

## TRUTH MAKING AND ENTAILMENT\*

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In the 1950's, C.B. Martin advanced a truth maker principle that captures a central tenet of realism: when a statement is true, something makes it true.<sup>1</sup> Martin's idea was that there are no “bare truths.” If “there is a tree in the quad” is true, there must be something about the world in virtue of which it is true, in this case a tree's being in the quad. You might have doubts about trees and quads. Perhaps the statement is true because a certain pattern of ideas is implanted in minds by God. This would not show that the statement lacked a truth maker, however, only that its truth maker was something mental.

The motivation for a truth maker requirement is easy to understand. Consider Ryle's contention that certain descriptions could hold true of objects without there being anything about those objects in virtue of which the descriptions held. In discussing dispositions, for instance, Ryle asserts that it could be true that an agent is disposed to perform some particular action even though there is nothing about the agent in virtue of which he is so disposed: “Dispositional statements are neither reports of observed or observable states of affairs, nor yet reports of unobserved or unobservable states of affairs” (1949, 120). Such statements do not answer to features of the world, but instead “license inferences.” If I discover that you know Ancient Greek, I am entitled to believe that you could read or translate Greek sentences. This entitlement is not grounded in your mental or physical make-up, however: there is nothing about you, no feature of your mind or brain, for instance, in virtue of which it is true that you know Ancient Greek. A salt crystal is disposed to dissolve in water: it is true of the crystal that, were you to place it in water, it would dissolve. There is, however, nothing about the salt crystal in virtue of which it is true that it would dissolve were it placed in water.

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<sup>1</sup> See Armstrong (1997, 2).

1. *What Truth Making is Not*

Nowadays, few philosophers would be willing to endorse Ryle's conception of dispositionality. A large measure of the resistance issues from an implicit commitment to a truth maker principle: if a statement about the world is true, there must be something about the world in virtue of which it is true. But how are we to understand truth making? In describing the truth maker thesis, I have helped myself to phrases like "in virtue of" and "because" ("There is a tree in the quad" is true because/in virtue of a tree's being in the quad.) What exactly is this because/in virtue of relation? One possibility is that truth making is explicable in terms of entailment.

This is the line taken, for instance, by John Bigelow, who follows John Fox in regarding truth making as entailment: truth makers logically entail truth bearers.<sup>2</sup> According to Bigelow, "Whenever something is true, there must be something whose existence entails that it is true. The 'making' in 'making true' is essentially logical entailment" (125).

Suppose there to be something which is proposed as a truthmaker for some truth. And suppose it is admitted that the existence of that thing does not entail the truth in question. This means that it is logically possible for that thing still to exist, even if what is actually true had not been true. In the actual world, *a* exists and *A* is true, say; but in some other possible world *a* might still exist, even though *A* is not true. There must surely be some difference between these two possible worlds! So there must be something in one of these worlds which is lacking in the other, and which accounts for this difference in truth... If something is true, then *there must be*, that is to say there must *exist*, something which makes the actual world different from how it would have been if this had not been true. (126)

Let me note in passing a problem for any view according to which, if *a* is a truth maker for *A*, the existence of *a* necessitates the truth of *A*. Take the assertion

(P) If you drank this cyanide-laced tea, you would die.

Suppose (P) is true in virtue of some object or fact, *a*: the existence of a particular cup of cyanide-laced tea perhaps (or this together with your physical make-up and laws of nature). Could we imagine a world that included *a*, but in which (P) was false?

Think of a world that included the cyanide-laced cup of tea but included, in addition, your having in hand an antidote. In that case, (P) could be false

<sup>2</sup> See Bigelow (1988); Fox (1987); see also Armstrong (1997, chap. 8). Bigelow is concerned to defend what he calls the Truthmaker Axiom.

despite the presence of  $a$ , the object or fact that might be thought to serve as (P)’s truth maker in the actual world. More generally, an assertion,  $A$ , might fail to hold, not because  $a$  is absent, but because  $a$  is accompanied by a defeater.

