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Failing To Tell The Truth:

An Exploration of Transparent Truth and Paradox

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Abstract

The liar paradox has long been recognised as a serious challenge to giving an account of the semantics of the term true. Its less well known cousin the truth-teller also challenges such accounts not by introducing paradox into our language but by introducing indeterminacy. In this paper I take up a suggestion of JC Beall's that transparent truth theory can give us a non-question begging reason for declaring truth-tellers and liars meaningless. I then argue that this motivation can be combined with a distinction between utterances and the propositions they express to solve both the liar paradox and the indeterminacy of the truth-teller. Laurence Goldstein's *cassatio* solution to the liar paradox is a major inspiration though I depart from it in important ways. The revenge of paradox that plagues solutions to the liar is avoided by appeal to this distinction and the differing properties of propositions and utterances. This distinction has often been ignored in the literature on the liar, generally for simplicities sake but sometimes in a more justified manner, and it is a contention of this paper that this is partly to blame for the apparent difficulty of dealing with the paradoxes of truth.

Contents

1 Describing The Spandrels of Truth

I

The first sentence in this paper is true.

This statement is not true.

The last sentence on this list is not false.

There is something odd about these statements. The second is a strengthened (or revenge) liar, the first is a contingentent truth-teller and the last is an example of the less well known revenge truth-teller. In this paper I will take up JC Beall's (2001) suggestion that we can motivate the common reaction that such statements do not express propositions with the concept of *transparent*[1] truth that he advocates and that a natural way to deal with this is by the concept of *cassatio* that Laurence Goldstein has attempted to revive as a solution to various paradoxes.[2] I will further argue that the cassatio account is able to avoid the revenge problem by distinguishing between propositions as the proper

1. See primarily (Beall 2009, §1.1). This conception of truth is very close to a deflationary one but is not, I think, quite identical with it. Transparent truth is committed to the idea that predications of truth do not do anything more than reassert the propositions that they are predicated of. It is not committed to saying that this is all there is to the notion or concept of truth.

2. Primarily (Goldstein 2000) but also see (Goldstein 1992) and (Goldstein 2001). Timothy Smiley has defended something like this account but departs from it by rejecting the token relativism that both Goldstein and I endorse partly as a response to the revenge problem, see (Smiley and Priest 1993), primarily §II of Smiley's contribution. Kneale (1972) is not as thorough but provides an excellently intuitive presentation of the central lesson of the cassatio account; some utterances fail to express propositions and only propositions properly have truth values. Goldstein uses the term statement where I use the term proposition.

bearers of truth and sentences and utterances which only derivatively have truth values. This makes the cassatio account token relativist; it is committed to the idea that the same sentence uttered in different contexts can express different propositions and thus have different truth values, even when it does not contain what are *usually* taken to be context sensitive elements (Goldstein 2000, 62).

In Latin cassatio means 'nullification' or 'failure', it thus expresses the idea that certain utterances can nullifying their own intentions (to assert propositions) by combining transparent truth with self-reference (direct or contingent). What I am calling the cassatio account is not strictly the account that Goldstein defends but shares with it, I think, enough features to deserve the name.

To borrow an analogy from Beall (2009, §1.3), this paper is an attempt to describe how the spandrels of truth can be dealt with in natural language. Spandrels are the unavoidable triangles that are formed by building arches inside rectangular spaces like door frames, they cannot be avoided if we wish to have both the arch and the rectangular frame but there are many different ways we can deal with them. In analogy, a (transparent) truth predicate added to other features of natural language will produce unavoidable spandrels of truth, viz. truth-tellers and liars (along with some others). Truth-tellers are statements that have indeterminate semantic status, it appears that we can consistently call them true or false, but either choice is arbitrary.[3] Liars are statements which assert their own falsity or non-truth, they appear to engender contradiction in natural language.

To construct the spandrels of truth we only need a truth predicate and self-reference in our language. It is not disputed that these two features are available to all natural languages. Liars become problematic when we ensure that the language is governed by the laws of classical logic and the truth predicate obeys full intersubstitutivity in non-opaque contexts[4]. The problematic reasoning that is usually associated with liars goes

3. See Woodbridge (2005) for examples of other semantically indeterminate statements. I will not here argue that all of these examples can be dealt with in the same way but leave this possibility for future exploration.

4. I.e. that the truth predicate obeys the T-schema. Curry's paradox also appears to require only

something like this:

1. "this statement is not true" is either true or false.
2. Assume that it is true.
3. Then the referent of "this statement" is not true.
4. But the referent of "this statement" is just "this statement is not true". So "this statement is not true" is not true.
5. So if "this statement is not true" is true it is not true.
6. Now assume that it is false.
7. Then the referent of "this statement" is true.
8. But the referent of "this statement" is just "this statement is not true". So "this statement is not true" is true.
9. So if "this statement is not true" is false then it is true.
10. Therefore "this statement is not true" is true and false, contradiction!

From this contradiction (or any other) we can go on to prove any other statement at all if the language is classical.[5] The problematic nature of truth-tellers requires a third feature, supervenience of truth such that the semantic status of statements cannot simply

these features.

5. A semi-formal proof would look like:
   1. $\alpha \wedge \neg\alpha$ (Assumption)
   2. $\neg\alpha \rightarrow (\alpha \rightarrow \beta)$ (If the antecedent of a material conditional is false then the conditional is true)
   3. $\neg\alpha$ (Conjunction elimination on 1.)
   4. $\alpha \rightarrow \beta$ (modus ponens on 2. and 3.)
   5. α (Conjunction elimination on 1.)
   6. β (Modus ponens on 4. and 5.)

Where β is any statement at all and α is our contradictory statement.

be stipulated.[6] Such supervenience amounts to the claim that the facts of the world, including the semantics of whichever language is in use, should fully determine whether or not any object is true. This is not to claim that truth is a substantive property but simply to claim that truth cannot simply be stipulated, the facts about the semantic of truth are facts about the world. I take it that this claim is agreed to by essentially all the major accounts of the paradoxes and so will take it for granted for the rest of this paper.[7] It might be the fact that there is an extra feature over and above those required for the liar paradox that has lead to the relative neglect of truth-tellers in the literature. The problematic reasoning in the case of truth-tellers is something like this:

1. "this statement is true" is either true or false.
2. If it is true then the referent of "this statement" is true.
3. So if it is true then it is true, since the referent of "this statement" is itself.
4. If it is false then the referent of "this statement" is false.
5. So if it is false then it is false, since the referent of "this statement" is itself.
6. So we could consistently assume either way.
7. But what fact about the world could make that statement true or false?

That there is no fact about the world which would make such a statement true is relatively agreed upon. Sometimes it is argued that the truth conditions for truth-tellers are just that they are true if and only if they are true.[8] However, a transparent conception of truth tells us that these are vacuous conditions. All statements (including liars) are true if and only if they are true but this does not amount to a (proper) truth condition since the truth predicate contains no interesting information. One of the major problems

6. Sorensen (2001, Ch. 11) provides an extended discussion of this idea.
7. Woodbridge's (2005, §5) fictionalist account might be read as a denial that this supervenience holds for truth in general, but that it does hold in the grounded part of the language.
8. Nick Smith has suggested this in conversation.

with many solutions to the liar paradox is that they offer no answer to the semantic indeterminacy raised by truth-tellers and do not offer any reason to think that it is sufficiently different from liar statement to warrant ignoring this.[9]

So, there are many things we can do with these spandrels; we could ignore them, we could challenge the application of classical logic in various ways, we could deny or restrict the T-schema. For truth-tellers we could deny the supervenience of truth. All of these options have been pursued and there is not space here to consider them all and judge their relative merits. Instead I will present a solution that takes one particular line of attack and defend it from various objections. This particular solution, which I shall refer to as the cassatio account, argues that our language enjoys all the grammatical features it is usually taken to but that classical logic only properly applies to propositions. The cassatio account denies that classical logic applies to natural language and restricts the application of the T-schema (which I will examine below) to grounded *utterances*. It maintains, however, that classical logic and the T-schema apply fully to propositions.

Tarski, among others, concluded from the liar paradox that natural languages are indeed trivial and that the only way to avoid this was to construct formal languages which did not enjoy some of the features that natural language apparently does. The descriptive project to be pursued here rejects this idea and argues that there is in fact no problem with natural language in the first place, but rather that some of the assumptions involved in the problematic nature of both truth-tellers and liars are mistaken. Part of a solution is pointing out which of these assumptions is mistaken, the other part is explaining why we make those mistakes. I will give an answer to the first of these questions though unfortunately I can only sketch an answer to the second. I also very briefly note here that it is not obvious that there must be only one descriptive solution, perhaps different speakers of the same natural language deal with the spandrels in different ways, i.e. have different conceptions of truth. The possibility of this is partly supported by the

9. In particular I am aiming at the revision theory (Gupta and Belnap 1993) and contextualist approaches like Burge (1979).

agreement of all the major solutions about the semantics of truth in the domain of grounded statements. If it is the case that different people have such different concepts then the following will only appeal to those who share the transparent conception of truth.

Throughout this paper I refer to "truth-tellers" and "liars"; by this I mean, respectively, any statement which has the form of predicating truth of that very statement or predicating the failure of truth (not true) of that very statement. I have avoided speaking of *the* truth-teller or *the* liar because the cassatio account denies the existence of any such thing. There are liar sentences, like "this statement is false", or truth-teller sentences, like "this statement is true", but there are an infinite variety of these and none deserve privilege over any other.

