Review for Description, Demonstration, Novelty, and Truth: Hudson's Criteria for Precise Attribution of Discovery

Some general comments

- I think your title doesn't fully encompass what your paper is about. Based on the title alone, it sounds like you're providing a summary of Hudson's criteria for discovery. You don't mention Kuhn at all, nor do you indicate that you are comparing the two, or that you are going to determine that one suggestion is stronger than the other.
- Define terms before you use them, even if they aren't your terms. You refer to "conceptual categories" in your introduction and "conceptual resources" on the second page neither of these phrases is yours, but to a reader who is unfamiliar with the specific terms, this makes your paper confusing.

The Introduction

- The phrasing of your first sentence seems slightly awkward to me. Try rearranging it so that you begin with introducing Kuhn. You use this sentence structure a number of times throughout your paper, and each time I think the sentence would probably be stronger if the subject comes first.
- Are you discussing any discovery, or only discoveries of physics objects? For example, does the discovery of gravity fit into your discussion? It seems to me that under Kuhn's model, the discovery of gravity does indeed follow his model for discovery, but your discussion focuses on physical objects. Either clarify that you are only looking at physics objects, or expand your discussion to include all discoveries.
- What do you mean by "in context of the description"? Do you mean demonstrating that what is described actually exists? This is a little unclear.
- If you do indeed mean that the demonstration should show the existence of the described object, then what is the difference between this claim and the claim that "the material demonstration must actually demonstrate the existence of the object that is described in the basic description"? This seems redundant.
- You say "the existence of the object that is described in the basic description." Do you mean *as it is described*? If a scientist is giving a demonstration of something he believes he has just discovered, wouldn't he believe that he is demonstrating the existence of what he has described? I think the important part is that all of the characteristics match up.
- I am not at all sure what your thesis is. Are you simply comparing Kuhn's and Hudson's ideas? Are you asserting that one is more appropriate than the other? From your conclusion, it sounds as though you are doing the former, which means that your paper will be more of a summary of each view than an *argument*. But if you are doing the latter, then you need to include this in your introduction. And where does oxygen fall into the picture? It sounds like you are going to use oxygen as an example to demonstrate your point, in which case oxygen doesn't really have a place in the introduction. Given the placement of oxygen in the last sentence, though, you might be constructing a paper about the discovery of oxygen. Basically, what I'm getting at here is that your introduction doesn't really let me know where you're going with this paper.

The Body

- I would recommend not using parenthetical notes putting ideas in parentheses makes them seem less important. If it is important, put it in your actual text instead of in a parenthetical aside, and if it isn't important, don't include it at all. In this particular case, you should probably just eliminate the parentheses; there are definitions inside of them, and given that I've just said to define terms, it would be rather contradictory for me to say to eliminate them now.
- You have a sentence that begins "As aforementioned..." If you've mentioned it already, there is no need to do so again. You can safely assume that your reader has a memory long enough to remember something that you said a paragraph earlier.
- The last two sentences of your first body paragraph are unnecessary. Your reader doesn't need to be told what is coming, because you'll get there soon enough. As with "as aforementioned," you're just using extraneous words.
- The sentence in your second body paragraph that begins "According to Hudson" is worded awkwardly. The meaning is perfectly apparent, but consider rewording to make the sentence less cumbersome.
- Your explanation of base descriptions leaves me wondering about uniqueness. For example, a base description of a car could be "a means of transportation," but this could also be a base description for a train or a bike or a plane. Does a base description have to describe a unique object? You say that the base description "suffices to identify...the object being considered," but this doesn't really clarify the issue for me. Do you mean identify it absolutely, or identify it from a lineup; if you present me with a car, a tree, and a chair, I'll know which one is a means of transportation, but if you tell me the description "a means of transportation," I may not respond with a car.
- You say at the bottom of the second page "Dependent on the validity of the base description, Hudson's next criterion is material demonstration." This implies that something about material demonstration changes based on whether or not the base description is valid. I think you mean that if the base description is valid, then we can move on to the material demonstration, but this isn't quite what your sentence says.
- At the top of the third page, I think you mean to say "a discovery has been made *without* demonstrating," not *with*.
- You say that "there must be enough truth and detail in the discoverer's conceptualization as to avoid creating a description for an object that cannot be materially demonstrated." Isn't it easier to demonstrate the existence of an object if the object is given a more general description? You suggest that adding more detail to a description, and therefore making it more specific, makes it easier to give a material demonstration. However, it is much easier for me to give a material demonstration of a means of transportation than the more detailed description of a flying carpet, which, though more specific, almost surely does not exist.
- You have a typo in the first paragraph that begins on the third page.
- You say that "a discovery can be defeated..." Do you mean that it isn't actually a discovery? This phrase is ambiguous.
- At the end of this same paragraph, you discuss Hudson's truth condition. If the truth condition is essentially the same as the first two criteria of description and material demonstration, what is the purpose of stating it separately?
- I presume that you are in fact going to insert your discussion of oxygen.

