A More Reasonable View Concerning the Existential Import of Categorical Propositions

by David Johnson

The modern interpretation of categorical logic is insane. In the Modern Square of Opposition, universal propositions, having the form 'All S are P' and 'No S are P', are considered to have no existential import, so if the subject class is empty (for the actual world) the proposition is always considered to be true, no matter how crazy or even self-contradictory it is. 'All unicorns have at least ten horns' and 'All Klingons are Vulcans' and 'No Klingons are Klingons' would all supposedly be true because there are no unicorns or Klingons in the real world. Even this one would be considered true: 'No Klingons are characters in *Star Trek*.'

But particular propositions, having the form 'Some S are P' and 'Some S are not P' are considered to have existential import. This is because 'some' is interpreted to mean 'at least one', so according to the modern interpretation, asserting 'Some S are P' or 'Some S are not P' is also making the assertion that there is at least one S, or that S really exists. 'Some unicorns are white' is considered false on this view because it is asserting that there is at least one unicorn, which is false.

I really do not see why particular propositions would necessarily have to be making an assertion that the subject actually exists. I realize that when we use Venn diagrams we put an 'X' in the appropriate location on the diagram, but that does not necessarily mean that the 'X' has to represent actual existence in the real world.

John Venn in *Symbolic Logic* (chapters 6 and 7) argued for a hypothetical interpretation of universal propositions in which the existence of members of the subject and the predicate classes is only hypothetically implied. Universal propositions would be thought of as being equivalent to conditional statements. 'All S are P' would be equivalent to: 'If there are any S then they are P' or 'If it is an S then it is a P'. Venn did not interpret particular propositions the same way, but why not? We could say 'If there were unicorns then at least one of them would be white' or 'If there are any S then some of those S would be P'. For the sake of consistency, the universal propositions could also be rendered as: 'If there are any S then all of those S would be P' and 'If there are any S then none of those S would be P'. This seems like a very arbitrary distinction that is not really justified.

It also leads to self-contradictions. For instance, in categorical logic assertions about a single object are treated as universal propositions because that thing either has the predicate or it does not, so it makes sense to treat it as being a universal claim about the entire category (of one member) rather than as a particular. We typically say something like 'All things identical to' in order to narrow the class down to one member. So suppose that we said: 'All things identical to Spock (the Vulcan) are highly intelligent'; this would be considered true according to the modern

interpretation, because Spock does not actually exist;[1] but if we said: 'Some Vulcans are highly intelligent' that is considered false. So tell me, how can it be false that at least one Vulcan is highly intelligent but true that Spock, a Vulcan, is highly intelligent? Haven't we found an example of at least one Vulcan that is highly intelligent? If we have then how can the particular be considered false? This interpretation is not even consistent with itself.

More examples could be given. 'All things identical to Frodo are Hobbits' is considered true, but 'Some Hobbits are named Frodo' is false. FALSE? How can that be false? Even though there is not a Hobbit named Frodo in the actual world, nor any real Hobbit in the actual world, still, the *Lord of the Rings* story exists in the actual world, and in that very well-known story there is a Hobbit named Frodo. It is strange to insist that this proposition is false; it is even worse to insist that it is true that Frodo is a Hobbit but false that there is a Hobbit that is Frodo.

Some of these propositions are analytic, so it actually does not matter whether the subject exists in the actual world or not, we can tell just based upon the proposition itself that some of them are true and that others are false. It is obviously true that a thing must be identical with itself. A=A, or to put it into the most equivalent way that we can using standard categorical propositions, 'All A are A' and the obverse 'No A are non-A'. These must be true no matter what 'A' refers to. There are others that have to be false, such as: 'All A are non-A' and 'No A are A'. We already saw an example of that second one in the opening paragraph, 'No Klingons are Klingons'. If a Klingon is *not* a Klingon then it makes me wonder what it would be; I guess it would have to be a 'non-Klingon'; perhaps that is why the modern interpretation is committed to saying that 'All Klingons are non-Klingons' is also true. I acknowledge that there are no real Klingons in the actual world, but can't we still tell that there is no way that these propositions could possibly be true because they are self-contradictory? The reason that they are false is not because there are no Klingons in the real world, it is because of the logical structure that they have which ensures that they must be false no matter what class 'A' represents, and we know this through *a priori* reasoning because the claims are self-contradictory.