In §2 I first outline transparent truth before arguing that liar and truth-teller statements fail to express propositions and that this gives us a positive motivation for the cassatio account. In §3 I turn to the issue of providing a formal logic for the account and how this is related to *a priori* reasoning and contingently ungrounded statements. In §4 I present the revenge problem, the most serious problem for solutions that deny that truth-tellers and liars are true or false, and argue that the cassatio account is able to resolve it by appeal to the distinction between utterances and propositions and the different properties they have. Finally §5 examines logically complex truth-tellers and liars and their relation to Curry's paradox. There are many issues that I do not have space to deal with here and so I cannot claim that the following is a complete solution but hope that it provides reason to think that the cassatio account is more plausible than many have assumed.

2 Failing to Tell the Truth

The biggest challenge to the cassatio account is to provide a principled motivation for the claim that liar and truth-teller statements do not express propositions. Such a motivation is required to avoid a charge of begging the question against other solutions to the truth paradoxes.[1] In this chapter I first argue that propositions are the proper bearers of truth, whether or not you accept the cassatio account, before outlining what transparent truth is and how this can motivate the claim that liars and truth-tellers do not express propositions and hence do not validate the problematic reasoning involved in the liar paradox.

2.1 The Bearers of Truth

Firstly some terminology.[2] A sentence is simply a set of words of some language arranged in a grammatically correct order. Sentences are types and not tokens, the tokens "this sentence is true" and "this sentence is true" are both the same sentence. Utterances are

1. Goldstein primarily relies on reductio ad absurdum arguments, but this begs the question if we are willing to think that statements might be both true and false. In (Goldstein 2004) he defends a Wittgensteinian conception of contradictions as meaningless (along with tautologies) that can be used to motivate the account. I am sympathetic to this view but it is too broad for the considerations here and I will instead present independent motivation to the end that the truth involving paradoxes do not express propositions. (Weir 2002) and (Armour-Garb and Woodbridge 2012, 310) both argue that this is unmotivated.

2. All of the following is assuming that we are talking about declarative sentences and does not concern questions, commands or other kinds of sentences and utterances that do not *primarily* function to assert propositions.

the physical token sentences produced in particular contexts, so the previous two tokens are different utterances of the same sentence. I use utterance to cover writing as well as speech mostly to avoid multiplying terminology. This will not, I think, make any different to what is to be said here apart from one caveat; when we are determining the context of utterance of a written sentence it is the context in which it was written and not the one in which it is read that is (usually) important. I will here simply speak of utterances and assume it is understood that this means utterance-of-a-sentence-in-a-particular-context. Finally propositions; propositions are the things asserted by successful assertions of declarative sentences. Propositions are also the content of beliefs, they are the kind of thing that we talk about when we say "It is true *that* ...." and they are, I will argue, the primary bearers of truth.[3] Of course we can have beliefs about various utterances and sentences. But within such beliefs the utterances and sentences are the objects of propositions, they are not themselves contents of the beliefs.

Below I will use the term statement to pick out the proposition expressed by an utterance of a sentence in a context. So "this statement is true" is attempting to assert that "the proposition expressed by an utterance of this sentence in such and such a context is true". The cassatio account will suggest that sometimes such an attempt can fail, sometimes "this statement" fails to pick out any proposition at all.

It is common in the literature on the liar paradox to grant that sentences cannot be the bearers of truth and that utterances in contexts or propositions must be, given the existence of indexicals in our natural language (amongst other kinds of context dependence).[4] Nonetheless many writers take it to be a useful simplification to assume that sentences are the bearers of truth. This is, I think, a major mistake and one of the reasons that the cassatio account has not been particularly prevalent (at least in the recent literature). Indexicals are terms like "I" or "here" which require context to

3. Mackie (1973, §1.1) give a useful explanation of this idea and I am happy to assent to his general characterisation of propositions. Also see (Kneale 1972).

4. See (Kneale 1972, §3) for an extended discussion of this.

determine their referents and hence the semantic status of the utterances in which they figure. Considering the example "I am there" we can see easily that the truth or falsity of that sentence will depend on the context in which it is uttered. If the context determines that "there" refers to where I am when I utter the sentence then it will be true, but the context could also determine that "there" refers to some other place in which case it might be false. This is reason enough for rejecting the idea that sentences can be true or false *simpliciter*, we require at least sentences with a context of utterance to deal with indexical elements. Obviously this is not enough to prove that the truth paradoxes involve any analogous problem, that argument is to come, but it gives us a reason to recognise that sentences are not bearers of truth and so asking about the truth of the *sentence* "this sentence is true" is a mistake. We must at the least ask about the truth of a particular utterance of "this sentence is true", that is the truth of the sentence as uttered in a particular context. The cassatio account might be read along contextualist lines as claiming that sentences in contexts have truth values and that in some contexts they can fail to have truth values at all.

So sentences cannot be the bearers of truth. It might, however, be asked, but what about utterances in contexts? Utterances in contexts look like the kind of thing which could have truth status even in the face of indexicals. What reason then do we have for introducing this new category of propositions? A major reason for thinking that utterances cannot be bearers of truth is that different utterances can express the same proposition. If I say "I wrote this at 2:09pm on the 18th September 2014" and someone else says "Toby C.P. Solomon wrote the preceding sentence at 2:09pm on the 18th of September 2014" we express the same proposition with different utterances. It might also be the case that in certain instances one utterance of a sentence can express more than one proposition. For example if I say "I like tofu" then the primary proposition I express is that I like tofu but in some contexts, such as when I am answering a question in a restaurant, this might also express the proposition that I would like to order tofu.

This way of thinking about implications is controversial and is not of central concern in this paper so I will leave it to the side but note it to bolster the idea that propositions are importantly distinct from utterances.

Propositions are context independent, though their expression is not. Different utterances may be needed in different contexts to express the same proposition but the thing expressed by an utterance is not itself something which requires a context to determine fully its truth or falsity. Propositions on this view are not something that we can directly produce. The only way to produce a proposition is to use an utterance in a context.[5] This is important because it means that, unlike some other accounts, the cassatio account can avoid some problems partly because certain features of natural language do not carry over to propositions. One particular example of this is that no proposition will include indexicals. Propositions are what is expressed by an utterance once we have eliminated contextually dependant features like indexicals. This does not mean there is no proposition which says " "I am here" is a sentence of English", an utterance of that sentence expresses a true proposition. However that proposition is not indexical because it is referring to the words "I", "am" and "here". There is no proposition though which says "I am here", there are only various propositions about where different particular people are that might be expressed by that sentence in different contexts. It also means that in expressions like "the proposition that snow is white" the phrase "snow is white" is not itself a proposition, but rather itself a sentence or utterance that is being used to indicate the proposition that says snow is white. This will be important below because it means that there are some sentences and utterances that do not express propositions and simply prefacing them with the specification "the proposition that ...." does not turn them into propositions. Expressing a proposition requires the use of utterances and so there is always a risk that we might fail to specify the proposition we want; saying doesn't make it so.

5. Including, again, written utterances. This might also be extended to non-linguistic representations like photographs or gestures but will not, I think, affect what is to be said here so I leave this aside.

2.2 Transparent Truth

In standard accounts of the liar paradox and the problem of truth-tellers it is usually taken as a requirement that a theory of truth adhere to Tarski's (1944, 343) argument that a theory must deem true all instances of "X is true if, and only if, p" for any sentence p named by X. This principle has come to be know as the T-schema.

A theory of transparent truth takes this further and suggests that this equivalence is all that there is to be said about truth. It takes this equivalence not only as something that should be *respected* by a theory of truth but something which *defines* the theory of truth. The equivalence of "X is true" and "X" clearly only holds for certain kinds of entities. No one thinks that the statements "That duck is true" and "That duck" express the same proposition, so implicit in the discussion of transparent truth is the restriction that X can only be replaced by well formed meaningful declarative statements (Beall 2009, vii). The cassatio solution will argue that truth-tellers and liars fail to be meaningful in the required sense, they do not express propositions.

The propositional equivalence of "X is true" and "X" will also clearly only hold in non-opaque contexts. Opaque contexts are ones where more than just the proposition expressed by an utterance can matter to determining the truth of some other proposition. For example if we say "Hans believes 'Snow is white' is true" and "Hans believes snow is white". The first might be false, because Hans speaks German and does not understand English, but the second true because Hans agrees with us about the colour of snow. In contrast the two statements "Hans believes the proposition that snow is white is true" and "Hans believes that snow is white" express the same proposition. For propositions, but not for utterances or sentences, every context is transparent. The difference in these examples is that in the first involving the quotation of a sentence, "Hans believes "snow is white" is true", truth is being predicated of a particular sentence rather than the proposition it expresses so whether or not Hans believes it will turn on whether or not he understands the proposition expressed by that sentence of English. On the other hand in

"Hans believes the proposition that snow is white is true" we are predicating truth of the proposition expressed by the sentence "snow is white". The truth of the belief ascription does not turn on Hans understanding English but only on whether he does believe that snow is white.

