

Truthmakers for semantics and pragmatics: Presupposition and (a little) agreement *

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1 Two Styles of Activism

There is a revolution, or anyway a reorientation, in philosophy of language. Revolutions need revolutionaries. ('Reorientations need reorieuntators', doesn't have the right ring.)

Yablo is a provocateur, perhaps more a Fabian than a revolutionary. His work is firmly rooted in traditional philosophy of language: it makes comforting references to possible worlds and equivalence classes. Nonetheless the tricks he performs, such as logical subtraction and interpolation, and the tools he uses, such as truthmakers and subject anti-matters, are highly subversive. Too much time spent reading *Aboutness*, and vanilla semantics with its gentle talk of propositions and entailment begin to stale.

Perhaps Yablo antics are only indulged for fear of Fine. Fine is doctrinaire, no gradualist, perhaps even an ideologue. His style is confrontational: possible worlds are shattered into states, talk of logical equivalence effectively banned. In place of the old order he builds, theorem by theorem, a new system, populated by glistening new states and threateningly intimate verification relations. Too radical for mainstream publication, the bulk of his work is only to be found on academic.edu and the darknet.¹

*I am very grateful to Kit Fine, Benjamin Spector, and Stephen Yablo for extremely helpful discussion.

¹Only a 147 brave souls have downloaded 'Truthconditional Content – Part II' from Academia.edu at last count. Admittedly Fine [2012] might be considered a mainstream publication.

Both the Fabian and radical movements share at their heart an account of truthmaking. Fine's radicalism would have truthmakers and falsemakers, states, and the relation of verification replace our normal notions of propositions, worlds, and truth. Yablo's *Aboutness* gives truthmaking a central role without going quite so far. Nonetheless, subtracting truthmakers from the content of *Aboutness* is a bit like subtracting the hobbits from *Lord of the Rings*.² So whatever their differences, both Yablo and Fine advocate the addition of the apparatus of truthmaking to our toolkit.

How should those of us interested in natural language semantics and pragmatics respond to this call? Can we just stay back and wait till the dust settles? Perhaps the revolution will never come. Unfortunately, quietism may not be viable: much of Yablo and Fine's activism is rooted in semantics and pragmatics. An incomplete list: Fine covers counterfactuals, deontic modals, and scalar implicatures, bringing his ideology of truthmaking to bear on these mainstays of standard semantic and pragmatic analysis. Yablo provides suspiciously unorthodox analyses of epistemic and deontic modals, a set of locutions involving partial content, and what he calls non-catastrophic presupposition failure. Momentum is building.

My goal here, as an outsider or at most a fellow traveller—one ready to jump ship at any moment, is to explore in some depth one particular application of this new framework. I will stay here within Yablo's world of Fabian truthmaking, keeping all the familiar bourgeois tools of intensional semantics. My chosen focus, presupposition, comes more from my own interests than that Yablo's. Yablo rarely focuses on the traditional linguistic issues about presupposition in *Aboutness*. Nonetheless I hope presupposition can still serve as a case study in the applicability of truthmaker semantics to a major phenomenon in linguistic semantics. I will try to formulate and assess what linguistic presupposition might look like when we use the theoretical resources Yablo introduces.³ As part of this, I comment on Yablo's main contribution to this literature, his analysis of non-catastrophic presupposition failure.⁴ I will close, by turning some attention to an independent linguistic motivation for Yablo's framework in *Aboutness*, one that unlike presupposition has not been extensively explored in the semantics literature.

²Stealing the analogy from Yablo [2012].

³Here I will anticipate a joint project with Fine to use truthmaker semantics to explain some recalcitrant problems about presuppositions.

⁴This reworks ideas from an earlier paper [Yablo, 2006].

2 Truthmakers

The predictive success of the truthmaker approach in natural language semantics and pragmatics is going to depend upon a systematic view about what the truthmakers (and falsemakers) for typical natural language constructions are. In most cases, the question of whether there is or isn't a certain sort of truthmaker for a sentence determines the predictions of the account. This is why the reader might sometimes be frustrated that the parts of *Aboutness* concerned with specifying which sentences have which truthmakers can be slightly noncommittal.⁵ There are good reasons for this: what we want to think about as the truthmakers might vary from application to application.⁶

For our purposes, a single application, it will be good to make some commitments. In particular, in order to address the question of existential presuppositions, a natural starting point might be to spell out the truthmakers and falsemaker of simple sentences with singular definite descriptions. (N.B. from here on out when I speak of truthmakers assume that I'm also speaking of falsemakers unless that makes no sense). Working up to this will take some time as there are number of choice points along the way which Yablo (and even Fine) remains uncommitted about.⁷

What are truthmakers? Well, roughly speaking they are the basic facts that make sentences true.⁸ Like the best relationships, the truthmaking relationship is both intimate and (ontologically) flexible: it doesn't really matter what a sentence's truthmaker looks like (ontologically speaking) but it must be a good fit. Fit comes in a variety of dimensions. The two Yablo most often mentions are *naturalness* and *proportionality*. Naturalness, inter alia, requires that the the properties specified in the truthmaker should not be disjunctive (superficially, as in **Spanish or English**, or covertly as in **grue**). Proportionality ensures that the truthmaker should not be too specific if something less specific (but equally natural) will do. I'll make two further assumptions: 1) a

⁵Both Yablo and Fine do provide very explicit models of propositional logic. However, most of the questions I will address here require going far beyond this.

