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Scientific Realism and the Conflict with Common Sense

Abstract: The aim of this paper is to identify and resolve a tension between scientific realism and commonsense realism that arises due to a purported conflict between science and common sense. It has sometimes been held that common sense is antiquated theory which is found to be false and eliminated with the advance of science. In this paper, a distinction is proposed between three kinds of common sense: practical skill; widely held belief; basic common sense. It is agreed that common sense in the sense of widely held belief does succumb to the advance of science. It is left open to what extent practical skill varies with scientific change. It is argued that basic common sense is by and large resistant to change due to scientific change. Epistemological aspects of basic common sense are explored. A number of objections to the proposal about basic common sense are considered. It is suggested that basic common sense is sufficiently epistemologically robust to provide a foundation both for scientific knowledge and for scientific realism.

Keywords: Science, common sense, scientific realism, commonsense realism

1 Introduction

Contemporary discussion of scientific realism is driven by debate between scientific realists and anti-realists of various persuasions. Arguments for and against scientific realism have led to sustained and vigorous debate. In the course of the debate, a range of compromise positions have emerged, e.g., entity realism, structural realism, deployment realism. I do not propose to enter into the debate between scientific realism and anti-realism in this paper. However, in the longer term I hope that what I have to say here will prove to be of some significance in the context of the broader debate.

Rather than engage in the debate with anti-realism, I seek to draw attention to a problem that has the potential to divide scientific realists among themselves. There is an unresolved, and largely ignored, tension that lies at the heart of the scientific realist position.[1] The problem stems from the alleged existence of a

1 The tension will be familiar to readers accustomed to Sellars' distinction between the manifest and the scientific images (Sellars 1963[1991], p. 5). I choose not to frame the issue in

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conflict between science and common sense. The problem, in a nutshell, is this: if science is to prevail in the conflict with common sense, it will undermine itself, since observation resides at the level of common sense. My aim in this paper is to bring this conflict into focus, and to argue for an understanding of common sense that has the potential to remove the purported conflict between science and common sense. I wish to argue that there is a basic form of common sense that has the capacity both to survive the advance of science and to provide the epistemic basis for science itself.

I will proceed as follows. In section 2, I will characterize the positions of scientific and commonsense realism in the way that I will understand these positions for the purposes of this paper. In section 3, I present a dilemma to which the conflict between science and common sense gives rise. In section 4, I propose a distinction between different forms of common sense on the basis of which the dilemma may be resolved. In section 5, I discuss epistemological aspects of the basic form of common sense. In section 6, I reply to some objections that may be presented against the view that I propose. In section 7, I offer concluding remarks.

2 Scientific Realism and Commonsense Realism

For the purposes of this paper, I will understand scientific realism in what I take to be a traditional way. Traditionally, scientific realism has been characterized as a view about the aim of science. The ultimate or fundamental aim of science is to discover the truth about the natural world.[2] There may be other aims apart from truth. But they are lower-order aims that subserve the overarching aim of truth. Such a view about the aim of science has implications with respect to the nature of scientific progress. Given that the aim of science is truth, progress in science must consist in progress toward the truth. This may be understood as a cumulative build-up of truths or as convergence on the truth. The usual notion of truth associated with scientific realism is the correspondence theory of truth, though some realists may favour a deflationary conception of truth.

Sellarsian terms for a number of reasons, most notably because of Sellars' restriction of inference within the manifest image to "correlational induction" (1963[1991], p. 7). This restriction seems to rule out inference to best explanation, which I regard as being part and parcel of common sense.

2 In writing of the "natural world," I do not wish to foreclose the possibility of a realist philosophy of social science. So, I shall simply assume that the social world forms part of the natural world. The traditional focus of the scientific realist dispute has been with respect to the theories and theoretical entities of the natural sciences, especially the physical sciences.