Defenders of the modern interpretation will say that if we think about how one would do a Venn diagram for these examples the class of 'Klingons' would be all shaded out, which is consistent with the class being empty, so they think there is no problem. But it is a problem because we are saying that a self-contradictory statement is true, and that is impossible. 'Non-Klingons' is a class that includes everything except Klingons; if it also included Klingons then it would be the class of everything. But how could it include Klingons when the class 'non-Klingons' is defined as everything *except* Klingons? No class can be a subclass of its class complement; that is

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[1] The reason it is considered to be true if Spock does not really exist is that the conditional statement that the categorical proposition is thought to be equivalent to is the material conditional, and in propositional logic whenever the antecedent of a material conditional is false the whole conditional statement is always true. If we say 'If there are any S' and there are not in fact any S, then the antecedent would be false and the conditional statement as a whole would be true. Thus, whenever the subject class is empty the conditional statement and its equivalent categorical proposition is always considered to be true.

analytic regardless of what the classes are. No dogs are non-dogs and no Klingons are non-Klingons!

There are also some particular propositions about fictional subjects that really ought to be considered true. For instance: 'Some superheroes are not villains.' Wouldn't this be true based upon the comic books and movies about superheroes? Wouldn't Superman, Batman, Spiderman, Wonder Woman, and Captain America not be classified as villains? If they are not then it seems like we have found multiple examples that would show this proposition is true.

Speaking of Superman and Wonder Woman (as well as Batman and Spiderman), couldn't it be known *a priori*, based upon their names/titles alone, that Superman is a man and that Wonder Woman is a woman? To me that is like saying that a purple house is a house, which would be true even if that purple house does not really exist. But the modern interpretation would consider the following to be true: 'No things identical to Superman are men' and 'All things identical to Wonder Woman are men'. It would also be known *a priori* that Superman is super and that Wonder Woman is a wonder, but 'All things identical to Superman are non-super' and 'No things identical to Wonder Woman are a wonder' would be considered true as well.

It actually does not even matter what the predicate is, for literally any predicate the modern interpretation would consider a universal proposition to be true if it is about a fictional subject, which is very strange because it suggests that fictional subjects have any and all characteristics, even those that contradict how the subject is defined, and then the system contradicts itself by also saying that it is true that the same subject does not have the characteristic it was said to have in another proposition, as with 'All things identical to Superman are fish' and 'All things identical to Superman are non-fish'. Is Superman a fish or not? This interpretation is self-contradictory in multiple ways.

'No superheroes are heroes' would also be considered true. But superheroes would be a more exclusive subclass of heroes, which means that all superheroes are heroes but not all heroes are super, some are just average run of the mill heroes. Because superheroes is a subclass of heroes, this proposition is equivalent to 'No yellow houses are houses'. How could either of those be considered true?

Let's see if we can come up with a better interpretation than this.

The distinction that should be made is that some propositions have an actual truth value while others are only hypothetical or have a truth value that is relative to a fictional context only. If the subject exists in the actual world then all of the categorical propositions about it have an actual truth value; we may not always know what the truth value is, but the proposition would have one. But if the proposition does not refer to anything in the real world then it would not be true or false, it just would not apply in the actual world or to the actual world. It could have a hypothetical truth value, but not an actual one.

It makes no sense to treat the categorical propositions as having different existential commitments when they all refer to the same subject. All of them assume that you are not referring to an empty class, which is why if it is empty they do not have a truth value relative to the actual world.

Some say that the universal negative, or E proposition, does not have existential import, but what is the referent if the class is completely empty, and how would we know or be able to verify whether the claim that is being made about that nonexistent subject was true or not? I can see how someone might say that it is hypothetically true or false, but I do not think it would have an actual truth value if it does not refer to a real thing or to a class of real things in the actual world.

If we say that E is always true when the subject class is empty then we commit ourselves to saying that propositions such as 'No unicorns are unicorns' and 'No mermaids are things that can swim' are true, and that is not a good result. What I would say about them is that they have no actual truth value, but it is known *a priori* that they could not be true, so I would consider both to be hypothetically false, or false relative to mythology.