The transparent picture of truth begins, partly, from the idea that we could express everything we need to about the world (express all the propositions) without the truth predicate, if only we had infinite linguistic resources and time. We need the truth predicate in our language to express certain claims involving infinite sets of propositions (among various other tasks). However a being with infinite time and infinite linguistic resources could do so by simply asserting all the propositions in such an infinite set. Our predication of truth to some set of propositions does nothing more than reassert all of the members of that set. Truth is thus a constructed notion which does not have a 'meaning' of its own. Truth is more like a logical connective than a substantive predicate in this view. There are rules which govern the use of the predicate true and what is expressed by utterances containing it. However, these rules are like the rules for determining the proposition expressed by utterances containing "here", they define the term "true" without thus being part of the propositions expressed in the same way that rules for dealing with indexicals like "here" determine the proposition expressed by utterances containing them without thus being part of the proposition. Liars and truth-tellers are rule breakers, they do not properly conform to the rules that govern predication of transparent truth, in the next section I examine both how they break the rules and what this means for their status.[6]

The idea of transparent truth is a thesis about the semantics of the predicate "true", it is not a thesis about what makes things true. Perhaps the best way to grasp this is to look again at the example "snow is white". Transparent truth theory takes it that

6. Woodbridge's (2005) fictionalist account of truth says something very similar but he does not take it the step further to thinking that those statements which 'break the rules' thereby fail to express propositions at all. Rather he thinks we can simply extend the rules in anyway we like to deal with the rule breaking liars and truth-tellers as long as this doesn't affect the rules for the grounded utterances.

““snow is white” is true” and “snow is white” express the same proposition. What the transparent truth theory does not tell us is in virtue of what “snow is white” gets to be one of the things we call true and not one of the things we call false. Why is it that “snow is white” is true is a different question from what it means to say that ““snow is white” is true”.[7]

In the following I take it that falsity is to be defined as the transparent truth of negation and not the negation of truth. The difference is important only when it comes to objects, like ungrounded utterances, which do not obey the transparency of truth. When truth is transparent “X is not true” and “it is true that not X” are equivalent. However for objects that do not express propositions it makes no sense to say “it is true that not X”. Negation cannot directly be applied to objects that are not propositions, i.e. “not rock” does not express a proposition any more than “rock” does. Importantly though I will argue that there is a sense in which we can say “rocks are not true”, but this will not license an inference to “it is true that not rocks” or anything of the kind.

In the setting of a formalised language equipped with a logic (considered as a set of inference rules or an axiomatic system) the T-schema is usually captured by the biconditionals of the form:

$$\mathrm{T}\ulcorner x\urcorner \leftrightarrow x$$

Where T is the truth predicate, $\ulcorner x\urcorner$ is some name forming device[8], x is restricted to well formed formulas (henceforth wff(s)) of the language and $\leftrightarrow$ is a suitable biconditional. These biconditionals are sometimes split into the separate rules of capture, $x \rightarrow \mathrm{T}\ulcorner x\urcorner$ and release $\mathrm{T}\ulcorner x\urcorner \rightarrow x$.[9] The difference between the intersubstitutivity of $\mathrm{T}\ulcorner x\urcorner$ and x,

7. I think there is reason to say that those who hold correspondence theories of truth could allow for a transparent truth predicate by appeal to the idea that correspondence truth applies to utterances and not propositions. In the terminology of groundedness to be developed below then correspondence truth would mean “is an utterance that is grounded and which express a true proposition” or something similar. I will not further discuss this here and note this only as a side point.

8. Intuitively $\ulcorner x\urcorner$ is just the statement x enclosed in quotation marks, its quotation name, and this will do for a non-formal conception. However there are technical reasons that a stricter definition is useful, usually achieved by taking $\ulcorner x\urcorner$ to be the Gödel code of the sentence x.

9. Also know as T-in and T-out or T-intro and T-elim

and the T-schema in biconditional form is only important if the biconditional chosen does not obey identity, $\alpha \leftrightarrow \alpha$, since if it does the two are provably equivalent[10] I will take it for granted in this paper that the conditional does obey this rule since I do not wish to depart too far from standard intuitions.

2.3 Cassatio

On this transparent conception of truth "X is true" and "X" express the same proposition for meaningful declarative sentences X in non-opaque contexts. As an account of the semantics of truth this means that in order to determine the proposition expressed by an utterance containing a (transparent) use of the truth predicate we must eliminate its use of that predicate. The predicate "true" does not hold content of its own in this view, it is simply a linguistic device for forming various abbreviations and expressing certain things we might not otherwise be able to express given our finite limitations.

Now when a sentence like "this statement is true" is asserted a speaker is, presumably, attempting to say something about what the world is like, to assert a proposition.[11] When "this statement" refers to some other, non-problematic, statement then we have no problem. For example if an utterance of "this statement is true" is accompanied by pointing at the sentence "yellow is a colour" then the proposition expressed by the utterance is simply that yellow is a colour, which is unproblematically true (*pace* the vagueness of "yellow" and "colour"). In such a case the statement "this statement is true" can have truth eliminated from it because the "this statement" refers to another utterance which expresses a perfectly good proposition. However when "this statement is true" refers back to itself there is no utterance for the statement to inherit its proposition

10. The argument is that if the conditional obeys $\alpha \rightarrow \alpha$ then since $\mathrm{T}^{\ulcorner}x^{\urcorner}$ is fully intersubstitutable with x we get capture and release. 'for free' since we can simply substitute $\mathrm{T}^{\ulcorner}x^{\urcorner}$ for x on the left hand side of $x \rightarrow x$ to get release and on the right hand side to get capture (Beall 2009, 26).

11. Perhaps no one has ever actually asserted such a statement seriously, such direct truth-tellers only ever seem to appear in philosophy papers. However it is more reasonable to think that someone might have asserted a contingent truth-teller or liar.

from. The same is true of liars like "this statement is false". Falsity is just truth of negation so this statement is equivalent to "the negation of this statement is true", but if we try and eliminate truth we just get sent back to our original statement. There is no way to eliminate the usage of transparent truth from such statements and so, given that no proposition contains the truth predicate at all, they do not express propositions.[12] Truth must be eliminable from statements for them to express a proposition because the linguistic predicate true does not pick out any property in the world; it simply functions as a linguistic device to reassert other propositions.

Assuming that the sentence "this statement is true" expresses a proposition and then offering that proposition as the referent of "this statement" will not do either because simply stipulating that a statement expresses a proposition does not make it so. The general lesson is that a predication of transparent truth does not on its own constitute a proposition, that truth must be predicated of something. When we utter a liar or a truth-teller we fail to say what it is that we are predicating that truth of and it would be question begging to say that we are predicating that truth of the proposition we have asserted.

Of course there may also be other ways in which utterances of (declarative) sentences can fail to express propositions. Reference failure of a general kind may be one such case. Others might include certain kinds of mismatch between the intentions of the speaker and the 'meaning' of the words they utter. For example if a small child utters the sentence "Schnee ist weiß" because they see it written on a sign, but understand no German, then no proposition has been expressed. This is despite the fact that a competent speaker of German uttering those words would express that snow is white. The child fails to express a proposition because they do not *intend* to assert anything at all, to them the German words are in the same category as gibberish. Certainly the sentence "Schnee ist weiß" has a meaning and can be translated into different languages, just as for truth-tellers

12. See (Beall 2001) for more on this.

and liars, but this fact alone is not enough to guarantee that any particular utterance of that sentence will express a proposition. Priest heavily relies on the idea that any sentence which has a meaning of this kind expresses a proposition in his attack on the cassatio account but it fails to see the central point that while there may well be some kind of cognitive meaning to a truth-teller or liar and even though it can be translated into other languages, nonetheless, it still fails to express any proposition.[13] There are a range of conditions on the utterance of sentences that govern whether they produce propositions. One of those is that when a sentence includes predication of transparent truth that predication must be eliminable. It must be possible to specify the proposition that we are (re)asserting with our predication of truth. The cassatio account is not then introducing a new phenomena of expressive failure but rather extending a familiar category of utterances of grammatically acceptable sentences that fail to express any proposition.

We have reason to think that when a predication of transparent truth is not eliminable from an utterance that utterance fails to express a proposition.[14] Utterances from which truth can be eliminated are usually termed grounded. Kripke (1975, 693) provides the following useful characterisation:

> In general, if a sentence [...] asserts that (all, some, most, etc.) of the sentences of a certain class C are true, its truth value can be ascertained if the truth values of the sentences in the class C are ascertained. If some of these sentences themselves [predicate] truth, their truth value in turn must be ascertained by looking at other sentences, and so on. If ultimately this process terminates in sentences not [predicating truth of some statement], so

13. See (Smiley and Priest 1993, 42) and (Priest 2006, §1.3). I will return to this issue below in §6.

14. Both Priest (2006, 62) and Steve Yablo (1985, n. 33) have suggested that this fact on its own can provide a semantic status for truth-tellers, namely false. The problem with this argument is that it is not clear why this should not apply to liars as well since they are also ungrounded. Calling the liar false though is not an option because it either leads us straight into paradox in a way that will undermine our reason for thinking that it is ungrounded, which was that it couldn't be true. Or it will just be the same thing as ungrounded, i.e. not true but also not open to classical reasoning. This is essentially the same problem as the one that faces Kripke's (1975, 715) closed off truth predicate.

> that the truth value of the original statement can be ascertained, we call the original sentence grounded; otherwise, ungrounded.