What most clearly distinguishes scientific realism from anti-realist alternatives is the characteristic realist attitude toward theoretical science.[3] Scientific realism takes the claims of theoretical science at face value rather than adopting an instrumentalist construal of theoretical discourse. Thus, according to scientific realism, the truth sought by science is not restricted to truth at the level of what may be observed by the human senses unaided. Science seeks and succeeds in discovering truths about theoretical entities, properties, processes, states of affairs, etc. Such theoretical items are typically unable to be observed using the human senses alone, though in some cases it may be possible to observe them with the assistance of instrumentation.

According to scientific realism, discourse about unobservable theoretical entities such as atoms and electrons is to be interpreted literally as discourse that purports to refer to genuinely existing entities. Such things as atoms and electrons are to be conceived as genuine physical entities rather than as shorthand for experience or convenient fictions. Such realism about the entities of theoretical science is to be distinguished from realism about the items of ordinary everyday experience, such as tables, chairs and other human beings. I will refer to realism about the world of ordinary everyday things as *commonsense realism*. According to commonsense realism, the ordinary items (tables, chairs, etc.) with which we interact on a daily basis are real, genuinely existing physical things.

The position of commonsense realism has both epistemological and metaphysical components. On the one hand, the epistemology of commonsense realism is anti-sceptical. It places due emphasis on empirical sources of knowledge. We arrive at knowledge of the world around us by making use of our senses. In some circumstances, our senses may lead us astray. But, for the most part, our senses are reliable. Our senses are a good guide to the way the world is. They provide a sound basis for justified belief and knowledge about the everyday world. By way of such belief and knowledge, they also serve as the basis for successful practical interaction with the world. On the other hand, the metaphysics of common sense is robustly realist. The ordinary things that we perceive by means of our senses are real things. They do not cease to exist when we do not perceive them. They are mind-independent entities that do not depend on us for their ongoing existence.

3 This basis for the distinction between scientific realism and anti-realist alternatives does not capture all possible contrasts between scientific realist and anti-realist positions. Hilary Putnam's internal realist position, which I regard as a form of anti-realism, was realistic about the entities of theoretical science (see Putnam 1981). For remarks by Putnam on the kind of scientific realism that he accepted and the kind of metaphysical realism that he at one stage rejected, see Putnam (1982). For an argument that the internal realist's epistemic theory of truth collapses into idealism, see Musgrave (1997).

In a certain sense, scientific realism and commonsense realism are participants in different philosophical games. As such, they face different opponents. The primary opponent of scientific realism is anti-realism about theoretical entities. By contrast, the primary opponent of commonsense realism is scepticism about the external world, though it is also opposed to idealist views of the mind-dependent status of ordinary objects. The contrast may also be set in terms of a contrast between debates within different sub-branches of philosophy. The debate between scientific realism and anti-realism with respect to the reality of theoretical entities is a debate that arises within the philosophy of science. By contrast, the debate between commonsense realism and its sceptical and idealist adversaries is a debate that arises within general epistemology.[4]

3 A Dilemma for Scientific Realism

At first sight, commonsense realism and scientific realism may seem to constitute a natural partnership.[5] Commonsense realism is realism about observable entities. Scientific realism is realism about unobservable entities. It is possible both to be a realist about observable entities and about unobservable entities. So, it is possible to be both a commonsense realist and a scientific realist at the same time. Indeed, this may seem the natural position to adopt.

In this instance, however, appearances are apt to mislead. The situation is more complicated than may appear at first sight. The reason is that there is, or purports to be, a conflict between science and common sense. But if science and common sense are in conflict, it may prove difficult to reconcile scientific realism with commonsense realism. They may not form so natural a pairing after all.

The first step in seeing the potential for conflict between science and common sense is to note an apparent similarity between the two. In both scientific and commonsense thinking, we are apt to form beliefs about the world. These beliefs are in a certain respect hypothetical in nature. Suppose, for example, that I form a belief about the colour of my desk. Upon looking at my desk, I form the belief that

4 As this way of setting the contrast suggests, another way of characterizing commonsense realism might be as realism about the "external world," since it stands opposed to scepticism about the external world, as well as to the idealism that emerges from attempting to block such scepticism. However, I tend not to employ the expression 'external world'. It mischaracterizes our actual situation. We are not separated off from a reality that is outside of ourselves. We are a part of the world, immediately engaged with it. Setting the issue in terms of an external world provides scepticism with more encouragement than is warranted.

