Content, the Possible and the Impossible --- PRE-PRINTS

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1. Introduction
Sentences, thoughts, epistemic and doxastic states are usually taken to have content. For example, it is usually held that if one knows, supposes or hopes that Bertie is adorable, one is related to a content, which is also taken to be what the sentence

(1) Bertie is adorable

expresses. But what are these contents? The answer provided by the possible worlds approach is that a content is a set of such possible worlds. In the case of (1), for example, the content is the set of possible worlds in which Bertie is adorable, and Suzy knows that Bertie is adorable iff all the worlds she has epistemic access to are such that in them Bertie is adorable. As Jago stresses in *The Impossible*[1], the approach 'is one of philosophy's success stories, having been adopted by linguists, computer scientists, game theorists and artificial intelligence researchers.' (13)

  Still, this approach incurs a serious objection, i.e. the so-called problem of *logical omniscience*: since the worlds are the possible worlds, in all those worlds the truths of mathematics and logic are true. But then

(2) $2 + 2 = 4$

and

(3) If there exist injective functions $f : A \rightarrow B$ and $g : B \rightarrow A$ between the sets A and B, then there exists a bijective function $h : A \rightarrow B$

express the same content, which is the set of all possible worlds. From this identity, a very unpalatable consequence follows: the attributions

(4) Suzy knows that $2 + 2 = 4$
(5) Suzy knows if there exist injective functions $f : A \rightarrow B$ and $g : B \rightarrow A$ between the sets A and B, then there exists a bijective function $h : A \rightarrow B$

have the same truth-conditions, given that both express the holding of the same attitude toward the very same content. This, it is often urged, cannot be the case if Suzy is like we all are, i.e. not logically ignorant, but not logically omniscient either.

  Over the years, defenders of the possible worlds approach have reacted to the objection in various ways but all these reactions have been considered wanting and logical omniscience is still the urgent problem for defenders of accounts of content in terms of possible worlds. Thus Jago tries another route to save the approach. In a nutshell, he suggests to save the idea that contents are sets of worlds by getting rid of the 'possible' bit and allowing some impossible worlds to be part of the game. In particular, Jago holds,

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we should posit those impossible worlds that are indeed impossible, but subtly so, such as those in which the Cantor– Schröder–Bernstein theorem is false.

In this note, after having briefly considered the metaphysics behind Jago's account (§2), I will focus on whether Jago is right in thinking that his worlds (§3) and his worlds only (§4) can do the explanatory work he posits them for.

2. Is The Account Metaphisically Innocuous?

The possible worlds approach to content is controversial and defending a controversial account by introducing impossible objects does not seem the move of a 'commonsensical chap' (Lewis 1986: 2), so that one might be tempted to reject Jago's account simply because impossible worlds are metaphysically unacceptable. But the temptation should be resisted, because according to the account all that exists are the inhabitants of our own world and all worlds but the one we live in are ersatz entities, mere representations. Thus Jago's impossible worlds are not impossible in the same sense in which round squares are impossible, but in the sense in which an Escher drawing is impossible: they are existing representations of impossible or incomplete scenarios. Jago opts for linguistic ersatzism, so that all worlds but ours are sets of sentences and since there are good, independent reasons to believe in the existence of both sets and sentences, it seems that Jago is not really buying anything new by calling such impossible entities.

Still, although Jago's worlds do not disturb our metaphysical sensitivity, the account does have a controversial ontology. For the world-making language Jago uses to construe his worlds is Lagadonian, in that all properties work as predicates and individuals are represented via bundles of properties that work as not-attributive rigidified descriptions. To give an example, the world-making sentence representing that Bertie is adorable is not like the English

