

Representations and the Galilean Strategy

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Summary: The aim of this article is to show that, in his use of the word ‘representation’, Philip Kitcher is committed to a particular notion of representation, which is essential to his argument for Real Realism in his paper *Real Realism: The Galilean Strategy* (*Real Realism* hereinafter). After a short presentation of Kitcher’s original argument for Real Realism, I show that Kitcher’s notion of representation is not indisputable. By producing an alternative version of Kitcher’s argument, one which does not rely on this term ‘representation’, I show the force and functioning of the Galilean strategy itself. A comparison of the two formulations of the argument reveals what is additionally brought in by Kitcher’s notion of representation: specifically, a particular answer to the question of what truth consists in. This presumed correspondence theory of truth is needed to achieve Real Realism by the Galilean strategy. The positive upshot is, however, that one can support the Galilean strategy as such, without being a Real Realist: One can apply the strategy to any other conception of truth.

1 Representations, the Galilean strategy and Kitcher’s argument for Real Realism

The question driving this article is whether or not the use of the word ‘representation’, informed as it is by a particular, associated concept of representation, is essential to Philip Kitcher’s argument for Real Realism in his paper *Real Realism: The Galilean Strategy*. The answer will be that it is, insofar as with his concept of representation Kitcher presupposes a particular answer to the question as to what truth consists in.

I answer this question by explaining Kitcher's Galilean strategy, as well as showing how his understanding of 'representation', which does a lot of work for his argument, is not neutral and thus not indisputable. The upshot is that whilst there is a Galilean strategy which I am gladly willing to support it does not, and need not, lead to Real Realism, since it is possible to combine it with a different and much weaker conception of truth.

The article will proceed in the following way: First I present my understanding of Kitcher's original argument in a concise form. In Section 3, I produce three reasons not to use the term 'representation' in the way Kitcher does. This shows the extent to which Kitcher has a concept of representation that needs to be argued for. In Section 4, I present Kitcher's argument in a version that does not use his notion of representation. It will then be seen in the following, fifth, section that the result of this new version of the argument is not yet Real Realism. To attain Real Realism from this new version we need to add a specific truth theory: the truth theory to which Kitcher's original version of the argument is committed in virtue of his notion of representation.

2 Kitcher's argument in *Real Realism*

In his text *Real Realism*, Kitcher gives an argument for a sort of scientific Realism, for Real Realism. He does so by rejecting what he thinks are the major and most serious opponents of Realism today: Empiricism and Constructivism. As I understand the argument, the two major devices Kitcher uses are the natural epistemological attitude (NEA) and the Galilean strategy. NEA is the following position:

“We are animals that form representations of the things around us; that is, the world sometimes puts human beings into states that bear content. Those states, in turn, guide our behaviour. In observing, or thinking about, other people, we take it for granted that their representational states sometimes adequately and accurately repre-

sent objects, facts, and events that we can also identify.”
(Kitcher 2001: 153f.)

It is important for Kitcher that everyone accepts this position. It is the starting point of his argumentation to which our everyday life commits us.

The first opponent, Empiricism, is then directly rejected by the Galilean strategy. Roughly speaking, this strategy allows particular methods of justification which are already accepted in certain areas to be utilised in those areas of science where verifying the results is not possible in a way that is independent of those methods of justification. Scientific instruments that are accepted in areas where we can verify the results independently of these instruments should also be accepted in those other areas where we cannot do this. Kitcher argues that there is no relevant difference between these two areas that prevents a justificatory strategy that works in one area from working in the other area, as well. It would be metaphysical hubris to claim that our possibility of independent testing in one area but not in the other is a relevant difference. In order to reject Empiricism, this Galilean strategy extends, in particular, the scope of the inference from success to truth. This inference is warranted in our everyday life¹ and in parts of science where independent testing of results is possible. There is nothing which would prevent this inference from being equally valid in other scientific areas. The success-truth link can be used in all areas of science. The result of this argument, or

