Liar sentences and Soames's rejection of bivalence

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Scott Soames's proposes, in his book Understanding Truth (1999)[1], a motivation to reject bivalence. It is his claim that if bivalence is assumed to apply to liar sentences, contradictions will follow. However, contradictions will equally follow if bivalence is denied of liar sentences (in fact, of any truth-bearers). Soames avoids contradictions by treating truth as a partially defined predicate: for certain sentences, truth is not defined to apply or not to apply. Liar sentences are some of such cases. However, there are several problems with Soames' proposal. Liar sentences also pose a problem for the disquotational schema (T). Soames only avoids this problem by changing the meaning of the biconditional in schema (T), and this will be shown to be an unsatisfactory move. Furthermore, we should only regard liar sentences as possible counterexamples to bivalence provided they are regarded as proper truth-bearers. Soames takes truth-bearers to be sentences that express propositions. However, it is questionable that liar sentences, such as the example considered, can count as proper truth-bearers. Soames imposes on truth a condition I will call the priority requirement: that the status of the claim that some sentence S is true (or not true) depends on the prior status of S itself, hence on the status of sentences not containing the truth-predicate. Soames' regards the cases where the truth-predicate cannot be eliminated as cases of truth-value gaps. I will argue that the priority requirement means that liar sentences fail to express propositions: for liar sentences, there is no prior sentence S on whose truth or falsity the liar case would turn. Nothing is said constraining a possible way for things to be, so nothing said to call true or false. Sentences that do not say anything are neither true nor false without contradiction.

1- Soames motivation to reject bivalence

Soames presents two versions of an argument where the assumption that bivalence applies to a typical liar sentence leads to the contradiction that the sentence is both true and not true. For the present purpose, it is sufficient to consider one of the arguments. The example of a liar sentence is:

(1) Sentence (1) is not true.

The argument relies on further premises and assumptions. One such premise is the disquotational schema (T). Soames believes that the acceptance of every instance of schema (T):

(T) 'S' is true iff S,

is not only correct, as it is central to the notion of truth. No instance of (T) can be false, and conveying the meaning of the truth-predicate in English involves conveying the acceptability of all instances of (T). Hence, Soames is also committed to the acceptability of the instance of (T) with sentence (1):

'Sentence (1) is not true' is true if and only if sentence (1) is not true.

Soames arguments need also to rely on the assumption that a liar sentence such as (1) counts as a proper truth-bearer. He takes truth-bearers to be sentences that express propositions. As he says:

> "What does matter is the conception of propositions as objects of belief and assertion, as semantic information, contents of sentences in contexts, and as the fundamental

[1] Soames, S. (1999), Understanding Truth, Oxford, Oxford University Press.

bearers of truth and falsity (…) the truth of a sentence depends on the truth of the proposition it expresses. A sentence or utterance cannot be true if it says nothing or expresses no proposition. Rather, it is true because it expresses a proposition."[2]

Elsewhere[3], Soames specifies that a sentence expresses a proposition if it determines a function from possible circumstances to truth-values that constraints how the world is represented to be. For the argument to be applicable to Liar sentences, it must be assumed that these sentences count as normal truth-bearers.

Soames intends to show that the assumption that the principle of bivalence applies to every sentence leads to a contradiction. The principle of bivalence formulated by Soames is:

(PB) Every sentence of English is either true or not true.

Given the previous identification of truth-bearers, (PB) must be understood as saying that every English sentence that expresses a proposition is either true or not true. In the argument, Soames takes 'not true' to be equivalent to 'false'. The argument is as follows:

(P1) 'Sentence (1) is not true' is true iff sentence (1) is not true.

(P2) Sentence (1) = 'sentence (1) is not true'.

(C1) Sentence (1) is true iff sentence (1) is not true.

(C2) Sentence (1) is true and not true.

The move from (C1) to (C2) relies on the application of (PB). (C2) is the step that Soames wants to reject. Without assuming (PB), the application of schema (T) to sentence (1) only implies that it is true if and only if it is not true.

