True, false and paranormal

JC BEALL

1. Background and aim

Two related but distinct projects dominate the Liar literature and work on semantic paradoxes, in general.

NTP *Non-triviality project*: explain how, despite having both a truth predicate (in our language, for our language) and Liar sentences, our language is non-trivial.[1]

ECP *Exhaustive characterization project*:[2] explain how, if at all, we can truly characterize – specify the 'semantic status of' – all sentences of our language (in our language).

These projects reflect the core appearances that give rise to the Liar paradox (and its ilk). Semantic paradoxes arise, at least in part, from the appearance that we can 'exhaustively characterize' all sentences of our language in terms of 'semantically significant' predicates, and truly do as much in our language.[3]

Consider the classical picture according to which our semantically significant predicates are 'true' and 'false'. Our exhaustive characterization takes the form of bivalence.

CEC Classical: every sentence is either true or false.

Given such a characterization – one that purports to be truly expressible in our language and likewise exhaustive – the non-triviality of our truth

[1] A *trivial language* (or theory) is one according to which everything is true. A *non-trivial language* is one that isn't trivial. For convenience, I will often speak of the (non-) triviality of *truth* or of 'true' (relative to some language) to mean the same as 'trivial language'. To say that truth – or 'true' – is trivial is to say that A is true (or A is in the extension of 'true') for *all* A in the given language. Most theorists are concerned with *consistency* (and, hence, non-triviality); however, paraconsistentists are concerned with (reasonable) non-trivial but (negation-) inconsistent languages/theories, and so 'non-triviality project' is the more general term.

[2] Patrick Grim (1991) uses 'complete' in the target sense of 'exhaustive'. The current discussion, while chiefly aimed at central claims of dialetheists, is also highly relevant to Grim's various arguments (1984, 1986).

[3] Throughout, I will restrict 'sentence' to declarative (and, for simplicity, context-independent) sentences of a given language. (In some informal examples, context-dependence creeps in, but I trust that no confusion will arise.) Unless otherwise noted, I will leave it implicit that, e.g., 'every sentence' is restricted to the sentences of the given language.

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predicate (and, hence, our language, in general) is immediately in question in the face of familiar Liars (e.g. 'this sentence is false', or the like).

The classical picture, of course, is just a special case of the Liar phenomenon. At bottom, there is a tension between the apparent non-triviality of our truth predicate and our language's apparent capacity to achieve (true) exhaustive characterization.

EC Exhaustive characterization: every sentence is either true, false or Other.

Here, 'Other' is a stand-in for the remaining 'semantically significant predicates'.[4] For present purposes, one can focus on the 'problem cases' and think of the semantically significant predicates as those that are invoked to classify such cases. For example, if one wishes to classify all Liars (etc.) as *defective in some sense or other*, then 'defective in some sense or other' is semantically significant and thereby stands among one's *Others* in EC.[5]

The Liar paradox makes it difficult to see how we can have both EC and a non-trivial – let alone (negation-) consistent – truth predicate. For present purposes, I will focus on the case in which truth (or 'true') is supposed to enjoy the basic intersubstitutivity feature: that $T\langle A\rangle$ and A are intersubstitutable in all (non-opaque) contexts.[6] The question is: how can we, as we appear to, have a non-trivial truth predicate (in our language, for our language) and also achieve exhaustive characterization?

Dialetheists (e.g. Priest 1987) claim that the only way to have both EC and a non-trivial truth predicate is to construe the 'Other' as *both true and false* – to acknowledge 'true contradictions', true sentences of the form $A \mathbin{\&} \neg A$. In short, dialetheists argue that unless 'true' and 'Other' overlap, Liars such as 'This sentence is false or Other' will yield

[4] I will assume throughout that 'true' and 'false' are among our 'semantically significant predicates'.

[5] I admit that the notion of 'semantically significant predicate' is not precise, but I think that the target, intuitive sense is clear. Giving a precise account is an open – and, in my opinion, quite pressing – issue. Unfortunately, I am forced to leave the notion fairly imprecise here, trusting (hoping) that the target idea is clear enough to be useful.