5 In this section, I draw on and further develop the points originally presented in Sankey (2018).

it is white. Such a belief is in effect a hypothesis about the colour of the desk. I am certain that my eyes do not deceive me on this occasion. Nevertheless, a belief is the sort of thing that might be false. In that respect, the belief is hypothetical in nature. Thus, my belief about the colour of the desk has in common with a scientific claim that it is a hypothesis about the world.[6]

From this apparent similarity, it is a short step to the basis of the conflict. If commonsense beliefs are hypotheses, it can hardly escape notice that they lack in sophistication by comparison with scientific hypotheses. Indeed, a number of philosophers have taken the view that common sense is really nothing more than outmoded theory that has been passed down to us from our primitive ancestors.[7] As scientific inquiry advances, it exposes the erroneous ways of our commonsense belief, showing it to be mistaken in various ways. As we accept an increasing amount of what science tells us about the world, we thereby come to reject more and more of our commonsense beliefs. On entering the world revealed by modern science, we leave behind the erroneous beliefs of our ancestors.

There is a host of examples that may be given of the purported conflict between science and common sense.[8] I will content myself with what is perhaps the best-known example of the conflict. This is the case of Sir Arthur Eddington's two tables. Eddington's book, *The Nature of the Physical World*, opens with the words:

> I have settled down to the task of writing these lectures and have drawn up my chairs to my two tables. Two tables! Yes; there are duplicates of every object about me . . . .
>
> (Eddington, 1933, p. xi)

Strictly speaking, of course, there are not two tables, but only one table described from two different perspectives. Eddington explains that the first table is the "ordinary table." It is "familiar . . . from earliest years," "a commonplace object." The second table is the "scientific table," i.e., the table as described by physics.

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6 In saying that my belief about the desk is hypothetical, I only wish to draw attention to the fact that, *qua* belief, it is the sort of thing that may be false. I do not wish to suggest that basic perceptual beliefs are inferred. Indeed, I favour the view that basic perceptual beliefs have direct, non-inferential warrant.

7 Bertrand Russell is sometimes credited with this view (see Campbell 1988, p. 164). There is a hint of it in Quine's comparison of positing molecules with positing the "bodies of common sense" (1966, p. 237). The idea that common sense is a theory is explicit in Churchland (1979, p. 2). It is found throughout Feyerabend's writings; his claim that modern physics shows there to be no tables, chairs, etc., is a particularly dramatic statement of the thought (1981, pp. 158–159). See also his letter to Smart in his (2016, pp. 211 ff.).

8 Examples include the conflict between geocentric and heliocentric astronomy, as well as conflicting views about the reality of time or colour, the existence of free will and the relationship between mind and brain.

The ordinary table is "substantial." By contrast, there is "nothing *substantial*" about the scientific table. It is "nearly all empty space" (Eddington 1933, p. xii). It is not made of solid matter at all. Yet "delicate test and remorseless logic" assure him that the "scientific table is the only one which is really there" (Eddington 1933, p. xiv). In sum, for Eddington there is a conflict between the table of ordinary common sense and the scientific table. In his view, only the scientific table is real.

What is the scientific realist to make of the conflict between science and common sense? This depends on what the scientific realist takes to be involved when one accepts or believes a scientific claim such as an assertion about the nature of a theoretical entity. According to scientific realism, we are to take what science says as the truth about the world.[9] Acceptance of a theory constitutes belief in the truth of assertions made by the theory. If we accept what science says as true, and science conflicts with common sense, then we must reject common sense as mistaken. Given the conflict between science and common sense, adoption of a realist stance toward science will lead to the overthrow of common sense. Commonsense realism awaits a similar fate.

