

RATIONALITY AND REALITY

Conversations with Alan Musgrave

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COLIN CHEYNE

INTRODUCTION

Alan Musgrave's philosophical credo is encapsulated by the title of his 1993 book *Common Sense, Science and Scepticism*. But to say that Musgrave believes in common sense, science and scepticism is pretty uninformative. After all, many of his philosophical opponents are likely to claim as much. However Musgrave has a distinctive position on these matters in which they are closely interrelated, and this position has interesting and wide-ranging ramifications, encapsulated in their turn by the title of his 1999 *Essays on Realism and Rationalism*.

For Musgrave it is simply common-sensical to believe that an external world exists independently of the workings of our minds and that the aim of science is to discover what we can about that world, even though we cannot hope to have certain knowledge of it. Musgrave's robust common sense about the external world seems to have clashed with antirealist philosophies from the start. He tells of how as an undergraduate he was 'both fascinated and repelled by Berkeley's idealism. All that ingenuity wasted on a crazy view' (Nola 1995, p. 31¹). Consequently, he has devoted his philosophical life, in one way or another, to uncovering the errors in Berkeley's arguments, and to detecting and denouncing any arguments that threaten to lead to similar conclusions.

Thanks to his clear-sighted view of what realism about a mind-independent world actually entails, Musgrave has not been short of targets. He has shown a remarkable ability to detect antirealist leanings, even those to which their authors may be oblivious. For example, according to Musgrave, Hilary Putnam's internal realism is no realism at all, rather it is 'Kant generalised and relativised'.

If the external world is truly mind and language independent, then, on Musgrave's view, any serious investigation of that world (science, in particular) is, and ought to be, a robustly realist enterprise. But when philosophers have turned their attention to science, the lure of antirealism has proved strong. Instrumentalism, pragmatism, constructive empiricism, social constructivism, conceptual idealism, *et alia*—all are antirealistic views of one kind or another. Constructivism or conceptual idealism is especially obnoxious because it is pre-Darwinian. Darwin tells us that human beings are the product of a pre-existing world containing unobserved creatures such as dinosaurs and unobservable entities such as quarks. Constructivism reverses this process, making the pre-historic world and its denizens the products of human beings and their minds or words or concepts or whatever.

¹ I have drawn on Robert Nola's interview with Alan Musgrave throughout this Introduction.

Scepticism enters the picture when Musgrave considers what it is that attracts philosophers down the idealist path. He believes that they are motivated by the desire for certain knowledge. Idealist philosophies are vain attempts to rule out the possibility of sceptical scenarios, such as Descartes' evil demon or Putnam's brain-in-a-vat. Musgrave takes the (in his opinion) common-sense view that we are obviously fallible epistemic agents; our best efforts pursued to the limit could yield false theories. But we can take comfort from the common-sense fact that we have no reason to think that any of those sceptical scenarios are true. After all, they, and sceptical scenarios in general, are not directed at our beliefs, but rather at attempts to establish those beliefs.

However, one person's common sense is another's absurdity. To claim that the world existed before we did and that we can make mistakes is surely uncontroversial. The same, it would seem, can be said for simple arithmetic. But Musgrave considers belief in the existence of abstract objects an offence against common sense. Lacking causal powers and a location in space and time, abstract objects are 'weird' entities. Since numbers are paradigmatically abstract, Musgrave denies their existence. But if numbers do not exist, then arithmetic, taken at face-value, is false. Musgrave may be right, but mathematical realists will feel justified in claiming that, in this instance, they have common sense on their side. Musgrave's allegiance to common sense can also come under pressure when he is confronted with a possible counterexample to one of his positions. He is rather fond of responding that he will face down the objection by 'biting the bullet'. But surely there is a limit to how much bullet-biting one can engage in whilst keeping enough of one's teeth to defend common sense.

Alan Musgrave's insistence that common sense and scientific realism should be taken seriously and that any hint of idealism be forthrightly eschewed, prompted colleagues at Virginia Tech (he was there as Visiting Professor) to present him with a farewell gift—a sign reading "BEWARE OF THE mad DOG realist". He proudly displays it in his office. But he sometimes points out that his realism is not all that extreme; that 'lap-dog' realist might be more appropriate. After all, he doesn't claim, as some scientific realists appear to, that all current theories of science are true or ought to be believed. Nor is he a realist about abstract entities. Even so, the canine reference is apt. There is something of the blood-hound in the way he sniffs out and tracks down any whiff of idealism, and something terrier-like about the way he holds on once he has his philosophical teeth into an antirealist opponent. (Musgrave's realism has also been labelled 'Coronation Street Realism' by a Kantian opponent. Musgrave, an erstwhile Mancunian, happily accepts this label.)

Musgrave's take on common sense, science and scepticism also gives rise to his distinctive rationalist epistemology. The critical methods of common sense and science cannot, he believes, establish the truth of our hypotheses about the world. But our realist hypotheses are rational or reasonable insofar as they survive our best attempts to fault them, and insofar as they best explain the phenomena. We may reasonably believe a falsehood. If the state of the critical discussion changes, and we find a reason to think our belief false, it will no longer be reasonable to believe it. But what we have found is that our belief is false, not that we were unreasonable to believe it. Truth is a desideratum on reasonable belief, not a defining condition of it. What goes for truth and belief, also goes for reliability and method. We may

reasonably follow an unreliable method of forming beliefs. If we find a reason to think our method unreliable, it will no longer be reasonable to follow it. But what we have found is that our method was unreliable, not that we were unreasonable ever to have followed it. Reliability is a desideratum on reasonable method, not a defining condition of it. This avowedly internalist position is Musgrave's version of Popper's critical rationalism. All resting, he claims, on common sense.