[6] This is the toughest case and, I think, the most familiar. The case is the toughest because, for example, any distinction between excluded middle and bivalence collapses, at least with respect to what can be said *within* the given language. NB: I will throughout use 'truth predicate' for just such an intersubstitutable truth-device – a 'pure disquotational' device. (A suitable conditional for which $A \rightarrow A$ is valid is also presupposed in the discussion, but, for – and only for – space reasons, I shall say little about that here.)

(negation-) inconsistency – and, thus, require giving up EC or accepting true contradictions.

My aim in this paper is to show that even if exhaustive characterization (in the target sense) requires overlap between 'true' and 'Other', dialetheists are wrong in claiming that we're thereby forced to acknowledge true contradictions. Towards showing as much, I will sketch a simple but novel approach towards semantic paradox, one that acknowledges 'overlap' without true contradictions.

The paper is structured as follows. In §2 I (briefly) review a bad way to construe 'Other' if, as I will assume, one is after both EC and a *consistent* truth predicate. Towards the main aim of the paper, §3 (informally) sketches a novel approach towards 'Other', a very minimal one that serves to undermine the dialetheist's target claims. §4, in turn, sketches a formal, heuristic model of the idea. In §5 I give a few philosophical remarks about the proposal. §6 very briefly sketches a related but alternative approach. Finally, §7 offers a few closing remarks.

2. *How not to characterize 'Other'*

We all agree that we've got true sentences and false sentences. What, if anything, more? Presumably, Liar sentences and the like are among the 'more', the 'Other'.

Let us use 'paranormal' for the target sentences, with an eye on the Greek 'para' – *beyond*, *beside*, or even *in addition to* the normal. One account – a dialetheic account – of paranormal sentences treats them as *gluts*, sentences that are both true and false. Such an account is motivated (almost entirely) by the problem confronting its standard alternative, according to which paranormal sentences are construed as *gaps* – where 'gaps', in turn, are conceived as being *neither true nor false*. The standard problem with such (standard) 'gap' theories arises with what Bas van Fraassen called 'strengthened Liars' – for example, *this sentence is false or gappy*.[7]

The trouble with standard 'gap' theories, where *gaps* are conceived as being 'neither true nor false', is not usually inconsistency; it's rather a failure to finish the task towards which the term 'gaps' was introduced. Recall, as above, that we've got our true sentences and our false sentences, and that we want to *truly* characterize the rest – the paranormal ones. Standard gap theorists maintain – or, at least, want to maintain – that the

[7] van Fraassen (1968, 1970) coined the given term for sentences such as 'this sentence is not true', but the spirit is to take one's account of the paranormal sentences and form a Liar therefrom. (This strategy, of course, is aimed at the desideratum of EC – an exhaustive characterization *in the language* using one's 'semantically significant predicates'.)

paranormal sentences are *neither true nor false*. But the trouble is that there's no clear sense in saying as much, at least given the basic intersubstitutivity of truth.[8] After all, assume, as above, that the target notion of truth is such that $T\langle A\rangle$ and A are intersubstitutable in all (transparent) contexts. To say that A is neither true nor false is to say something either of the form $\neg(T\langle A\rangle \vee \neg T\langle A\rangle)$ or the form $\neg T\langle A\rangle \,\&\, \neg\neg T\langle A\rangle$.[9] But such a claim is either false or (e.g. in K_3) itself 'gappy'. Either way, the task of *truly characterizing the paranormal* is unfinished.[10]

My aim is not to canvass the various responses that may be made on behalf of (standard) 'gap' theorists. My chief aim, as above, is merely to suggest an alternative conception of the paranormals, one that – in some respects – is a compromise between standard 'gap' and standard 'glut' theories, but one that eschews the dialetheist's step from 'overlap' to true contradictions.

3. *True, false and paranormal*

What the Liar (and its ilk) teaches us is that besides the true sentences and false sentences, there are 'more'. In §2, 'paranormal' was introduced as a *tag* for the 'more besides'.

One might now wonder: what is it to be a *paranormal* sentence? I suggest that, at least for now, we set the question aside. For present purposes, it suffices merely to tag the target sentences (e.g. Liars) as such – paranormal. Ultimately, there may well be no interesting property of *being paranormal*, and accordingly no hope of informative analysis or explication of 'paranormal'. (I will briefly return to this topic in §5.) But the term may none the less serve to give us the sort of 'exhaustive characterization' desired, just by giving us a logical

[8] Qualification: if, contrary to current purposes, one were happy to embrace 'true contradictions', then the standard gap story has some sense. One can, as in Beall 2004 and Beall 2005, accept that something like exclusion negation is coherent and use it to spell out 'neither true nor false' (defining falsity in terms of choice-negation). Given EC, one will get 'true contradictions' arising from the exclusion device. But I will assume throughout that we are after a consistent – rather than merely non-trivial – truth theory.