(1) Bertie is adorable,

since it contains real properties whose combination is uniquely possessed by Bertie, plus the property of *being adorable*. Jago opts for this kind of language in order to solve some classic problems for linguistic ersazism. Just to give an example of such issues, one classic problem is that, if the content of (1) is a set of worlds, which themselves are sets of sentences, as in accordance with linguistic ersazism, (1) does not seem anymore to be about Bertie, but about language. With Jago's version of ersazism the problem is solved: the sentences that are members of the content of (1) are made of a bundle of properties that Bertie enjoys uniquely, and '[t]his is the very real and direct sense in which those contents are about Bertie himself.' (264) The account not falling victim of these problems comes at quite a high ontological price, though: if all that exists are the things of our world, in order to represent, with the aid of properties that play the role of predicates, properties that are not instantiated in this world, we end up either having to hold that uninstatiated properties exist in this world, or having to posit, among those things that exist, negative properties. Jago in fact opts for the second option (140). As he suggests, once you have something like the negative property of *not having spin 3* that everything in this world enjoys, then the worlds can represent an object as having the alien property of *having spin 3* by negating the negative property which acts as a predicate. In order to do the trick, obviously, negative properties should not be taken to be constructed from positive properties because what is needed is that *not having spin 3* exists even though *having spin 3* does not.

Clearly, neither uninstantiated properties nor negative properties that are not reducible to the negation of positive ones are to everybody's metaphysical taste. Jago even goes so far as to hold that negative facts are spatio-temporally located (146) and that we actually see negative properties and facts

(150). But do we really roam around this world *seeing* that Bertie isn't a leopard? Do we really all enjoy the property of *not having spin 3*? One might well urge that we are in fact already pretty busy seeing what Bertie is and pretty heavy weighted because of all the positive properties we enjoy, so that some further defence of these negative properties would be needed. But Jago maintains that some of them are primitive, so that 'we cannot further demand an explanation.' (151) This, unfortunately, does not seem to help the sceptic, and thus, although the account does not posit disturbing alternative worlds, still our metaphysical sensibility might be disturbed by these negative properties that the account posits in our own world.

Jago himself holds that semantics rests on the basis of metaphysics (15; 98). If you agree with him, you might then be dissatisfied with his semantic account of content because of considerations in metaphysics. But does semantics really rest on the basis of metaphysics? You might disagree with Jago here and think instead that when we evaluate a semantic account of content, metaphysical considerations are simply irrelevant and it would actually be 'immoral' to assess the account on the basis of what sorts of things it needs to put out there in reality (Bach 1986: 592). If you agree with Bach or you enjoy enjoying the property of *not having spin 3*, assessing Jago's worlds then amounts to, firstly, checking whether they are successful in the tasks Jago thinks they are successful in, and, secondly, establishing whether they are really needed for those tasks. Let us then move to this semantically minded assessment.

3. Impossible Worlds: Good Candidates?
Jago thinks that with the aid of his worlds we can solve an impressive amount of those issues connected with the notion of content that are generally considered to be crucial: we can give a characterization of the content of both thoughts and sentences, we can solve Frege's puzzle, we can explain thoughts about fictional entities and impossibilia and we can give a rigorous and correct account of when a consequence is trivial and how a rational subject is expected to reason. Although Jago makes very convincing points, in this section we will see that impossible worlds seem not to perform perfectly in all such tasks.

Let us start from Jago's account of how a rational subject is expected to reason. In perfect accordance with the traditional possible worlds approach, according to Jago to know is to exclude worlds. While for the traditional account we are at first provided only with possible worlds, Jago also adds those impossible worlds that are subtly so. Thus when a subject gains a new piece of information, she is going to have fewer worlds among those that are for her epistemically possible. But which ones can we expect her to rule out? In order to answer this question, Jago suggests a very sophisticated account, which has, for example, a very surprising and interesting twist, in that notions like *informativeness*, *triviality*, *epistemically possibility* etc. turn out to be all vague, so that we have borderline cases, and we will be back to this in the end. But for our purposes, we can simplify the account. Roughly, Jago holds that the various worlds are interrelated by normative relations that are the logical inference rules. Given that we are reasonable, but not perfect, we are supposed to rule out those worlds that we can see are incompatible 'in a small amount of logical reasoning' (221), while we are not expected to rule out those worlds that are incompatible, but subtly so. Let us see an example: suppose a subject starts with a very large number of possible and subtly impossible worlds and gets to know *that grass is green* and *that snow is white*. While there will be some vagueness concerning which worlds will be ruled out, we can expect our subject to rule out all those impossible worlds which are incomplete and do not contain *that grass is green and snow is white* because it takes little logical reasoning to introduce a conjunction.