One more aspect of Musgrave's philosophical work should be mentioned. His demand for clarity and his detestation of obscurantism and philosophical 'word salads'. The clarity and force of his own prose speaks for itself. The dense, jargon-clotted prose of much recent continental and post-modernist philosophy particularly draws his ire. But he is equally averse to analytic writings that are mired by complex technicalities. Not that he thinks that technicalities can always be dispensed with. His view is that any worthwhile philosophical position can be, and should be, introduced in a few clear sentences, and supporting arguments outlined as valid arguments with two or three premises. 'Bells and whistles' can be added later, if need be. And when it comes to illustrative examples, especially in the philosophy of science, the simpler the better. Billiard balls colliding rather than a pair of entangled electrons entering a Stern-Gerlach magnet. On one occasion a speaker was struggling in the face of Musgrave's demands for further clarification. 'I'm sorry,' he said, 'I can only try to make it clearer with a mickey-mouse example.' 'Don't apologise,' said Musgrave, 'I prefer mickey-mouse examples.'

Alan Musgrave was born in 1940, into a working-class family in Manchester, England. Success in the 11+ examinations enabled entry to a Grammar School education, and a scholarship then led to acceptance at the London School of Economics in 1958, where he intended to study law. But he was told that he was unlikely to succeed in the legal profession without the backing of a rich father, which he did not have. Then a letter arrived from the LSE saying that any student accepted for any course of study could switch to a new course, Combined Honours in Philosophy and Economics. So he switched having only a vague idea of what economics is, and no idea about philosophy.

From the beginning Alan was fascinated by philosophy, being particularly struck by the lectures of Karl Popper, which he attended regularly, although he never actually spoke with Popper during his undergraduate years. His first tutor was Joseph Agassi. From Alan's account, Agassi adopted the 'sink-or-swim' approach and offered little guidance, although his comment on Alan's first piece of work, 'Full of jargon—write simply', appears to have had a life-long impact.

Imre Lakatos replaced Agassi in Alan's final year. If anything, Lakatos provided even less assistance, apparently writing Alan off because he knew little mathematics and physics. Nevertheless, the young Musgrave did not 'sink'. His examination results prompted Lakatos to persuade him to do graduate research, rather than to embark on his intended career as a schoolteacher. He enrolled for a PhD with Popper as his supervisor. The benign neglect continued—Popper refused to help him choose a topic. However, Lakatos did encourage and assist him to remedy his

illiteracy in mathematics and physics. In return for this ‘private tuition’ Alan assisted with the preparation of Lakatos’s ‘Proofs and Refutations’ for its first publication in 1963-64.

It was another two years before Alan embarked on his thesis proper. In the meantime, in 1962, he married as well as becoming Popper’s research assistant. Two years later he was appointed to a temporary assistant lectureship, but a couple of years after that when his wife became pregnant he decided to seek something more permanent. He applied for and was offered a position in Scotland. Before he could take it up, Lakatos intervened once again and persuaded the Director of the LSE to offer Alan a tenurable lectureship there.

In 1965 he was involved in the organisation of the famous International Colloquium in the Philosophy of Science held in London. This provided the opportunity for him to meet such luminaries as Carnap, Tarski, Kuhn, Quine, Kreisel, Mostowski, and Bernays. He recalls attending a paper on the foundations of set theory by Mostowski which he found mostly unintelligible. It was followed by heated but even more unintelligible discussion. Then Tarski intervened. His contribution to the discussion was couched in simple, easily understood language (‘baby-talk’ in Alan’s words) and clearly illuminated the issue. This incident had a lasting impression on him, and generations of participants at Otago philosophy seminars have subsequently been grateful for Alan’s interventions couched in ‘baby-talk’. Following the conference, Alan had the opportunity to co-edit with Lakatos the fourth volume of the proceedings, which became the influential best-seller *Criticism and the Growth of Knowledge*.

In 1969 Alan successfully completed his PhD thesis, ‘Impersonal Knowledge—a Criticism of Subjectivism in Epistemology’. By this time he had become disillusioned and depressed by the student troubles at the LSE as well as the infighting within the department. And getting by on a lecturer’s salary meant living with his wife and two children in a small house in North London with little opportunity to enjoy the cultural offerings of London-life. So when a job offer with better prospects came up he jumped at it.

Otago University in Dunedin, New Zealand was looking for a new Professor of Philosophy. Because Popper was well-known there, having been at Canterbury University (then Canterbury College) from 1937 to 1945, he was approached for suggestions. He recommended Alan. When Alan flew out to New Zealand for the interview it was the first time he had left the UK and his first aeroplane flight. He was offered the Chair and took up the job in 1970.

The Otago Chair had been held by some distinguished predecessors, including J. N. Findlay, D. D. Raphael, John Passmore and J. L. Mackie. Although Alan was only 29 years old at the time, he was not the youngest occupant. Findlay had been the same age and Duncan Macgregor, the foundation professor in 1871, was two years younger. However, Alan’s has been the longest reign. He has been the Head of the Department for more than 35 years, apart from brief periods of occupancy by Bob Durrant, Greg Currie, Andrew Moore and Colin Cheyne.

