

Armstrong's scientific realism about universals

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Abstract

Armstrong argues for a scientific realist notion of universals. He maintains that ‘The Final Science’ will tell us what universals and particulars there are. Armstrong thus relies on science construed as the activity of discovering and reporting on the underlying reality that explains the similarity or sameness at the level of appearances. He takes the existence of universals and particulars to be an empirical matter. The objective facts are supposed to determine such things. The kind of reality that Armstrong requires is one in which (a) there is a fact of the matter as to whether universals and particulars exist and (b) there is a fact of the matter as to how many of each there are. I will attempt to show that neither claim is plausible as there are no facts of the matter that could determine the answers to these questions. Our decision rests not with facts of the matter but with considerations such as adequacy, simplicity, coherence, etc. As such the answer to the question of why things appear to be the same cannot plausibly be given a strictly realist empirical interpretation. Realism may be seen to either put the relevant facts of the matter and thus the explanation for the similarity forever beyond our grasp in principle, or to collapse back into conceptualism.

Explaining similarity or resemblance in appearances

One way in to the problem of universals is to consider that often times we judge that different things appear to be the same. While this may have a paradoxical ring to it we consider that many different things are white, and / or sweet, and / or cats¹. The question, or problem that arises from this is: ‘In virtue of what do these different things appear to be the same?’. It is useful to distinguish exact resemblance from partial similarity in that universals are called in to explain exact resemblance in the first instance (Loux, 1970, p.3). Sometimes we have exact resemblance as when we have two different things that are the exact same shade of red². Most often what we have, however,

¹Throughout this essay I shall focus on properties that are most plausibly viewed as being explainable by empirical investigation in order to present Armstrong’s case for scientific realism in its most plausible light. I shall thus not focus on numbers or shapes; and I will also leave relations to one side.

²Armstrong doesn’t give us any examples of universals but I shall use the notion of the ‘exact same shade of red’ so as to introduce the difference between exact similarity and resemblance in a comprehensible way. We shall return to his lack of examples in a later section.

is partial similarity as when we have two instances that are similar shades of red though they are not exactly the same. Partial resemblance may be explained derivatively as when instances have some of the same universals (that is to say they are exactly the same in some respects); and some different universals (which is why they are not the same in all respects). We can thus account for degrees of similarity and difference on the level of appearances.

Universals are thus distinguished from the many superficial similarities we observe. The notion seems to be that there will be relatively few universals that will explain the variety of similarities and differences observable in appearances. There has been an ongoing debate as to the ontological status of universals, most especially with respect to the question of whether there actually are any. We will now turn to a brief enumeration of trope theory, model copy realism, and Armstrongian realism in order to differentiate Armstrong's view from these alternatives.

The ontological status of universals: tropes, and model / copy realism

Trope theorists consider the relevant fact to be that in the world you never see a bare particular or an uninstantiated universal (Campbell, 1990 p.479). They conclude from this that the world is composed of tropes, or states of affairs. The distinction between universals (or whatever sameness it is that is captured by our general terms) and particulars is purely formal (Campbell, 1990 p.3). It is the result of our ability to abstract one away from the other in thought. Universals and particulars, for the trope theorist are both considered to be abstractions. Neither have independent existence in the world, though they may both be considered abstract building blocks of tropes in a similar way to Wittgenstein's simples were thought to be the building blocks of states of affairs. The trope theorist maintains that while properties and relations may repeat, tropes do not it and so it is a brute fact that properties and relations repeat and things appear to be the same (Campbell, 1990 p.484).

Platonic realism distinguishes between universals and particulars and maintains that both have the same ontological status: Both exist. Particulars are to be found in the world and universals are to be found in the realm of forms where the universals that our general terms correspond to are thought to exist in their ideal or perfect state. Resemblance or similarity is construed as something more or less resembling the ideal universal in this other realm.

The main problem with this model / copy realist construal of universals is that they are not to be found in the other realm; but also that they are not not to be found in this other realm.