Difficulties of this kind threaten a particular formulation of the truth maker idea, but not the idea itself. They pose no threat to what I take to be Bigelow’s fundamental thesis: if an assertion is true in one situation and false in another, the situations must differ in some way. There is, however, a deeper and more interesting problem for anyone who, like Bigelow, hopes to spell out truth making in terms of logical entailment.

Suppose the Moon’s being roughly spherical is the truth maker for “The Moon is roughly spherical.” The Moon’s being roughly spherical does not logically entail anything. Like the Moon itself, the Moon’s being roughly spherical belongs to the wrong category. Bigelow sees the difficulty. Entailment, he notes, is “a relation between propositions.” The truth making relation, then, “should not be construed as saying that an object entails a truth; rather, it requires that the proposition *that an object exists* entails the truth in question” (126).

As Bigelow says, entailment is a relation holding among “propositions” or, less mysteriously, among certain kinds of representation. You might doubt this.<sup>3</sup> You might regard entailment as a kind of necessitation relation that could hold between objects, facts, or states of affairs and truth-bearing representations. The relation would mirror entailment relations among propositions or assertions. Suppose  $a$  is some object, fact or state of affairs — some truth maker — and suppose  $A$  is some assertion made true by  $a$ . Now,  $a$  entails  $A$  in the sense that  $a$ ’s obtaining or being the case necessitates the truth of  $A$ :  $a$  could not obtain or be the case if  $A$  is false.

It is hard to know what to make of this kind of necessitation: a relation putatively holding between non-representational items and the truth values of representations.<sup>4</sup> One possibility is that claims of the form “ $a$  entails the truth of  $A$ ,” (when  $a$  is some non-representational object, fact, or state of affairs and  $A$  is a representation) is a matter of its being the case that a description of  $a$ , or an assertion that  $a$  exists, could not be true unless  $A$  were

<sup>3</sup> As Michaelis Michael reminded me.

<sup>4</sup> A plausible rendition of a notion of entailment according to which the obtaining of  $a$  would entail the truth of  $A$ , one that did not run afoul of cases of the sort illustrated by the cyanide-laced tea example (§ 1), would amount to a restatement (rather than explication) of the truth making relation — or so I claim.

true.<sup>5</sup> This is Bigelow’s idea, and it is what most philosophers evidently have in mind when they invoke entailment in these contexts.<sup>6</sup>

Suppose then, as Bigelow suggests, that to say that an object, fact, or state of affairs entails the truth of some assertion is just to say that a representation of that object, fact, or state of affairs logically entails the truth of the assertion in question. Then, if you thought that “The Moon is roughly spherical” were entailed by its truth maker, then, you would be regarding the truth maker representationally. Bigelow puts this by saying that a truth is entailed by the proposition that the truth maker exists. But you will want this proposition to be accurate: you will want it to be true! Now it looks as though we have made no progress in explicating truth making.

Quite generally it is hard to see how an account of truth making that invokes propositions as intermediaries between truth makers and truth bearers could be thought illuminating. The mediating propositions themselves require truth makers. Are these mediating propositions made true by virtue of being logically entailed by further mediating propositions? If so, we have explained nothing; if not, we seem committed to an account of truth making that does not involve entailment. If we have such an account, why not employ it in the first instance? The problem of spelling out the relation between propositions thought to entail truths, and truth makers answering to these propositions looks like the original problem all over again.<sup>7</sup>

Suppose you thought of truth makers propositionally, imagining that there is an especially intimate relation between a truth maker for a given truth and the proposition expressing that truth maker (and entailing the truth). Perhaps the proposition and the truth maker have the same structure. You might then find it natural to let the proposition “go proxy for” the truth maker, replacing talk of the truth maker with talk of the proposition expressing it. Assuming that propositions are kinds of representation, it is easy to see how a proposition might logically entail another representation. Trivially, the proposition

<sup>5</sup>Note that *a* might itself be a representational item. In that case, *a*’s existence, not its representational content that would be taken to occupy the left side of the entailment relation. Your thinking “I exist” might be thought in this sense to entail your existence quite independently of the significance of that thought.