Alan quickly established himself as a lively and popular teacher. His lectures were remarkable for their clarity and erudition, laced with jokes and gossip about famous philosophers and scientists, and delivered in his Lancashire accent with an

obvious enthusiasm for the subject matter. Alan's approach to teaching contrasts sharply with his experiences at the LSE. He is unfailingly helpful and encouraging to all interested students, often dismaying his colleagues with the time and trouble he takes with 'cranks' and 'lame-ducks'. But if he is sometimes overly-generous to less able students, he sets very high standards for those who show promise. As a result the best philosophy graduates from Otago have established themselves with distinction in a variety of professions throughout the world. These include the philosophers Jeremy Waldron, Graham Oddie and Tim Mulgan, and Pamela Tate, Solicitor-General of Victoria, Australia.

Alan also set about strengthening and enhancing the department's research culture. This he achieved by dint of his encouragement and enthusiasm, rather than heavy-handed prescription. A weekly seminar for the presentation of papers by department members and visitors has run continuously during term time for more than 30 years; a record matched by few other departments in the university. Attendance by staff and graduate students is expected, and any absence is likely to be queried. Regular contributions by members of the department are expected.

The seminars are notable for vigorous and lengthy discussion. It is here that Alan's detestation of obscurantism often comes to the fore. If Alan doesn't understand the paper or suspects that the students do not understand, he can be relentless in his demand for clarity. One suspects that some visitors, particularly in the past, have seen their visit to this remote part of the philosophical world as an opportunity to relax and explore New Zealand's spectacular scenery. But there has been nothing relaxing about the reception of their seminar paper. Nevertheless, the trickle of visitors has become a steady stream, and many distinguished philosophers have returned, sometimes for extended periods. Sir Karl Popper visited in 1972 and it was at the department seminar that Pavel Tichy famously demolished Popper's definition of verisimilitude.²

With Alan at the helm, research publications from the department increased in quality and frequency. A number of young scholars established themselves there. Some (such as the logician Pavel Tichy) stayed, while others (including Greg Currie and Paul Griffiths) moved on to prominent positions elsewhere. So it should have been no great surprise (although it apparently was to some) that Otago Philosophy did well in New Zealand's recent Performance Based Research Fund assessments (similar to the UK's RAE). In fact the department's score was the highest of all departments over all disciplines in the entire country.

Throughout his period at Otago Alan has continued to publish. Although mostly focussed on defending critical realism and critical rationalism, his papers have covered a wide range of topics, from ancient Greek astronomy to recent theories of economics, from scientific explanation to theories of truth, and from psychologism to the problem of induction. His introductory lectures on epistemology formed the basis of his *Common Sense, Science and Scepticism* (1993) and sixteen of his articles were collectively published as *Essays in Realism and Rationalism* (1999).

² See Svoboda, Jespersen & Cheyne 2004, p. 27 for further details of the incident.

The papers in this volume are presented in the same order that Alan Musgrave responds to them. He explains the rationale for that ordering at the beginning of his paper (p. 293). When the authors of the papers received the first draft of Alan's responses they mostly reacted in one of two ways. They either expressed delight that Alan had agreed with them or they expressed delight that he had seen fit to disagree with them in his characteristically forthright manner. Alan's generous support, tempered with astute criticism, has been a source of inspiration for many philosophers over many years. Long may it continue to be so.

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WHERE DOES THE BURDEN OF THEORY LIE?

1. OBSERVATIONS AND STATEMENTS ABOUT OBSERVATIONS

Discussing the supposed theory-ladenness of observation, Alan Musgrave says:

The slogan [observation is theory laden] cannot be literally true. If anything is ‘theory laden’ it cannot be observation but rather statements made on the basis of observation. Observation is simply an act that humans and other creatures perform, a special kind of event or process occurring in the nervous system of humans and other creatures. How can an act or event or process be ‘theory-laden’? (1983, p. 46)

I deny that there is a conceptual or metaphysical error in the idea that observation is theory laden. Of course, ‘theory laden’, as applied to experience or to anything else, must be some sort of metaphor; nothing can literally be laden with theory. If we stick with the idea that it is observation that is at issue here, the metaphor points us in two directions. One is towards the idea that theory influences observation. There is a sense in which this is uncontroversially true, since the theories that people have are among the things that influence their decisions about where to look; if you don’t look at something, you won’t have the relevant experience. This cannot be what is at issue in discussions of theory-ladenness. We can distinguish between looking, which is an action, and perception, which is what happens when you look and is not an action. The controversial claim about the influence of theory on perception is this: two people with equivalently functioning perceptual systems but possessed of different theories may have perceptions with different contents when they look at the same thing. This is not the error, described by Musgrave as “fashionable rubbish” (p. 47), according to which people with different theories see different things when they look in the same direction. For the content of perception is a matter of the way perception represents the world as being, not a matter of the way things are in that region of the world where we are looking. Two people may have distinct perceptual contents when looking at the same bit of the world, either because at least one of them is misperceiving, or because, while neither is misperceiving, their perceptual contents reflect different aspects of what is there.