There is also the problem as to how to judge the relation between the universal and the dim copy. In virtue of what is the instance a dim copy of that universal? If the dim copy is construed as being related to the imperfect instance then we seem to need a relation to relate the relation to the relata, and thus we seem to have launched Bradley's regress. In order to judge similarity we also seem to require some sort of access to the ideal so as to compare the instance to the ideal. Plato's doctrine of the soul's remembering them from a time before one was born seems every bit as problematic as the other realm business. Armstrong may be thought to be offering realists a way forward from realist views that are construed in such a way that universals lie beyond the scope of scientific confirmation or dis-confirmation. Or so it would seem...

Armstrong's scientific realism

Armstrong is a realist about universals (like Plato) in that he maintains that things appear to be the same because there is something about them that is, in actual fact the same (Armstrong, 1978, p.108). This seems to have a fair bit of intuitive plausibility in that when questioned this is the kind of response a typical speaker may be expected to give. This typical way of speaking commits one to the existence of both particulars and universals, and in the name of common sense this is the direction in which Armstrong travels. Armstrong maintains that both universals and particulars exist in the world and they are within the scope of scientific discovery (Armstrong, 1978, p.126). The empirical facts are thus sufficient to determine both that there are universals and particulars, and also how many there are of each. Armstrong does not give any examples of universals (or particulars) because he maintains that they are to be determined by, or read off from 'The Final Science'.

Armstrong takes care to distinguish his variety of realism from Platonic model or copy realism. The Platonic notion is that universals exist 'over and above' particulars. Armstrong maintains that universals are not over and above particulars; rather they are exhausted by their instantiations (Armstrong, 1978 p.112-113). Universals are held to 'inhere in' particulars and Armstrong maintains that inherence should not be construed as a relation between particulars and universals. Construing inherence as a relation would see realism

subject to Bradley's regress again and so Armstrong may be thought to have prevented that problem.

A motivation for realism is that when we ask why things appear to be the same we can give this intuitively plausible, common-sense answer: It is because things really are the same. Armstrong considers that there is a numeric identity between different particulars instantiation of universals (Armstrong, 1978, p.111). If we consider whiteness to be a universal then the whiteness of this page of my essay is numerically identical to the whiteness on the next page of my essay. They both partake of the same whiteness and it is in virtue of this that both pages appear to be the same. Armstrong maintains that universals are exhausted by their instantiations which is the main distinction between Armstrong and Plato. Whereas Plato thought that instances partook in a dim copy of the universal that existed in its ideal in the realm of forms Armstrong maintains that there is no more to the universal than is exhausted by its instantiations.

Armstrong acknowledges that universals and particulars do not occur in the world in isolation from each other. We always find them in combination. Particulars have spatial temporal location and it is impossible for more than one particular to occupy the same position in space-time whereas universals are different in that they can occur in many places at once (e.g. on this page and on the next page) and also in that more than one universal can inhere in the same particular. (This page can have odour and taste and whiteness all together.)

Scientific realism and 'the final science'

Armstrong does not give examples of universals because he maintains that we don't know what the universals are until the final science is in. While these two pages of my essay may appear exactly the same with respect to whiteness it is possible that on some level they are not exactly (or numerically the same) because of microscopic differences in their texture which results in slightly different frequencies of light being reflected (Armstrong, 1978, p.135). Most of our predicates that refer to properties are like this (Armstrong, 1978, p 134). Our terms may apply to similar things but Armstrongian universals are required to be identical, that is to say exactly or numerically the same. The notion is that most of our common-sense terms that refer to properties don't really refer to universals because we are grouping with respect to similarity rather than them being exactly the same.

Armstrong maintains that this superficial similarity though is to be explained with respect to universals. Things appear to be the same because at some level of analysis they really are (numerically) exactly the same. It is the universality that explains the similarity. While it is hard to see why Armstrong couldn't give provisional examples of universals (on the provision that current science is the final science) so it would be easier to get at what he is saying perhaps Campbell could be thought to provide such an account. Campbell isn't a realist about universals (as such). Rather he maintains that all that exist in the world is states of affairs (or tropes) and universals and particulars are formal distinctions both (Campbell, 1990, p.535). We distinguish between them in our minds whereas in the world they always are found in concatenation. He maintains (similarly to Armstrong) that the final science will determine what tropes there are and he gives an example of five tropes (provisionally – should they make it to the final science.) He maintains that the five field forces are examples of tropes, the electro-magnetic force, the strong nuclear force, the weak nuclear force, etc (Campbell, 1990, p.146). Perhaps this is the way that Armstrong is going but it is hard to be sure. Perhaps whiteness can't be construed as a universal because of the different shades of whiteness, but if we have one instance of whiteness and then cut that instance in half it would appear that we have two instances that are exactly the same as Armstrong would require them.