Elegant and simple as this account might be, I think there is a problem, i.e. that according to Jago's account rational reasoning boils down to following the path of the logical connectives. But if we are rational, there are other kinds of reasoning we should undertake. For example, if I come to believe that grass is green, I should, if I am rational, rule out worlds according to which grass is not coloured or, to put it

differently, I should conclude that grass is coloured. The reason why I should rule such worlds out does not have exclusively to do with the connectives or other pieces of logical language, but also and primarily with the fact that the meaning of the extra-logical 'green' entails that the extra-logical 'coloured' is true of grass too.

What can Jago say here? Precisely to deal with this issue, Carnap (1956: 222-29) introduced his meaning postulates. Jago's account might then be slightly modified following Carnap, so as to add some meaning postulates to the normative links that relate the different worlds. Surely the resulting modified account would not be as simple and elegant as the original one, but at least for those of us who do not mind being a little old fashioned, this problem is a minor issue for the account. Let us then move to a related problem.

Even though Jago's account is different from the classic possible worlds one, as we just saw he still endorses one of the main ideas of the possible worlds account, i.e. that to know is to rule out worlds. But what does this mean? In unpacking the phrase, it seems that according to Jago reasonable subjects like us are originally provided with all possibilities and some impossibilties. Then, when we get to know something, we exclude some possibilities and impossibilities that clash with the piece of knowledge just gained (8; 21; 23; 33; 227: 231-32). But is it really the case that for reasonable subjects to know is to rule out worlds? Jago never pauses to discuss this point, but it seems that although the idea that knowing boils down to excluding worlds might work for an ideal reasoner, it really does not seem to work in general for subjects like you and me. Sometimes, it in fact happens to us that we are puzzled by a question, and we know that it has an answer, but at the same time we know that all the answers we can think of are incorrect. In these cases, it does not seem that we already have at our disposal all the answers and we simply need to pick the correct one and disregard the others. As Bromberger remarks, overcoming our puzzlement

> may, in fact, require drastic innovations. It is the sort of achievement that can motivate scientific revolutions. When Newton thought of gravity as explaining how tides occur, he did not just remember an answer, he created a new, and as it happens, true idea (1992: 6).

Jago's account then seems forced to take Newton and all great thinkers to have created nothing, but simply to have picked and chosen among a pre-given set of possibilities and impossibilities. This does not seem correct. But Jago can say here that this objection is based on a misunderstanding of the relation that his account can see between knowledge and imagination. For Jago can say that for Newton to know how tides occur is for him to first imagine various new possibilities he was not aware of so that knowledge is still to exclude some old and new, just imagined possibilities. If we see the process of getting to know as composed of two steps, one of imagination and one of knowledge, we can then still save the idea that there is creativity (in the imagination bit) while still maintaining that knowing is excluding. Now I am not sure that this move is allowed in Jago's account, which seems to rest on the idea shared by all worlds-based accounts that the set of possibilities and impossibilities is all pre-given. Moreover, it simply seems psychologically inadequate to describe knowledge as eliminating instead of as acquiring even in non-creative cases. Take for example a usual case of getting to know your name. Getting to know that you are called 'Suzy' is pretty easy, and does not seem then to involve me having to rule out all the other names as your name. So much that it seems that I can know your name even though at the moment I am not thinking about proper names, and I am actually unable to remember any of them but yours. Now here Jago can say that in knowing your name I am in fact ruling out possibilities, even though I am not aware of them or of my act of ruling them out. But what does it mean that I know something so that I rule out some possibilities and impossibilities although I might not be aware of them? Is knowing in the end a disposition to rule out possibilities and impossibilities? If knowing is a disposition, it then has to do with our behaviour, not with

what is in our minds, and then it is not obvious anymore that we still need to posit that knowledge has a content, as in accordance with Jago's account. Thus Jago really needs here to pause on the phrase that knowing is ruling out and unpack it so as to help us understand what it exactly means.