The second direction in which the metaphor of theory-ladenness points us is towards the idea that the elements of cognition – the elements out of which cognitive states like beliefs are built – are also the elements of perception. On this view

perception has conceptual content, just as beliefs have. To have a belief is to be in a state, the content of which is a structured entity. The constituents of this structure are concepts, and possession of this belief requires of the subject possession of those concepts. Believing that owls fly requires that I have the concepts owl and flying, and having a perception with the content there is a flying owl requires this also. So perception can represent the world as being a certain way to me only if I have a concept of it being that way.¹ That, anyway, is the view. On this view, what your senses can represent the world as containing depends on the concepts you possess. So once again, two people with functioning perceptual equipment, presented with the same distal layout may yet be in perceptual states with distinct contents, because they do not possess the same concepts.

2. OBSERVATION AND ITS ROLE IN EPISTEMOLOGY

As we have seen, Musgrave takes theory-ladenness to be an essentially linguistic phenomenon. He says that the theory-ladenness of observation is properly understood as the claim that ‘in describing what we observe we must use terms which also figure in our general theories’ (p. 54). This, he claims, entails that we always face the possibility that some future event will undermine the statement about what we have observed, and so the statement has the character of a conjecture. But I shall continue to question the idea that theory-ladenness cannot be thought of as a property of perceptual experiences, but must be thought of instead as a property of statements about experience. I am not denying that there is a sense of theory-ladenness that applies to statements; I am neutral on that question. But I am denying that such a sense, if there is one, is the only legitimate sense.

The idea of theory-ladenness, as Musgrave explicates it, provides the link that gets us to fallibilism: the view that “all statements [including statements that describe observations] are conjectural” (p. 53). This seems to me an odd characterisation. After all, the traditional epistemological issue is one concerning the fallibility of experience, or as it is sometimes put, of the senses. If theory-ladenness and fallibility are properties only of statements, fallibilism is consistent with the following view: the senses never deceive us; the problem is just that we sometimes misdescribe our experiences when we formulate sentences descriptive of them. But Musgrave himself, in reminding us of the “ancient lineage” of the problem he is interested in, remarks that “The ancient sceptics disputed the epistemological claim that by using our senses we can come to be absolutely sure of the truth-values of observation statements” (p. 45). The problem is centrally with the reliability of the senses themselves, and only peripherally with language. And it is significant that Musgrave finds it difficult to stick to the linguistic version of the thesis. He says “It is not seeing (or perceiving or observing) which might be theory-laden, but rather seeing (or perceiving or observing) that something is the case” (p. 47). But if *seeing* is an

¹ This is roughly the formulation of Peacocke (1983, p. 7), who has since changed his mind on this topic (1992, Chapter 3).

event or process, then *seeing that* is surely also an event or process. It certainly isn't a linguistic entity.

Musgrave's aim, in the paper from which I have quoted, is to provide a limited and to some extent revisionary defence of some views of Popper, who has himself insisted that epistemologists stop talking about experiences and talk instead about statements: it is, says Popper "the logical connections between scientific statements which alone interest the epistemologist" (1959, p. 99).² But there are signs that Popper misunderstands the claim that experiences, and not just statements about experiences, are important for epistemology. He says that the view that statements can be justified not only by statements but also by perceptual experiences as "psychologism" (p. 94), and suggests that psychologism comes about because people mistakenly think that feelings of conviction can help to establish an hypothesis—a view which, he says, no sensible person would take concerning the validity of a logical inference (p. 98). But the idea that experiences are important objects of epistemological attention does not depend on the claim that feelings of conviction have anything to do with whether something counts as knowledge or not. Here Popper may be confusing experiences with something like *sensations*, conceived of as purely phenomenological states or, as Evans puts it, states "intrinsically without objective content" (Evans 1982, p. 123). But experiences essentially have *representational content*: they represent the world as being a certain way. It is the content of experience that matters to epistemology. It is this content which creates the possibility that an experience may provide a rational basis for the assertion of a statement describing some state of affairs. The epistemological problems connected with experience are those concerning the nature and determinants of its representational content, and the relation of that content to the contents of our beliefs. 'Feelings of conviction' have nothing to do with it.

An objection would be to say that, according to me, it is not the experience itself, but the content of the experience that matters from the point of view of knowledge. So the experience drops out of the picture. But I am not claiming—and nor, I think, is any traditional epistemologist claiming—that it is contents alone that serve to justify, or rationally warrant, our assertions. I am claiming that experience is capable of playing a justificatory role in epistemology because of its content, and hence that some particular experiences—namely those with the right kinds of contents—do justify some assertions. What matters is not content alone, but the content's being the content of an experience.

Problems about the content of experience and the relations between experience and belief are currently receiving a great deal of attention in philosophy, from the two different directions I have already mentioned. Attention comes first of all from a group of philosophers and cognitive scientists interested in whether experience is cognitively impenetrable or, more generally, encapsulated. It was this notion of cognitively impenetrability that I had in mind when I spoke earlier of experience being (or not being) independent of theory. In the broadest sense, any belief we have

² This is one aspect of what I take to be a disastrous turn in Popper's thought: the idea of epistemology 'without a knowing subject'. See Currie (1989).

counts as a theory.³ Cognitive impenetrability is, roughly speaking, the property a system may have of delivering representations which are unaffected by the subject's cognitive states, of which beliefs are an example. It seems fair to say that a cognitively impenetrable system will deliver representations which are not, at least in one sense, theory laden. Encapsulation is a related but more general notion: a system is encapsulated if it delivers representations which are not affected by the representations made available by any other system at any level. Thus encapsulation entails cognitive impenetrability, but not vice versa.