There is nevertheless a problem with accepting the instance of schema (T) with sentence (1). If the biconditional in schema (T) and in the argument above is the material biconditional, then (P1) can be read as:

(P1)* ('sentence (1) is not true' is true and sentence (1) is not true) or ('sentence (1) is not true' is not true and sentence (1) is true)

Soames thinks that as there are reasons to reject that sentence (1) is either true or not true, there are also reasons to reject each conjunct and disjunct in (P1)*. Nevertheless, Soames adduced to independent reasons to accept every instance of schema (T). Allegedly, the acceptance of each instance of (T) is essential for the understanding of the notion of truth. However, if the biconditional in (T) is understood as the material biconditional, there is at least one instance of (T) which cannot be accepted and does not contribute to the understanding of the notion of truth.

Soames' solution relies in changing the understanding of the biconditional. He says:

[2] Soames (1999) p. 118
[3] *Idem,* p. 193.

> "The connective is given an interpretation in which '(A iff B)' is assertable and true whenever both A and B 'have the same status' – including the case in which both are claims that must be rejected. In this interpretation, (P1), (P2), and (C1) are unobjectionable, but the contradiction cannot be derived without the assumption that sentence (5) [my sentence (1)] is either true or not true." [4]

The motivation to reject bivalence is that assuming it to apply to liar sentences implies that such sentences are both true and not true. By rejecting (PB), this contradiction cannot be derived.

However, if liar sentences such as sentence (1) are counterexamples to (PB) there is still a problem. Suppose that we deny bivalence. Its denial can be thus formulated:

(NPB) Not every sentence of English is either true or not true.

From (NPB) follows that there is a sentence of English that is neither true nor not true, i.e., there is some sentence of English that is both not true and true. If the counterexample to (PB) were a Liar sentence, (NPB) would say of the liar sentence that it is true and not true. Assuming bivalence to hold of a liar sentence or that the denial of bivalence holds of it leads to the same result that the liar sentence is true and not true.

A difference must be noted in the two ways one arrives at a contradiction. The first way, assuming bivalence to hold, requires schema (T) and the liar sentence; but the contradiction resulting from the denial of bivalence would go through for any sentence/proposition, and no other assumptions are required.

Soames intends to reject that liar sentences like (1) can be regarded as being true or not, without being driven to contradictions. The aim is provide an account of truth according to which it is legitimate to reject that some sentences can be regarded as true and to reject that they can be regarded as not true. Soames' solution consists in treating truth as a partially defined predicate such that, for some sentences, it cannot be said to apply and it cannot be said not to apply.

2- Truth as a partially defined predicate and the priority requirement

Soames proposes a model of partially defined predicates and argues that truth can be understood as conforming to the model proposed. This characterization of truth allows that, in some circumstances, a sentence or proposition cannot be said to be true and it cannot be said not to be true. On Soames' model, a partially defined predicate is one such that, for certain things, it cannot be said to apply and cannot be said not to apply. Such a predicate can be introduced in a language by rules that provide sufficient conditions for it to apply

[4] *Idem*, p.160.

and sufficient conditions for it not to apply, but not individually sufficient and jointly necessary conditions for it to apply or to fail to apply. As the conditions are mutually exclusive but not jointly exhaustive, there will be objects of which the predicate cannot be asserted nor denied (p. 163). The truth predicate is introduced by the following:[5]

(a) A predicate 'P' applies (does not apply) to an object o ≡ o is (is not) P

(b) For any n-place predicate P and terms $t_1,\ldots, t_n$, '$Pt_1,\ldots, t_n$' is true (not true) ≡ P applies (does not apply) to the n-tuple $<o_1,\ldots,o_n>$ of referents of the terms.

(c) For any sentence S, 'not S' is true (not true) ≡ S is not true (true).