Perhaps with respect to counting universals we will end up with a very small number (which is the way Campbell does), or perhaps we will go the other way where we end up with many universals where one is distinguished from the next by a just noticeable difference. In lieu of examples from Armstrong it is hard to know which way he was thinking. Armstrong thinks that the final science will determine this issue for us however this may not actually be the case. When we consider the state of science currently there seems no way to say that science lends greater support to Campbell or to Armstrong so perhaps the final science will be the same. It is hard to see what empirical evidence could decide between Campbell and Armstrong – perhaps the issue isn't an empirical one (as they take it to be) but rather we have a formal distinction to make. Do we want to say that the difference between universals and particulars is a formal distinction or that it is given by the world? Given Armstrong's definitions of universals and particulars the evidence can be construed as showing us what particulars and universals there are. Given a Campbell definition of tropes the same evidence could also be construed as telling us what tropes there are. Which way we go seems to be not determinable by the empirical data and rather should be decided on grounds such as simplicity, coherence, etc. The answer to the problem of universals

may thus be a conceptual issue rather than an empirical one as Campbell and Armstrong take it to be.

Scientific realism and conceptualist collapse

This construal of the problem seems to place the problem of universals and particulars back within the realm of human decision or choice. If what universals and particulars there are (even whether there are any universals and particulars) is construed as a theoretical decision rather than a discovery then it seems to shift the focus back from mind-independent reality to a mind dependent or conceptual reality.

Quine considers that science is about posits though ‘to call a posit a posit is not to patronise it’ (Quine, 1960, p.22). Science begins with observation on the appearance level (or at the level of surface irritations for Quine) and then posits entities or processes in order to explain perceived regularities in the surface phenomenon. Armstrong and Campbell both seems to construe science as a strictly realist enterprise where science is construed as the cumulative discovery of objective truth. Though perhaps Armstrong sees that it is not cumulative (in that he isn’t willing to give examples of universals based on what science has discovered so far) he relies on a strictly realist view of science to support his strictly realist view of universals.

Quine suggests that there could be an indefinite number of final sciences and there may well be no further grounds to decide between two competing theories (Quine, 1960, p.23). They may be perfectly matched for simplicity, coherence etc, or where one scores higher on one consideration it might also score lower on another and there may be no non-arbitrary way to decide between them. Armstrong’s realism seems to rely on a correspondence notion of truth where what the scientists say can be either a true or false description of reality. Although Armstrong does not have to be committed to there actually being a final science (after all how would we know when it had arrived) he seems to require there being an actual fact of the matter that is enough to determine what universals and particulars there are in the world. If we cannot access that reality directly then it seems that if we maintain that reality it self decides what universals and particulars there are then we can never know whether we have access to that final science or not because we cannot access the reality side of the correspondence relation.

Because of this impossibility in principle of our accessing the required information to determine what universals and particulars there are it seems that

we have a notion of science that it cannot possibly hope to meet in principle. If we are concerned with the reality behind the appearances and we cannot hope to access that reality directly then what we are left with is our theories or conceptions of that reality. Our theory posits an underlying reality in order to explain the surface appearances and regularities. It would seem that Armstrongian universals are such posits they are posited to explain the appearances and the similarity we find in the appearances. There may well be more than one satisfactory explanation for the surface regularities though, and in this case either the answer to the problem of universals is beyond our reach in principle or we will have to consider that the answer can only be decided on conceptual and theoretic grounds.

Kuhn, (1970) by way of examples in the history of science showed us that science is not a cumulative endeavour rather there is a theoretic shift in world view, our theories radically change and we perceive this new theoretic ontology in a gestalt fashion. Though it seems that we can never decide between the truth of two competing paradigms with the world directly and thus determine which is true or false with respect to which one corresponds with reality we may be able to compare them with respect to simplicity, coherence, adequacy (for explaining the most superficial regularities and differences) etc.