⁶So they are not only contextually relative to the speech-act situation, something Yablo discusses, but also, perhaps, context-of-philosophical-analysis relative.

⁷Between them I count at least four different accounts of the shape of truthmakers for **Every F is G** . Yablo [2014, 4.5], naturally, wins the prize for the most eccentric account which revives the Belnapian view of conditional assertion.

⁸We can also speak of truthmakers making propositions true, but mostly I'll eschew talk of propositions unless there's no sentence to hand to carry the burden.

truthmaker necessitates the truth of its sentence (so doesn't need outside help to make it true)⁹
2) truthmakers do not directly encode presuppositions, their content is *flat*.

Let us sketch a theory of truthmakers for sentence in a language like English. If we assume a good fit between the distinctions the language makes and the real distinctions in the world, then the atomic sentences should be easy. Where F is a predicate and a is an name, the truthmaker of Fa is not going to fall far from the sentence itself. Indeed, let us just declare that there is a *language* of truthmaking where each object (and each set of objects) has its own name, and each (natural) relation has its own name.¹⁰ Now if Fa is translated into this language than it is its own truthmaker, and $\neg Fa$ is its falsemaker.

Some clarification. A specification of the truthmakers for a sentence S is a specification of a set of sentences $|S|^+$ such that were any member of $|S|^+$ to be true it would serve as a truthmaker for S . However note truthmakers are not closed under disjunction *or* conjunction: if a and b are truthmakers rest assured that a **or** b will almost surely not be one (for truthmaking abhors disjunction).

Yablo is of two minds on how to specify the truthmakers of complex sentences in propositional logic. The difference between the two views are not, as far as I can see relevant for anything discussed here, so I will just use what he calls the *recursive* approach since it has an easier extension into the quantificational fragment.¹¹ This takes the following shape:

- For a sentence of the form $\neg\phi$ its (possible) truthmakers are just the (possible) falsemakers of ϕ (and its falsemakers are the truthmakers of ϕ)
- For a sentence of the form ϕ **or** ψ its set of truthmakers is the union of the truthmakers of ϕ and ψ , while its falsemakers are the conjunctions of any two falsemakers for ϕ and ψ respectively. (Conjunction is the dual.)

Note that a sentence might be doubly true: a disjunction can be true because both its disjuncts are true, in which case it has (at least) two truthmakers. Note also that all the truthmakers formed this

⁹Both Yablo and Fine flirt with dropping this for the quantificational fragment.

¹⁰Of course, really we should think of truthmakers as parts of worlds, facts or states or some such.

¹¹For versions of this approach see van Fraassen [1969], Fine [forthcoming, 2015], and Yablo [2014, ch. 4.2]. The reductive approach has a sharp formulation for propositional logic, but I'm less clear how to adopt it to the quantificational fragment in an appealing way. Since the recursive approach is more stipulative the extension is unproblematic if underdetermined.

way are individually conjunctive. A disjunction has distinct possible truthmakers not disjunctive truthmakers; hence, the talk of sets of possible truthmakers. This is a basic idea here is that since disjunctions can be true in different ways, they have different possible truthmakers, whereas conjunctions can only be true in one way (by both conjuncts being true).

How do we extend this to binary quantifiers and definite descriptions? Let's start with **Every** $_x(Fx, Gx)$. A nice thought would be just to take all the things that are F , $o_1 \dots o_n$ and say that **Every** $_x(Fx, Gx)$ is true then its truthmaker is the conjunctive fact that every $o_1 \dots o_n$ is a G .¹² By contrast any one o_i being not G alone will serve as a falsemaker for **Every** $_x(Fx, Gx)$.¹³ I like this idea, but it violates assumption 1) that truthmakers necessitate the truth of their targets. So we need instead to bring into the truthmaker the idea that the set consisting of $o_1 \dots o_n$ is the set of all the F s. The easiest way to do this is, adopting some of Fine's [forthcoming] notation, is to add the clause $\tau(Fx, O)$ as another conjunction on the truthmaker, where O is a set of $\{o_1 \dots o_n\}$ and $\tau(Fx, O)$ means that only objects satisfying Fx are the members of O .¹⁴ Both Yablo and Fine consider (and seem to favor) treating this statement of the extent of the restrictor predicate not to be in quite the same league as the statement about which objects satisfy the matrix predicate. For this reason they want to mark off this content as presupposition, or anyway on a different dimension.¹⁵ My assumption 2) precludes that option: a more explanatory theory will *derive* presuppositions from truthmakers not specify presuppositions within them.¹⁶