<sup>6</sup>See, for instance Jackson (1998, 4, 24, 25). For Jackson, a complete description of the world couched in a basic-level vocabulary is what does the entailing (1998, 26–27).

<sup>7</sup>An appeal to propositions in this context yields at least three problems: (1) the problem of providing an account of propositions consistent with their satisfying their presumed job description; (2) the problem of providing an account of the relation propositions bear to assertions expressing them; (3) the problem of explicating the relation propositions bear to whatever it is that answers to them. Problem (3) is indistinguishable from the truth maker problem an appeal to propositions was supposed to help solve.

expressed by “The Moon is roughly spherical,” entails “The Moon is roughly spherical.” Similarly, the proposition expressed by “The Moon is roughly spherical” entails “The Moon is roughly spherical or Snoopy is a cat.” The proposition expressed by “The Moon is roughly spherical,” might be said to entail as well “The Moon has a shape.” This would be so if an analysis of the concept of sphericity included the concept of shape. If we thought of truth making in this way, we might easily be led to the idea that there must be an analytical path between truth bearer and truth maker: it must be possible to analyze a given truth bearer and its corresponding truth maker in such a way that the truth maker (more accurately: the proposition that the truth maker exists) could be seen to include the truth bearer.

Let me elaborate on this last point. Suppose you want to know what the truth maker for “Gus is in pain” is. Whatever it is, it will have to entail “Gus is in pain.” Could the truth maker be Gus’s being in a particular neurological condition? (Could it be true that Gus is in pain in virtue of Gus’s possessing some complex neurological property?) Not unless Gus’s neurological condition — or rather, the proposition that this neurological condition exists — entails “Gus is in pain.” But the entailment will hold only if “Gus is in pain” could be analyzed in such a way that it could be seen to be included in a fully explicit description of that neurological condition. This is what I meant by saying that this account of truth making requires an analytical path from truth bearer to truth maker.

Suppose further, as seems likely, that there is no prospect of analyzing talk of pain into talk of neurological conditions or properties. If you insist that truth making is a matter of entailment, you will look elsewhere for a truth maker for “Gus is in pain.”<sup>8</sup> Perhaps Gus’s being in pain is not a matter of Gus’s possessing some complex neurological property, but Gus’s possessing some “higher-level” property *realized by* Gus’s neurological condition. Gus’s possession of this higher-level property, or rather the proposition that it is possessed by Gus, will entail “Gus is in pain.” The higher-level property will of course be the pain property. There is no distance at all between this property, or a proposition ascribing it to Gus, and “Gus is in pain.”

Were you to take this route, you would be obliged to provide an account of the relation this higher-level property bears to its lower-level realizers. If you are like most philosophers who move in these circles, you might regard this as a mere detail. You will see realism about pain, together with the idea that truth making is entailment as implying that the pain property exists and is distinct from whatever realizes it. You are well on your way to a hierarchical ontology incorporating levels of reality.

<sup>8</sup> If you are a certain kind of hard-nosed philosopher, you might regard this as evidence that there are no pains.

I believe we would do better to give up the idea that we can "read off" features of reality from ways in which we represent reality (the venerable Picture Theory of representation) and with it the idea of truth making as entailment. If we did so (I claim) the currently popular conception of reality as comprising a hierarchy of "levels" would lose its aura of inevitability. If there are levels, these are levels of description or explanation, not levels of being. Truth makers for statements at whatever level are first-order ways the world is (see Heil 1998a, chap. 6; 1999). I have no positive account of truth making to offer. I am doubtful that it is possible to explicate truth making in an illuminating way, that is, in a way that employs simpler, clearer concepts.

Perhaps this is overly pessimistic. Bigelow suggests that we might explicate truth making by invoking supervenience.