¹ What matters for Kitcher’s argument is the extension of the scope of methods that are allowed in areas of science where testing the results of these methods independently of the methods themselves is possible to areas where this independent testing is not possible. This extension has a parallel in the extension of the scope of methods accepted in everyday life to science. That these cases are parallel is shown by the fact that Kitcher in his text uses examples from everyday life in order to show that the transfer of methods between two areas of science is justified. Since the difference between these kinds of transfers does not matter for my case, I will ignore it in what follows.

this part of the argumentation, is that the empiricist, who accepts the success-truth inference in everyday life, should accept this inference in the sciences, too. The separation of two realms, the realm of observables and that of unobservables, is undermined by this Galilean strategy: It is impossible to draw a line between these realms in a manner that would provide a difference that prevented those methods of justification which are applied in one of the realms from being applicable in the other.

The line of thought against Constructivism also uses the Galilean strategy, but in a less straightforward manner. Kitcher uses what he calls an extrapolation of NEA to get to his Realism. Or as I would put it: he starts by making explicit what he thinks is already accepted by the acceptance of NEA. He shows that we have already accepted mind-independent objects and that we can have accurate representations of them. Here Kitcher uses the example of a person travelling on the London Underground, using a map to navigate. In this example, the term in question, ‘representation’, becomes very prominent (Kitcher 2001: 181f.). Kitcher, as NEA demands, describes the traveller as forming representations of the stations. The success of her attempts at navigating the London Underground is explained by the accuracy of these representations. The representations of the stations are – for the sake of easiness, as Kitcher writes – characterised as mental counterparts of the dots on the map respectively the content of her representational state as homomorphic to the map. Having shown that we already accept mind-independent objects and the fact that we form accurate representations of them in accepting NEA, Kitcher uses the Galilean strategy again: When Constructivism is defeated once in the realm of everyday life with the assistance of NEA, there is, according to the Galilean strategy, no reason to be a constructivist in the realm of science.

3 Three reasons not to use ‘representation’

Before I present my own representation-free version of this argument, let me make some general points about how Kitcher uses

the word ‘representation’ and why I think it should not be used in this way.

In one way it is perfectly harmless to use this word because it can have a broad and non-specific meaning. Presupposing a broad sense of ‘representation’, anything might be called a representation, insofar as it represents something as being a certain way, i.e. it just has to fulfil a certain function in order to be called a representation.

In philosophy there are, however, other, more restricted understandings of ‘representation’. There are, in addition, multitudinous philosophical debates about how to understand ‘representation’ correctly and even whether certain ways to understand it are intelligible. I do not want, nor indeed am I able, to answer these questions in this article. I will briefly indicate three *prima facie* reasons, though, why I think one should not use Kitcher’s concept of representation.

What then is Kitcher’s concept of representation? He clearly has something more concrete in mind than what is captured by the broad position mentioned above. Unfortunately, he does not give a definition of his own understanding in *Real Realism*. Nevertheless, there are at least three things we can say about Kitcher’s representations: They (a) are something we form in our dealing with the world (NEA), (b) can be more or less accurate (Kitcher 2001: 154) and (c) can be characterised as mental counterparts of a map or of dots on a map (Kitcher 2001: 181f.). In discussion Kitcher explained that by representation he means the content-bearing states we are set in when we deal with the world. To understand aspect (c) better, it is, I suggest, helpful to know that he added he is convinced that not all such states that guide us are beliefs (or other propositional attitudes), but that there are additionally picture-like representations. The mental counterpart of the underground map of London would be an example of one of these.²

Given these points, I now present my reasons for not talking of

² In discussion at the *Naturalist Strategies in Ethics and Epistemology* workshop in Zurich on June 30th 2010.

representations in this sense. Since Kitcher uses the word ‘representation’ in NEA, these three points undermine his assumption that NEA is unquestionable.