As previously indicated, some philosophers hold that common sense is mistaken theory that is to be rejected with the advance of science. Philosophers who hold this view may favour an eliminativist approach to common sense. For them, common sense is to be eliminated in favour of science. No doubt, some scientific realists will endorse an eliminativist attitude toward common sense. Presumably, scientific realists who take such an eliminativist attitude will see no need to adopt or defend the position of commonsense realism.

In my view, such an eliminativist form of scientific realism is deeply problematic. It should be resisted. Observation provides the evidential basis for science. The empirical evidence on which science is based is evidence arrived at by means of observation. It derives either from immediate sense perception or from instrumentation which extends the senses. But observation is part of common sense. Observation using our senses is the primary means by which we obtain knowledge of the ordinary things with which we interact every day. If we reject common sense, we must reject observation as well. Thus, without common sense, the evidential basis for science disappears. We would have no basis to accept science in the first place.

Actually, the situation is worse than this suggests. If we have no basis to accept science, we would have no basis to reject common sense. This means

9 This should, of course, be qualified in a number of ways. Belief in the truth of scientific claims should be restricted to the most highly confirmed or well-established scientific claims. Moreover, scientific realists typically speak of approximate truth rather than committing themselves to the complete truth of theories.

that we must accept common sense instead of science. Thus, to reject common sense on the basis of science is self-defeating.

I will conclude this section by stating the problem that I have been presenting in the form of a dilemma. *Either* we admit the conflict between science and common sense *or* we embrace common sense. If we admit the conflict, we remove the evidential basis for science and have no reason to accept science in the first place. If we embrace common sense, we must reject the conflict between science and common sense as an illusion. The first option requires the scientific realist to develop an account of the evidential basis of science in which observation plays no role. I see little meaningful prospect for this.[10] I take the second option to be more promising. That is the option that I propose to explore.

4 Three Forms of Common Sense

In the remainder of this paper, I will propose an account of common sense on the basis of which the dilemma may be resolved.[11] On the view that I propose, it is possible to distinguish between different forms of common sense. Given this, it may be argued that, while there are stable elements of common sense, there are also elements that may undergo change as a result of the advance of science. I wish to suggest that the stable elements of common sense involve the use of our observational capacities, and so are able to provide an evidential basis for science.

Before turning to the different forms of common sense, a preliminary remark about the general notion of common sense is in order. It seems to me that the expression 'common sense' draws connotatively on two meanings that the word 'sense' may be used to convey. On the one hand, the word 'sense' refers to the various sensory modalities, i.e., sight, smell, taste, hearing and touch. On the other hand, the word 'sense' is also used to refer to a capacity for sound judgement, as when one is said to have good sense or to behave in a sensible manner. I wish to suggest that both meanings of the word 'sense' are at play

10 I do not have a knockdown objection against the eliminativist approach. My point is simply the programmatic one that the work of developing an eliminativist epistemology has not been done. Indeed, almost nobody even seems to realize that such work is necessary. One exception of which I am aware is Churchland (e.g. 1981), who sketches a number of suggestions about how epistemic matters might be approached in the context of an eliminative materialist philosophy of mind (see also Churchland 1979, chapter 5).

11 The distinction between three forms of common sense was originally proposed in Sankey (2014).

when we speak of common sense. The exercise of common sense may involve both the use of sensory perception and a capacity to make sound judgement.

I turn now to the distinction between forms of common sense. On the view that I propose, the notion of common sense has a certain ambiguity. In particular, I wish to suggest that there are at least three different things that the expression 'common sense' may be used to refer to. In presenting this set of distinctions, I am not attempting to provide a conceptual analysis of the notion of common sense. I only want to suggest that our notion of common sense is sometimes applied to these different things. Nor do I wish to suggest that the distinctions that I propose yield an exhaustive classification of all that may fall under the head of common sense. There are a number of different uses of the expression 'common sense' that my distinctions do not capture.[12] I suggest only that there are recognizable uses of the notion in which it does apply to the things of the kinds that I am about to distinguish.