[9] Of course, if we have de Morgan in play, then these are equivalent. I'm assuming that falsity is derivative, defined as truth of negation. (NB: given the noted intersubstitutivity, $T\langle\neg A\rangle$ and $\neg T\langle A\rangle$ are equivalent.)

[10] I take all of this to be familiar. Kripke (1975) and others have pushed the point that 'gaps' aren't to be understood as some 'third truth value' but, rather, as *undefined*. This is really rather beside the current point. 'Undefined', if it's understood as 'neither true nor false', faces the same difficulties. Kripke (1975) can be seen as giving an answer to NTP for intersubstitutable truth. But for the above reasons, and as Kripke himself (in effect) acknowledges, the other project – EC – is left open.

device of sorts with which to 'classify' the target sentences. My suggestion is that – at least for now – we resist questions concerning 'the nature' of paranormals, seeing it merely as a tag introduced for the target sentences. At the very least, we should resist the temptation to understand 'paranormal' – or, more generally, 'Other' – in any way relative to truth. As far as I can see, there is no pressing need to explicate 'paranormal', and a fortiori no pressing need to explicate it relative to truth.

Notice that even at this stage – the stage at which we merely introduce a 'tag' or 'category' for the target sentences – typical 'revenge' worries arise. We know, in advance, that new Liar-like sentences emerge.

√ The ticked sentence in §3 is either not true or paranormal.

And such a sentence itself is surely among the very sort for which we introduced the tag 'paranormal', and indeed the usual Liar reasoning will suggest as much given the relevant version of EC: namely, that every sentence (hence, the ticked one) is true, false (true negation), or paranormal.

The upshot is that 'paranormal' and 'true' overlap. From such overlap dialetheists argue that inconsistency – a true contradiction – inevitably follows. But that's not so. We can agree with dialetheists that, in the face of the ticked sentence (and its large family of relatives), 'true' and 'paranormal' will overlap. But the step towards 'true contradictions' needn't be made. All we need acknowledge is that some paranormal sentences – just in virtue of the role of 'paranormal' and the basic expressive job of 'true' – turn out to be true. Likewise, of course, various paranormal sentences will inevitably be false.

★ The starred sentence in §3 is not paranormal.[11]

But, again, contrary to dialetheists, neither the ticked sentence nor the starred sentence calls for 'true contradictions'. Dialetheists may be right that EC requires an overlap between 'true' and 'paranormal' (and similarly 'false' and 'paranormal'); but such overlap needn't force an overlap between 'true' and 'false' – between what is true and not.

There may be philosophical issues to be sorted out, and I will (very briefly) return to this in §5. For now, it would be useful to have a simple, formal sketch of the idea.

[11] If we have it – as the relevant version of EC – that the starred sentence is true, false, or paranormal, then it's true iff not paranormal (and, so, not true and paranormal). So, the sentence (just reasoning intuitively, at the moment) is paranormal, and so … a false paranormal.

4. *A heuristic model: paranormal*

The picture is along familiar many-valued lines.[12] Our 'semantic values' (in the *formal story*) are elements of $V = \{1, 0.75, 0.5, 0.25, 0\}$, with designated elements in $D = \{1, 0.75\}$. Logical consequence – semantic validity – is defined as usual in terms of D. (I skip the definition here.)

Our atomics are interpreted via a function v in the usual way, extended, in turn, to compounds: $v(A \mathbin{\&} B)$ is the minimum of $v(A)$ and $v(B)$, and $v(A \vee B)$ the maximum. (Quantifiers can be treated similarly, as generalised conjunction and disjunction.) Negation is treated normally, as follows.

$$v(\neg A) = 1 - v(A)$$

Hence, negation is fixed at 0.5 but otherwise toggles designated and undesignated values.