If there is some predicate P such that for some referred objects, the predicate cannot be said to apply and cannot be said not to apply, then a sentence where P is predicated of such objects cannot be said to be true or not true. So, Soames claims, 'true' is equally partially defined. The claim is that some things that can be true or untrue can fail to be one or the other. Hence, there would be truth-value gaps. A sentence in which a predicate is attributed to items for which it is not defined to apply will be called *ungrounded*, but being ungrounded is not to be understood as a third truth-value on a par with truth and untruth (or falsehood). Soames also accounts for the truth of complex sentences containing truth-functional connectives, but I will not consider these cases here.

Establishing how the predicate 'true' and the predicate 'applies' apply completes Soames account of truth as a partially defined predicate.

(d) The predicate 'true' applies (does not apply) to an object ≡ it is (is not) a true sentence.

The predicate 'apply' applies to a pair <o, o'> ≡ o is a predicate that applies to o'; otherwise it does not apply.[6]

As Soames claims, given the previous characterizations we have a grasp of the right hand-side of the biconditional in (d) that is sufficient to fix the interpretation of the left-hand side. The result is a set of instructions governing the use of the truth predicate both in sentences that contain the predicate and in sentences that do not. It can be deduced from the given clauses when a sentence or proposition is ungrounded. A sentence is ungrounded when the predicate in the sentence is attributed to a certain object or objects for which it is not defined to apply. Given the last clause (d), the truth-value of sentences containing the

[5] Clause (a) tells us what it is for a predicate that is already understood in the language to apply or not to apply, clause (b) tells us what it is for an atomic sentence to be true, and clause (c) introduces negation for these sentences.
[6] p.174.

truth-predicate can also be established. If Soames' introduced biconditional is transitive, the truth of a sentence "'o is P' is true" can be inferred from clauses (a) to (d). A given sentence such as "'o is P' is true' is (is not) true just in case o is (is not) P. This means that what is needed to know whether a given sentence 'S is true' is true or not is just what the sentence S itself says. Any reference to truth-values must be eliminated in order to arrive at truth-conditions. For a sentence to be true or untrue it must satisfy what can be called the *priority requirement*. Soames says:

> "…the procedure to introduce the truth-predicate makes the status of the claim that S is true (or not true) dependent on the prior status of S and ultimately on the status of sentences that do not contain the truth predicate at all. (…) when the dependence cannot be traced back in this way, the rules for characterizing sentences as true or as not true will simply be inapplicable (…) there is a class of sentences that the instructions are silent about." (p. 175-176)

A liar sentence such as sentence (1) will be one about which the instructions are silent. The sentence cannot be characterized as true nor can it be characterized as untrue, hence it is ungrounded. Given a sentence such as sentence (1), it could be expected, given Soames' earlier clauses, that one could infer another sentence not containing 'not true', but there is no prior sentence not containing the truth-predicate on whose truth sentence (1) would turn.

3- Soames' reasons to regard liar sentences as expressing propositions

It is curious that Soames should consider liar sentences as sentences that do express propositions, considering that he thinks they are such that "the rules for characterizing them as true or as not true will simply be inapplicable..." What are the reasons for this?

1) Soames considers that if liar sentences do not express propositions, they are similar to the cases of presupposition failure, for example as considered by Strawson. If so, they are sentences that are neither true nor false. However, Soames had argued that a sentence like (1) couldn't be regarded as being neither true nor false, for this would mean that it is not true.

2) If sentence (1) expresses a proposition, there ought to be possible circumstances in which it is true or false. As Soames had claimed, it ought to determine a function from possible circumstances to truth-values. Could sentence (1) have been a true or false sentence? If the expression 'sentence (1)' referred to a false sentence, for example '2+2=5', it would have been a true sentence, for it would say of this sentence that it is not true. Soames thinks that this may guarantee that 'sentence (1) is not true' fulfils one condition for sentences to express propositions, namely that there are possible circumstances in which it is true.