The three different forms of common sense that I wish to distinguish are as follows:

1. *Practical skill*: common sense is sometimes taken to be involved in the possession or application of practical skill or expertise. Technicians and tradespeople have a range of different practical or technical skills. A person who possesses this kind of common sense is able to solve practical problems which may defeat those who do not have such skills. The ability to solve practical problems in a way not available to those who lack a skill also suggests that there may be a capacity for judgement relating to such problems that is connected with having the skill.
2. *Widely held belief*: the notion of common sense is sometimes used to refer to a set of beliefs that are widely held by members of a culture at a particular period of time. Such beliefs may appear so obvious to members of the culture that they are simply taken for granted. Some widely held beliefs may be so deeply held that members of a culture may find it difficult or impossible to question the beliefs. This second sense of "common sense" might be thought of as a quasi-anthropological or cultural-historical use of the expression.

12 The Democratic candidate in the 2016 U.S. presidential election, Hilary Clinton, called for a "commonsense approach" to gun control. Former Australian Prime Minister, Tony Abbot, spoke of the need for common sense in the debate about marriage equality. Neither of these two uses fit easily into any of the forms of common sense that I am about to distinguish in the text. Nor does the Aristotelian idea of a single more general sense that lies behind the various sensory modalities fit into my classification. All I claim is that my proposals capture some recognizable aspects of the notion of common sense.

3. *Basic common sense*: underlying the various practical skills and widely held beliefs, there is a more rudimentary form of common sense. It is typified by our unreflective awareness of the world around us and manifests itself in the routine way in which we deal with objects in our immediate vicinity. Our senses provide us with knowledge of our surroundings on the basis of which we navigate our way around objects in our environment. I will refer to this rudimentary form of common sense as *basic common sense*.[13]

As previously indicated, I do not propose the distinction between the above three forms of common sense in order to provide a conceptual analysis of the notion. What I do suggest is that practical skill, widely held belief and basic common sense are significant examples of the kind of thing to which the notion of common sense is on various occasions appropriately applied. Nor do I regard my proposal as one that is based on *a priori* considerations. The proposal is intended in naturalistic spirit, as an empirical claim both about how the notion of common sense is employed and about the items to which the notion is applied. Again, I do not suggest that this set of distinctions fully captures the notion of common sense. What I do suggest is that, on the basis of this set of distinctions, it is possible to resolve the dilemma which arises for scientific realism as a result of the purported conflict between science and common sense.

To resolve the dilemma, I suggest that we focus on the third form of common sense, i.e., "basic common sense." Such basic common sense would seem to play a more fundamental role in our lives than practical or technical skill. A person may possess basic common sense even though they fail to have the practical skills of a technician or tradesperson. Basic common sense is employed on an ongoing basis in our mundane interactions with our immediate surroundings. In what follows, I will set aside the issue of practical skill and focus on basic common sense.[14]

13 What I describe as "basic common sense" seems to me to be very close to what Armstrong calls "bedrock common sense" (Armstrong 2004, p. 27). Elsewhere, Armstrong writes that "some of the things that have been accounted commonsense have turned out to be erroneous, and present-day commonsense may contain its quota of errors. But it seems to me that there is an inner core of our beliefs which we cannot deny to be cases of knowledge without falling into irrationality in some very strong sense" (1999, p. 78). Again, I think that what Armstrong describes as "an inner core of our beliefs" may be close to what I am calling "basic common sense."

14 In setting practical skill aside, I do not wish to suggest that it is irrelevant to the matter at hand. There are interesting questions about how the practical skills involved in laboratory practice are affected by theoretical change, as well as whether skills of a non-scientific nature are influenced by science. But, for the present task of showing that there is a form of common sense that withstands scientific advance, I focus instead on basic common sense.