However, it is different if the predicate class is empty and the subject class has actual members. In that case the E proposition would have an actual truth value, and it would be true. The reason for the difference is that the predicate is not merely another class, it is also a characteristic or property of the subject. If the predicate class is empty then the subject obviously does not have that characteristic, so its truth value would be true. 'No dogs are Klingons' for instance, is actually true because it refers to dogs, which do exist in the actual world, and it accurately says that none of them have the characteristic of being a Klingon, but 'No Klingons are dogs' would only be hypothetically true for the actual world. We do need to account for this with contraposition and conversion. ('No Klingons are dogs' is the converse of 'No dogs are Klingons' and vice versa.) The truth value is the same, and in that way the propositions are equivalent to each other, but they are not equivalent when it comes to whether they have an actual or a hypothetical truth value.

Whether a proposition has an actual or a hypothetical truth value is not determined by conversion or contraposition.[2] Just as an argument can be valid without being sound if its premises are not true, so also conversion or contraposition could be valid but the resulting proposition may not have an actual truth value, or vice versa.

One of the benefits of this interpretation (besides the fact that it is not self-contradictory) is that the same logical relationships that hold in the actual world would hold in a fictional context too, if the subject is defined well enough. For instance, 'All Klingons are Vulcans' and 'No Klingons are Vulcans' could both be false if some are and some are not, or in other words if there was

[2] I did not include obversion because the subject and predicate classes do not trade places in the case of obversion so this is not an issue that comes up. The obverse of 'No dogs are Klingons' is 'All dogs are non-Klingons' and the obverse would have an actual truth value of true as well because it is referring to dogs, which do actually exist, and it is saying something that is true about them.

interbreeding, but they could not both be true (they are both considered to be true according to the modern interpretation) and even a casual fan will know which is true and which is false. So, this relationship between propositions (A and E are contraries) holds in the *Star Trek* universe just as it does for actual subjects in the actual world.

But sometimes it is unclear whether a claim about a fictional subject would be true or false. For instance, is a dragon a reptile? In the fictional depictions that I have seen they seem to have reptilian characteristics, but I do not know for sure, so I would not be able to say whether the proposition 'All dragons are reptiles' is true or not, even for a fictional context. I am also not sure whether unicorns are a type of equine, or what exactly their relation to horses would be. So in some cases the subject would not be well-defined enough to be able to say whether certain propositions about it are true or not, but we definitely could if the proposition is analytic *a priori*, such as 'All dragons are dragons'. (This one is hypothetically true, not true in actuality.)

There is one more issue I would like to address. I mentioned near the beginning that the modern interpretation would be committed to saying that 'No Klingons are characters in *Star Trek*' is true, which is ridiculous. However, this and 'All Klingons are characters in *Star Trek*' does raise some interesting questions for my interpretation. It seems like the former ought to be considered hypothetically false and the latter hypothetically true because there are no actual Klingons, but I am somewhat troubled by that, and perhaps you are as well. If you asked the person on the street whether Klingons are characters in *Star Trek* they would definitely tell you that they are. It seems like those propositions should be considered false and true respectively, even for the actual world, and in fact I think that they are.

To help explain why, I would ask you to imagine two very large classes into which we can categorize all of the subjects that we have talked about; one is labeled 'things that actually exist' and the other is 'things that are fictional'. When we have a subject that is in the class of things that are fictional, propositions about that subject could have a truth value relative to the fictional setting in which that subject resides, such as the *Star Trek* universe, or Middle Earth from *Lord of the Rings*, etc. Those fictional worlds and everything in them would be contained within the 'things that are fictional' class, just as the class 'dogs' is fully contained within the 'animals' class. So, we can consider propositions about such subjects to have a truth value relative to that fictional setting, or we could make a hypothetical conjecture about what the truth value of a proposition would be if that fictional subject was in the class of actually existing things, even though it is not. For instance, the class 'reptiles' is a subclass within the class of 'things that actually exist'[3] and we could speculate that if the class 'dragons' were not in the class of fictional things, but were instead over here in the class of actually existing things, then it seems likely that it would be further categorized as a subclass of 'reptiles' as well. That is why I referred to propositions like this as having a hypothetical truth value, and why we would say something like

[3] There would also be a class of reptiles in the 'things that are fictional' class, since there are reptiles in fiction, but usually if one refers to reptiles one would be talking about the real ones. If that was not the case then the speaker should stipulate that he or she is talking about fictional reptiles for greater clarity.