The second direction from which attention comes is from philosophers interested in the question whether experience has conceptual content. Thus McDowell argues that it is only if experiences have contents which are adequately characterisable using concepts possessed by the subject of the experience that an experience can constitute a reason for making a judgement. Otherwise, experiences must be regarded as 'brute' and, while they may be causes, can never be reasons (McDowell 1994).

3. COGNITIVE PENETRATION AND CONCEPTUAL CONTENT

How are these two issues connected? It would simplify things if we could show that, as a matter of necessity, a system is cognitively penetrated just in case it delivers outputs with conceptual content. In that case, any results we could establish concerning systems with one of these features could be asserted of systems with the other feature. Call this claim $N(\text{CP if CC})$. Consider one half of this claim: $N(\text{If CC then CP})$. Bill Brewer argues that a system might be cognitively impenetrable yet one that delivers representations with conceptual content. So he denies this half. His reason is that there is a sense of 'imagining that all swans are white' according to which the content of the imagining is as fully conceptual as that of believing that all swans are white, but one can imagine this without believing it (Brewer 1999, p. 176). However, this is not enough to establish the lack of entailment between 'X is a representation with conceptual content' and 'X is the deliverance of a cognitively penetrable system.' The question is not whether one can imagine that all swans are white without believing that they are: we all agree that this is true. The question is whether you can imagine this without drawing on any beliefs at all. It seems to me that the answer must be no, for the following reason. It is only beliefs, and not imaginings, that have the kind of world-relatedness necessary for concept possession. Beliefs are states which are apt to be caused by certain distal events, and to bring about certain kinds of behaviours in response to those events; beliefs connect us to the world. Imaginings cannot do this, for even in ideal circumstances it is not the case that imagining P is generated in response to it being true that P, and generates P-appropriate behaviour. For concepts of things in the world, we are dependent on belief.⁴ It is only when we are in possession of a suitable stock of belief-generated concepts that we can form imaginings of various kinds. In particular, in order to

³ There are, of course, much narrower notions of theory, but this one is familiar; see e.g. Jackson (1997).

⁴ Or rather, beliefs and concepts are interdependent in ways that imaginings and concepts are not.

imagine that P we must have a set of beliefs adequate to provide us with the concepts that would appear in a canonical description of P. The source of our concepts must be our beliefs, in the sense that, while it is possible for there to be a creature with beliefs but no imaginings, a creature with imaginings but no beliefs is not possible. In that case, the power of a system to generate representations (of whatever kind) with conceptual content depends on that systems access to the subject's beliefs. So N(If CC then CP).

How about the other half: N(If CP then CC)? Can we say that the deliverances of a cognitively penetrated system must have conceptual content? Here is an argument for denying this. We need to distinguish questions about the determination of perceptual content, and questions about the constitution of perceptual content. The claim that perception is cognitively penetrated is a claim about determination: it is the claim that, in order to fix the content of the subject's perceptions we need to hold fixed, not merely facts about the direction of looking, but also facts about the subject's beliefs. The claim that perceptual content is conceptual is the claim that the subject cannot have a perceptual content unless he or she possesses the concepts that would be deployed in a canonical description of that content.⁵ There does not seem to be any reason why, if beliefs determine perceptual content, they should also transmit to it their own distinctive kind of content.

However, it might be objected here that I have ignored an important aspect of the idea of cognitive penetrability. This idea is originally due to Pylyshyn, according to whom a process is cognitively penetrable if it is rationally sensitive to the semantic content of its inputs.⁶ This suggests a distinction between a system being influenced by certain inputs, and its being *rationally* influenced by them: a more demanding condition. Taking over this idea, we might say that in order to show that perception is cognitively penetrated it is not enough to show that beliefs are among the determinants of perceptual content; one must show that the contents of perception display rational sensitivity to the contents of the beliefs. In order to show that a subject's perceptual system is cognitively penetrated by the belief that P, we would have to show that the perception is rationally intelligible in the light of the belief. If the subject's perceptual content is *there is a cat in front of me*, and the relevant belief is *there is a cat in front of me*, I suppose we will agree that this is a case of genuine cognitive penetration. But if the belief were *Goldbach's conjecture is false*, it is difficult to see any rational connection with the perception. The case where perception and belief have identical contents (the case where the subject 'sees what he believes is there' as we might rather misleadingly put it) is an obvious case where the content of the belief renders intelligible the perception. But there are other kinds of cases which, while hard to systematise, certainly exert an influence on our judgement. It has been said that susceptibility to the Muller-Lyre illusion is the result of having acquired beliefs about the distances and sizes of things as typically seen in the architectural environments of western societies; the arrowheads are apt to

⁵ Here I follow Cussins (1990).