The important contrast for our purposes is the distinction between widely held belief and basic common sense. The widely held beliefs of a culture in a particular historical time-period may be brought into question and rejected or modified on the basis of developments in science. As a result, the advance of science may lead to the overthrow of the widely held beliefs of particular cultures. By contrast, the sense-based beliefs involved in practical interaction with our immediate environment have a more solid basis. Beliefs closely integrated with everyday practical action resist overthrow. For the most part, basic common sense survives the advance of science.[15]

I wish to suggest that basic common sense provides the evidential basis on which science is founded. In our ordinary everyday interaction with the physical objects that surround us, we make routine use of our senses in determining how things stand in the world around us. It is precisely such use of our sensory capabilities which is involved in the collection of the observational data which forms the evidential basis for the sciences. Even where instrumentation is employed to extend the senses, our usual perceptual apparatus is employed in reading the outputs of the instruments. Given the involvement of basic common sense in establishing the observational basis of science, I suggest that scientific realism and basic common sense are well-suited to each other. There need be no clash between science and basic common sense.

5 Epistemological Aspects of Basic Common Sense

In this section, I wish to make some brief remarks about epistemological aspects of basic common sense. It is important to emphasize that what I refer to as basic common sense is primarily involved in practical interaction with the objects that we encounter in our everyday interaction with the world. It is most apparent in our immediate, unreflective awareness of the objects in close proximity to us within our environment. On the basis of such awareness, we navigate in and around our environment in a routine way. We avoid tables, walk

15 Fallibilism is no doubt the appropriate attitude to adopt toward scientific knowledge. But this may not be the case at the level of basic common sense. Some basic commonsense beliefs (e.g. G. E. Moore's "here is one hand . . . ") seem to have a degree of certainty that few, if any, theoretical beliefs may achieve. We need a graded notion of certainty. Some of our beliefs seem to have a high measure of certainty even if they may lack certainty in some absolute sense. And some of our beliefs are more certain than others.

through open doorways, change lanes while driving, wash and dry dishes, etc., each and every day of our lives.

Perception plays a vital role in the exercise of basic common sense. We use perception to arrive at knowledge and justified belief about our immediate surroundings. We undertake action based on such knowledge and justified belief in order to achieve desired results. We modify goals based on how we perceive the world to be. We may alter an intended course of action as our senses inform us of previously unknown facts about a situation. We may abandon a course of action because perception provides reason not to pursue an intended goal. In these and many other ways, our practical interaction with the world around us is informed by perceptually based knowledge and justified belief.[16]

The attitude of basic common sense toward the objects and states of affairs which we encounter in the course of daily activity is a realistic one. In such activity we interact with a world of material objects of various shapes and sizes with a multitude of properties. We acquire immediate knowledge of such things by means of our sensory experience of those objects.[17] The material objects that we deal with on a daily basis have mind-independent existence. We interact causally with them in bodily movement and action. But, although we may physically interact with them, the objects themselves are outside the control of our minds. Without bodily movement or action, thought cannot by itself bring about change in the world of objects.

On occasion, our senses mislead us. We may be subject to an illusion. We may misperceive an object or misinterpret an object that we perceive. These are ordinary occurrences that arise in the course of everyday life. In actual practice, they do not give rise to scepticism. Instead, errors relating to perception are dealt with in a routine and typically automatic manner by means of a range of corrective techniques. If the visual appearance of an item seems odd, we double-check by looking at it again. Sometimes, we may look at the item from a different angle or perspective. We may use a different sense modality from the one that originally misled us. If there are others around, we may ask someone else if they

16 In my view, basic common sense is closely involved with practical action. Actions have aims. Aims are typically things that we value. This suggests that value plays a role in basic common sense, or, at the very least, that it interacts with it. I will not explore the implications of this point here. My focus for present purposes is on the epistemological and, to a lesser extent, metaphysical aspects of basic common sense.