3.1 Claims about the structure and functioning of our mind

My first point challenges talk of mental representations in general. Kitcher starts his text with some reflections on the way we deal with the world. Out of these he produces NEA, which he takes to be obviously true. Indeed, nobody would deny that we imagine or perceive the world as being a certain way, i.e. that we have beliefs that represent the world as being some way or another. In this sense, it is straightforwardly the case that in thinking about the world we represent the world (as being in some way or another). By talking about forming representations in the way Kitcher does, however, more is being claimed. The existence of certain entities that bear the function of representing the world is claimed, and a homogeneous category of entities, those which represent, is supposed. Furthermore, talking of mental representations also implies a certain idea as to what the connection between the representing entity and the represented object has to look like. Overall, such talk supposes a certain structure of thought. Thought now seems to consist of representing entities. All these things are far from obvious. That we represent the world as being in some way insofar as we have beliefs about the world does not impose any conditions on how thinking is to be described or what the nature of thought is. By talking about representations, however, one does restrict the possible ways in which thought can be described in a way that goes far beyond our present knowledge of the nature of thought.³

3.2 What makes a representation a representation?

A second line of thought is one that challenges conceptions of representation which assume that what makes a thing a repre-

³ I thank Joachim Schulte for elucidating this point in discussion.

sentation is a property of that thing. Kitcher's concept of representation seems to be of this kind. In the case of the map, the structure of the content of the representation is what makes the representation a representation of the Underground. Were this not the case, the fact that the content of the representation is homomorphic to the map would not *per se* grant that the mental counterpart is a representation as is the map.

My critique stems from my understanding of the notion of representation in the very broad sense that I mentioned before. A representation is something that represents something, i.e. something that fulfils a certain function. The function in question is, in a rough way, relatively easy to understand and I think less problematic than the notion of representation itself. Paradigm cases are somebody using something (the representation) to represent something or someone and something representing something as being in a certain way. These ways of describing the situation show that the question of whether something is a representation in this sense depends heavily on the context in which it stands and how it is used and seen. On the other hand, the properties a thing has do not seem to be important for calling it a representation. Anything can fulfil this function, if it is used to represent, and nothing is a representation *per se*. In short: to fulfil the function of representing something has to be used to represent something, this is both necessary and sufficient.

This has the consequence that two homomorphic things need not both be representations. It is possible that one is a representation, but not the other: My shadow does not represent me. Similarly, if I walk into an experiment of yours and my silhouette disturbs the graph of your results, your graph is not a representation of me, even if the graph is exactly the same shape as my silhouette. In contrast, if you draw a picture by filling the space where my shadow is with paint or if you take a photograph of me intentionally, then the result represents me. This is the case because there exists a practice of using painted silhouettes and photographs as representations and being used as such is necessary for them to be representations. That not more than the use as a representa-

tion is needed is shown by the fact that you may use, say, a salt cellar to represent me, a building or anything else in your attempt to describe a situation that is fairly complicated. That the cellar shares no property with me is just not relevant.

This understanding of ‘representation’ does not exclude the possibility that there can be something like a mental counterpart of the map of the London Underground that is a representation. If I remember the map I used yesterday distinctly enough, I can use my memory of the map in a manner similar to how I would have used the map had I not lost it. Nevertheless, also in this case it would be my use of it that would make my memory a representation, not its homomorphy to the map. Kitcher seems to say something close to this when he says that the “referential connection [between the subject’s mental and linguistic tokens and objects in her surroundings] is exhibited in the coordinated role the tokens and the objects play in her behavior” (Kitcher 2001: 182). There are several points, though, that make me doubt that Kitcher really sees the situation the way I do. Firstly, I do not see how homomorphy is supposed to make things easier, if it is use and behaviour which does the work anyway. Secondly, the behaviour is brought in at this point to explain the referential connections between a dot on the map and a station. On the one hand, I would argue one could not start with this connection in isolation, if one thinks that reference is based on use. Instead, one has to start with the things we actually use and utter, and these are whole maps and sentences. On the other hand, the connection of the map as a whole with the Underground seems already to be given at this point, and I do not see what else in Kitcher’s description could establish it, if not the homomorphy. There is a final point that makes me doubt it is actually the behaviour that establishes the referential connection, for Kitcher. He describes persons who “act differently, so that for them, dot and station play a different role” as persons that are “misreading the map” (Kitcher 2001: 181f.). Here it gets obvious that there has to be a further fact, the homomorphy, establishing the connection before people use the map. Otherwise Kitcher had at this point no basis

on which he could decide so easily which of them are misreading the map.