‘If there were dragons . . .’[4] It is a counterfactual in which you imagine what the truth value of the proposition would be if the antecedent condition was met, even though it has not actually been met. Saying ‘If there were dragons . . .’ is like saying ‘If dragons were in the class of actually existing things, then . . .’ A general rule of thumb would be when the predicate class is actual, such as reptiles, and the subject class is fictional then the proposition is likely to have a hypothetical truth value, and when both classes are fictional, such as Klingons and Vulcans, then it would have a truth value relative to fiction.

However, what makes ‘All Klingons are characters in *Star Trek*’ unique is that while it is about a fictional subject class, it is actually asserting, or at least doing the equivalent of it, that the class ‘Klingons’ is not in the class of actually existing things, which is correct. If all Klingons are in the class ‘characters in *Star Trek*’, and the *Star Trek* universe is entirely contained within the class of ‘things that are fictional’ then no Klingons would be in the class of actually existing things, and that is true, not just hypothetically but also actually true. It is true for both the class of fictional things and the class of actually existing things. It is unusual for a proposition about a fictional subject to have an actual truth value, but when the proposition is asserting something equivalent to saying that the subject does not exist in the actual world, it is true. Some other examples would be: ‘There is no such thing as werewolves’, ‘Santa Claus is not a real person’, ‘There are no actual leprechauns’, ‘unicorns are fictional’, etc. These propositions are true in actuality even though the subject is not found in the class of actually existing things because that is the very thing that the propositions are asserting, and that assertion is true.

But I cannot think of any other occurrences in which propositions about fictional subjects would have an actual truth value. In most instances, if the subject is hypothetical and the claim that is being made is in reference to the actual world, the proposition would have a hypothetical truth value only, even if it is analytic. This is because the purported attribute or characteristic is part of the world of actually existing things while the subject is in the world of fictional things, and we can only speculate about what characteristics and attributes that subject would have if it was in the world of actually existing things. If we were to say something like ‘All leprechauns are short’ there is an assumption that the ‘short things’ referred to is a subclass of things in the actual world. Maybe there would not have to be that assumption; after all, there would also be a class of ‘things that are short’ within the class of ‘things that are fictional’ as well, and surely leprechauns would be included in that class, so if that is what you are referring to just make it clear that you are speaking about the fictional realm and this proposition is true relative to a fictional context, or the class of ‘things that are fictional’. But most of the time we are talking about the ‘things that actually exist’ class. If you are referring to the ‘things that are short’ that is a subclass within

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[4] This should not be interpreted as a material conditional. If it was then any time the subject does not exist the conditional would be true because the truth table for a material conditional indicates that whenever the antecedent is false the truth value for the whole conditional is true. That is obviously not my view, and it would not be correct. This is a big part of the problem with the modern interpretation. I do not think that material conditionals are legitimate at all, but to explain why and to adequately defend what I think is a better interpretation of conditionals would require another full essay. So, here I will just say that these are not material conditionals.

‘things that actually exist’ then we could only speak hypothetically about whether a leprechaun would be a member of that class or not, if the leprechaun was a member of the ‘things which actually exist’ class. Therefore, the proposition has only a hypothetical truth value for the real world. Leprechauns could not actually belong to that class without belonging to the ‘things that actually exist’ class, and they do not, so it is not actually true; but if they did it seems obvious that they would also be included in the subclass ‘actual things that are short’, so the proposition ‘All leprechauns are short’ is hypothetically true for the actual world.

We could also just stipulate that a proposition applies to a fictional context. For instance, one could say: ‘In many fictional stories, some unicorns are white’. Why wouldn’t that be true? I think that it is because in all of the fictional stories that I have ever come across which have unicorns, the unicorn is white. (For some reason there is also only one, rather than a herd of them.) I am guessing that there is probably a story out there in which that is not the case, since it is certainly conceivable that there could be a unicorn of some other color (or even that they would not look like horses), but I have not come across any myself. I think this proposition would have an actual truth value, not just a hypothetical one, because in this case we are referring to the stories, and the stories, including books and movies, do exist in the actual world. So, it depends on how a statement is worded as to whether it has a hypothetical or an actual truth value. If it is just the categorical proposition, as in ‘Some unicorns are white’ then I would say that it has only a hypothetical truth value relative to the actual world because unicorns are hypothetical/fictional, but it would be hypothetically true. Or, if we were referring to white things that are fictional, then the proposition is true relative to that context because it is true that some unicorns would be included in that class of fictional white things.

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