We assume a special predicate T to be interpreted as a (transparent, disquotational) truth predicate: $v(T\langle A\rangle) = v(A)$ for any 'admissible' v. Falsity, in turn, is derivative: $v(F\langle A\rangle) = v(T\langle\neg A\rangle)$.

Finally, we add a unary connective π, our 'paranormal' device, which is interpreted as follows. (I will use 'π' for both the connective and operator, trusting that context will do its clarifying job.)

$$v(\pi A) = \begin{cases} 0 \text{ if } v(A) \in \{1, 0\} \\ 0.75 \text{ otherwise} \end{cases}$$

Note that – letting 'P' be our 'Paranormal' predicate – the extension of P, namely,

$$P^+ = \{A: 0.25 \leq v(A) \leq 0.75\}$$

may well be negation-inconsistent; it may well contain both A and $\neg A$ for some A. In this respect, *being paranormal* differs from *truth* (similarly, *falsity*), as the extension of the latter, namely,

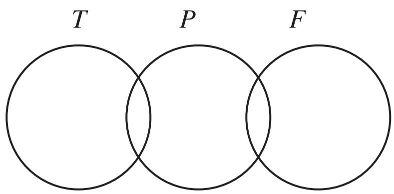
$$T^+ = \{A: 0.75 \leq v(A)$$

is always negation-consistent.[13]

[12] NB: while I do not (here) discuss a suitable conditional, the conditional in question is *not* to be constructed along standard Łukasiewicz lines – due to Curry or ω-inconsistency (Hájek et al. 2000, Restall 1992). The conditional will be one that is not 'truth-functional' (in the standard sense) but, rather, invokes 'non-normal points' familiar from Kripke and, more recently, work in 'relevant' semantics.

[13] A consistency proof cannot be done in the usual fashion, given that π is non-monotonic, but one is available. (Thanks to Tim Bays and Greg Restall for their interest in the idea; each independently suggested different proof sketches.)

One *might* picture the story as follows, although one ought to keep in mind that this is only a heuristic, and in some ways may ultimately be misleading.



4.1 'Paranormal'-ful liars

It is obvious that standard 'π'-free Liars – the ones for which 'paranormal' was 'originally' introduced – have some interpretation in the language; in fact, in the formal story they're *forced* to be 0.5. But we can truly say of such Liars that they're paranormal: πA and $\pi\neg A$ will be true (designated) for any such standard ('π'-free) Liar. As above, one might wish to say that such sentences are *not true* and *not false*, but – on the current proposal – such talk is confused. (But see §5.) We can classify such (standard) Liars as paranormal, and there's little more to say or, as far as I can see, little more that need be said.[14]

It is worth noting that standard sorts of 'revenge' Liars – ones, like 'strengthened Liars', that invoke one's semantic category for 'previous Liars' – are straightforwardly handled *without requiring true contradictions*, *pace* dialetheists. Some examples:

1. Let λ say $\neg T\lambda \vee \pi T\lambda$.[15] This is an example of a true paranormal. In the formal story, the interpretation (which is forced, in this case) is that $v(T\lambda) = 0.75$. In this case, λ is paranormal and, since it has a true disjunct, also true.
2. Let λ say $\neg T\lambda \,\&\, \pi T\lambda$. In this case, we have two options. Option One: $v(T\lambda) = v(\neg T\lambda) = 0.5$. In this case, we can only say that λ (likewise, its negation) is paranormal. This is the most natural interpretation. But notice that Option Two is available: $v(\neg T\lambda) = 1$ and $v(T\lambda) = 0$; in other words, λ is false. On this option, one

[14] Note that if you *want* to say more, you're most likely concentrating too hard on our formal 'picture' that is constructed using a classical metalanguage (a proper fragment of our 'real language'), and hence affords model-relative notions that may well be – and, I think, are – illusory in the 'fuller (paranormal) real language' suggested. (On this topic – the conflation of model-relative v. 'real' notions – I'm in agreement with Field 2003, but won't discuss the issue here.)

[15] For readability, I use 'λ' as a *name* of the given sentence, dropping parentheses, etc. and trusting context to clarify.

cannot say that λ is paranormal. Either way, there's a plausible interpretation.

3. Let λ say $\neg T\lambda$ & $\neg\pi T\lambda$. In this case, we also have various options, but the most natural allows us to say that λ is not true and that λ (and its negation) is paranormal. Just let $v(T\lambda) = 0.25$. (NB: This same interpretation is available for a sentence that says only that it is not paranormal – e.g. λ says $\neg\pi T\lambda$.)