⁶ See Pylyshyn (1981). Cognitive penetration is defined in another way by Stich and Nichols in the course of arguing against the simulation theory (Nichols et al. 1996, p. 46). Their sense is not relevant to this discussion.

be interpreted as interior and exterior angles, with different implications for distance and hence for length.⁷ Here, beliefs about angles, edges and distances in certain environments are said to affect the contents of our perceptions involving lines on a two dimensional surface. Regardless of whether this hypothesis is, in the end, supported by the evidence, it certainly is a plausible candidate for explaining the perceptual illusion. Its plausibility consists in its seeming intelligible to us how such beliefs are rationally related to such perceptual states, though I think we would have a hard time articulating principles underlying the idea of rational relatedness. If the claim was that people were subject to the Muller-Lyre illusion just in case they believed that polar bear liver is poisonous, or that Curzon was Viceroy of India, it would have no such intuitive appeal. We can see similar kinds of relatedness exemplified in claims to the effect that perception is influenced by desire; perhaps people are more likely to see things as food if they are hungry, or to see things as dangerous if they are afraid.⁸ Whatever their truth, such claims offer at least the promise of intelligibility.⁹

If we now insist that cognitive penetrability involve this idea of rational sensitivity to content, then it follows that the outputs of a cognitively penetrated system must have conceptual content if they have content at all. For the test of the claim that a subject is deploying concepts is, exactly, the subject's capacity to make his or her thinking conform to norms of rational inference.¹⁰

I think we need to distinguish two kinds of cognitive penetrability. The first, stronger kind, conforms to Pylyshyn's demand for rational sensitivity. The second, weaker kind, requires only that the system have beliefs among its determinants.¹¹ My claim is that strong cognitive penetrability, but not weak cognitive penetrability, entails the requirement of conceptual content. How important is the notion of weak cognitive penetrability? The claim that perception is weakly cognitively penetrated would certainly be a challenge to the idea that perception constitutes a neutral common ground for scientists of different theoretical persuasions. Indeed, it could be argued that this kind of cognitive penetrability would be more worrying than strong cognitive penetrability would be. After all, if perception is cognitively penetrated in ways that respect constraints of rational intelligibility, then we have some hope of identifying, tracking and correcting for the resulting biases. But if all we can say is that belief tends to influence the content of perception, without our

⁷ See e.g. Churchland (1988). See also Gregory (1998), pp. 150-1.

⁸ See Pylyshyn (1999, Section 1) for examples of this kind from the 'new look' psychology of Jerome Bruner and others.

⁹ If the human mind has a track-record of seeking intelligibility where none is to be found, this is one reason to be suspicious of claims about theory-dependence. See Currie and Jureidini (2004).

¹⁰ This holds even if, as I shall argue later on, we revise our notion of what conceptual content is.

¹¹ Interpretationalists will worry at this point, holding that the conditions for the possession of belief are the conditions for the attribution of belief, where attribution is made in the light of normative constraints. How, they will, ask, could we ever be in a position to assert that it was the belief that P that was causing the proneness to perceptual illusion, when there is no rationalizing connection between the two? Surely a situation could arise where (i) we have all the reasons an interpretationalist could want to attribute the belief that P to a group of subjects and (ii) find that just those subjects are prone to the illusion. Why would anyone then deny that it was possession of that belief that is causing, or at least a partial cause of, the illusion?

being able to identify, in terms of rational connectedness, the kinds of beliefs likely to influence a given perceptual content, then bias will be very hard to avoid indeed. On the other hand, it is true, I think, that the kinds of cases which people have actually suggested as exemplifying cognitive penetration of perception have been cases of strong cognitive penetrability. Pylyshyn's empirical (and incidentally highly sceptical) survey (1999) offers a very large class of purported cases of cognitive penetration of perception, all of which exhibit, to varying degrees, rational sensitivity.¹² Indeed, it is hard to see how systematic research into cognitive influences on perception could be conducted *without* the assumption that cognition and perception are rationally related; what sorts of cognitive influences would we be looking for otherwise? In that case, cognitive penetrability, as it is likely to be used as a tool for research, entails conceptual content. Putting all this together, my tentative conclusion is that, for relevant cases, we have our equivalence: $N(CC \text{ iff } CP)$.

On the issue of cognitive penetration I have little more to say: here the situation seems to me very complex, conceptually and empirically. The conceptual difficulty arises because we have no clear antecedent understanding of the point at which perceptual systems deliver their outputs and belief takes over. Pylyshyn, for example, makes it clear that his own claims about the cognitive impenetrability of visual processing are not meant to apply to experience as understood phenomenologically; rather his claim concerns an hypothesised "early visual system", the design of which is to be inferred on the basis of our best overall theory of perception and cognition (1999, Section 7.2). And Fodor, who sometimes sounds like a confident advocate of the 'perception is theory-neutral' view,¹³ exhibits considerable uncertainty about exactly what it is that is cognitively impenetrable: on some occasions even perceptual belief is included.¹⁴ At other places, it isn't perception that is theory neutral, but some early part of perceptual processing: more or less Pylyshyn's conclusion.¹⁵ For the rest of this paper I'll focus on the issue of conceptual content.

¹² Thus it has been claimed that the fusion of random dot stereograms is improved by prior information about the nature of the object. And chess masters' rapid visual processing and good visual memory for chess boards manifests itself only when the board consists of familiar chess positions and not when it is a random pattern; this is said to support the idea that it is the system of classification that they have learned which allows masters to recognize and encode a large number of relevant patterns.