That is those utterances for which a finite number of applications of the release rule of transparent truth, $\mathrm{T}^{\ulcorner} x^{\urcorner} \rightarrow x$, and other logical rules like conjunction elimination leaves us with a (set of) utterances not involving predication of transparent truth.[15]

I will not commit here to say all and *only* ungrounded statements fail to express propositions because there may be other ways in which grounded statements can fail to express propositions (as noted above reference failure is one good candidate for this). The paradoxes we are interested, however, all fall in the ungrounded part of the language and so this is not of issue with the cassatio account. It is important to note that I talk about grounded *utterances* and not grounded or ungrounded propositions. According to the cassatio account there are grounded and ungrounded utterances but no such thing applies to propositions. Propositions are only expressed by grounded utterances, so in some sense we can say all propositions are grounded. However this is a loose use of language, groundedness is a property that is based on syntactic and semantic rules to do with a natural language. Propositions are language independent and so do not have the right kind of properties to be grounded or ungrounded at all.

15. A more precise definition of groundedness might be asked for. I will discuss Kripke's (1975, 705) definition as those statements in the extension or anti-extension of the truth predicate in the minimal fixed point below. Tim Maudlin (2004, Ch. 3) or Haim Gaifman's (1992) definitions based on directed graphs are better characterisations of the cassatio account. I discuss this further in §5.

3 Logic

In the literature on the truth paradoxes it is common to present solutions via a formal language that is intended as a model of natural language. The cassatio account and similar 'non-proposition-expressing' accounts of the truth paradoxes are sometimes criticised for failing to allow the construction of any such formal model. However the cassatio account is able to provide an adequate formalisation of our inference process; standard classical logic.[1] As a formalisation of natural languages formal logics always require a level of abstraction. Ordinarily it is assumed that to apply classical logic to statements of natural language we must first eliminate indexical elements, ambiguities and a variety of other expressive but none propositional elements (like emphasising terms or metaphors). This much is granted by essentially all formal models of the truth paradoxes. The cassatio account simply extends this list to include ungrounded statements; transparent truth (or at least ungrounded uses of it) must be eliminated from our natural language in order to provide a consistent formal model.

There are various ways to formalise the system of elimination of contextually dependant items like indexicals, two dimensional possible world semantics for example,

1. The cassatio account, as presented here, is not a defence of classical logic. It does not commit to saying that no proposition can be both true and false or neither true nor false. The importance of this is that there might be other reasons to think that our base truth free language is non-classical, for example vagueness or future contingencies. What the cassatio account does say is that there is no reason to think that the logic of propositions is non-classical *because* of the truth paradoxes. So the cassatio account takes classical logic to be a proper model in so far as it is not challenged by any other thinking and more over tells us that even if our base language is non-classical transparent truth-tellers and liars fail to express propositions.

but these all require empirical information to determine the proposition expressed in a particular actual context. It may be possible to formalise the cassatio account in such a possible worlds manner or some other formal construction. I do not have space to consider how this is to be done here, if it is possible at all, but importantly this is not necessary in anything more than a practical sense. The transparent conception of truth is committed to the idea that all the facts about the world can, in principle, be expressed without use of the concept of truth. This means that classical logic (*pace* vagueness etc.) is perfectly acceptable as a formalisation of our reasoning. It might be objected that we have then not provided a formal model *of truth* but this is not something that the transparent truth theorist needs to be especially interested in since they claim that truth is like indexical terms, introduced into a language for expressive purposes but in principle eliminable.

The classical logic that the cassatio account endorses takes the language of interest (the one to be modelled) to be the language of propositions, which can express every fact about the world without requiring a truth predicate at all. In such a model utterances still exist and are of interest in a particular way, utterances are objects in the world and so can be quantified over and have propositions about them. The ability to say things like "utterances of liar sentences are ungrounded" is thus part of the propositional language. Though the proposition "this proposition is not true" is not part of the language (since that utterance fails to express any proposition at all). This consideration may help to allay the fear that such a classical logic is not going to be able to properly model our natural language; even though it is a model which takes the objects of interest to be propositions it has the expressive ability to talk about utterances of natural language[2]. This language can also say things about the word "true", like " "true" has four letters", and things about the concept of truth, like "Graham Priest thinks that truth is inconsistent".

2. Indeed such a language can speak about *any* utterance, whether or not it is in the natural language from which we have derived it. So the classical propositional (or predicate) model of English can speak about utterances of French and so on

It can do this because none of these propositions require predicating transparent truth of anything to be expressed, they are claims about objects like words and concepts.

We have so far being dealing primarily with explicit truth-tellers and liars, where the fact that they are ungrounded can be determined *a priori*. Some statements though may be contingent truth-tellers and liars, whether or not they express a proposition may depend on contingent matters of fact about the world. A good example is the first sentence printed in this paper; if the facts of the world had been such that some other sentence was printed before that one then it might not be a truth-teller. Without banning self-reference in natural language, which takes us out of the descriptive game, this possibility cannot be avoided. This raises the problem of how we can determine the validity of various inferences if they could contain a contingently ungrounded statement.[3] If it is not possible to *a priori* determine the validity of various inference because they involve ungrounded utterances we might be threatened with a fairly strong form of skepticism; if we cannot *a priori* detect invalid deductive inferences then it seems that normal empirical worries about confirmation might infect all our knowledge.[4] There are two things to be said in response. Firstly, unlike in the more general case of semantic externalism, this worry is only going to infect our reasoning about *utterances* and not about propositions. The cassatio account is committed to denying that there are any propositions which involve predication of transparent truth at all. So any reasoning about propositions will maintain its *a priori* nature because propositions cannot turn out to be contingently ungrounded, only utterances are grounded or ungrounded. The second thing to note is that in the case of reasoning about utterances this is not a new problem. Priest (Smiley and Priest 1993, 43) characterises the task of formal logic as:

> Determining a (non-empty) class of inferences that are guaranteed to be

3. The more basic question of determining whether a particular statement is ungrounded probably deserves attention but I will ignore it here since it does not really threaten any particularly worrying consequences.

4. See (Goldberg 2007), (Sosa 2007) and (Boghossian 1992). All three discuss this problem in the context of general semantic externalism but I take it that the worry is essentially the same.

truth-preserving in virtue of their form.

But this task is already impossible for utterances. Indexicals and other contextually dependant elements of natural language ensure that reasoning about utterances and sentences is never *a priori*. Consider for example an inference like:

1. I am here.

2. If I am here then I am not there.

C. I am not there.

At first glance this might look like a simple application of modus ponens guaranteed to be valid in classical logic. However this inference and our validity judgements about it have to be judged conditionally on what propositions we think are expressed by the utterances involved. Our *a priori* access to the facts of logic is only possible when we have access to the propositions expressed by such utterances.[5] In this case it might be that there is a reference shift for "here" between premises 1. and 2. which would make the inference in propositional form:

1. A

2. B $\rightarrow$ D

C. D

Such an inference is invalid in any plausible logic at all. The task of *a priori* determining the validity of inference based only on linguistic syntax is hopeless no matter what, indexicals in a language ensure this. Empirical information is required to determine the validity of any inference that is not directly propositional. The reason that the above

5. There may be other reasons, including more general externalist semantics, to reject the *a priori* nature of logic at all. As with non-classical logic the cassatio account is agnostic on this possibility, what I am defending here is that if there is *a priori* knowledge of logic the cassatio account can make sense of its existence.

inference appears to be valid *a priori* is, I think, because we implicitly abstract from the utterances involved to the propositions that we *assume* they express. That is to say when we reason in normal situations about utterances we implicitly attempt to resolve ambiguities, eliminate indexicals, etc. in order to find propositions with which to reason. The cassatio account adds to this that we need to eliminate uses of transparent truth in order to find the propositions involved. This will in many cases require empirical information about the referents of various terms but this is not a new addition, this has always been part of the background assumptions of formal logic. So Priest's worry is unfounded, there is no new difficulty introduced by the idea that liar and truth-teller utterances can contingently fail to express propositions, because reasoning with utterances already required empirical information. Of course there is a practical worry about how we might do this in day to day life, but such is the way in philosophy, we cannot always get the *a priori* answers we would like.

It may be worth noting that Priest and dialetheism in general is faced with a similar problem. Dialetheism says that some statements are both true and false and so while Priest can supply *a priori* truth preserving inferences (once indexicals etc. are eliminated) he cannot provide an *a priori* falsity-excluding inferences. While inferences can always fail to be sound *a posteriori* because we find that one of their premises is false there is a larger worry than this for Priest. Even assuming that all the premises in some inference are true and the inference is valid this still does not, for Priest, rule out the possibility that the conclusion is also false. Of course Priest accepts this but it surely seems as bad a problem as the cassatio solution is charged with. The cassatio solution must say that inferences based on sentences and utterances are conditional on the empirical fact that all the involved utterances are grounded, which is an *a posteriori* matter. Priest's inferences can *a priori* guarantee truth but we require more empirical information, about the non-existence of any proof of the conclusions falsity, to determine whether any conclusion we reach is just true and not also false. It might be thought that we could *a priori*

determine whether there could be no proof of the falsity of certain propositions, but this is only possible if there is a proof of their truth *and truth excludes falsity*, which Priest (2006) denies. This then undermines one of the obvious purposes of inference in general, to produce warrant for rationally accepting and acting on propositions.