There are other examples but the foregoing give a flavour of the sorts of interpretation available. For now, I turn (very briefly) to a few philosophical remarks.

5. *A few philosophical remarks*

Philosophically, the suggestion is that we see 'paranormal' merely as a 'classifying' device, a device about which there may not be – and, indeed, likely isn't – much to say. The broader picture is fairly deflationary. On the usual picture, we began with our T-free fragment and had no problems except expressive ones due to our finite limitations. We could neither implicitly nor explicitly assert everything that we wanted to assert. Towards that end, our 'truth'-device was introduced. But once 'true' was introduced (into the grammatical environment of English), various unintended sentences emerged – typical Liars and so on.

The suggestion is that we see 'paranormal' as a device for 'classifying' or, better, for 'throwing together', the unintended (Liar-like) sentences that resulted from our truth-device. As above, once 'paranormal' is introduced, unintended by-products of *it* emerge – 'this sentence is paranormal', etc. The suggestion is that we simply let such sentences be among the paranormal, even though – given the role and rules of 'true' – they may likewise be true. (Similarly for 'false'.) If our chief concern is to 'exhaustively characterize' or 'classify' in a way that preserves *consistency* – avoids 'true contradictions' – then such overlap is harmless, provided that 'true' and 'false' avoid overlap.[16]

One might press for analysis or explication: what is it to *be* paranormal?! The suggestion is that we resist the question. Truth itself, at least on a suitably deflationary conception, affords little by way of informative

[16] The current proposal clearly bucks the so-called 'supervenience of truth' – the idea that any truth is 'made true' by the *non-semantic* facts. I'll say more about this in a larger project, but I don't think that the idea is terribly well motivated from a disquotational perspective. Indeed, it seems to me that it may well be that our disquotational devices give rise to various truths that are true merely in virtue of the mechanics of the devices. Moreover, some of our assignments may – indeed, likely will – be up to extra-semantic (methodological) principles. (This is an important issue, but beyond the current paper.)

analysis. Given the job of 'paranormal', there's little reason to expect – let alone demand – of it an informative analysis. At the very least, it is far from obvious that 'paranormal' need be explicated relative to truth (i.e. in relation to truth); and, pending good reason to do so, I suggest that we give up the search.

5.1 Robust truth

One could think of 'paranormal' in a different light. One could see our 'paranormal' device as yielding a consistent, unified 'robust' or 'strong' truth predicate.

Hartry Field (2003) and others have tried to catch the sense in which 'paranormal sentences' are 'beyond truth' by constructing a *definitely* operator.[17] The motivation behind introducing 'definitely' (or 'determinately' or the like) is to capture some sense in which the paranormals are 'not true'. Since, obviously, it makes no sense to call such paranormals 'not true' in the basic (disquotational, intersubstitutable) sense of 'true', there must be a stronger notion of 'truth' in use.

Part of my suggestion is that we don't *need* any such thing.[18] Still, if one demands to say of (e.g.) the starred sentence in §3 that it is *not true in some sense*, one can already say as much. Define *robustly true* – a derivative notion – thus:

$$v(\boldsymbol{T}A) = v(A \mathbin{\&} \neg\pi A)$$

We have it that $v(\boldsymbol{T}A) = 1$ if and only if $v(A) = 1$. As above, $v(\pi A) \in \{0.75, 0\}$ and, hence, $v(\neg\pi A) \in \{0.25, 1\}$ for all v.

We also immediately get principles *reminiscent but atypical* of standard 'definitely' operators.[19]

- $\boldsymbol{T}A \models A$.
- $A \not\models \boldsymbol{T}A$. (Just let $v(A) = 0.75$.)

[17] I think that Field's work is a huge advance on the problem – and the wider area of truth and paradox, generally. Unlike Field, my aim was never to conceive of the paranormal as in some sense 'not true', but the current proposal can sit quite naturally in that tradition. (Indeed, it may be that, ultimately, a combination of the current proposal and Field's recent work will be best, as the current proposal – but not Field's – affords a 'unified strong truth' device.)