Summarizing we can write the truthmakers for universal and existential quantifiers as follows:

- A truthmaker of **every** $_x(\phi(x), \psi(x))$ is of the form $\tau(\phi(x), O)$ conjoined with each of the truthmakers for $\phi(x)$ substituting o for x for all o in O , where O is a set of objects, the falsemaker is the conjunction of a truthmaker for $\phi(o)$ and a falsemaker for $\psi(o)$.
- A truthmaker of **some** $_x(\phi(x), \psi(x))$ is a conjunction of a truthmaker for $\phi(o)$ and a falsemaker for $\psi(o)$ for some o , the falsemakers for it are of the form $\tau(\phi(x), O)$ for $\phi(x)$ substituting o for x for all o in O , the falsemaker is of the form $\tau(\phi(x), O)$ conjoined with each of

¹²Obviously adjustments will needed for infinite cases.

¹³Yablo leverages a Belnapian [1970] conditional to get to this conclusion (*Aboutness*, p. 67).

¹⁴This also resembles one of Yablo's treatment of unrestricted quantifiers in *Aboutness*, 4.4.

¹⁵Yablo uses the presupposition operator δ for the purpose while Fine suggests. It's also worth noting that it's not clear whether or not the τ -clause should be common to both truthmakers and falsemaker of **Every** F is G , an adequate falsified would just $Fo \& \neg Go$ for some object o .

¹⁶I cheat on this a little below.

the falsemakers for $\phi(x)$ substituting o for x for all o in O

Now, what about definite descriptions? One idea here is that a truthmaker of **the F is G** is going to be just of the form Go where o is the unique F . This again fails to necessitate the truth of the sentence. Rather we need a truthmaker of the form $\tau(Fx, \{o\}) \& Go$; the falsemaker will naturally be $\tau(Fx, \{o\}) \& \neg Go$. More generally:

- A truthmaker of **the _{x} $\{\phi(x), \psi(x)\}$** is of the form $\tau(\phi(x), \{o\})$ conjoined with a truthmaker for $\psi(o)$ for some object o , a falsemaker of the form $\tau(\phi(x), \{o\})$ conjoined with a falsemaker for $\psi(x)$.

What about presuppositions? Given that we have decided not to build them into the truthmakers we need a way of retrieving them. A natural thought is that the presupposition of a sentence is that it has a truthmaker. Given that we did not explicitly cover the case of empty sets for quantifiers what this means for their presuppositions is underdetermined. For definite descriptions, though, the presupposition is straightforward: there is not going to be any truthmaker or falsemaker for **The F is G** unless there is a unique F . We can think of the presupposition itself as proposition that has its own truthmakers. In the case of **The F is G** , it's going to be something of the form $\tau(F(x), \{o\})$.

3 Presupposition Projection

In this section I want to assess how the bare account of the previous section fares as a story about linguistic presupposition. By linguistic presupposition, I mean a certain pattern of behavior easily observable across a wide class of terms (including descriptions), not a theoretical account of it. Here are some facts about presupposition. Assertions of presuppositional sentence such as ‘The king of France is bald’ or ‘Adam knows there are apples’ generally are used only when certain things are taken for granted (that there is a king of France, that there there are apples). The rather corny linguistic ‘test’ for this is the ‘hey-wait-a-minute!’ test. Presuppositional content but not assertive content can be challenged in this way:

- (1) a. A: The king of France is coming to my dinner. B: Hey wait a minute! I didn’t know France still had a king.

- b. A: The king of France is coming to my dinner. B: ?Hey wait a minute! I didn't realize any royalty was coming.

A more important empirical mark of presupposition is *projection* behavior. Presupposition projection is the phenomenon whereby presuppositions of simple sentences persist (or are modified) when these sentence are embedded. For example all these sentences most naturally are read as taking for granted that the France has a king:

- (2) a. It's possible that the king of France will drop in tonight.
b. If you see the king of France, do say hello for me.
c. Is the king of France any good?

The projection properties of presuppositions have been extensively studied and turn out to be rather subtle.¹⁷

What is rather interesting to note about the account of the presuppositions of definite descriptions and the general shape of a truthmaker semantics is that it provides a straightforward account of presupposition projection. Let us just take two examples: disjunction and negation. **The king of France is bald** presupposes that there is a unique king of France. **The king of France isn't bald** presupposes the same. This is predicted by the account above: a sentence presupposes that it has a truth or falsemaker. Since negation just switches truth and falsemaker the presupposition of a sentence and its negation are identical.

Disjunction is a more interesting case, where considerable disagreement exists in the literature (on several fronts). Consider a sentence such as this:

- (3) Either there is no war, or the king of France is leading the army.

This sentence is not presupposition-free, certainly. A plausible candidate for its presupposition is **if there is a war there is a king of France**. Why something so complex? Well suppose we accepted this conditional in a conversational context. Then (3) would seem to be assertable without presupposition failure (or without taking anything for granted). It's useful to switch example countries to see this point more clearly (so that one's own background information doesn't interfere

¹⁷There is a huge literature on presupposition projection: for a classic discussion of projection see Heim [1983], I characterize the problem more carefully elsewhere Rothschild [e.g. 2011].

with these judgments).