The Conclusion

- "Issues" is a weak word. Consider choosing a different one.
- I am not sure that any of the shortcomings that you mention with Hudson's theory are indeed shortcomings.

- "Hudson's notion of an ambient social group is not well defined. How large or small must the social group be in order for the novelty condition to be satisfied?"

Why is this a problem? To me, when Hudson says that a discovery is made within an ambient social group, that implies that a discovery is novel as long as nobody in a particular group has already made this discovery - even if the group is so narrow that there is only one person in it. Think of Kuhn's pre-paradigmatic science: in this stage, every scientist had to build up all of the previous work before doing anything new, because nothing was established as true. In that sense, every scientist made the same novel discoveries in his ambient social group consisting only of himself. On the other hand, if someone observes a phenomenon that nobody has ever before seen, the ambient social group can be as large as the entire world.

- "Discoverers tend not to write "base descriptions" when engaging in scientific activity. Therefore, their initial conceptualization of the object is vulnerable to change."

Isn't it important that their initial conceptualization can change? You assert that Hudson allows base descriptions to contain falsities; if this is the case, then doesn't the conceptualization have to change at some point? I don't think it is necessary for the discoverer to write down their base description, only to have some notion of what it is they are looking for, or looking at.

- "Hudson never mentions the limitations set by Kuhn's paradigmatic models. That is to say that "Hudsonian" discovery does not necessarily violate the expectations of some predetermined scientific model, whereas it is in the definition of a "Kuhnian" discovery that an anomaly must be present for discover to occur."

Unless the Hudsonian model is supposed to fit *within* the Kuhnian model, this shouldn't be a problem. My understanding is that Hudson's view is an alternative to Kuhn's, and therefore it doesn't matter that Hudson doesn't address whether a discovery leads to a change in paradigm. Furthermore, I would argue that not all discoveries in the Kuhnian model are of the "anomaly" breed. Discoveries can be made under a paradigm, based upon the currently accepted theory.

• I am not sure what you mean by the last sentence - "he provides standards for the process of discovery that can be scientifically validated." Do you mean that Hudson's suggestion is going to be scientifically validated? These two words are unclear.

Some more general comments

- On the whole, your grammar and sentence structure is very strong. When you read through your paper, try to consider each sentence individually to see whether you can make it clearer or more concise. There may not be many places where you can do this.
- After reading your conclusion, I'm fairly sure that you're writing this paper about why Kuhn's model of discovery is stronger than Hudson's. So your introduction should reflect that. State your case in the introduction so that your reader isn't floundering through your paper wondering what point you are trying to make. It's actually much easier to understand the argument if you know where it will end up that's what your thesis is for.

• Without your discussion of oxygen, I can't really comment on a lot of your paper. You spend a great deal of time setting up this example. At one point you say that you'll further discuss a point in the context of oxygen. So without this example, you're really just comparing Kuhn's and Hudson's ideas. This is certainly an important comparison, especially for readers who are not familiar with Hudson's ideas, but if your point is ultimately that Kuhn's ideas are better than Hudson's, you can include some of this analysis in the explanation. If you leave the entire explanation of why Kuhn presents a better argument than Hudson to the example of oxygen, then you're demonstrating that Kuhn's ideas are stronger *for oxygen*. Just because one idea applies better to the discovery of oxygen doesn't mean that is better *in the general case*. On the other hand, if you can show that Kuhn's ideas are stronger in the general case, then the example will support this point.