3) Finally, sentence (1) can arguably be used in the ascription of propositional attitudes. As Soames maintains, one could describe someone's belief thus:

- Mary believes that sentence (1) is not true.

Since I intend to argue that liar sentences like sentence (1) are not counterexamples to bivalence, at least as Soames argues, and that Soames does not give us good reasons to think that they do express propositions, I cannot accept that Mary can have a belief as that allegedly reported. I must also argue that liar sentences can be neither true nor false without contradiction. The most important point to make is that there are no possible circumstances in which they can be true and no circumstances in which they can be false.

4- Discussion

If liar sentences were a threat, or counterexample, to the principle of bivalence, they would have to count as proper truth-bearers, i.e., as items that can possibly be evaluated as true or as false. Soames identifies truth-bearers as sentences that express propositions. Do liar sentences express propositions? Do they determine a "function from possible circumstances to truth values that constraints a way the world is represented to be", to use Soames expression? Furthermore, is there a problem in saying that a sentence such as sentence (1) is neither true nor false? Soames argued that this is indeed a problem for liar sentences. Soames' motivation to reject bivalence and to regard truth as a partially defined predicate relied precisely on the assumption that applying bivalence to, and denying bivalence of, liar sentences leads to contradictions.

The application of the disquotational schema (T) to a liar sentence such as sentence (1) also led to some difficulties. Soames avoided them by providing an alternative understanding of the biconditional 'iff'. The biconditional is to be understood as true whenever the two sides of the biconditional have the same status, true, false or ungrounded.

There is however another problem with the application of schema (T) to the liar. In the argument above one starts with a premise

(P1) 'Sentence (1) is not true' is true iff sentence (1) is not true,

to conclude that

(C1) Sentence (1) is true iff sentence (1) is not true.

In the classical understanding of the biconditional, the conclusion is as much a contradiction as the claim that sentence (1) is true and it is not true. Just as an expression of the form *A & ØA* is contradictory, because under any assignment of truth-values to A, the expression is false, also any expression of the form *A iff ØA* is false under any assignment of values to A.

Soames' solution is awkward. First, it is strange that a connective should be defined with the purpose of making some contradiction possibly true. It should be noticed that an expression of the form *A iff ØA*, given Soames new biconditional, will be true only when A is ungrounded, but is always false otherwise. The argument from (P1) to (C1) above does go through, given the connectives and rules involved. Nevertheless, there is a difference in the truth-conditions of the premise (P1) and the conclusion (C1). Given that 'iff' is understood as Soames has defined it, a premise of the form *'A' is true iff A* is true under any assignment of truth-values (or status) to A. However, an expression of the form *A iff ØA* is always false, except when A is ungrounded. Hence, we have an argument form that is legitimate only with the new biconditional, where we start with true premises and end with a possibly false conclusion. So, there could be a problem with introducing a connective that legitimates inferences from true premises to possibly false conclusions.

Secondly, and most importantly, it may be asked which understanding of the notion of truth is possible in an instance of (T) such as ''sentence (1) is not true' is true iff sentence (1) is not true', where sentence (1) is the sentence indicated previously. What understanding of truth can be achieved if one then accepts that some item is true if and only if it is not true?

The application of schema (T) to the liar raises some difficulties. If the biconditional in the formulation of (T) is the material biconditional, contradictions are derived just as easily as with the application of the principle of bivalence to cases of the liar. If the biconditional is as Soames defines it, we are allowed to regard a contradiction as possibly true (*A iff ØA*). We are also allowed to make a strange inference from true premises to possibly false conclusions. Finally, we gain a very strange understanding of the notion of truth - namely an understanding that obliges us to accept that some sentence is true if and only if it is not true.