Let us move to another of those issues that Jago thinks his worlds can help us solving, i.e. the famous Frege's puzzle. Here it is:

> $a = a$ and $a = b$ are obviously statements of differing cognitive value; $a = a$ holds *a priori* and, according to Kant, it is to be labelled analytic, while statements of the form $a = b$ often contain very valuable extensions of our knowledge and cannot always be established *a priori* … Now if we were to regard equality as a relation between that which the names 'a' and 'b' designate, it would seem that $a = b$ could not differ from $a = a$. (Frege 1984: 157)

Together with Frege, Jago thinks that what we should learn from the puzzle is that we should introduce a notion of meaning to be added on to the notion of reference. He in fact takes his worlds to provide 'the means to interpret Fregean senses in a clear way' (39) and holds that those identity statements are informative in which two different senses are involved. In line with the traditional possible worlds approach, senses of sentences become intensions as sets of worlds, i.e. those in which the sentence is true, and the sense of a name is the function that for any world provides us with the object the name denotes in that world. Clearly, as Jago notes, possible worlds are not enough, because the problem of logical omniscience looms again: possible worlds can explain the cognitive significance of a true identity statement $a = b$ only if that statement is a contingent truth. For if it is necessary, the extension of 'a' and 'b' is identical in every possible worlds, and hence 'a' and 'b' have the same intension. But since even for necessary identities there are impossible worlds in which the extensions of 'a' and 'b' are different, if we take impossible worlds on board the intensions of the names are different, and the cognitive significance of identities is explained also when it comes to necessary identities.

Is this enough to solve Frege's puzzle? Unfortunately, it seems it is not. For on Jago's account each name is associated with exactly one sense, i.e. the set of objects it denotes in the different worlds. But that means that an identity statement in which the same name occurs on both sides of the identity sign is on this account always uninformative, since we do not have two different senses. In fact, Jago explicitly states that such statements 'cannot convey new information to any agent.' (34) But this does not seem to be correct. For we might well think that a sentence of the form $a \neq a$ is true. For example, I might quite reasonably think that there are two Ciceros, and then that there is a reading of

(6) Cicero is Cicero

that makes it false. Thus, since it is possible and reasonable to think that (6) has a reading in which it is false, knowing that it is true, i.e. knowing that there is no reading that makes it false, can then somehow amounts to a *very valuable extension of knowledge* and we all found ourselves in situations in which gaining a piece of knowledge of such a kind 'comes as quite a shock' (Strawson 1979: 155). So there are cases in which (6) is on a par with

(7) Cicero is Tully

as to its informativeness and then, contra Jago, the forms of sentences like (6) and (7) do not seem to make them necessarily different insofar as their informativeness is concerned.

As we saw, in the world-making language Jago uses to construct his worlds individuals are represented via bundles of properties that act as rigidified descriptions. Suppose that the property identifying Cicero is *being the author of the Somnium Scipionis*. According to Jago's account, when you believe that Cicero is Cicero, the content of your belief is the set of worlds such that in them it is represented that that thing which is here the author of the *Somnium Scipionis* is that thing which is here the author of the *Somnium Scipionis*. Now one can wonder whether Jago can rely on this descriptivist aspect of his account in order to defend the thesis that an identity statement in which the same name occurs twice, such as

(6) Cicero is Cicero,

is never informative. Unfortunately, it seems that he cannot. For, as Kripke remarks (2011: 148-49), Frege's puzzle recreates itself at the level of the descriptions: a subject might well think that there are two *Somnium Scipionises*, so that she would be surprised indeed and therefore informed when she discovered that there is only one and that in fact (6) is true in all its readings. Thus while impossible worlds help us in accounting for the cognitive significance of identity statements in which two different names occur, they seem unable to help us explain how also identity statements in which the same name occurs twice can be informative, and this even if we take worlds not to contain names or objects, but descriptions.