3.3 What makes a map an accurate map?

My final point against representations in Kitcher's sense follows on from this last remark. The question is how a representation can be said to be accurate. The problem I see arises from points (c) and (b) in Kitcher's characterisation of representations: that representations can be things like mental counterparts of maps and that representations are things that can be accurate. To stay with the example of the Underground map, I start by questioning in what sense this mental map (the memory of the map we talked about in the previous paragraph) can be said to be accurate. Kitcher would answer that it is accurate if we are successful when relying on the mental map, whereas we would not be as successful if we would be acting using another, less accurate map (R7 in Kitcher 2001: 182).

Let us consider this answer for the moment. The issue then is how this map results in our acting one way, a successful way, instead of acting another way. Here my answer differs from the one Kitcher would give. I think it is very obvious that when we consult the map, we form certain beliefs, such as where we have to change lines, if we want to go to, say, Elephant & Castle. We form these beliefs according to the manner such maps are usually used. In so doing we rely on various other beliefs, e.g., beliefs about what kind of map we are confronted with. The map itself does not say where one has to change lines or whether one has to change lines at all, if one wants to go to Elephant & Castle. This, I think, is shown by appreciating that we would act differently when using the same map, if we did not know what kind of map we were confronted with or how such maps were normally used. If I did not know that I were confronted with the Underground map I may, very unsuccessfully, try to drive by car to my destination by using the map as road map. Were I to think such a map indicates, by its colours, the dangerousness of the different Underground lines or the price one has to pay for the line in question, I would probably

not be very successful in using the map: my travel might take much longer than necessary, it might be much more expensive than necessary or I might be stopped by ticket inspectors before I reach my destination. The easy explanation as to why persons making these errors are not successful, even though they use the same map as the successful persons, is that they form false beliefs when consulting the map. This shows very clearly that maps do not influence our actions directly but, rather, prompt us to form beliefs about the world.

In this sense I would say the map itself is not accurate, at least not absolutely speaking. It can only be said that a map (and this is true for every form of non-linguistic information device) is more or less accurate insofar as ordinary trained persons of our society normally come to have true beliefs by consulting it. The crucial point for me is that it is our true beliefs that make our acting successful. Arriving at these beliefs has something to do with the map but also with additional beliefs we have and with practices we master.

4 A different version of the Galilean strategy

I now detail a version of Kitcher's Galilean strategy which I am willing to support. This version will be one in which 'representation' is replaced by 'belief'. Let me just indicate a few points that make me think that the claims Kitcher makes by using his notion of representation are best rephrased by talking about beliefs.

One advantage is that it makes NEA a better starting point, since it makes it less disputable. A further advantage is that it can be used to describe different situations. Representations are involved in Kitcher's description of perception, of a person navigating the Underground, a scientist manipulating molecules, etc., and 'belief' can be used in all these situations as well. Another advantage of the notion of belief is that in the refutation of Empiricism the success-truth inference is very prominent. By using the word 'belief' we are talking, right from the start,

about something which is truth-apt. Kitcher, in contrast, often has to switch between talking about true claims or theories, and accurate representations. Due to restricted space I cannot dwell on this difficulty, but at the end of the article we will see that it is symptomatic of the role the notion of representation plays in this text.

Let me now rephrase Kitcher's argument. I will call my version of NEA NEA*.

NEA*: We are animals that form beliefs about the things around us; the world makes us believe things. Those beliefs, in turn, guide our behaviour. In observing other people, we take it for granted that they sometimes have true beliefs about objects, facts, and events about which we also can build beliefs.

My critique in Section 3 has made clear that this is a better starting point for an argument than NEA itself, since I think, in contrast to NEA, NEA* is indisputable.