So just as we can reason with utterances including indexicals without eliminating them, though only contingently, so we can reason in a contingent or provisional way with utterances that contain truth predications (Smiley and Priest 1993, 24). The cassatio account adds a caveat to any inference involving utterances which we have not eliminated truth from; if they turn out to be ungrounded then our inferences were invalid. Priest must add just such a caveat as well not on the validity but at least on the rational warrant conferred by various inferences since the conclusion could turn out to be a dialethia.

In some sense the cassatio account is committed to the idea that there are, at least, two kinds of logic. One is classical logic which properly applies to propositions and which does not face the problem of the truth paradoxes because there simply are no liar or truth-teller propositions. The other is a *logic of utterance*. That is a formal system for reasoning about utterances and their derivative truth status. This logic of utterances is going to have to be paraconsistent, because some utterances are neither true nor false, and also contain a restricted T-schema, because not all utterances express propositions and only those which express propositions obey the intersubstitutivity of truth. Such a logic of utterance is only required however in so far as we need to contingently reason about some utterances without being sure what propositions they express. It will thus fall into a similar category as informational logics in computer science that are useful for modelling the behaviour of systems, in this case our reasoning about utterances, but which do not imply anything about the actual semantic status of propositions about the world.

4 The Revenge Of Paradox

There are several things that might be called the revenge problem. I am here concerned with one particular version of this problem, which is to show that the cassatio account can completely describe the semantic status of all its own statements without thus introducing new terms that could be used to produce indeterminate or inconsistent statements. The other thing that is sometimes called the revenge problem is the idea that even if a theory can do this it is not a model of natural language because it fails to be able to (truly) describe some concept that is available in natural language. It is not always clear exactly which problem is being pressed on an account in the literature. A good illustration of this difference is Beall's (2009) paraconsistent approach. It is objected that this approach is unable to describe the concept of *just true*. If it is thought that the account relies on this notion to express its own claims then the challenge is of the first kind, showing that the account is semantically complete without being indeterminate or inconsistent (or in this case at least not trivial). Beall (2009, Ch. 3) defends his solution by claiming that his account can express the only notion of *just true* that it requires, namely true. He admits that it cannot consistently express a notion of just true which also rules out transparent falsity, but according to Beall such a notion is inconsistent and so his account does not need to express it. In this way he answers the first challenge by showing that the account can express all its own semantic predicates without triviality or indeterminateness and then argues, in response to the second challenge, that this other notion of just true is

not something that should be accounted for since it is a triviality inducing notion.

Other accounts in the area tend to claim something similar. Priest (2005, Ch. 5) presents a similar argument that 'boolean' exclusion negation is not a coherent notion and so it makes no sense to claim that something is just true, since this would rely on being able to express that it is "true and not false", where not is fully exclusive. Paracomplete solutions are usually charged with not being able to express the notion that some statements are "not true" where not is read in an exhaustive manner, i.e. that some statements are anything but true. Field (2008, §21.1) argues essentially that an exhaustive negation and the intersubstitutivity of truth are inconsistent and thus that giving up exhaustive negation is a price worth paying, especially since he can give a hierarchy of 'determinately true' predicates that allows something like a slightly restricted exhaustive negation to be defined. Though on pain of a revenge problem Field denies that we can quantify over this entire hierarchy to produce a fully exclusive negation. Kripke (1975, 715) is notorious for having concluded that a metalanguage would be required to express exhaustive negation in his account.[1]

The cassatio account as I will present it here takes a similar line. I will argue that it can consistently and determinately express its own semantics but there is a notion that it might be thought we have available in natural language that this account cannot express, on pain of inconsistency, viz. a stronger non-transparent notion of true. This paper is a defence of the idea that if truth is transparent then the cassatio account can account for the paradoxes of truth. I am not directly defending the idea that transparent truth is the only notion of truth we need, though I am committing to that in producing the account, so whether or not this objection is problematic will have to be pursued elsewhere.

There are two other ways of avoiding revenge problems. The first is to claim that the account of the paradoxes presented is expressed in a meta-language, that the semantics of language for which the account is being given cannot be expressed in that language

1. Though it is not entirely clear that Kripke thought the project hopeless or was simply unable to formulate a fuller account at the time.

(essentially Tarski's (1944) route). However, as Priest (2006, §1.7) and Field (2008, 18 and §14.3) argue this takes an account out of the descriptive game. If an account of the paradoxes is presented in natural language (which they invariably are) but claims that a meta-language is required to express the semantics of the language then they have admitted that the account is not for natural language since they are using natural language as the meta-language for whatever language they are describing. The cassatio account can avoid doing this and so I follow Priest and Field in rejecting such a possibility as implausible.[2]

The third and final option is not to deny any expressive power to natural language but rather to deny that certain things can be said *truly* in the language. The problem with this is that if an account is unable to (just) truly characterise the problematic statements then it is not clear how it is to be tested. Finding out if it is true won't be enough![3] Maudlin's account is a particularly clear example.[4] Maudlin (2007, 51) is committed to the idea that any statement about the truth of an ungrounded statement is itself ungrounded. This is problematic because it means that we cannot *truly* say that a liar statement is not true, we can only say this with an ungrounded statement. To get around this problem Maudlin introduces the notion of permissible assertibility, roughly that some ungrounded propositions can be asserted even though they are not true (and not false). But then the revenge problem rears its head in a slightly disguised form. Maudlin provides the following rules for a notion of permissible assertion:

- We would like the rules to be *truth-permissive*: they should allow the assertion of any true sentence.

2. Of course if one is interested only in presenting an account of the paradoxes for some formal language then this is not problematic, but this is not the descriptive project we are attempting here.

3. It might look like I have just used a more substantive notion of truth but in the cassatio account finding out if a theory is true is just shorthand for finding out if $A_1 \wedge A_2 \wedge A_3 \wedge ....$ for some large or perhaps infinite list of propositions $A_1, A_2, A_3, ...$ For more on this problem see (Field 2008, §7.7) or (Maudlin 2007, 194).

4. Note that Maudlin (2004, 103) acknowledges this problem for his notion of 'permissible' utterance or assertibility though he claims to be able to solve it.

- We would like the rules to be *falsity-forbidding*: they should prohibit the assertion of any false sentence. [Original italics] (Maudlin 2004, 96)

Before also providing the following, perhaps unsatisfiable, desiderata:

- We would like the rules to be *complete*: they should render a decision about every sentence, either permitting or forbidding that it be asserted.
- We would like the rules to be *pragmatically coherent*: they should not have as a consequence that the assertion of any sentence is both permitted and forbidden.
- We would like the rules to *mimic the logical particles*: if a sentence is permitted, then its negation ought to be forbidden, if a conjunction is permitted, then both conjuncts should be, and so on. [...]
- We would like the rules to *harmonize with the statement of the semantic theory*: they should permit the assertion of those sentences which we use to convey the theory of truth. [Original italics] (Maudlin 2004, 96-97)

Maudlin's desiderata thus give us a semantic notion, permissible assertion, which can be used to produce paradox (or indeterminacy) via sentences like:

1. This sentence is permissibly assertible.

2. This sentence is not permissibly assertible.

Which are indeterminately assertible and contradictory, assertible if and only if not assertible, respectively. Maudlin's own particular solution to this is to argue that no notion can fulfil all these desiderata and so we have a choice of an infinite number of distinct permissibility predicates that violate them in various different ways (Maudlin 2004, 172). The problem for Maudlin appears to be that we cannot choose one set of these desiderata and stick to it. We will require different 'permissibly assertible' predicates to assert things about liars than to assert things about sentences which talk about liars and

so on. So while Maudlin can maintain a single truth predicate he is required to have an infinite set of permissibly assertible predicates. Maudlin (2004, 28) argues that there is only a single truth predicate, but his notions of permissibly assertible look a lot like the intuitive desiderata for a notion of truth. Why think that there is a single truth predicate but an infinite number of permissibly assertible ones? The cassatio account is able to avoid this problem with a simple step, there is one truth predicate, but there are two sense of "not true", one which applies to utterances and one which applies to propositions. By distinguishing these two senses we will be able to avoid the revenge of paradox while still maintaining semantic completeness and determinateness.

4.1 And Its Resolution

The cassatio account is committed to saying that any utterance involving the predication of transparent truth that is not eliminable is ungrounded and hence not true. This means in particular statements like:

L: L is not true.

Are ungrounded and do not express any proposition. The standard revenge problem is now to say; but that implies that L is not true, so you have to be able to say what L does. An intuitive way of putting the problem goes something like this[5]: we originally only have two semantic statuses, true and false, in order to deal with the spandrels that these produce, liars and truth-tellers, we introduce a new semantic status, ungrounded. However, when we introduce this new status there are several intuitively plausible conditions on it. Most importantly it seems like if something is ungrounded it is not true (and not false) and we should be able to say this with a true proposition. The problem is then with statements like "this statement is ungrounded or false", or assuming not is an exhaustive operator "this statement is not true". We can reason as follows:

5. This presentation roughly follows (Maudlin 2007).

1. "this statement is not true" is ungrounded.