The essence of Truthmaker, I urge, is the idea that truth is supervenient on being: that you could not have a difference in what things are true unless there were some difference in what things exist. (132)

Bigelow speaks of supervenience as "a very productive notion;" I am not so sure.<sup>9</sup> My reservations could be put in terms of the truth making requirement. Supervenience is a modal concept. If *A*'s supervene on *B*'s, then the question is: what is it in virtue of which this is so? What is the truth maker for the supervenience claim? If all we know is that *A*'s supervene on *B*'s, we know only that *A*'s covary with *B*'s. This could be so because *A*'s are *B*'s, for instance, or because *B*'s cause *A*'s (or *A*'s and *B*'s have some common cause), or because *A*'s are *made up of B*'s. Unless we can say something about what grounds the supervenience claim, an invocation of supervenience does little more than reformulate the truth maker principle.

## 2. *The Totality Fact*

A conception of truth making as entailment goes hand in hand with what I have called the Picture Theory. According to the Picture Theory, we can "read off" features of the world from features of linguistic representations of the world (or suitably analyzed linguistic representations). This makes it easy to conflate truths about representations and truths about the world: representations (or representations belonging to a certain privileged class of

<sup>9</sup> Bigelow (1988, 132); see Kim (1990); Horgan (1993); and Heil (1998b) for doubts concerning uses of the concept of supervenience. Note that you could accept Bigelow's supervenience claim without thereby embracing the further thesis that truth making is entailment.

representations) go proxy for the world.<sup>10</sup> Let me illustrate what I have in mind.

Consider two cases:

(A) I have five coins in my pocket.

(B) All I have in my pocket is five coins.

Situations (A) and (B) seem obviously to differ. The first, but not the second, will obtain if I have seven coins in my pocket or if I have five coins and a button. Considerations of this sort have led philosophers to argue for the existence of a “totality fact.”<sup>11</sup> The fact that all my pocket contains is five coins is in reality a complex fact made up of two facts: (1) the fact that I have five coins in my pocket and (2) the fact that this is all I have in my pocket. This second fact is taken to be an additional fact, something distinct from the fact that I have five coins in my pocket.

You will think complex facts of this kind are needed to serve as truth makers for statements like (B) above if you conceive of truth making as entailment. Here is Armstrong discussing the world as a whole (and substituting “states of affairs” for “facts”):

If it is true that a certain conjunction of states of affairs is all the states of affairs, then this is only true because there are no more of them. If there are more, then the proposition is not true. That there are no more of them must then somehow be brought into the truthmaker. But to say that there are no more of them is to say that they are *all* the states of affairs. This, then, must be brought within the truthmaker. The truthmaker must be the fact or state of affairs that the great conjunction *is* all the states of affairs. (1997, 198)

Thus conceived, the totality fact is a distinctive second-order fact: the fact that these are all the facts. Allowing that the world includes this fact along with all the other facts, enables us to envisage a truth maker for statements like (B), a description of which entails those statements.

In addition to providing an answer to the question, “What is it in virtue of which these are all the *a*’s?” the postulation of a totality fact is intended to alleviate the need to introduce negative facts to serve as truth makers for negative existentials. Consider the true assertion,

(C) There are no buttons in my pocket.

<sup>10</sup> In the *Tractatus*, Wittgenstein says, “In a picture, the elements of the picture take the place of the objects” (Wittgenstein 1922/1961, § 2.131; the translation is my own). I leave open whether what I am calling the Picture Theory is what Wittgenstein calls by the same name.

<sup>11</sup> See, for instance, Armstrong (1997, chap. 13). David Chalmers dubs the totality fact the “that’s all” fact (1996, 85–86); see also Jackson (1998, 26).

What is the truth maker for (C)? It cannot, it would seem, be my pocket's containing five coins. My pocket's containing five coins (or a statement to that effect) would not entail that there are no buttons in my pocket. Suppose, however, we add to the fact that there are five coins in my pocket a further fact: the fact that this is all I have in my pocket. Together, these facts (or propositions asserting their existence) entail that there are no buttons in my pocket.