The next step, the argument against Empiricism, is clearly unaffected by my change. The success-truth link central there is even easier to formulate when using the word 'belief'. The work of the Galilean strategy itself does not rest on, or require, the notion of representation. In my version, the expansion by the Galilean strategy reveals that there is no reason to prevent the inference from the success of a theory to the truth of a theory in science since we already allow this inference in some areas of science, and we allow it in everyday life.

More difficulties seem to lurk in the strategy against Constructivism. As seen above, Kitcher here uses the example of a person travelling on the London Underground using a map to navigate. The success of the traveller's attempts to navigate the Underground is explained by the accuracy of her representations, which are characterised as mental counterparts of the dots on the map. As I see it, though, the step Kitcher wants to make with this example can also be made talking about beliefs instead of representations in the mind. The step in question goes from

describing a person as forming accurate representations to her forming accurate representations of mind-independent objects. Kitcher wants to show that with NEA we already have accepted mind-independent objects and accurate representations of them. Here is the crucial passage of his text. It starts with a description of the situation:

“Central to our ordinary explanation of what the subject does is the idea that *she represents objects that would exist, even if she were not present*. We take the dots on the map as corresponding to things we can pick out in her environment (underground stations), and we think that the associated *items in her mental state also correspond to those things*. Our basis for making this attribution is the *distinctive role that dot and station play in coordinating her behavior*. ‘This is Charing Cross,’ she says, ‘I must change here’ – and so she does. [...] Finally, *we don’t think of ourselves as necessary to her performance or as altering its causal structure*. The correspondence we recognize between her mental states and the world is disclosed through her behavior, not created by our observation and explanation of it.” (Kitcher 2001: 181f., my italics)

This, Kitcher thinks, commits us to certain theses, R1 to R7. Realism he says is obtained by relying on the notion of independence which is grounded in two of the following theses: R3 and R4.

- “(R1) There is a referential connection between the subject’s mental and linguistic tokens and objects in her surroundings.
- (R2) That referential connection is exhibited in the coordinated role the tokens and the objects play in her behavior.
- (R3) *The referential connection would exist, and her behavior would be caused in the same way, even if we were not around to observe her.*

- (R4) *The objects to which she refers would exist, even if she were not around to interact with them.*" (Kitcher 2001: 182, my italics)

I argue that we are committed to exactly the same theses, R3 and R4, notwithstanding my slightly changed description of the situation: Central to our ordinary explanation of what the subject does is the idea that *she has beliefs about objects that would exist even if she were not present*. We take the dots on the map as corresponding to things we can pick out in her environment (Underground stations), and we think that the *beliefs she produces in looking at the map are beliefs about these things*. Our basis for making this attribution is the *distinctive role that belief and station play in coordinating her behavior*. Finally, *we don't think of ourselves as necessary to her performance or as altering its causal structure*. So I think NEA* allows us to demonstrate that we are committed to mind independent-objects, just as effectively as NEA does. Since Kitcher claims that Realism is the result of R3 and R4, we too are committed to Realism. Kitcher then uses the Galilean strategy to argue that one is allowed to treat all objects of science as independent objects. In this step, the substitution of 'representation' by 'belief' is surely not problematic. The result, according to my proposal, is that we are allowed to think that scientific sentences are expressions of true beliefs about mind-independent objects.

My reformulation of Kitcher's argument, then, goes as follows:

- P1: NEA* is the epistemological attitude of our everyday life. Everybody accepts it.
 P2: NEA* includes a belief in mind-independent objects and in our having true beliefs about them.
 P3: The Galilean strategy allows us to use the ways of justification we use in our everyday life, in science too.
 C: We are justified in believing that we can have true beliefs about mind-independent scientific objects.

In this argument I gladly agree with the Galilean strategy. Strategies of justification which are accepted in certain areas may be

allowed in other areas too, if there are no relevant differences between the two areas. I agree with Kitcher that he has successfully shown that a distinction between observables and unobservables, however it is drawn, seems not to generate a relevant difference. I also agree with him that we believe in mind-independent objects normally and there is no reason not to believe in them in the areas of science. I suspect, though, that Kitcher's Real Realism is supposed to be a stronger position than the Realism resulting from NEA* together with the Galilean strategy. The differences between my position and Real Realism are examined in the following paragraph.