2. If a statement is ungrounded it is not true.

3. Therefore "this statement is not true" is not true.

4. But then "this statement is not true" says something true.

5. Then "this statement is not true" is both true and not true, contradiction!

The reasoning involved here is not really any different from the reasoning involved in the standard liar paradox. Chris Mortensen and Priest (1981) have presented a similar problem for solutions which claim that truth-tellers are neither true nor false. This paradox comes from the following reasoning about a truth-teller, denoted α (Mortensen and Priest 1981, 382):

1. The statement α is the statement that says "α is true".

2. If α is neither true nor false then it is not true.

3. But α says it is true, so if it is not true then it is false.

4. So if α is neither true nor false then it is either true or false.

So if α is neither true nor false then it is true or false and not true and not false, which quickly gives a contradiction.[6] Apart from line 3 the above proof relies only on basic tools of classical logic and I will follow Mortensen and Priest in not questioning those. Line 3 relies on the idea that truth-tellers 'say they are true' and that thereby if they fail to be true then what they say is false. Thus we are faced with a paradox for solutions, such as the transparent cassatio account, which wish to say that truth-tellers and liars are neither true nor false. The revenge truth-teller "this statement is not false" can be

6. Priest and Mortensen add two more lines to block the idea that the statement might have some other semantic status, which is useful in the context they raise the issue in order to attack paracomplete but not paraconsistent solutions but will not affect what is said here.

used with similar reasoning to produce essentially the same problem for solutions which deny that truth-tellers are true or false:

1. "this statement is not false" is neither false nor true.
2. So it is not false.
3. But therefore it 'says' something true.
4. So it is true.
5. But that contradicts our assumption that it is neither true nor false!

The problem for all of this reasoning is assuming that there is a proposition expressed by the original statement. The cassatio account denies this. It does claim, however, that we can assert this fact with a grounded and true utterance. To allow this the cassatio account appeals to a distinction between what Smiley calls *polemical* negation and *propositional* negation (Smiley and Priest 1993, 20-21). Polemical negation is the kind of thing we use when we say "water is not true". Saying that water is not true does not imply that what water says is not the case; such an implication is entirely nonsensical, water does not say anything! The same is true of ungrounded utterances. In the above examples then if we read "not true" as meaning "it is not the case that ..." , i.e. with propositional negation, then we cannot say that these examples are not true. We cannot do so because this would be predicating transparent truth of an ungrounded statement and this will leave us with an ineliminable use of transparent truth. However we do not need to be able to say any such thing. All we need to be able to say is that such utterance fail to express propositions, they are *polemically* not true. Polemical negation is not a propositional operator, it does not take propositions as objects at all (Smiley and Priest 1993, 21). Instead polemical negation functions to reject the *utterance* as ungrounded.

The reasoning in these revenge cases is intuitively attractive. This is not problematic for the cassatio account because the above reason is mostly correct in the sense that two

different utterances of the same sentence can in one case fail to express a proposition and in another assert a true proposition. In this kind of revenge reasoning the mistake is thinking that since a second utterance of the same sentence (line 3 in the two truth-teller examples) is grounded and true this makes the original utterance grounded and true. This is not the case, utterances and sentences have their truth values only derivatively from the propositions they express. So in these examples we have one original utterance which predicates transparent truth in an ineliminable way and so fails to express a proposition. We then have a second utterance of the same *sentence* which predicates a different polemical negation to the first utterance and is hence grounded and true.

Valor Abad and Martínez Fernández (2009, 331) suggest that on the cassatio account

> 'is not true' [is] an indivisible *whole* which sometimes means 'is false' and some other times means 'is not truth-apt'

Where "is not truth-apt" is the same as being ungrounded, i.e. is the polemical negation usage of "not true". This is not quite the correct interpretation.[7] The cassatio account does not claim that "not true" as a concept or predicate is an indivisible whole but rather that the English phrase "is not true" can in some contexts mean one thing and in other contexts mean another, that is to say it can express different concepts or predicates in different contexts. This is not peculiar to this particular phrase but is pervasive in natural languages. That a phrase can mean one thing in one context and something different in another is hardly a contentious claim. What is contentious is that "not true" is such a phrase. However I think one only has to consider how they would respond to the question "Is water true?" to see that this is not a departure from normal English usage. Asked that question by a non-native speaker of English it would seem entirely appropriate to respond "No, water is not true, it isn't the kind of thing that can be true or false". This is exactly the response the cassatio account gives to questions about the

7. Luna (2010, 385) concurs that this is Goldstein's line but I am not interested in defending the letter of his view.

truth of liars and truth-tellers; no they aren't true, they don't express propositions.

An important note here is to see that in the usage "water is not true" truth is not being used in a transparent sense, transparent truth only applies to propositions. This does not contradict our assumption of transparency for truth because part of that assumption is that truth is transparent only when it is applied to meaningful declarative statements of the language and in the relevant sense of meaningfulness (expressing a proposition) ungrounded utterances fail to be meaningful.

Valor Abad and Martínez Fernández (2009, 330) attempt to present the following similar revenge liar:

> Let L* be the sentence 'S* is not true' and let S*$_{df}$ fix the meaning of 'S*':
> (S*$_{df}$) S*=$_{df}$ the NS produced by the utterance of L* in context C.

They define an NS as the 'failed statement' produced by the utterance of a liar sentence. They then reason as follows:

- Either S*$_{df}$ defines a name for a proposition or it does not.
- Assume (for reductio) that it does name a proposition.
- Then L* express a proposition and says that it is not true.
- But if we are asserting that L* is neither true nor false then this is a contradiction.
- So S* cannot be the name of a proposition.
- Now assume (for a second reductio) that S* does not name a proposition, it names a non-statement.
- Then since non-statements are not true L* is true.
- But then L* is true and is not true, since S* is defined as the proposition produced by the utterance of L* (in a particular context).

- So S* cannot be the name of a non-statement.

The problem for their reasoning is to suggest that we are able to name the 'non-statement' produced by the utterance of L*. This is not the correct way to interpret the cassatio account in the view of transparent truth. There is no such thing as a non-statement produced by the utterance of L*, rather there is simply the utterance of L* which does not express a proposition. If L* had been a successful statement then there would be the proposition *that* L* which we could talk about (and which would obey classical logic), but when an utterance fails to express a proposition it does not do so by expressing something else, it simply expresses nothing. So we can say of the utterance of L* that it was neither true nor false but this is unproblematic. Valor Abad and Martínez Fernández (2009, 331) anticipate this point and raise a further objection which does not threaten inconsistency but does threaten to produce a statement which we must evaluate as false, though it might intuitively appear to be ungrounded.[8] This statement is given by the specification:

> Let L^+ be 'S^+ is not truth-apt' and consider: (S^+_{df}) $S^+ =_{df}$ the NS produced by the utterance of L^+in C'

Where truth-apt means "is a grounded utterance". The apparently problematic reasoning goes as follows:

- Assume (for reductio) that L^+ does not express a proposition.
- Then S^+ is the name of the non-statement produced by L^+.
- But then since non-statements are neither true nor false L^+ says something true.
- But then L^+ express a proposition. Which contradicts the reductio assumption.
- Therefore L^+ must express a proposition.

8. Priest (Smiley and Priest 1993, 42 n. 14) notes the same problem with the statement "this sentence expresses no proposition" which I take to be the same statement. Weir (2002, 28) also raises similar objections.

- Now, if L^+ does express a proposition it must be true or false.
- So (again for reductio) assume L^+ express a true proposition.
- If L^+ express a true proposition then an utterance of L^+ is ungrounded.
- But this contradicts the reductio assumption that L^+ expresses a proposition.

So we are forced to conclude that L^+ is false. We can rewrite the above statement L^+ in the language being used here as "this utterance is ungrounded". While this might at first appear to be a problematic utterance it is in fact not. The groundedness predicate is a predicate which is defined by the syntactic and semantic facts about the world, it does not involve the *predication* of transparent truth, though it may need to mention the truth predicate. We could define the groundedness predicate as something like the following:

- X is grounded $=_{df}$ X is a string of symbols conforming to the grammatical rules of natural language L and does not contain an ineliminable use of the (transparent) truth predicate for L.

Determining if an utterance is grounded does requires only that we eliminate truth from it, not that we have already determined what proposition it expresses. Taking this definition and looking again at the statement "this utterance is ungrounded" we see that that utterance is indeed grounded, it does not require predicating truth of anything at all and so expresses a proposition. Of course it must be false because it is in fact grounded but this only appears to be problematic if we do not notice the distinction with another statement, "this *statement* is ungrounded", or alternatively "the proposition expressed by this utterance is neither true nor false". Now that statement *is* ungrounded and hence neither true nor false, but as with the discussion of liars above fails to thereby produce a paradox because it involves an ineliminable use of transparent truth and thus expresses no proposition.

The immediate question might then be; what about "this utterance is grounded"? Which superficially looks like a truth-teller. This utterance is true (and grounded) because it does not contain an ineliminable use of the (transparent) truth predicate. In this it differs from the truth-teller significantly, it is not true just because this is consistent, it is true because of a fact about the world, namely that it is a grammatically well formed sentence of a natural language that does not contain a predication of transparent truth. I note again that it is important here that while transparent truth figures in the definition of groundedness it does not do so in a problematic way. Transparent truth is not predicated of anything in such a statement, rather the predicate itself is mentioned as part of the definition. Truth-tellers fail to express any truth conditions. The statement that says of itself only that it is grounded does express conditions under which it would be true, namely if it is grounded, which it is.