David Chalmers presses this point in defending his special brand of dualism:

Certain facts involving negative existentials and universal quantifiers are not logically determined by the physical facts, or indeed by any set of localized facts. Consider the following facts about our world: there are no angels; Don Bradman is the greatest cricketer; everything alive is based on DNA. All these could be falsified consistent with all the physical facts about our world, simply by the addition of some new nonphysical stuff: cricket-playing angels made of ectoplasm, for instance... Does this mean that these facts are not reductively explainable? It seems so insofar as there is no physical explanation of why there is no extra nonphysical stuff in our world. That is indeed a further fact. The best way to deal with this situation is to introduce a second-order fact that says of the set of basic particular facts...: *That's all*. This fact says that all the basic particular facts about the world are included in or entailed by the given set of facts.<sup>12</sup>

Thus, “to fix the negative facts, God had to do more than fix the physical facts; he also had to declare, ‘That's all’” (1996, 41).

I contend that the need for a totality or “that's all” fact is an artifact resulting from a tendency to conflate representations of ways the world is and ways the world is. This kind of confusion is abetted by the presumption that truth making is entailment. Although it may be the case that (A) and (B) differ as descriptions, it is less clear this implies that what makes (B) true must thereby differ from what makes (A) true. Suppose my pocket is empty. I pick up a coin and put it in my pocket. I repeat this operation five times and stop. I have put five coins in my pocket. I have also made it the case that my pocket contains five coins and nothing more (hence exactly five coins).

Chalmers holds that “the facts about the world are exhausted by (1) particular physical facts, (2) facts about conscious experience, (3) laws of nature, (4) a second-order ‘That's all’ fact...”<sup>13</sup> He then invokes a “creation myth”:

<sup>12</sup>Chalmers 1996, 85–86. Evidently, facts speak for themselves.

<sup>13</sup>Chalmers (1996, 87); for simplicity, I omit a “dubious” fifth fact, “an indexical fact about my location.”



Creating the world, all God had to do was fix the facts just mentioned. For maximum economy of effort, he first fixed the laws of nature — the laws of physics and any laws relating physics to conscious experience. Next he fixed the boundary conditions: perhaps a time-slice of physical facts, and maybe the values in a random-number generator. These combined with the laws to fix the remaining physical and phenomenal facts. Last, he decreed, "That's all." (1996, 87)

Suppose God had neglected to decree "That's all;" suppose God had merely stopped creating (just as I stopped in adding coins to my pocket). Would anything have been left out of the world? Would negative existentials like "There are no Arctic penguins" lack truth makers? Would our world differ from an identically produced world over which God had intoned "That's all"?

Although it is undoubtedly true that, in order to describe my pocket's contents as consisting of exactly five coins, I must say that it contains five coins, then add, "and that's all," it does not follow from this that my pocket's containing exactly five coins is a matter of there being a fact that my pocket contains five coins plus some additional "that's all" fact. If there is a "that's all" fact, it is no addition of being.<sup>14</sup> When I describe my pocket as containing five coins and when I describe it as containing exactly five coins, the truth maker for these descriptions can be one and the same object, fact, or state of affairs. (And this is not because the object, fact, or state of affairs that serves as truthmaker for the latter includes as a proper part or constituent the object, fact, or state of affairs that serves as truth maker for the former.)

In eschewing a totality fact, must we reintroduce negative facts to serve as truth makers for negative truths or absences? Consider the absence of Arctic penguins.<sup>15</sup> An exhaustive enumeration of Arctic fauna that omits mention of penguins does not entail that there are no Arctic penguins. Such a description could hold of an Arctic that included penguins. To obtain the entailment, we must supplement our description with a "that's all" rider. It does not follow from this, however, that, in making a penguin-free Arctic, God must create the Arctic with its assorted fauna (omitting penguins) then do something else: institute a "that's all" fact. God will have succeeded in making it the case that there are no Arctic penguins by creating an Arctic bereft of penguins, then stopping.