- (4) If there is war, then Freedonia has a king. So, either there is no war or the king of Freedonia is leading the army.

It's very clear that someone who utters (4) is neither presupposing nor asserting that Freedonia has a king nor is there any presupposition failure. But the conditional presupposition theory predicts exactly this since the first sentence is the conditional presupposition of the second, so the dialogue in total makes no presuppositions it does not discharge.¹⁸ If we go through the recursive definitions above we can see that a world will provide a truth or falsemaker for (3) only if it either has no war, or there is war and a unique king of France. Another example this theory does well with is this:

- (5) Either there is no king of France or the king of France is bald.

Here again we can see that that this sentence makes no presupposition (or perhaps only presupposes that if there is a king of France there is just one). This again fall directly out of the truthmaker approach.

All this may seem like a small achievement, but it is not. Perhaps the most standard approach in philosophy has been to treat presuppositions as a pragmatic phenomenon to be explained in Gricean terms as conversational implicatures.¹⁹ The strident hope that a pragmatic account of presuppositional phenomena did not materialize however into a viable theory of projection. Most such accounts struggle with even projection under negation and fail utterly to give a systematic

¹⁸There is also good evidence for the intuitive view that (3) simply presupposes that France has a king, in most contexts. Theories of presuppositions with, the notable exceptions of Gazdar's [1979] discredited account and discourse reference theory (DRT, perhaps now equally discredited), struggle to explain this (A particularly sharp version of this problem is presented in Geurts [1996]), which argues for DRT. More on this later.

¹⁹See, e.g., Grice [1981] and Wilson [1975]. By pragmatic account of presupposition, I do not mean Stalnaker's [1974] theory of pragmatic presupposition, which really provides a theoretical tool situated at the level of conversational discourse analysis for describing presuppositions generally. Stalnaker, does however, suggest a pragmatic treatment of some aspects of projection [a recent version is given in Stalnaker, 2010].

account projection across different embeddings.^{20,21}

Another theory that handles presupposition projection in a similar way is a trivalent semantics for presupposition combined with a strong Kleene (SK) logic (for the propositional fragment).²² This is not surprising. The trivalent account, like the truthmaker account, allows for gaps (here in truth-value directly, rather than in the existence of a truthmaker) and thus has a similar underlying story about presuppositions. If all we need for a disjunction to be true is that one of its disjuncts has a truthmaker, then we are naturally going to have a logic along the SK lines.

So does this recursive truthmaker theory have any advantage over the strong Kleene account? Is it even a distinct account? I think the answer is a qualified yes. Let me give three reasons.

First, the truthmaker account gives a better explanation of why there are presuppositions than the strong Kleene account does. A trivalent SK account has two separate components in need of motivation:

- a) the existence of truth-value gaps.
- b) the SK logic, with its particular interpretation of the connectives.

For a) while Strawson took this as an almost observable property with definite descriptions, it is far from clear that there are anything like observable truth-value gaps in the case of other presupposition triggers (which I will discuss in a moment). For b) the SK connectives are just one of a few reasonable semantic possibilities for trivalent connectives, why does natural language encode this one? The truthmaker account of presupposition does not entail a) so it does not need to explain it. (More on this in a moment.) As for, 2) the particular shape in which presuppositions

²⁰A recent exception might be Schlenker [2008], but his ‘pragmatic’ account is a substantive departure from traditional Gricean reasoning.

²¹Even standard (non-pragmatic) accounts have trouble explaining the particular problem of projection through disjunction. In fact, the most popular account of presupposition, dynamic semantics [Heim, 1983, Beaver, 2001], lacks the expressive power to handle disjunction [Rothschild, 2011]. The basic issue is that while dynamic accounts can give you a disjunction on in which (3) has the conditional presupposition discussed, they struggle to explain the reverse order which has the same presupposition. Some of the underlying judgements about the reverse order remain disputed, see Chemla and Schlenker [2009] for an empirical study.

²²Developments of the strong Kleene account of presupposition projection can be found in Fox [2012] and George [2007], see also Peters [1979] and Beaver and Krahmer [2001]. The truthmaker account also inherits the problems the trivalent approach has with quantificational presuppositions [Fox, 2012]. The point about the conditional presuppositions below address may address this.

project out of connectives is given by account of truthmakers of complex sentences in the previous section. Since this account was designed to deal with other problems (the problems of partial content, aboutness, scalar implicatures, etc.), there is clearly an independent motivation.

My point here is not just that there is independent motivation for the truthmaker account of presupposition, but also that motivation fits in with some of the things we think about presupposition. Statements of the form **The F is G** are *about* an individual, the F . This falls out of Yablo's account of aboutness: the statement is differently true when there are different F 's, and when the F is G in different ways. It is not *about* whether there is an F , intuitively or in Yablo's account. (This also might provide an argument for *why* there are truth-value gaps.)