What this seems to indicate is that the problem does not lie in the acceptance of the principle of bivalence, or in the acceptance of schema (T). There may be independent problems with either, but it is not clear that liar sentences are what should lead us to reject any of them. Valid arguments require that one deals with truth-bearers. Soames' claim is that truth-bearers are sentences that express propositions. The assumption that liar sentences do express propositions, and hence are items we can use in arguments, leads to the difficulties just indicated. So perhaps what needs to be revised is the claim that they do express propositions. If liar sentences do not count as truth-bearers, we should not expect that the application of logical or semantic principles to them should yield the same result as the application of such principles to truth-bearers. One should not equally take the results of such misapplication as an indication that there is something wrong with the logical or semantic principles themselves. There is a Portuguese expression sometimes used to show that some things don't make sense. One can either call someone's reasoning 'potato logic', or say if that is true, or if that is possible, or if that makes sense, then logic is a potato. Trying to reason and argue with things that are not truth-valued is potato logic. *If* liar sentences do not express propositions, then taking them as counterexamples to bivalence is potato logic. Soames quotes, but does not endorse, Kripke's remark that

> "'Undefined' is not an extra truth-value (…) If certain sentences express propositions, any tautological truth-functions of them express a true proposition. Of course, formulas, even with the form of tautologies, which have components that do not express propositions, may have truth-functions that do not express propositions either… Mere conventions for handling terms that do not designate numbers should not be called changes in arithmetic; conventions for handling sentences that do not express propositions are not in any philosophically significant sense 'changes in logic'."[7]

Do liar sentences express propositions?

We know that the rules for characterizing them as true or as not true, the rules put forward by Soames, are inapplicable. Liar sentences violate the priority requirement. There is no prior sentence, not containing the truth-predicate, which could be obtained by eliminating the truth-predicate from the liar sentence. There is no prior sentence S, making some claim about how things could be, on whose truth or falsehood the liar case would turn. Hence, there is nothing predicated as true or as not true, no actual claim about how things are to regard as true or as not true. Acceptance of schema (T) and of the priority requirement provides a plausible background to reject that sentences like sentence (1) express propositions. Some sentence 'S is (is not) true' expresses a proposition that is dependent on the proposition expressed by a sentence 'S' that does not contain 'true'. Liar cases are not such cases. Nothing seems to be predicated as true or as not true.

Soames claim that liar sentences do express propositions, are examples of truth-value gaps and are thus counterexamples to bivalence, is a curious claim. Soames provides a model of partially defined predicates, predicates such that there will be items to which the predicates cannot be applied or of which they cannot be denied. If such a partially defined predicate is attributed to an object for which it is not defined in a sentence S, there will be some sort of gappiness in this sentence. The application of the truth predicate to this sentence will just

[7] p. 192, quote from Kripke's Outline of a Theory of Truth, p. 700-701.

reflect the gappiness already existent in what the sentence allegedly says. If some predicate P cannot be said to apply or to fail to apply to some object o, one cannot say whether it is true or not true that o is P. It is not evident whether there are such cases. However, this is not what is at stake with the liar cases. As there is no prior sentence S to consider, there is no prior gappy sentence S making some claim about a possible way for things to be such that truth can neither be applied to it nor denied of it. If a claim that S is true (not true) depends solely, in the deflationist spirit, on the claim made by S itself, it is curious that Soames (who is a deflationist) is willing to accept that when no claim S is made, some claim that S is true (or not true) counts nonetheless as making a claim about anything. What could be expected from a deflationist about truth would be that the truth predicate is in principle eliminable from any sentence that counts as a truth-bearer. The truth-predicate is not eliminable, not even in principle, from a sentence such as:

(1) Sentence (1) is not true.

A deflationist *could* claim that a case such as (1) does fail to express a proposition,[8] because a deflationist is committed to accepting that all that can be said about truth is exhausted in the disquotational schema (T): that 'S' is true iff S. This is why Soames insistence that liar sentences, like (1), express propositions seems mistaken.