17 In speaking of immediate knowledge gained by perception, I do not wish to exclude indirect knowledge or inferentially warranted (non-basic) belief. It seems to me that a range of inferential strategies are available within basic common sense, though this is not of crucial importance in the present discussion.

perceive the same thing as we have. From the point of view of basic common sense, no sceptical moral is to be drawn from the possibility of perceptual error. In our practical dealings with the world, we are entitled to a reasonable degree of practical certainty that the world is by and large as it seems to us to be. Only when something goes perceptually awry in specific circumstances do we form doubt. Even then, doubt is restricted to those specific circumstances rather than being generalized in sceptical fashion.

In sum, perceptually formed beliefs lie at the heart of basic common sense, and perceptual error does not give rise to scepticism. But questions may still be asked about the justificatory status of such beliefs. In my view, there is a range of points to be made in relation to the justification of the perceptual beliefs that arise within basic common sense. We may start, first of all, with the classic Moorean point that we may be more certain of the reality of directly perceived objects (e.g., my hands) than we are of any of the controversial philosophical assumptions that might lead us to doubt the existence of such things.[18] Secondly, the involvement of perceptual beliefs in successful practical interaction with the world provides strong pragmatic vindication for perceptual belief and perceptual belief-forming processes. Thirdly, basic perceptual beliefs seem to me to possess direct perceptual warrant given that they are formed by means of a reliable belief-forming process. Fourthly, we may adopt a point from Michael Devitt, who argues that "over a few years of living people" arrive at realism about ordinary objects which "is confirmed day by day in their experience" (Devitt, 2002, p. 22). The perceptual beliefs of basic common sense have strong empirical support due to the immense variety of experience which confirms those beliefs. Finally, we have strong evolutionary grounds for confidence in the perceptual beliefs that lie at the heart of basic common sense. Our survival constitutes evidence of the reliability of such beliefs.

6 Objections and Replies

In this section, I will consider a number of objections that may be raised against the position developed here. This will permit me to articulate a number of aspects of the position that I have not dealt with so far.

18 For this interpretation of Moore's proof as a comparative plausibility argument, see Lycan (2001).

Objection one: It is not clear that basic common sense does survive scientific change. Consider the case of Eddington's two tables. The table of common sense is solid. The table of science is mostly empty space. On the assumption that the solid table is the table of basic common sense, there is a conflict between science and basic common sense. On the further assumption that what science tells us is true, basic common sense is to be rejected as science progresses.

Reply: Let us suppose that the table really is mostly empty space rather than solid matter. Does this mean that basic common sense is mistaken? I am not so sure. The reason is that, at the level of our practical interaction with the table, it remains the case that the table is a solid object. It constitutes a physical obstacle. If the table is between us and the door, we cannot get to the door by passing through the table. We may walk around it or perhaps climb over or crawl under it. The table with which we interact in ordinary practical activity remains exactly as it was before it was discovered to be mostly empty space.

In this sense, it seems to me that basic common sense has survived scientific developments. What has changed is that science now provides an explanation of the apparent solidity of the table in terms of the fundamental particles of which the table is made, and of the behaviour and relations between those particles. This explanation sheds useful light on the nature of the table, as well as on various features of the experience of the table that we have in the course of our interaction with it. But it does not show that the beliefs at the level of basic common sense about the table are mistaken or in need of elimination. At that level, our beliefs and actions with respect to the table remain exactly as before.[19]

Objection two: The relationship between science and common sense has been mischaracterized. Science has an influence on common sense. Before the rise of modern science, there may have been no scientific content in common sense. But contemporary common sense contains elements drawn from the sciences. Thus, the contrast drawn between science and common sense is ill-conceived.