Valor and Martínez's objection fails because they take ungrounded to be the same thing as neither true nor false and contain no more information. However groundedness on this view is a property to do with the linguistic construction of statements (including the meanings of terms involved) but it does not lead to the problematic reasoning involved in truth-tellers and liars because it does not involve predication of transparent truth and so the groundedness of utterances including the groundedness predicate is fully determined without needing to first determine the proposition they express. All this means that the new semantic status that has been introduced into the language is not able to produce new inconsistency or indeterminacy. This is essentially because it avoids use of anything like the T-schema, which is the principally problematic thing about utterances including transparent truth. A final example from Burge (1979, 179) will hopefully make this clear :

> Suppose a student, thinking that he is in room 10 and that the teacher in room 9 is a fraud, writes on the board at noon 8/13/76: (a) 'There is no sentence written on the board in room 9 at noon 8/13/76 which is true as

> standardly construed'. Unfortunately, it being Friday the 13th, the student himself is in room 9, and the sentence he writes is the only one on the board there-then. The usual reasoning shows that it cannot have truth conditions. From this, we conclude that it is not true. But this leads to the observation that (b) there is no sentence written on the board in room 9 at noon 8/13/76 which is true as standardly construed. But then we have just asserted the sentence in question. So we reason (c) that it is true.

Burge's contextualist solution asserts that the truth value of the sentence is changing in this reasoning process. The cassatio account, on the other hand, tells us that the first 'utterance' of the sentence does not express a proposition. The second 'utterance' does however assert a true proposition, but only by using "not true" in the polemical sense. If one is wedded to the idea that sentences do have truth values, if only derivatively from the propositions they express, then Burge is correct that the sentence is first not true and then true, but only because the context has changed such that it fails to assert a proposition and then is used in a different utterance to express a true proposition. As an objection it might be insisted that the second utterance is a predication of transparent (negated) truth to the first statement, in which case it will also fail to express a proposition and so will not be true. However this is not problematic since there is no need to express such a proposition in order to fully and truly say what we really need to say, viz. that the first utterance was ungrounded and failed to express any proposition.

So the cassatio account is able to meet the challenge of revenge. All ungrounded utterances fail to express propositions. This does entail that they are not true but only in a polemical sense that applies to many objects other than statements (including water). Statements are grounded or ungrounded by virtue of their syntactic and semantic form and these are grounded facts about the world. So we can express these facts using grounded and true propositions to avoid the assertibility problem that faces Priest and Maudlin (along with others). The most important part of this response to the revenge

problem is to distinguish between a proposition which is not true and thus false and utterances which are ungrounded and hence polemically not true.

5 Curry and Others

The considerations so far have primarily been directed at statements which are ungrounded and do not contain any logical connectives. I now turn to examining the issue of ungrounded statements that are logically complex. I will argue that these do not present any new problems for the cassatio account and that this gives us a simple way to solve another major problem; Curry's paradox. Some examples are in order:[1]

- Grass is red and this entire statement is true.
- Grass is green or this entire statement is true.

In the first case we have a simply false statement conjoined with the claim that the entire conjunction is true.[2] Bilon (2013, 4) claims that the conjunction should be false, since one of its conjuncts is false and this implies that the whole conjunction is and this would allow us to evaluate the second conjunct as also false. In the second case we have a straightforwardly true statement in a disjunction with the claim that the whole disjunction is true. Bilon (2013, 5) argues one disjunct is true the whole disjunction is true, which makes the second disjunct true. So it appears that we have two statements

1. Taken from Bilon (2013, 4 and 5). He argues that there is a 'truth-tellers' paradox raised by these because all truth-tellers should be treated semantically symmetrically, which I agree with, but then that these examples have different truth status, which I disagree with. His argument turns on using something like the strong Kleene logic which I will argue, in a moment, is not the correct way to view such ungrounded statements.

2. If you think that "grass is red" is not a simply false statement then please feel free to substitute one.

which say of themselves that they are true and which do have consistent truth value assignments which appear to be, at least partly, motivated in a way that they are not for logically simple truth-tellers.

In case you don't think this problem is all that worrying, consider the following two statements:

- Grass is green and this whole statement is false.
- Grass is red or this whole statement is false.

In neither case can we consistently assign a truth value to the statement. The transparent cassatio account treats such statements in the same way that it treats logically simple truth-tellers and liars. These statements are ungrounded and so fail to express propositions because their predications of transparent truth are not eliminable. If we ask what the second conjunct in the first of the examples above means we must 'look through' its use of false (as truth of negation) to see that it would have to assert something like "Either grass is not green or this whole statement is true". If we now ask what that asserts we can again attempt to eliminate the truth predicate but will end up with something like "Either grass is not green or (either grass is green or this statement is true)" and so on ad nauseam. Thus the cassatio account treats these statements exactly as it does truth-teller and liar statements, they fail to express any proposition and so are neither true nor false. The reasoning that Bilon presents then is illegitimate because it relies on the idea that the conjunction or disjunction involved is able to inherit truth or falsity from only a (grounded) part no matter what the other part of the statement is. This fails for ungrounded statements, in some sense they do not even constitute conjunctions or disjunctions because these notions only make sense when there are two grounded statements to conjoin or disjoin to construct them. Of course Bilon's reasoning is partly attractive because it begins from the non-problematic grounded parts of such statements which surely do have truth values. However the statements as a whole are not able to

inherit these truth values because the other part of such statements is not grounded and so cannot have truth eliminated from it.

At this point a more formal definition of groundedness might be asked for that can deal with logically complex ungrounded statements. The problematic reason above could be formalised with appeal to the strong Kleene logic. Kripke's (1975, 700)) groundedness construction uses the strong Kleene logic. Though a definition of groundedness can be constructed using Kripke's process for any three valued logic you choose as the base logic but not all of them are equally adequate as descriptions of the cassatio account's notion of groundedness. In particular Kripke's construction using the strong Kleene logic will validate the above reasoning and thus contradict the cassatio account. In the strong Kleene logic a logically complex utterance can be true or false as long as it contains enough information to decide this on standard classical rules. A conjunction can be true (and hence grounded) if one of its conjuncts is false, no matter what the status of the other conjunct. Similarly for disjunctions as long as one disjunct is true. Compare to a statement like "Grass is green or blingers tolp caratries", the fact that the first disjunct expresses a proposition does not allow the whole statement to do so because the second disjunct is gibberish. Asked to specify what proposition was expressed by this utterance we might reasonably reply, grass is green or something gibberish. So there is a sense in which we say the utterance expresses a proposition, but in such cases we are really just separating out the successful part of the statement from the part that fails.

Using the weak Kleene logic we can avoid this. The weak Kleene logic says that every logically complex utterance has the third undefined value in the logic just if any of its parts do.[3] So while the first conjunct will be in the anti-extension of the truth predicate the whole statement will not be since the second conjunct of both will be declared ungrounded. This is, I think, a technical worry and in so far as Kripke's construction can be read simply as a formalisation of an intuitive notion where we can supply the

3. See (Smith 2008, 53-54) and footnotes therein for a more formal characterisation of these logics.

appropriate logic. In particular because using the weak Kleene logic in his construction process should give us the right extensional characterisation of the ungrounded statements for the cassatio account. However if we wish to suggest that this is anything more than a formalisation, i.e. if we want to use this notion in some motivating way, then we would have to have a separate argument that the weak Kleene logic was the logic that speakers of natural language use. The plausibility of this is in doubt given the intuitively acceptable nature of the reasoning presented here. This reasoning is mistaken but the reason it is mistaken is because such statements are ungrounded and so not amenable to any propositional reasoning. Reasoning using the strong Kleene logic in a conditional 'if there is a proposition expressed' sense does seem to be acceptable. However when it is discovered that one of the logical parts of some utterance is ungrounded we must abandon this reasoning.

Tim Maudlin (2004, Ch. 3) provides an alternative definition of groundedness where we treat the truth predicate as a logical connective, specifically the identity function, and produces a directed graph of the language which breaks every logically complex utterance down into logically atomic ones.[4] Since the truth predicate is here being treated along with the other connectives normal liars and truth-tellers do not count as logically atomic in the requisite sense. Each utterance forms a node with directed edges connecting to other nodes (its logical parts). For utterances involving truth predication these edges are directed, by the capture rule, from those that do not contain truth predications to the utterance which predicate truth of them. For conjunctions they are directed from the conjuncts (so that there is a branching chain) to the conjunct. Negation directs the edges from a node to its negation. Using this we can define disjunction and conditionals as usual for classical logic. Universal quantification can be defined as infinite conjunct while existential quantification is a shorthand for infinite disjunction. The grounded statements are defined on Maudlin's account by not having any loops or infinite sequences when we

4. Also compare Gaifman's (1992) characterisation.

follow the directed edges backwards away from them.[5] From this construction we can see that logically complex statements like the ones above will be ungrounded even though they have a grounded part because their other part will form a loop back to the original statement. Maudlin (2004, 40) directs the graph from the atomic non-truth containing sentences towards the more complex and truth containing ones to capture the intuition that the truth values of statements "flow up" from statements which make direct claims about the world. This construction will capture the notion of groundedness correctly for the cassatio account.

There is one modification we need to make to Maudlin's construction though to properly accommodate the cassatio account. Which is to define our second polemical kind of negation, rather than the normal propositional one. This could be done, I think, in a sense by the opposite rules to normal. For uses of polemical negation following the directed edges backwards towards the atomic truth free utterances must *not* terminate in (all) grounded statements. Either way this construction is a construction that applies to the logic of utterances and is so not something on which the cassatio account primarily rests. We only need to know that no propositions includes a predication of transparent truth to be able to, at least informally, describe the cassatio account.