Soames considers that if liar sentences do not express propositions, they are similar to the cases of presupposition failure considered by Strawson. If so, they are sentences that are neither true nor false. Nevertheless, Soames argued that liar sentences could not be regarded as being neither true nor false, because this lead to the conclusion that they are not true. Well, does it? Soames chose to talk of something being not true, rather than something being false. But by doing this Soames eventually confuses the sense of *not being true* in which it is the same as *being false*, and the sense of *not being true* understood in *is neither true nor false*, i.e., failing to be truth-valued. Many things fail to be truth-valued, i.e., are neither true nor false, without contradiction. One can only appeal to the argument that liar sentences cannot be said to be neither true nor false, on risk of contradiction, if one previously establishes that they do count as proper truth-bearers, in Soames' words, if they express propositions. One can't say that they must express propositions, because if they don't they are *not true*, i.e., they are *false*. But we know that it is not the case that a sentence like (1) is false, because we know that there is no prior sentence on whose falsity sentence (1) would turn.

[8] Cf. for example JC Beal (2001), A Neglected Deflationist Approach to the Liar, *Analysis* 61:2, April 2001, pp.126-127.

If sentence (1) does not express a proposition, it has to be correct to say that it is neither true nor false; so, it has to be correct to say that sentence (1) is not true. However, here we are saying it is *not true* because it fails to be truth-valued to start with. We are not committed to saying that it must be false.

Does sentence (1) constrain a possible way for things to be, could it have been a true or false sentence? If the expression 'sentence (1)' referred to a false sentence, for example '2+2=5', it would have been a true sentence, for it would say that this sentence is not true. Soames thinks that this may guarantee that 'sentence (1) is not true' fulfils one condition for sentences to express propositions, namely that there are possible circumstances in which it is true. However, if the expression 'sentence (1)' referred to a false sentence, for example, '2+2=5', in saying that sentence (1) is not true we would be saying that it is not true that 2+2=5. There would be a proposition expressed with 'sentence (1) is not true', and from it we would be allowed to infer that it is not the case that 2+2=5.

The same sentence-type can be used to express different propositions, or fail to express any proposition at all, but Soames seems to be ignoring this point. It is doubtful that it is (always, at least) a sentence-type in itself that 'determines a function from possible circumstances to truth-values'. Therefore, Soames argument that sentence (1) could have been used to say something true does not show that this use of sentence (1) does say anything at all.

Finally, could sentence (1) be used in the ascription of propositional attitudes? Soames claims that one could describe someone's belief thus:

- Mary believes that sentence (1) is not true.

Nevertheless, if propositional attitudes are accounted for as a relation between a subject and a propositional content, and sentence (1) fails to express a proposition, Mary can have no belief as that allegedly ascribed. Hence, the appeal to propositional attitude ascriptions does not show that sentence (1) indeed expresses a proposition.

In conclusion, Soames's arguments in favour of the claim that liar sentences express propositions are not persuasive. It is not clear that his requirements for sentences to express propositions are satisfied. It would have to be accepted that liar sentences do express propositions, or count as normal truth-bearers, for any argument using liar sentences as counterexamples to bivalence to proceed. If liar sentences expressed propositions, then there would also be difficulties with other principles, namely with the disquotational schema (T), which Soames wants to accept as correct. Changing the understanding of the biconditional is equally an unsatisfactory move. The most important conclusion to be drawn is that if liar sentences do not express propositions, they are not things that *should* obey bivalence, and hence do not provide any reason to reject it. They are failed attempts.[9] Like Escher's drawings of impossible objects, they seem to obey rules for representing, but are, if one wants, impossible representations – nothing is the case according to them. When nothing is said constraining a way for things to be, nothing is said to call true or false. Sentences that do not say anything are neither true nor false without contradiction. If there are good reasons to doubt that liar sentences express ungrounded propositions, there may be reasons to doubt Soames' motivation to reject bivalence.

[9] Cf., on liar sentences as failed attempts, Laurence Goldstein (2001), Truth-bearers and the liar – a reply to Alan Weir, *Analysis* 61:2, pp. 115-126.