[18] Also, I never liked the idea of 'definitely true' or the like, as it's difficult to avoid misreading the intended sense of 'definitely', a sense about which proponents of such views are silent, except for the resulting logic.

[19] I use $\models$ for semantic consequence. The second principle is what is atypical with respect to standard 'definitely' operators. Still, the given 'robust truth' is not entirely unfamiliar; it resembles – and, pending details of a conditional, might just *be* – the Kripke–Feferman notion of 'truth'. (See Feferman 1984 and Reinhardt 1986 for details.)

The advantage (if any) of having such 'robust truth' is that it may do some work that our fundamental truth predicate isn't cut out to do. Our fundamental truth predicate has only the job of being a (transparent) generalization-device, of being such that $T\langle A\rangle$ and A are equivalent for any A, including, of course, the paranormal A. The value (if any) of 'robust truth' is that it may cut distinctions that (transparent) truth itself can't – and was never intended to – cut.

Consider, again, a standard – i.e. 'π'-free and '$\boldsymbol{T}$'-free – Liar, for example, the ticked sentence above. In the formal framework, the ticked sentence is forced to get 0.5. As throughout, there's little sense in saying that the ticked sentence is 'neither true nor false', since we can't truly say as much (at least in our 'real, paranormal language', which is the chief issue). But we can classify the sentence for what it is; one can – and should – truly say that the ticked sentence is paranormal. And there's nothing more one *needs* to say about the ticked sentence. Nonetheless, in virtue of $\boldsymbol{T}$, we can say a bit more; in particular, we can truly say that the ticked sentence, like its negation, is not robustly true.

This is not (by my lights) a huge advance over just simply saying that the ticked sentence (or its like) is paranormal – and leaving it at that. But if one wishes to have *some* sense in which the ticked sentence is not 'true', one can truly say that it's not *robustly true*. As will be obvious (see the definition of 'robustly true'), saying as much (in the given case) does not ultimately go beyond just (truly) 'classifying' the ticked sentence as paranormal; however, there may be some 'intuitive pleasure' associated with saying that the sentence is not robustly true. More importantly, as above, one might see our strong usage of 'true' – e.g. in the tendency to say that simple Liars are *not true* (*in some sense*!) – as being underwritten by the otherwise rather dull device 'paranormal', a device we recognise in giving an account of such 'strong truth'. But, for present purposes, I will leave the matter of robust (or strong) truth there.

6. *Variation on a theme: residual*

One might have a different sort of conception of the 'Other' (see §1), one that motivates a variation on the 'paranormal' picture. In particular, one might settle on a (fairly common) thought according to which we have our *true* sentences and, beyond that, we simply have *the rest* – be they false or what have you. Here, the picture is one according to which our goal (e.g. in science or rational inquiry, generally) is to record the full, true story of our world and simply chuck the 'remainder' out. On this picture, anything *false* (having true negation) is 'residual' and, moreover, anything *not residual* true.

To model the above idea, we do just as with the 'paranormal' case except that we define our 'residual' tag thus:[20]

$$v(\dagger \mathrm{A}) = \begin{cases} 0 \text{ if } v(A) = 1 \\ 0.75 \text{ otherwise} \end{cases}$$

In turn, the predicate '*R*' (residual) behaves thus:

$$R^+ = \{A\colon 0 \leq v(A) \leq 0.75\}$$

R^+ will differ from *falsity* by being 'negation-inconsistent', whereas the extension of 'false' will be 'negation-consistent'.

$$F^+ = \{A\colon 0 \leq v(A) \leq 0.25\}$$

This approach reflects the 'residual' conception according to which any false sentence is residual, and any sentence that is not residual is true. The salient difference between π and † is that we have

$$\neg A \vDash \dagger A$$

and

$$\neg\dagger A \vDash A$$

only for †, not for π. (While I am not discussing a suitable conditional here, the target conditional versions of the above principles will similarly hold.) This reflects the idea that, in some sense, science – or, generally, rational inquiry – aims to separate the truth from the 'remainder', the residual. But, as before, once we add (even a minimalistically construed) category 'residual', EC will demand overlap, and so we allow that some of the resulting residuals are true. But no matter. Contrary to dialetheists, the given overlap needn't require 'true contradictions', which – for present purposes – was a desideratum.