Quine maintains that despite these we may still end up with two different theories that were different though there were no further grounds for deciding between the two theories (Quine, 1960, p.23). Reality cannot determine it because we can never access that reality and what we are trying to do, at any rate, is to construct that reality as an adequate (simple etc) explanation of the surface phenomenon. As such science can be construed not as a realist enterprise that is concerned with a reality that it can never access in principle, rather it can be construed as a search for the best postulated underlying reality to help us make sense of, explain and predict surface regularities including why it is that things appear to be the same.

Determining universals from no universals from tropes

Campbell descends to the level of physics in search of tropes and thus Campbell also shows that he has a reductionist view of science where the physical level determines all the rest. We can see that universals are called in to explain as they arise in answer to the question ‘in virtue of what do things appear to be the same’ and so we may also see that it is this similarity or

sameness on the appearance level that drives us to search for something to explain the sameness.

Even if we take the state of science now the empirical evidence does not determine between Campbell and Armstrong. Even if the final science arrived (though we could never know that it had in principle) it wouldn't seem to be capable of distinguishing between Campbell and Armstrong in principle. It does seem likely though that 'The final science' is a realist pre-Kuhn myth and that there could be an indefinite number of final sciences that take into account all the nerve hits of mankind in the past present and future. In this case it seems that the different final sciences could differ in that they posit different ontologies. In so far as science can distinguish what universals and particulars there are (and it seems that it cannot) we may end up with radically different particulars and universals depending on which version of the final science we accept.

Realism thus seems to collapse back into conceptualism where we cannot say that things appear to be the same because they are the same, but instead we must say that we construe things really being the same in virtue of them appearing to be the same. Our scientific theories are constructed to explain and predict on the observation level and the theoretic entities that science provides are posits postulated in order to predict and thus explain the appearances. It thus seems backwards to explain the appearances by the reality when the reality is reached by being inferred from the appearances however this is an issue with science in general and is not restricted to the problem of universals and particulars. Armstrong succeeds in answering the question in virtue of what do things appear to be the same but he uses an inference from the superficial sameness in order to explain it.

Grounds for deciding

Despite this Armstrong's ontology is no larger than a theorist who maintains that there exist universals but no particulars. Because he maintains that the universals exist in the particulars and there is nothing over and above about them he is not multiplying entities in maintaining that universals are real. We may well wonder then what the ontological difference is between Armstrong and the trope theorists and it seems that the distinction may be more verbal or formal than real (so to speak). It is hard to try to map universals and particulars onto tropes to know who ends up with more stuff at the end of the day but if each theory can use the same empirical evidence to support its view and state what universals, particulars, or tropes there

are then at the end of the day they would seem to empirically say the same thing. If the distinction between tropes and universals and particulars is not determinable by all available empirical data then this seems to point back to universals, particulars, and tropes being squarely within the realm of human conceptual decision. We must decide which way we want to describe reality, and both theories would seem to be fairly equal descriptions of the same empirical reality. Both fall down on the same point, however; they fail to acknowledge that the problem of universals is a conceptual rather than empirical issue.

An initial intuitive appeal of realism is that we do seem to want to say on a first pass that things appear to be the same because they are the same and this fact about the way the world really is seems to explain this adequately. Unfortunately this intuitive credibility is severely challenged when we consider whether science is best construed as a strictly realist enterprise or whether we actually are entitled to say anything about that reality. I am reminded of Wittgenstein when he said ‘whereof one cannot speak thereof one must be silent’ and think that this might well be the problem that Armstrong implicitly acknowledges in his refusal to give examples of instances of universals.

We can insist on maintaining that there is a fact of the matter as to what the real world is like. Perhaps Armstrong is silent on universals because he realises that we are never entitled to say what that world is really like (which may be why he may in fact not hold out much hope that the final science will arrive). However, we may consider that even if the final science arrived and we were assured by God himself that our scientific posits were true as they corresponded to reality then we would still be no further ahead as to whether there are universals and particulars or tropes; whether there should be one universal or trope for every just noticeable difference that is repeated; or whether we can go more global and maintain that one field of force is as far as we need to distinguish.