5 What Kitcher's notion of representation brings into play

My reconstruction shows that the Galilean strategy works well without using the term 'representation'. Kitcher's conclusion, however, seems to be stronger than mine. A comparison can now be made between my conclusion and Kitcher's in order to identify which aspects of his conclusion are effects of his use of the word 'representation'.

Kitcher formulates the position of Real Realism as follows:

“We thus envisage a world of entities independent not just of each but of all of us, a world *that we represent more or less accurately*, and we suppose that what we identify as our success signal the *approximate correctness of some of our representations*.” (Kitcher 2001: 155, my italics)

Comparison with my reformulation makes clear that a certain truth theory is involved in Kitcher's version. My own conclusion is realistic insofar as we do accept mind-independent objects. Additionally, we accept the fact that we can have true beliefs about them. My version stays neutral, however, on the question of which kind of truth theory one holds. In Kitcher's version one obviously has to hold a correspondence theory of truth, but

in his text there is no argument for a correspondence theory of truth.⁴ Instead, this theory is brought in implicitly by his notion of representation. In talking about representations and the accuracy of representations, Kitcher simply assumes a theory in which truth lies in a correspondence between mental representations and mind-independent objects. The correspondence in question amounts to more than the fact that the belief that snow is white is true if and only if snow is white: it is comprised of something called the accuracy of mental representations. This accuracy in turn obviously must consist in more than simply the fact that people normally form true beliefs by using accurate representations otherwise as an explanation of truth it would be viciously circular. However, just what this accuracy might consist in is not explained.

The fact that Kitcher switches freely between talking about accurate representations and talking about true beliefs or true theories in his rejection of Empiricism is symptomatic of the extent to which his particular use of the word ‘representation’ brings with it an entire theory. This truth theory permits the switching in question: According to it having accurate representations and having true beliefs is virtually the same thing.

6 Conclusion

To sum up let me restate the two main insights of these reflections on Kitcher’s *Real Realism*:

Firstly, Real Realism does not follow from the Galilean strategy

⁴ There is a passage at the end of the article where Kitcher seems to argue for a correspondence theory of truth (Kitcher 2001: 193f.), but in the first instance he defends correspondence theories in general whereas he needs a more restricted version of the theory, which is not defended, and secondly, he just repeats his claim that only accurate representations can explain success. To understand why Kitcher does think this one has to consult another text, *On the Explanatory Role of Correspondence Truth* (Kitcher 2002).

alone. The strategy has to be supplemented by a correspondence theory of truth claiming that truth lies in a correspondence between mental representations and mind-independent objects. Moreover these mental representations are, if they correspond to their object, called correct or accurate. According to this theory, I have true beliefs when my representations of the things around me are correct.

Since there are people (certainly some philosophers, myself included) who do not entertain such a truth theory, NEA, as Kitcher formulates it, can not be thought of as self-evidently true and therefore would need to be argued for. This holds for NEA because its formulation uses the term 'representation' which, in the sense in which Kitcher understands it, brings with it the above-mentioned theory. This in turn is shown by the fact that my reformulation of Kitcher's argument avoiding the concept of representation results in a position that is neutral in regard to the question of truth theories. Nevertheless, insofar as it claims the existence of mind-independent objects, this position can be called Realism.

Secondly, the Galilean strategy itself is a very interesting and convincing way of extending what we accept in 'normal' areas into highly specific areas, and so offers a way to reject empiricist and constructivist objections to scientific Realism. It works perfectly well in doing this. Since it is a strategy to extend what one already allows in certain areas into other areas, the result of the strategy obviously depends on the starting point. Hence if we begin from a fairly neutral but indisputable starting point, we will get a relatively neutral and thus weak result. After all, this

result will, for the same reasons, be one that is and should be accepted by most people.

References

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