of vagueness. This is applied to truth making in an account that is formalized at the end of the paper. But along the way they consider various problems of identity, and hence counting. Thus "Mont Blanc is many mountains" is false according to the supervaluationist accounts of van Fraassen and Fine. Yet there is a context in which it is non-figuratively true, namely those in which we do distinguish between the many overlapping things "Mt Blanc" could refer to.

*Chris Daly "Properties as Truthmakers"*

In "Properties as Truth makers?" Chris Daly argues that properties are the best candidates for truth makers. First, he argues that Lewis' case against truth makers only succeeds if truth makers are taken to be states of affairs, as in Armstrong's account. Then he argues against Josh Parsons' nominalist account according to which an object  $b$  which happens to be  $F$  for that reason happens to be a truth maker for  $Fb$ . This leaves properties as the most plausible candidates for truth makers. Daly goes on to examine the case of Rylean Behaviourism which occasioned Charlie Martin's appeal to truth makers. Daly points out that as far as truth makers go dispositions could be treated as properties and so his properties-as-truth makers account is compatible with Rylean behaviourism.

Just as Parsons postulates objects as (non-essential) truth makers Daly could postulate universals as non-essential truth makers, where  $F$ -ness makes true 'Fa', 'Fb' etc. where  $a$ ,  $b$  etc are all the instances of  $F$ -ness, and  $F$ -ness

also makes true that these are all the instances of F. Unless something like this is being proposed he can have no objection to Ostrich Truth Maker. For it should be the instantiation of F-ness by b that necessitates Fb not the existence of F-ness.

*Drew Khlentzos "What In The World Could Correspond To Truth?"*

Drew Khlentzos in "What In The World Could Correspond to Truth?" examines a version of the Liar Paradox, namely "The sentence written on the board in Room 122 has no truthmaker" where in fact that is the sentence written on the board in Room 122. Although modelled on the pathological sentence "The sentence written on the board in Room 122 is not true"; the former sentence is not pathological in the same way. Hence it shows Extreme Truth Maker is self-refuting. Khlentzos also argues that Moderate Truth Maker is in trouble because in some contexts "The sentence written on the board in Room 122 has no truthmaker" will be true because of the inconsistency of supposing it does have one, but in other contexts it is true because its negation does have one, namely the sentence "Pigs can fly" written on the board in room 122. We might instead accept that the truth making relation is highly contextual.

Khlentzos also argues that because properties are intensional the Liar analogue for (his version of) Ostrich Realism is pathological and so not a refutation.

*Denis Robinson "Identity, Distinctnesses, Truthmakers, and Indiscernibility Principles"*

Denis Robinson in "Identities, Distinctnesses, Truthmakers, and Indiscernibility Principles" first explains why he rejects Truth Maker itself in favour of Ostrich Truth Maker, and then discusses the truth making of identities and, especially, differences. He argues against bare distinctness and argues that the truth making for distinctnesses, if it's to be done at all, must be done by "common or garden properties and relations" not thisnesses.

*Peter Forrest "The Entanglement of Truthmakers"*

The TM principle states that for every truth there is some entity that makes it true. This does not imply that for every distinct truth there is a distinct truthmaker. Neither does it exclude a single entity, THE WORLD, as a truthmaker for all truths. Yet the latter thesis, Truthmaker Monism, surely trivializes TM theory. What TM theorists intend is that truths be matched with

the right sorts of entities — they wish to rule out *unintended* truthmakers.<sup>7</sup> However, many realist philosophers are suspicious of entities such as states of affairs or facts specially conjured up to discharge this function. They prefer to reject the TM principle in favour of something weaker such as John Bigelow's dictum that truth supervenes on being.

Peter Forrest belongs to this group. In "The Entanglement of Truthmakers" Forrest presents a 'truth-grounding' thesis weaker than TM thesis, which explicates Bigelow's dictum. He is concerned to avert the threat of individual truthmakers becoming so entangled with other truthmakers that there is in the end only the one truthmaker to ground all truths. Entities from the subvenient class on which certain truths supervene must have enough structure to explain these truths. In this sense Forrest's truth-grounding thesis is atomistic. However, the entities in question need not be mutually independent. Forrest considers and ultimately rejects a proposal he calls the Primacy of Individuals according to which mutually independent entities are precisely what is required to ground truths. He contends that the Primacy of Individuals seems compelling because it is based upon our experience of those middle-sized objects that concern us. But any extrapolation from common-sense experience to metaphysics is risky and in this case there are (quantum-theoretical) reasons for rejecting it. Although weakly atomistic, the entities that ground truths may be quite extensive — nothing less than the entire backward light cone from a spacetime point might be needed to ground the truths at that point.