¹³ See especially where Fodor, taking as his targets Churchland, Goodman, Kuhn and Hanson, claims that 'arguments against the possibility of drawing a principled observation/theory distinction have been oversold' (Fodor 1984, p. 120).

¹⁴ 'there is a class of beliefs that are typically fixed by sensory/perceptual processes, and... the fixation of beliefs in this class is... importantly theory neutral' Fodor (1984, p. 120). It is clear that the beliefs in question are perceptual beliefs. But later Fodor says 'the fixation of perceptual belief is the evaluation of such hypotheses in the light of the totality of background theory' (Fodor 1984, pp. 135-6). This latter way of putting it sounds better: perception represents the lines in the Müller-Lyer illusion as the same length, but because of background knowledge we do not form the belief that they are the same. The claim that perception is theory-neutral is not the claim that perceptual belief is theory-neutral. At most, it is the former claim that Fodor's argument entitles him to.

¹⁵ 'The point of perception is the fixation of belief, and the fixation of belief is a... process... that is sensitive... to what the perceiver already knows. Input analysis may be encapsulated, but perception surely is not' (Fodor 1983, p. 73). So the argument goes: perception contributes to belief fixation; belief fixation is cognitively penetrable; so perception is cognitively penetrable. The principle

4. THE CONTENT OF EXPERIENCE

One way to put Popper's view about the proper concerns of epistemology is in terms of an image due to Wilfred Sellars, and revived by John McDowell: that experience lies outside the space of reasons.¹⁶ Popper is not alone in holding this view. Another version of the view is that of Donald Davidson, who says that "nothing can count as a reason for holding a belief other than another belief" (Davidson 2001, p. 141). Popper and Davidson disagree about something here, since Davidson thinks that beliefs belong to the space of reasons while Popper wants to exclude even them. But they agree, apparently, that experiences do not belong to the space of reasons. This is the starting point for McDowell's attempt to rehabilitate experience: he wonders how Davidson can make room for the idea of rational constraint on belief from outside. McDowell's own solution is to bring experience into the space of reasons by seeing it as possessing the same kind of content as is possessed by belief: conceptual content. In my view this is a mistake; we can account for the reason-giving potential of experience without insisting that experience has only a kind of content available only to a possessor of the relevant concepts.¹⁷ Let me explain.

In order for experiences to constitute reasons for judgement, must those experiences have conceptual content? This is the standard formulation of the question. McDowell and Brewer claim that the answer to it is yes. Others say no.¹⁸ Brewer argues, for example, that a reason for judging (like a reason for doing anything) must be a reason *for* the subject.¹⁹ While we can say that there was a reason why Fred should have done this, even though Fred did not have that reason available to him, the question we are interested in here does not concern such reasons. It concerns the possibility that a subject may *have* an experience as a reason for making a judgement; such a reason has to be a reason *for him*. Brewer claims that this can happen only if the reason in question has conceptual content. For it is only when the subject conceptualises the content that it is a reason for him. It is not enough that what we are given as the reason for judging is related to the subject's mental state 'by the theorist in some way'; the proposition must be the content of the

operating here—what contributes to an outcome which is cognitively penetrated is itself cognitively penetrated—would have us conclude that everything is cognitively penetrated. Since perception is cognitively penetrated (by the argument above) anything that contributes to perception is cognitively penetrated (by principle implicit in the argument above), so even the lowest level of perceptual processing (retinal stimulation, for example) is cognitively penetrated. The principle is wrong: what makes a system cognitively impenetrable is just the independence of its outputs from belief; what is done with those outputs later on is nothing to the question. If Fodor wants to agree with the top-down theorists that perception is cognitively penetrable, he should not cite the contribution of perception to belief fixation as a reason for this.

¹⁶ Sellars (1956, p. 76). Page reference is to the reprint, as a book, by Harvard University Press, 1997. See also McDowell (1994, p. 5).

¹⁷ I say 'only' (first occurrence) here because the dispute is really between those who think that experience has only conceptual content and those who deny this, some of whom, e.g. Peacocke, (1992), think that experience has contents of both kinds. As will become apparent, I reject this way of putting the issue.

¹⁸ See e.g. Evans (1982), Peacocke (1992), Crane (1992).

¹⁹ Brewer (1999, Chapter 5). See also McDowell (*ibid*, p. 140): 'nothing can count as a reason for holding a belief except something else that is also in the space of concepts.'

subject's mental state 'in a sense which requires that the subject has all of its constituent concepts.'²⁰