So what universals and particulars there are may well be indeterminate. Whether there are universals or not may be indeterminate. There seems to be no fact of the matter that could decide between them. The issue seems to me not to be one that is undecided because of the lack of empirical evidence but rather because of a decision we must make on grounds of simplicity, adequacy, coherence, etc. Aesthetics may also feature where Armstrong initially appears to be at an advantage over the other theories because of the intuitive beauty that we find in ‘things appear to be the same because they are the same’. Realism seems to come out slightly ahead as a realist view of

science is popular and we like to think of science discovering the facts about the real world. We have seen thought that Campbell is really on a par with Armstrong here regarding an intuitively pleasing realist view of science but perhaps his notion of tropes or states of affairs is less pleasing to Armstrong's. The adequacy of either view, however, seems threatened by their construal of the problem of universals as an empirical rather than conceptual issue.

Wittgenstein states that 'explanation must stop somewhere' and whether it stops at the 'things appear to be the same level' or at the 'things are the same level' may be seen to be neither of them prior to the other because of the way in which we come to 'know' of that reality. If we could access it directly that would of course be another matter – but perhaps the only reality that we have this kind of access to is what we have chosen to dub 'appearances' and thus that is what we try to seek to explain. They seem to be two sides to the same coin to me, and because we must accept that the only reality we can access, and thus the only reality we are capable of sustained debate and description of is rather an inter-subjective theoretical construction. This being said which is prior, the appearances or the reality are really both two sides of the same thing though we must take appearances as prior. Things appear to be the same is basic, and for us to ask why and thus postulate a 'reality and use it to explain' seems to be a further epicycle tagged onto the initial problem that doesn't help to explain it any more simply.

References

- Armstrong, D.M., (1778). *Universals and Scientific Realism* (Volumes I and II), Cambridge University Press.
- Armstrong, D.M., (1980). “Against “Ostrich Nominalism”: A Reply to Michael Devitt’, in *Pacific Philosophical Quarterly*, 61, 1980, pp. 440-449.
- Armstrong, D.M., (1984). ‘Replies to Aune’, in Bogdan, Radu J, (eds.) *D.M. Armstrong*, Dordrecht, Holland; Boston: D. Reidel Pub. Co., pp. 250-256.
- Aune, Bruce, (1984). ‘Armstrong on Universals and Particulars’, in Bogdan, Radu J, (eds.) *D.M. Armstrong*, Dordrecht, Holland; Boston: D. Reidel Pub. Co., pp. 161-169.
- Baxter, Donald L.M., (2001). ‘Instantiation as Partial Identity’, in *Australasian Journal of Philosophy*, Vol. 79, No 4, pp. 449-464.
- Bogdan, Radu J, (eds.) (1984). *D.M. Armstrong*, Dordrecht, Holland; Boston: D. Reidel Pub. Co.
- Bradley, Michael, (1979). ‘Critical Notice of Universals and Scientific Realism’, in *Australasian Journal of Philosophy*, 57, pp. 350-358.
- Campbell, Keith, (1990). ‘The Problem of Universals’, Chapter Two in, *Abstract Particulars*, Oxford, UK ; Cambridge, Mass., USA : B. Blackwell.
- Campbell, Keith, (1990). ‘Fields: Dealing with the Boundary Problem’, Chapter Six in, *Abstract Particulars*, Oxford, UK; Cambridge, Mass., USA: B. Blackwell.
- Devitt, Michael, (1980). ““Ostrich Nominalism” or “Mirage Realism”?”, in *Pacific Philosophical Quarterly*, 61, pp. 433-439.

Kuhn, T. S., (1970). *The Structure of Scientific Revolutions*, University of Chicago Press.

Loux, Michael J., (1970). *Universals and Particulars: Readings in Ontology*, Anchor Books.

Moreland, J.P., (2001). *Universals*, Acumen.

Williams, Donald, C., (1986). 'Universals and Existents', in, *Australasian Journal of Philosophy*, 64, No.1.

Quine, W.V.O., (1980). 'Soft Impeachment Disowned' in, *Pacific Philosophical Quarterly*, 61. pp. 450-451.