Of course, just as with the 'paranormal' approach, one might want to say that the ticked sentence – and, in general, any other 'original liar' that motivated the introduction of our tag 'residual' – is 'not true' in some sense. As before, there's no sense in saying as much if 'true' is playing its basic, merely disquotational role. But one can nonetheless have a more 'robust' notion just as before.

For various reasons, I'm more inclined towards the 'residual' picture than the 'paranormal', but a full discussion is beyond the scope of this paper.

[20] To avoid confusion, I will use '†' for our target 'residual' tag. Note that one gets a similar result by letting $v(\dagger A)$ go to 1 if $v(A) = 0$, go to 0 if $v(A) = 1$, and otherwise $v(A) = 0.75$. (This variation may have something over the current suggestion, but I won't pursue it here.)

7. *Closing remarks*

My aim in this paper was mostly to rebut the dialetheist's charge that exhaustive characterization (in the target, albeit admittedly imprecise, sense) requires acknowledgment of 'true contradictions'. While I remain very sympathetic with dialetheism, I hope to have shown a very simple – and, I think, plausible – framework that undermines the step from 'overlap' to 'true contradictions'. Dialetheists *may* be right that (the target sense of) EC requires overlap of semantic categories, but such overlap, as I hope to have shown, needn't bring about 'true contradictions'.

What is of value in the current proposal, I hope, is more than illuminating the unjustified jump from 'overlap' to 'true contradictions'. Dialetheists have long argued that even if one is able to achieve both EC (in the target sense) and a consistent (hence, non-trivial) truth predicate (for one's language, in one's language), the construction is almost certainly going to be much more complicated than the strikingly simple dialetheic alternatives – ones, like Priest's *LP* (1979), that needn't invoke transfinite levels, etc. One value of the current proposal is that, pending further details, it promises what seems to be an equally simple yet consistent (and, indeed, non-paraconsistent) alternative that nonetheless enjoys the 'exhaustive characterization' sought by dialetheists.[21]

University of Connecticut
Storrs, CT 06269-205, USA
jc.beall@uconn.edu

References

Beall, Jc. 2004. True and false – as if. In *The Law of Non-Contradiction*, ed. G. Priest et al., 197–216. Oxford: Oxford University Press.

Beall, Jc. 2005. Transparent disquotationalism. In *Deflationism and Paradox*, ed. Jc Beall et al., 7–22. Oxford: Oxford University Press.

Feferman, S. 1984. Toward useful type-free theories, I. *Journal of Symbolic Logic* 49: 75–111. Reprinted in *Recent Essays on Truth and the Liar Paradox*, ed. R. Martin. Oxford: Oxford University Press.

Field, H. 2003. The semantic paradoxes and the paradoxes of vagueness. In *Liars and Heaps: New Essays on Paradox*, ed. Jc Beall, 262–311. Oxford: Oxford University Press.

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Grim, P. 1984. There is no set of all truths. *Analysis* 44: 206–208.
Grim, P. 1986. On sets and worlds: a reply to Menzel. *Analysis* 46: 186–91.
Grim, P. 1991. *The Incomplete Universe*. Cambridge, MA: MIT Press.
Hájek, P., J. Paris, and J. Shepherdson. 2000. The liar paradox and fuzzy logic. *Journal of Symbolic Logic* 65: 339–46.
Kripke, S. 1975. Outline of a theory of truth. *Journal of Philosophy* 72: 690–716. Reprinted in *Recent Essays on Truth and the Liar Paradox*, ed. R. Martin. Oxford: Oxford University Press.
Priest, G. 1979. The logic of paradox. *Journal of Philosophical Logic* 8: 219–41.
Priest, G. 1987. In *Contradiction*. The Hague: Martinhus Niijhof.
Reinhardt, W. 1986. Some remarks on extending and interpreting theories with a partial predicate for truth. *Journal of Philosophical Logic* 15: 219–51.
Restall, G. 1992. Arithmetic and truth in Łukasiewicz's infinitely valued logic. *Logique et Analyse* 140: 303–12.
van Fraassen, B. 1968. Presupposition, implication, and self-reference. *Journal of Philosophy* 65: 136–52.
van Fraassen, B. 1970. Truth and paradoxical consequences. In *The Paradox of the Liar*, ed. R. Martin, 13–23. New Haven: Yale University Press.