I suggest a different way of looking at the matter. We can think of the content of experience as itself nonconceptual, but as providing a potential reason for judgement on the part of a subject who is equipped to conceptualise that content. Thus someone who judges that P on the basis of an experience is someone with a reason so to judge only if he judges that P on the basis of his articulating the content of the experience, and in the process of so doing, deploys the concepts that appear in a canonical formulation of that content. It is crucial to this proposal that the experience and the judgement have the very same content; that is what makes the experience the (potential) ground of the judgement. But how can the experience and the content have the very same content if the content of the one is nonconceptual and the other conceptual? I take 'conceptual content' to be a misleading term: content is itself not conceptual. To say that this or that state is a state with conceptual content is best taken as a way of saying that the subject is in a state which is (i) contentful and (ii) one which the subject could not be in unless he or she possessed the relevant concepts. What happens in the case of experientially based judgements is this: the subject has an experience with the content P; possessing the relevant concepts—those sufficient to articulate the content of P—he or she then judges that P. The experience and the judgement have exactly the same content.²¹ The difference between them is that the subject can have the experience without possessing the concepts, but cannot make the judgement without possessing the concepts. An experience functions as an opportunity: an opportunity for someone, with the right conceptual equipment, to make a judgement which will thereby, in normal circumstances, be justified. In taking up the opportunity, the subject may judge to be true exactly that which his experience informs him of. The difference between the perception and the judgement is not in the nature of their contents (for the contents are the same) but in what is required of the subject in order to be in these states. To have an experience with the content P one does not need any concepts, but to believe that P one needs concepts—those concepts which one would display mastery of in satisfying what Evans calls the generality constraint. Thus someone who believes that Socrates is a philosopher must be in a position to think the thought that S is a philosopher, for any singular concept S which he or she possesses, and to think the thought that Socrates is an F, for any general concept F which he or she possesses (Evans 1982, Section 4.3).²²

What sort of content is it, then, that is the common property of perception and of belief? There are several proposals for such a content. But I suggest, rather tentatively,

²⁰ Brewer (1999, p. 152). This argument is presented briefly in Sedivy (1996).

²¹ Strictly speaking the condition of sameness of content is too strong; all that is required is that the content of the experience be such as to entail, or at least rationally mandate the content of the judgement. What is required for this is that it is at least possible that the content of the experience and the content of the judgement be the same. Anyone who believes that the content of the experience is *of a different kind* from that of the judgement must deny this.

²² Evans offers one way of explaining the role of concepts in thinking; there are others. See e.g. Crane (1992). Crane also advocates the view that perception has nonconceptual content. For comment on Crane's proposal see Currie and Ravenscroft (2002, Chapter 5).

that it is content individuated by possibility. In other words, we should think of the contents of perceptions and of beliefs (and indeed statements as well) as functioning to narrow down the range of live possibilities for the subject. As we experience more, form more beliefs, and hear more assertions, we progressively refine our picture of which state of affairs, out of all those that are possible, is actual; we never, of course, remotely approach a situation where we fix on a particular world (a particular maximal state of affairs) as actual. This is the sort of view of the contents of beliefs that Robert Stalnaker has been urging upon us for many years (Stalnaker 1984 & 1999). It is remote from conceptions of content according to which concepts are constituents of content.²³ On the individuation-by-possibility approach, content is a set of ways the world might be. Indeed Stalnaker recently suggested that we should agree with McDowell that experiences and beliefs have the same kind of content, but disagree with him to the extent that we say that the content is nonconceptual. Stalnaker puts it like this:

Let us grant (without looking too hard at what this means) that states of belief and judgement are essentially conceptual—states and acts that require the capacity to deploy concepts, and manifest the exercise of this capacity. That does not by itself imply that the concepts that subjects deploy and are disposed to deploy when they are in such states or perform such acts are thereby constitutive of the contents that are used to describe the states and acts. (1998, p. 352)

Stalnaker does not put forward this idea as a solution to the problem of saying how a nonconceptual content for perception would make it possible for us to justify experientially based judgements. But it seems to me to do this job rather well.²⁴

One objection to this proposal is as follows. I insist that perceptions and beliefs have contents of the same kind, and indeed that some perceptions have the same specific content (type) as some beliefs. And I claim that in both cases the contents are nonconceptual; concepts are not constituents of these contents. But I also claim that possession of concepts is essential for the possession of beliefs, but that this is not essential for the possession of contentful perceptual states. How can this be? The only reasonable answer is to say that concepts are constituents of beliefs but not of perceptions. But this answer is not available to me.

My answer to the objection is to insist that we distinguish two questions:

1. What are the constituents of the content of a given kind of mental state?
and
2. What are the possession-conditions for a mental state of that kind?

Standardly, these two questions get very closely associated answers for the case of belief: the constituents of the contents of beliefs are concepts, and concepts are what you need in order to possess states of that kind. But on my view there are kinds of mental states which (i) are contentful; (ii) do not have concepts as the constituents

²³ As is Peacocke's account in terms of scenario content (Peacocke 1992, Chapter 3).

²⁴ It is time to make good an omission. In Currie and Ravenscroft (2002) we briefly suggested the idea described above, without referring to Stalnaker (1998), which we did not know about, but certainly should have known about, at the time of writing.

of their contents, and (iii) can be possessed by a subject only if he or she possesses certain concepts. Beliefs are states of this kind; perceptions are not. The reason that a believer must possess certain concepts is not that the concepts go to make up the contents of the belief, but because being a believer requires certain kinds of facility with that content—inferential facility for example—that is constitutive of concept possession. In general we do not expect that differences between kinds of mental states that show up as differences of functional role will be reflected in differences of constitution. Take belief and desire. These are distinct kinds of states, with distinct functional roles; the belief that P is apt to play a role in theoretical reasoning that the desire that P is not apt to play. Yet it is generally agreed that the belief and the desire have the same kinds of constituents. In that case it does not seem unreasonable to say that beliefs and perceptions differ in functional role, but not in their constituents.²⁵

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²⁵ Thanks to Colin Cheyne and John Worrall for the invitation to honour a friend and former colleague. Thanks also to Bill Fish and Nick Jones for discussion of these issues; neither, I think, agrees with me about content.

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