My second reason for thinking that there is an advantage to the truthmaker view is the way in which it leaves room for certain modifications. On the SK account of presupposition we necessarily associate presuppositions with truth-value gaps. So far, we have identified presupposition failure with truthmaker gaps, which might seem to amount to the same thing. But other possibilities quickly emerge. Consider canonical 'soft' presupposition triggers such as **know** and **stop**. It is easy to see via standard tests that **Cassandra knows she is pregnant** presupposes Cassandra's pregnancy. However, there is no hesitation to judge the sentence as false when she is not pregnant. This is a version of what Yablo would call non-catastrophic presupposition failure. It differs from the classic example of a catastrophic presupposition failure: **the king of France is bald**, which is not so easily judged as false.

What we want is some way of differentiating different types of presupposition failure. In the trivalent approach options are limited. Indeed the most obvious option is adding yet another truth-value (mild truth-valuelessness, semi-falsity?). In the truthmaker approach there is more scope for innovation. In particular, two options are salient. First we could allow truth (or falsity) without truthmakers (or falsemakers). Yablo (*Aboutness*, p 62) flirts with this idea when he allows universal binary quantifiers with empty restrictors to be vacuously true. This explains why **Every F is G** presupposes a non-empty domain without entailing one. Similarly **John stopped smoking** might be vacuously false in worlds where John never smoked to begin with, **Cassandra knows she is pregnant** vacuously false when Cassandra is not pregnant.

Vacuous truth or falsity is all well and good for Fabians like Yablo who appeal to an independent notions of intensional meaning but for a radical like Fine it is impossible. Even Fine has some resources here. We can have different tiers of truthmakers and falsemaker (presumably two will

be enough), the first-class and the second-class ones. John never having lit a cigarette might be a falsemaker for John stopped smoking, but its is a second-class one. The presupposition of a sentence is that it has a first-class truthmaker or falsemaker: but it can be true or false in virtue of a second-class one.²³

The value of either of these approaches to soft triggers will depends on giving a kind of motivation for either story: why is there vacuous truth, why is there a class system for truthmakers. Answers to these questions will have to wait for another day, but I hope you share with me the belief that it's not as daunting as the task of motivating a quadrivalent logic for presuppositions.²⁴

A third reason also relates to things that are statable in the truthmaker approach that cannot be stated in a standard trivalent approach. Here is one example: we can talk about the truthmakers of the presupposition of S that fail to be truthmakers for either S or $\neg S$, call the the *presupposition-targeted truthmakers* of S .²⁵ What use is this? Consider again:

(6) Either Freedonia is not at war, or the king of Freedonia is leading the army.

I argued above that (6) acceptable in a context if the context includes the conditional information that if Freedonia is at war, it has a king. However, when (6) is uttered in a context where nothing is assumed about Freedonia's monarchy the natural inference one makes when one hears the sentence is simply that Freedonia has king (as discussed in footnote 18). The response we make when we hear a sentence whose presupposition is not satisfied is the process Lewis called *accommodation*. Suppose that as a rule, when we hear a sentences with a presupposition missing from context, we accommodate the fact that one of the presupposition-targeted truthmakers of the sentence is true. If we do this with (6) we must accommodate the fact that Freedonia has a king, not the conditional **if it's at war, Freedonia has a king**. This idea about accommodation is easily statable in the in the truthmaker framework, but a simple trivalent approach does not have the expressive power

²³Here we abandon the idea of truthmakers as being 'flat', i.e. not themselves marking presuppositions. Maybe this is inevitable.

²⁴A starting thought is that first-class truth and falsemakers share a similar logical form, second-class truthmakers (falsemakers) do not have falsemakers (truthmakers) that resemble them. So the class system arises from a preference for symmetry in natural language. These ideas are not even statable in a trivalent approach since there are no truthmakers to bear the forms.

²⁵I owe this idea to Fine. The name illustrates the relation to Yablo's notion, below discussed below, of targeted truthmakers of material conditionals.

to formulate an equivalent constraint.²⁶

4 Avoiding Catastrophe?

Having outlined the best account of presupposition of presupposition I can cobble together out of the tools Yablo provides in *Aboutness*, I will turn to his own writings on presupposition. He focuses on what he dubs the problem of *non-catastrophic presupposition failure*. With strong presupposition triggers, such as definite descriptions, attempts at using them when their presupposition is ruled out in the context sometimes lead to statements which defy ordinary categorization into truth or falsehood. This is catastrophic presupposition failure. Its poster boy example is **the king of France is bald** which many say defies ordinary categorization. Now, life would be simple if we just had just two kinds of presuppositions, the former always failing catastrophically, the latter never failing at all. Unfortunately sometimes even strong presuppositions fail to fail catastrophically, leading to intuitively truth-evaluable, if degraded, assertions. Yablo's standard example is **The king of France is in this chair**. There is a vibrant discussion in the literature about where to place the dividing line between catastrophic and non-catastrophic presupposition failure.²⁷

Yablo's interest in this topic may originate in debates about nominalism, but his account squarely faces the basic linguistic data. I'll sketch his view, drawing on his original paper [Yablo, 2006] but mostly tracking his considered (and slightly cleaner) position in *Aboutness* and its appendix. Recall that a sentence of the form **the F is G** leads to a presupposition failure where there is no unique F . Cashed out in the truthmaker framework, as I understand it, this failure occurs because there is no truthmaker or falsemaker (nor any vacuous truth or falsity).