Reply: There are two points to be made in reply to this objection. First, as stated, the objection is directed both against the position proposed here and against the eliminativist view that is rejected here. The eliminativist holds that common sense is to be eliminated with the advance of science. Against the eliminativist, the current objection suggests that science becomes integrated

19 An opposing view has been proposed by Orly Shenker, who suggests that what science explains is not the solidity of the table but why our minds have the experience of the table being solid (Shenker, manuscript).

into common sense rather than leading to the wholesale elimination of common sense. As such, the objection leads either to revision or rejection of the eliminativist position. Turning to the second point, the position advocated here is able to absorb the main force of the objection. The objection is to be understood as making a point about common sense in the sense of beliefs that are widely held within a culture at a given time-period. The objection does not apply to what I call basic common sense. In contemporary cultures, there is no doubt that science makes a significant contribution to common sense in the sense of widely held belief. As for whether science contributes to basic common sense, this is less clear. Because what I call basic common sense pertains mainly to beliefs and judgements involved in practical interaction with the objects around us, it is not obvious that science does become integrated into basic common sense. On the other hand, there is no need to exclude the possibility that science may contribute to the content of basic common sense. This is an empirical matter in need of further investigation. It will depend a great deal on what mental mechanisms are involved in basic common sense.[20]

Objection three: Scientific realism has no need of common sense. The leading argument for scientific realism is the success argument. Scientific realism is to be accepted because it provides the best explanation of the success of science. Common sense has no role to play in the case for scientific realism.

Reply: The problem with this objection that it fails to take into account the nature of the success of science of which scientific realism is said to be the best explanation. The success of science is success at the empirical level, as well as at the level of practical application. The evidence for the success of science must be able to be detected at the observational level by means of perception. As a result, basic common sense is directly involved in connection with the empirical evidence and practical applications which constitute the evidence for the success of science. Without the involvement of basic common sense, the success argument for scientific realism cannot get off the ground.

20 If basic common sense is grounded in informationally encapsulated mental modules, then science might have no impact on basic common sense. On the other hand, if the mechanisms are not informationally encapsulated, then potentially science might have an influence on basic common sense. For an interesting discussion of common sense in the context of Fodor's modularity view, see Campbell (1988, pp. 166–170). What Campbell refers to as "the Basic Observational Fragment of common sense" (1988, p. 170) may be very close to what I call "basic common sense."

7 Conclusion

My aim in this paper has been to draw attention to a tension that lies at the heart of scientific realism. Because the debate about scientific realism is focussed on the dispute with anti-realism, this tension seems to me to be largely, if not completely, ignored. I have attempted to frame the problem in terms of a dilemma by presenting scientific realism with two options. Either scientific realism must adopt an eliminativist approach to common sense or it must embrace common sense. If scientific realists choose the eliminativist option, their work is cut out for them, since an account must be given of the empirical basis of science which does without the perceptual apparatus of ordinary common sense. If scientific realists choose the option of embracing common sense, then it must be shown that the apparent conflict between science and common sense is an illusion. In my view, the first option holds little promise. It is the second option that we should pursue.

On the approach that I have presented here, it is possible to make out a middle path. On the one hand, we may allow that common sense in the sense of the widely held beliefs of a culture at a time is indeed subject to elimination on the basis of scientific developments. On the other hand, the basic common sense enacted in our ordinary everyday practical dealings with the world around us survives the advance of science. Not only does it survive, but we have good reason to believe in the dictates of basic common sense, since they are in large part justified on the basis of perceptual experience. Indeed, I would go further than this. Basic common sense provides us with what David Armstrong has called the "epistemic base" (1999, p. 77). It is the base on which all other knowledge, including scientific knowledge, is built.

At the outset of this paper, I said that I would not engage in the dispute with anti-realism here. But I also said that I hope that what I say here will be of some future relevance to the dispute. Allow me to close by briefly indicating why I have this hope. In my view, scientific realism should be seen as an outgrowth of commonsense realism. If we can provide a good foundation for commonsense realism, and then firmly ground scientific realism in commonsense realism, then it is my hope that scientific realism will obtain a secure foundation because of its grounding in commonsense realism. In other words, my hope is that some of the considerations which currently seem to favour anti-realist views of science will be weakened by reflection upon the way in which scientific realism stems from commonsense realism.

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