#### *Fred Kroon "Truthmaking and Fiction"*

Fred Kroon's "Truthmaking and Fiction" shows how a serious version of Forrest's Entanglement Problem afflicts objectualist accounts of fictional discourse. Any world in which Ophelia, Polonius et al exist is also a world in which Hamlet exists, entangled in the fiction as all these characters are. So how is an objectualist to rule out unintended entities such as Ophelia or Polonius as truthmakers for 'Hamlet was Prince of Denmark'? This is the problem of unintended truthmakers.

Kroon discusses the problems posed for truthmaker theory by fictive claims such as the above as well as meta-fictive claims such as 'Hamlet was Shakespeare's most enigmatic character'. His own preference is for an anti-objectualist pretence theory wherein it is only true in the story that 'Hamlet' names some person. We are to pretend that the term 'Hamlet' designates some real historical prince who lived in Denmark, was brooding, angst-ridden etc. As

<sup>7</sup> This terminology is Fred Kroon's in his "Truthmaking and Fiction", this volume.

readers of the fiction that is *Hamlet* we thus collude with its author Shakespeare in a game of make-believe. So 'Hamlet was Prince of Denmark' is not literally true and thus has no truthmaker.

Is it true in the fiction, though, that 'Hamlet was Prince of Denmark' has a truthmaker? Not if what's true in a story depends upon the shared beliefs of the author's projected audience since readers have no beliefs about such obscure metaphysical matters. Kroon holds that meta-fictive claims such as 'Hamlet was Shakespeare's most enigmatic character' are to be understood as implicitly characterizing negative existentials 'Hamlet does not exist — he is Shakespeare's most enigmatic character.' Kroon also gives reasons for scepticism about the TM principle.

#### *Greg Restall "Modelling Truthmaking"*

In his contribution, Greg Restall constructs a model in which various theses concerning the TM relation and its connection to logically complex claims hold true. By so doing he establishes the joint consistency of these theses. Since one of these theses has caused considerable controversy, this is a significant result. The controversial thesis is that if some truthmaker makes a disjunction true then it makes one or the other disjunct true.

Restall's model consists of an infinite flat plane marked off into squares in a regular grid, some of which are deemed to be inhabited, some not. Subparts of this grid world then function in the model as truthmakers. Restall is also responsive to the problem of unintended truthmakers. He believes that Relevance Logic can rule these out by pairing only relevantly connected truthmakers with truthbearers. By supplying a formal model for Relevance Logic, Restall's grid model should further its acceptance by TM theorists.

#### *John Heil "Truthmaking and Entailment"*

John Heil's essay subjects the idea that the mere existence of their truthmakers necessitates the truth of truthbearers to some searching criticism. This idea seems fundamental to the whole TM enterprise. If Heil is right, though, TM theorists should think again.

The necessitation relation deemed to hold between the existence of a truthmaker  $e$  and the truth of a truthbearer  $t$  is usually explicated in terms of the notion of entailment — the proposition that  $e$  exists is deemed to entail  $t$ . Heil argues that this view is highly problematic. There can be worlds in which  $e$  exists but in which  $t$  does not hold, he contends. There is also a problem, he argues, in ontologically grounding the entailment  $\exists!e \Rightarrow t$  in the existence of  $e$  which looks like the original truthmaking problem all over again. So nothing is gained by explicating truthmaking in terms of entailment.

Heil has an interesting and novel analysis of where TM theory goes wrong. In holding that truth *supervenes* on being, TM theory relies upon a notion Heil finds equally problematic. Both truthmaking and supervenience endorse a hierarchical view of reality. Yet this latter view results from a confusion of features of representations with features of what they represent, according to Heil’s analysis.

Peter Forrest and Drew Khlentzos  
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