Yablo proposes a mechanism that can be used to recover a felt truth-value in some of these

²⁶Let me explain. I am thinking of the trivalent approach as just being an extension of a standard possible world semantics with the possibility of a sentence being neither true nor false in a world. An account with truthmakers is more fine-grained than this since you also have a set of privileged propositions (in my formulation, sentences) serving as truthmakers or falsemakers for each sentence. Trivalent semantic values are determined but do not determine such sets of truthmakers and falsemaker. The notion *presupposition-targeted truthmakers* exploits that extra structure in a way the simple definition of *presupposition* as something that entails there is truthmaker does not.

²⁷Two useful theoretical accounts are von Stechow [2004] and Schoubye [2010]. Getting clear on the data is difficult. For instance, Schoubye has impressively nuanced views on judgments, claiming that **the king of France is a bald nazi** is more false-sounding than **the king of France is bald**. Abrusan and Szendroi [2013] is a useful if inconclusive empirical study.

cases. The mechanism begins by defining a new kind of truthmaker for the material conditional. In the recursive account of truthmaking a material conditional should have the following sorts of truthmakers (based on the clauses for disjunction and negation and the definability of $\phi \rightarrow \psi$ as $\neg\phi \vee \psi$):

- $\phi \rightarrow \psi$ has as truthmakers any falsemakers of ϕ or any truthmakers of ψ , and its falsemakers are any conjunctions of a truthmaker for ϕ with a falsemaker for ψ .

However, Yablo suggests that in addition to these orthodox truthmakers for material conditionals there are also another kind, which he calls *targeted truthmakers*. I will quote his appendix:

A targeted truthmaker T for $B \rightarrow A$ is a fact that (as far as possible, see below) rules out the combination of B true with A false as such—not, in other words, (1) by ruling B out, nor (2) by ruling A in.

The idea is that we have something that can occur in both B and $\neg B$ worlds, but in all the B worlds where it is true rules out the truth of A . There are further requirements on targeted truthmakers: B -efficiency (using as much of B as possible) and proportionality (being suitably simple).²⁸ A convenient locution Yablo adopts is that A adds truth to B if $B \rightarrow A$ has a targeted TM, A adds falsity to B if $B \rightarrow \neg A$ has a targeted TM.

Let's take a sentence S with a presupposition π (e.g. $S =$ **The KoF is bald** and $\pi =$ **there is a unique KoF**). We'll say that the S fails non-catastrophically in a world w (in which S lacks a truthmaker due to π 's falsity) iff the following condition holds:

S adds truth but not falsity to π or S adds falsity but not truth to π .

If this condition holds then the sentence is *perceived* as either true or false (according to whether S adds truth or falsity to π).

²⁸The notion of the targeted truthmaker for a material conditional is a very interesting one, independent of the issue of presupposition. Allowing them along with the usual truthmakers does not change the truth-value of a material conditional, but it does change the reasons it has to be true. Indicative conditionals, one might conjecture, are like material conditionals except they can *only* be made true by targeted truthmakers (and thus are gappy). Although this is appealing, truth-value gaps in indicative conditionals (if they exist) don't seem to lead to presuppositions. Truth-value gaps, unfortunately, are a theoretical tool that cannot easily be used for diverse needs [Rothschild, 2014, Spector, 2015].

Let's do the test case: in a world where the referred-to chair is empty, someone asserts that **the KoF is in this chair** (S). The thought is that this is perceived as false. This is false because the emptiness of the chair serves as a targeted truthmaker for $\pi \rightarrow \neg S$, so S adds falsity to π in this world. By contrast, so the thought goes, there is no targeted truthmaker for $\pi \rightarrow S$ in w .²⁹

This is true because there's nothing in our world that is incompatible with the king of France not sitting in the chair. Of course there's the true material conditional $\pi \rightarrow S$ itself (which is true, by π 's falsity) but its relevant truthmaker is not π free. The same can be said about the fact that there is no king of France. The emptiness of the chair is, by contrast, a good π -free truthmaker for w .