Is this a serious objection to the account? One can here say that in the end Frege's puzzle has been 'spectacularly overvalued' (Predelli 2013: 13, f. 16) and that it needs not be solved, but dissolved: one might in fact hold that despite appearances to the contrary, no identity statement, not even those in which two different names occur, can ever be informative to anybody, and thus no alleged difference in informativeness is to be explained. But this would not do any good to Jago. For the puzzle is one of the main motivations why one might want to go beyond extensions and introduce possible and impossible worlds to define intensions. If the puzzle is not to be accounted for, we then lose one of the main motivations to introduce impossible worlds in the first place. Thus the objection seems serious indeed.

4. Impossible Worlds: The Only Candidates?
Since knowledge does not seem a matter of ruling out and since it seems that identity statements in which the same name occurs twice can be informative, Jago's worlds do not seem to solve with perfect success all the issues related to the notion of content. Still, one might think, they are nonetheless the best candidates for solving those issues, since any alternative candidate is subject to insuperable objections. Is this the case? Let us start again from the problem of logical omniscience. At bottom the problem consists in finding a way to distinguish the contents expressed by

(2) 2 + 2 = 4

and

(3) If there exist injective functions $f : A \to B$ and $g : B \to A$ between the sets A and B, then there exists a bijective function $h : A \to B$.

It is now obvious why impossible worlds help here: even though (2) and (3) are logically equivalent, yet one but not the other is true according to an impossible world, and we can then assign different sets of worlds, and then different contents, to the two. Jago maintains that the only other alternative to positing impossible worlds is holding that contents are structured, so that the contents of (2) and (3) are different

because the structures are different. Then Jago concludes that his worlds are really the only option, since structured propositions incur fatal objections. He reports some old problems and then add new very ingenious ones (76-92) and, in the end, he takes structured propositions to be doomed because incompatible with the following principles:

(I) If we introduce a new term *t* using an explicit definition, then for any sentences *A* and *B* of that language which differ only in the substitution of the definiendum *t* for its definiens, *A* and *B* have the same semantic value;
(II) The semantic value of a connective governed by a truth-table is the truth-function determined by that truth-table. (80-81)

Thus in order for Jago to be able in the end to show that his worlds are the only candidates when it comes to content, he needs to show, among other things, that principle (I) is true.

Now principle (I) is not uncontroversial and in fact some have explicitly rejected it. Jago considers structured propositions to be either what are usually called *Fregean* or *Russellian propositions*, so that according to him the structured proposition expressed by

(7) Cicero is Tully

is either a complex compound, part of which is Cicero himself (Russellian proposition), or a complex compound, parts of which are some senses associated with the names 'Cicero' and 'Tully' (Fregean proposition). According to both these accounts, propositions inherit their structure from the sentences that express them, so that the structure is in the end the syntactic structure of the sentences. But Russellian and Fregean propositions are not the only structured propositions. Another form of structuralism has a long history which starts with Putnam (1954: 118-19) who suggested that the logical form of a sentence is relevant to its content so that (7) and

(6) Cicero is Cicero

have different contents, since one has the form $a = a$, while the other has the form $a = b$. A more sophisticated version of Putnam's suggestion has been advanced by Taschek (1995: 81-93), who holds that what counts is not only the *local* structure, i.e. the structure of the sentence itself, but the *global* structure, i.e. also the structures of other sentences beyond that being evaluated. Fine has more recently suggested something that, for our purposes, might be taken to be along the same lines (2007). According to all these structuralist accounts, the structure Fregeans and Russellians detect is only a part of the structure that individuates a proposition. For, as Fine puts it, 'the fact that two utterances say the same thing is not entirely a matter of their intrinsic semantic features; it may also turn on semantic relationships among the utterances or their parts which are not reducible to those features.' (2007: 3)[2] Defenders of structured propositions of this kind agree with Jago that syntactic structure alone does not solve Frege's puzzle and