<sup>14</sup> Differently put: once God stops his act of creation, the "that's all" fact "logically supervenes." See Armstrong (1997, 11–13); Chalmers (1996, 36, 38, 41).

<sup>15</sup> See Lewis (1992); Martin (1996).

The imagined need for special “That’s all” facts stems, I suggest, from the assumption that truth making is entailment. Entailment is a relation among “propositions,” or, more generally, a relation among representations. When we cast about for the truth maker for “I have exactly five coins in my pocket,” we are led to representations of truth makers rather than the truth makers themselves. We note that “There are five coins” does not entail that there are exactly five coins, and so conclude that something more is required: a “that’s all” fact. Similarly, when we look for a truth maker for “There are no buttons in my pocket,” we represent potential truth makers. We recognize that “My pocket contains five coins” does not entail that it contains no buttons, although “My pocket contains five coins and that’s all” does, and conclude that the truth maker must be a complex fact that includes my pocket’s containing five coins plus a “that’s all” fact.

My suggestion is that a totality or “that’s all” fact would involve no addition of being. Once God ceases His creation, once I stop putting objects in my pocket, the totality fact, if there is one, “logically supervenes.” (Think of talk of logical supervenience as a pretentious way of expressing the nothing-over-and-above relation.) It is easy to miss this point owing to inherent limitations in linguistic representations of totalities.<sup>16</sup>

#### *Appendix: Martin’s Objection*

C.B. Martin offers a deceptively simple objection to the idea that truth making is entailment.<sup>17</sup> Consider truth bearers: whatever is made true by truth makers. What are the bearers of truth? Some say propositions. But what is a proposition? Some say sets of possible worlds. A set of possible worlds is not something that could be true or false, however. Truth and falsehood apply to representations. Whatever propositions are, if they are the sorts of entity that could be true or false, they are representations. Now, suppose truth makers themselves (and not, on pain of regress, propositions asserting the existence of those truth makers) entail truth bearers.<sup>18</sup> And suppose, as well, that truth makers are ways the world is. Then it seems to follow that,

<sup>16</sup>These limitations may or may not be present in other forms of representation. I can draw a picture of a room containing exactly three chairs — or three chairs and nothing more — by drawing the room, drawing three chairs, then stopping. I need not add a “that’s all” element to the picture.

<sup>17</sup>The objection is advanced in Martin’s “On Lewis and Then Some,” 43–48 in this volume; see also Musgrave (2001, 49).

<sup>18</sup>Strictly, truth makers would necessitate the truth of truth bearers, but it is hard to see how they could perform this feat without thereby necessitating truth bearers.

for every way the world is, there is a representation of its being that way. This is hard to swallow.

Suppose propositions are the bearers of truth. Propositions are abstracta. Allowing that there is a proposition corresponding to every way the world is or could be involves a multiplication of entities, but in a way many philosophers would find unobjectionable. Propositions take up no space. Propositions do not come for free, however. If you appeal to propositions to explicate truth making, then you owe the rest of us an account of propositions and relations of these to the truth makers and to ordinary representations, items whose truth and falsity we care about. It is hard to see how an appeal to propositions in this context could be thought illuminating. If truth bearers are concrete representations, we need some account of the relation these bear to truth makers. If propositions are introduced as intermediaries connecting concrete representations and truth makers, we need an account, both of the “downward” relation between propositions and truth makers, and of the “upward” relation between propositions and concrete representations.

We could give up the idea that truth bearers are propositions and return to the simpler thought that truth bearers are ordinary representations, linguistic or otherwise. If we do this, however, and if we continue to regard truth making as entailment, we are left with the odd idea that, for every way the world is or could be there is a concrete representation. Unlike propositions, such representations do take up space. No finite world is big enough to hold concrete representations of every way it is or could be.

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