I have just gone through Yablo's example of a non-catastrophic presupposition failure, but it will be useful to go through some slight variations. Suppose first the chair is not empty, but rather is occupied by Bob. Now, presumably, **the king of France is in this chair** is still perceived as false. But the reason cannot be alone that Bob is sitting in the chair. For this does not entail that the king of France is not sitting in the chair, strictly speaking. So it must be something like a conjunction of the fact that Bob is sitting in the chair and that he is not the king of France. (I'm assuming this latter conjunct is true in the same way whether there is or not a king of France.) Let's move to a more general case where the judgments are still clear: **the king of France is in Fenway Park**. Let's assume Fenway Park is full. Is there a targeted truthmaker here? Well presumably generalizing it's something like these people are in the stadium and they are not the king of France. Given our clauses for quantifiers, if the set of people in the stadium is c , and the the property of their being in the stadium is F this will be $\tau(F(x)c)$ conjoined with the fact each member of c is not the K of F. Certainly this is a targeted truthmaker: France can have a king and the same people can be in the stadium.³⁰

²⁹What would do that trick? Maybe some kind of physical law that necessitated French kings to be in that chair. Perhaps then sentences like this are true:

- (i) The king of France is an aristocrat.
- (ii) The king of France is a head of state.

I have no stable judgments here and it's hard not to confuse these with fictional examples.

³⁰*Aboutness* p. 88:

None of us here is qualified to be Pegasus; that is why *Pegasus is here in the room* is not true about the room and its contents. The reasons are different in different cases. I take it, though, that every

So far so good. Now, let's move on to the other paradigmatic case, namely **the Kind of France is bald** (which we'll now call S , confusingly). Here the claim must be that there is no π -friendly reason why $\pi \rightarrow \neg S$ is true. Yablo considers only one candidate: **there is no bald king of France**. Certainly this is compatible with there being a king of France. Yablo rejects it as a targeted truthmaker on the grounds of violating the aforementioned 'proportionality requirement': the simpler π involving reason that there is no king of France blocks it. The point is that baldness is doing no work here, so the lack of a bald French king isn't a candidate truthmaker. Here is where things get sticky. If b is the set of all the bald people and B is the property of baldness, then $\tau(B(x), b)$ conjoined with the fact that each member of b is not the king of France looks like a prima-facie targeted truth maker for S . Moreover, it has the same exact form as what we needed to deal with the example **the king of France is not in the stadium**.³¹ So it is not clear how Yablo can rule out one but not the other with proportionality.

What is needed here is a difference between the property of being bald and the property of being in the stadium that explains why one but not the other can serve as a targeted truthmaker. Here, I think, one needs to turn to works such as von Fintel [2004] and Schoubye [2010] for the resources to make the distinctions necessary to predict the data.³² However, that does not mean that one cannot keep the basic outline of Yablo's account. All that is needed is a further (probably contextually relative) condition on the targeted truthmaker in question. The two conditions we might consider from the literature are verifiability (suitably extended) and fit with the subject matter of the discourse. To see why the latter is relevant, recall the observation in the literature that when the set of bald people are themselves mentioned, **the king of France is bald** seems to be false:

(7) Speaking of the bald people, the king of France is one of them

x in the room has features Q_x such that, even allowing that Pegasus, Holmes, and so on could have turned out to exist, they could not have turned out to be Q_x , or, if you prefer, a Q_x could not have turned out to be Holmes.

³¹Perhaps a similar point is made by Felka [2014] and Jandrić [2013]. However the type of example they use is **the head of state of France is not bald**. The truthmaker of this, $\tau(H(x), \{h\}) \& \neg Bh$ (where H = property of being head of state, and h = Holland), could serve as a targeted truthmaker of $\pi \rightarrow S$, but only if we allow that Hollande could be king (perhaps not a metaphysical impossibility).

³²They in turn build on ideas from Strawson [1964] and Lasersohn [1993].

Perhaps then what we need to say is that relevant targeted truth-makers need to be truthmakers for some answer to a question available in the discourse (e.g. **who are the bald people?** or **who is in the stadium**). This is just a gesture (and not much of one) at an account, but I hope it at least suggests how Yablo’s account might be amended.

What do we get from Yablo’s account then, if not a clear explanation of the central data about non-catastrophic presupposition failures? One thing we get is an account that is compatible with a sentence with a catastrophic presupposition failures ending up being true rather than false. To be clear, everyone gives an account that can explain the truth-sounding of **the king of France isn’t bald**. But I don’t know any other accounts that allow a sentence of the form **the F is G** where there is no F to sound true. Yablo’s notion of logical substraction (spelled out here in terms of targeted truthmakers) is designed to allow this. Yablo’s ultimate aim seems to be ontological. Yablo wants to keep the possibility that **the number of planets is nine** can count as true even if its presupposition fails due to the truth of nominalism. His account of non-catastrophic presupposition failure seems to succeed in establishing the coherence of this view, even if it needs to be amended with some of other tricks in the literature.³³