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[2] It is worth noting that for Frege his puzzle is essentially about thinking and shows that are informative all and only those identity statements in which *an act of recognition* is required (1980: 152). Fine, in company with Frege, takes Frege's puzzle to be essentially about thinking, and in particular about thinking about the objects denoted by names *as the same*, so that an act of recognition is not needed, or not as the same, so that an act of recognition is required. According to Fine, the puzzle then does not concern whether only one name or two names occur in an identity statement: for example, with anaphora we have a form of thinking *as the same* even if two different singular terms occur (2007: 122) and two occurrences of 'Cicero' can express a thought in which Cicero is not thought *as the same* (2007: 81). Thus Fine's semantic relationism is not subject to the problem we saw in §3 Jago faces.

exactly because of this they explicitly refute principle (I), in that it does not take into account those other aspects of structure that are according to them relevant when it comes to content.

Even though Jago does not consider explicitly these accounts, he considers the possibility that the structuralist can in the end reject (I). He then holds that even if that were the case, structuralism would still be doomed because in conflict with the following principle that even those structuralists who would manage to reject (I) should accept:

(III) If we introduce a new term *t* using an explicit definition, then for any sentences *A* and *B* of that language which differ only in the substitution of the definiendum *t* for its definiens, *A* and *B* are about precisely the same things. (90)

Put differently, Jago's attack on structuralism relies on the thesis that structuralists of any kind should admit that, in those cases where explicit definitions do not establish identity of content between definiens and definiendum, the sentences should be taken to be about the same things, and the resulting differences should therefore be merely structural.

But why should structuralists accept the principle in (III)? Jago does not define *aboutness* here, but clearly, at least according to defenders of highly structured propositions, (III) is false. Take

(8) Suzy believes that Cicero is Cicero
(9) Suzy believes that Cicero is Tully

and take moreover

(7) Cicero is Tully

to be an adequate explicit definition of Cicero. According to these accounts the two attributions can obviously be about different things: we can take the first to be about Suzy and the proposition *that Cicero is Cicero*, while taking the second to be about Suzy and another proposition, i.e. the proposition *that Cicero is Tully*, which is different from the proposition *that Cicero is Cicero* because of its different global structure.

We do not need here to assess these structuralist accounts. The point is that in the end Jago has not shown that all accounts in terms of structured propositions are doomed and then has not shown that the only thing we can do in order to account for content is to introduce his impossible worlds. We in fact have at least two options: one is to posit impossible worlds and in this case we have to accept that we all enjoy the property of *not having spin 3*; another is to accept that propositions are highly structured entities, whose structures does not reduce itself to the syntactic structure of the sentences expressing them. When we see things in this way, I think it is safe to say that it is not obvious that the second is the option to rule out.

5. Conclusion

In *The Impossible* Jago is concerned with agents like we all are when we are at our best: reasonable agents, who are sincere, rational although not ideal agents, and who are cognitively bounded, with finite memory and reasoning ability (11; 194). He gives a very clear, detailed but still accessible discussion of what the options are in order to account for a rich amount of issues connected with the notion of content, and shows that, when it comes to reasonable subjects, logical omniscience should be rejected and we should accept that there are for all of us some logical oversights. Jago's account then takes these insights on board. While in this note I tried to show that there are some reasons to doubt that this is sufficient, Jago

may have shown us what is a necessary feature of any correct account of the content of the thoughts of subjects like you and me, i.e. the feature of taking on board that there is some vagueness in the notions of *content*, *information*, *triviality*, etc. Take a clear case of a hirsute person who gradually loses his hair. It cannot be that losing just one hair makes any difference to his baldness. Thus each step seems to make no difference, but still if he loses his hair completely, he is bald in the end. Similarly, Jago urges, take triviality: each little step of inference is trivial, but the deduction as a whole, although just a series of trivial steps, can convey new information to somebody like us (18). Jago then very convincingly concludes from this similarity that, exactly as it is impossible to say when exactly our subject became bold, so it is sometimes impossible to say what our logical oversights are, and what we in fact know and believe. Anybody reading *The Impossible* will thus find a very convincing defence of the idea that the fatal mistake of so many accounts on the philosophical market is that they aim at always providing us with a sharp and determinate answer as to what exactly a subject like you and me knows and believes.

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