Note that logically complex statements are only problematic in so far as they either contain a logical part that is itself a truth-teller or liar, for example "Grass is green or this conjunct is true", or where they refer to the whole construction as in the examples above. Statements like "Grass is green and the first conjunct of this statement is true" or "Grass is red or the first disjunct of this statement is false" are not problematic. There ascription of transparent truth can be eliminated. In the first case the second conjunct is just a reassertion of "grass is green", so the proposition expressed by the whole is just that grass is green. In the second the second disjunct is just an assertion of the negation of the first,

5. The infinite sequence restriction is needed to make sense of Yablo style paradoxes. That is; ungrounded statements which do not involve self-reference but which fail to express propositions because they contain an infinite list of statements none of which is grounded. First raised in (Yablo 1993).

so it asserts "grass is not red", which means the whole expresses that grass is red or grass is not red, which is unproblematically (indeed necessarily) true. In an important sense such statements as these latter examples do not involve self-reference because their true (or falsity) ascriptions point to other statements that *could* be logically separated from them. This logical separation means that the parts of such an utterance can be assigned truth values separately (because one can talk about the proposition expressed by the other) and then joined together to form the conjunction, disjunction etc. In Maudlin's construction utterances like "Grass is green and the first conjunct of this statement is true" will not have a loop or infinite chain in their (backwards) path because the first conjunct and the second conjunct simply point to the same, truth free, utterance "grass is green".

These examples are unusual but have an important relation to a much discussed problem; Curry's paradox. Curry's paradox is usually taken to be the statement "If this statement is true then everything is true".[6] If the cassatio account is successful then it provides an obvious way to deal with Curry's paradox that does not require a modification of the standard material conditional.[7] Taking the conditional involved to be a standard material conditional we can recast Curry's paradox in the following form; "either this statement is false or everything is true". The problematic reasoning is then as follows:

1. If the curry statement is true then it is not false.

2. If the curry statement is not false then its first disjunct is false.

3. If the first disjunct is false and the whole statement is true then since it is a

6. The consequent can be replaced by particular instances of absurd propositions if you like, the problem with Curry's paradox consists in the fact that from it you can prove absolutely any consequent you choose.

7. As is the standard method for dealing with such, see for example (Beall 2009, Ch. 2), (Field 2008, Ch. 4) or (Priest 2006, Ch. 6). All three are forced to deal with Curry's paradox differently to their treatment of liars and truth-tellers. I take it to be an advantage of the cassatio account that it presents a uniform solution in this regard.

disjunction the second disjunct is true.

4. Therefore if the curry statement is true everything is true.

5. Now if the curry statement is false then its first disjunct is true.

6. Since it is a disjunction if its first disjunct is true then the whole statement is true.

7. So if the curry statement is false it is true.

Whether we take step 7 as a reductio of the possibility of falsity or as simply meaning that from the curry statements falsity we can go on to construct the problematic proof (steps 1-4) is a moot point. Either way classical logic plus the assumption that the statement expresses a proposition gives us the ability to prove anything we like at all. However the cassatio account again comes to the rescue. As for the other logically complex truth-tellers and liars above we have an utterance that does not express a proposition because it involves an ineliminable use of the truth predicate. So the problematic derivation is blocked since classical inferences like the ones involved here are invalid for ungrounded statements. In the cassatio account then Curry's paradox is really just a variation on any number of possible ungrounded utterances that fail to express propositions, there is nothing especially problematic about it and we do not need to modify our conditional at all to deal with it.[8]

8. I note that there are might be other reasons to think that the material conditional is a bad model of the actual "if.... then...." conditional in English but even if we modify the conditional for other reasons the cassatio account will avoid any attendant Curry-like paradox by blocking the ability to produce any conditional proposition that 'says of itself' that it is false or true.

6 A Return to Description

The truth paradoxes teach us a lesson, some basic and natural assumptions about natural languages are not coherent, so at least one of them must be false. The question is which one? The cassatio account tells us that the mistaken assumptions is that every grammatically correct, translatable sentence with cognitive significance expresses a proposition. It might be thought that the cassatio account is also teaching us that propositions are the proper bearers of truth or falsity but this is not quite the right. No matter what your account of the truth paradoxes, sentences and utterances cannot directly be the bearers of truth and this is not, I think, counter to the normal assumptions of speakers of natural languages.[1] So to accept the cassatio account we only have to give up one fairly simple assumption but we also need to explain why it is that even though a speaker might understand the 'meaning' of their utterance they still fail to say anything meaningful about the world. The correct way to deal with this is, I think, to appeal to a certain kind of externality to the concept of truth. The concept of transparent truth is like the concept "the president of the united states", what proposition is expressed by utterances containing it is importantly determined by external non-mental facts about the world. The concept of transparent truth implicitly includes the information that to determine the proposition expressed by a statement like "that is true" requires empirical information about the referent of "that". It might then appear that the cassatio account

1. (Kneale 1972, §III) defends the idea that normal speakers understand this and that it is logicians and mathematicians who are usually mistaken in their beliefs here.

is committed to denying internalism about transparent truth. I.e. it might look like we have to deny that what is meant by an utterance of the word "true" is determined, only, by facts about the mental state of the agent who makes the utterance.[2]

The cassationist who is also an internalist about mental content is then committed to a particular claim; the concept of transparent truth includes the fact that the meaning of any particular use of transparent truth is (partially) determined by contingent empirical matters, it is in part an externally determined concept.Goldstein (1992, n. 2) notes this and infers that it does imply externalism about our thoughts. This is, I think, a mistake since such a problem can be dealt with to appeal to the kind of two dimensional considerations more usually used to deny externalism about names or natural kinds. This might appear too strong for many to swallow, they can simply deny that their concept of truth includes this caveat at all. If they are correct about this and not in some manner mistaken about their own concepts then there is, perhaps, only one option open to the cassationist; to claim that such persons simply do not share the concept of transparent truth. Now the question becomes, how damaging is this to the cassationist solution as a putatively descriptive solution? As noted above it is plausible that there is not a singly correct descriptive solution to the truth paradoxes at all, if different people have different concepts of truth then it may be that various different solutions apply to each of their distinctive internal idiolects. Those who deny the externalist condition on truth are then seen to simply be using a different concept of truth. Importantly here I note that we all agree on most, if not essentially all, of the uses of the word "true". For all the grounded utterances essentially all the major solutions agree on how their truth is determined and what it means to say they are true, the differences only emerge when we reach the spandrels of truth, truth-tellers and liars (and more as seen in §5). This much, I think, is fairly unproblematic for the solution as a descriptive solution. Of course some people

2. Obviously what people take you to mean when you say something is true, or the communicated meaning of an utterance containing the word "true" can depend on such information but it is much more controversial to think that the *intended* meaning can so depend.

will have divergent notions of truth. Just as some people might have divergent notions of "water" or "duck" that makes it impossible to communicate with them about such topics. This is not a problem for natural language in general because we can happily admit that some people use truth in such a way that their own idiolect is inconsistent (and possibly trivial) without having to worry that *our* language is inconsistent or trivial, or even that that persons idiolect is transparently inconsistent. I.e. their personal idiolect might be inconsistent in so much as their concept of truth means that some statements are true and false, but such statements will never be transparently true and transparently false (or not true) because such propositions do not exist for *anyone* to express or believe. The more problematic question is whether or not 'normal speakers' have such a conception of transparent truth. If they do not then the cassationist solution becomes (plausibly like Priest's dialetheism) a solution that only works for a small set of people with strange concepts. How to answer the empirical question of whether transparent truth actually is the 'standard' concept of truth is difficult and unfortunately not something I have the space to explore here. Answering this question would, I presume, involve a large amount of psychological study of normal speaker's concepts of truth and would thus importantly rely on what we think concepts are and how we can determine their content.

So to sum up what has been said and defended here. Truth-teller and liar statements are spandrels of transparent truth; they are statements which cannot be avoided if we have a truth predicate and self-reference in our langauge. One of the features of transparent truth is that statements which involve it only express propositions when they are grounded, when there is some finite number of steps by which we could eliminate their use of the truth predicate. Truth-tellers and liars are only two of the most obvious examples of such ungrounded statements. Because ungrounded statements fail to say anything about the world it makes no sense to assign them truth or falsity, they are neither true nor false. This invites the problem of revenge, that we can now construct statements using this new semantic notion of groundedness that will be either semanti-

cally indeterminate or paradoxical. However this revenge problem is avoided by noticing that it is utterances of sentences that are grounded or ungrounded and their status is a matter of fact about the world. We can thus truly express the fact that some utterances are grounded or ungrounded without inviting a revenge problem because this does not allow the expression of any new propositions which could be indeterminate or paradoxical. The two central intuitions are that truth is an entirely transparent predicate, it does not add any meaning to a statement to say that it is true, and that propositions rather than (utterances of) sentences are the primary bearers of truth and falsity. Utterances and sentence gain any truth status they have only derivatively from the propositions they express. So while it is true to say of an utterance of a liar or truth-teller sentence that it is ungrounded and therefore neither true nor false it is nonsensical to say this of a truth-teller or liar proposition, since no such thing exists.[3]

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