5 Conclusion

I have focused on just one topic in linguistic semantics, presupposition. Moreover it is not one that Yablo devotes much attention to (and he is silent on what I see as the major issues, namely, projection and the question of why we have presupposition to begin with). So, the fact that the framework is promising here is *further* evidence for the usefulness of the truthmaking toolkit for natural language applications. An overall assessment would require putting together the totality of applications, looking at how they cohere, and comparing them to other packages of explanations in the literature. Many of these other applications cover well-studied data and the truthmaker accounts can be straightforwardly compared to those in the literature. Here, I include Fine’s account of scalar implicatures [Fine, forthcoming], Yablo’s account of epistemic modals, Yablo and Fine’s treatment of permission [Fine, 2014, Yablo, 2009], Fine’s account of counterfactuals [Fine,

³³In any case, we should be wary of judging nominalism’s viability on the basis of our intuitions about when a sentence beginning **the king of France. . .** sounds true. As Yablo [2012] wisely observes, “Metaphysical distinctions should not be made to depend on where exactly the line falls between good, borderline, and unacceptable English.”

2012]. Evaluating this whole package is a massive task.³⁴

Before closing let me look at one possible application that comes out of Yablo's book that is not part of the standard set of data semanticists seek to explain. Here is one paradigm Yablo discusses involving agreement.³⁵

- (8) Alex thinks Bill and Ted are time-travelers.
- (9) Lucinda thinks Bill and Pierre are time-travelers.

It seems to follow that:

- (10) Alex and Lucinda agree that Bill is a time-traveler.

Of course, on standard accounts this is perfectly explicable. After all, that Bill is a time-traveler is a logical implication of both of what Alex and Lucinda think. If they think something then we should accept its implications. So there is an implication they both accept, and perhaps that is enough for agreement. However, Yablo notes that logical implication is too weak. For we cannot infer in this case that:

- (11) Alex and Lucinda agree that Ted or Pierre is a time-traveler.

These kind of inference patterns are exactly the type of thing that linguists and philosophers who work on natural language semantics try to explain.³⁶ Yablo's treatment of content-parthood provides an elegant explanation of why (10) but not (11) is a good inference.

Is there an appealing alternative explanation available without recourse to Yablo's notion of aboutness and attendant truthmaker machinery? A natural place to look, indeed the natural place to look for a rival to Yablo's account of aboutness generally, is the semantics of question and

³⁴Indeed a comparable assessment has not been made even for mainstream alternatives to classical semantics, such as dynamic semantics [Rothschild and Yalcin, forthcoming].

³⁵Similar patterns can also be found with other intensional locutions such as 'saying' and 'knowing'. See the list of applications of his theory on pages 12–14 of *Aboutness*, many of which are related to the paradigm I discuss here.

³⁶Delineated the subject of natural language semantics is a notoriously difficult problem. Clearly we aren't interested in all entailment relations, but very general ones involving common attitude verbs such as 'agree' are fair game. Of course the relationship between this data and relevance logics are clear, but these also have not had much impact on linguistic semantics.

focus.³⁷ I can see some prospects for these tools limiting agreement to not include all arbitrary entailments of beliefs. Let us start with a simpler case by trying to explain why (8) and (9) don't allow you to infer (12)

(12) Alex and Lucinda agree that Bill is a time-traveller or it's raining

Here we might appeal to a limitation of agreement to those sentences that are answering the same discourse questions as the sentences they are inferred from are. Discourse questions can be constructed, quasi-syntactically, from sentences by looking at focus alternatives to the questions. For example from **Bill and Ted are time-travelers** one can derive the question **Who is a time-traveller?**³⁸ **Bill is a time-traveller** is a partial answer to that question, while **Bill is a time-traveller and it's raining** is not.³⁹ What, I do not immediately see is a principled way of ruling out (11).

That's the case for Yablo. The case against is the following:⁴⁰

(13) Alex thinks Bill is a time-traveler.

(14) Lucinda thinks Ted is a time-traveler.

It is natural to conclude:

(15) They agree that someone is a time-traveller.

It is hard to see how Yablo can predict this. For the truthmakers of **someone is a time-traveller** would seem to take the same form as the truth makers for o_0 **or** o_1 **or** ... is a time-traveler. But Yablo wants to rule out the agreement on the disjunctive proposition. So how can he allow for agreement on the existentially quantified proposition. The question-based approach has no problem: **Someone is a time-traveller** is a partial answer to the question of **Who is a time-traveller?** There is much more to be said here, but not on this occasion.

³⁷There is an extensive literature here; Hamblin [1973], Karttunen [1977], Groenendijk and Stokhof [1984], and Rooth [1985] are good places to start. The treatment of questions in the semantics literature parallels closely Lewis's treatment of subject matter as both are understood as partitions of logical space.

³⁸Different questions can be derive by focusing different syntactic constituents, thus we have nothing like the notion of *a* subject matter for each sentence.

³⁹The notion of partial answer is easy to define in the se frameworks.

⁴⁰Yablo tells me that Tim Williamson made a similar point during his (Yablo's) Locke Lectures.

Normally it's polite to end a commentary of this sort with some reassuring words about the enduring value of the work one is discussing. I hope the fact that all of the above only touches the surface of a few strains of Yablo's thought gives some sense of the scope and interest of the book.

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