

KNOWING ENTAILS BELIEVING

John A. Schumacher

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Abstract:

Recently Colin Radford attempted to show primarily by examples that the entailment thesis that knowing entails believing is false. Both D. M. Armstrong and Keith Lehrer replied by suggesting, in effect, that Radford cannot justify his failure to consider unconscious belief. Here I show that neither Armstrong nor Lehrer succeeded in refuting Radford. But my exploration of their suggestion about unconscious belief leads to a complete reconstruction of Armstrong's principal example in terms of belief-constituting abilities. This reconstruction not only provides grounds for defending the entailment thesis, but also renders the thesis immune to Radford's examples and arguments.

## Knowing Entails Believing\*

I. The thesis that knowing that some sentence, say, *p* is true entails believing that *p* is true, hereafter referred to as the entailment thesis, has recently received much attention centering around Colin Radford's attempt to show, primarily by examples, that it is false.<sup>1</sup> Both Keith Lehrer and D. M. Armstrong argue, though in quite different ways, that Radford's examples do not constitute counter examples to the entailment thesis.<sup>2</sup> I shall nevertheless show in sections II through VI that neither Lehrer nor Armstrong succeeds in refuting Radford.

Lehrer does not succeed primarily because he merely assumes, as he himself ultimately puts it, that both knowing that *p* and believing that *p* require a certain sort of conscious conviction.<sup>3</sup> However, Lehrer does in effect expose a weakness in Radford's position which Armstrong tries to exploit. That is,

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<sup>1</sup>"Knowledge--By Examples," Analysis, XXVII (1966-7), pp. 1-11.

<sup>2</sup>Lehrer, "Belief and Knowledge," Philosophical Review, LXXVII (1968), pp. 491-9; material from this article is also reprinted in Lehrer, Knowledge (Oxford, Clarendon Press, 1974), Chapter Three. And Armstrong, "Does Knowledge Entail Belief?" Proceedings of the Aristotelian Society LXX (1969-70), pp. 21-36. See also Armstrong, Belief, Truth and Knowledge (Cambridge, Cambridge University Press, 1973), Chapter Ten.

<sup>3</sup>"Believing That One Knows," Synthese, XXI (1970), pp. 133-40; material from this article is also reprinted in Knowledge, Chapter Three.

Radford does not show that, even though he is concerned with knowing that p which does not require conscious conviction, he need not be concerned with believing that p which also does not require such conviction.

Armstrong constructs four cases, each a variation of Radford's principal example. On this basis he argues that believing that p which does not require conscious conviction not only must be considered by Radford, but is entailed by knowing that p which also does not require conscious conviction. Unfortunately, the construction of these four cases involves, as a primary element, the notion of a memory trace, and the way this element figures in Armstrong's argument renders it unsuccessful.

I show elsewhere<sup>1</sup> that, in describing someone as retaining a cognitive ability, such as the ability to answer certain questions correctly, there is no forced reference to such causal mechanisms as memory traces. Accordingly, as I shall explain in section VII, we can try to reconstruct Armstrong's four cases simply in terms of acquiring, retaining and exercising the relevant cognitive abilities. For whatever we accomplish cannot be undermined by the success or failure of a causal analysis of these abilities themselves in terms of memory traces.

Therefore, in section VIII I shall completely reconstruct Armstrong's four cases in terms of belief-constituting abilities. In the process I defend the only problematic form of the entailment thesis, namely, that knowing that p which does not require conscious conviction entails believing that p which also does not require such conviction. And, finally, I shall reveal in section IX how Radford's failure to account properly for the history of the subject's belief-constituting ability,<sup>2</sup> an element of prime importance in my reconstruction, ultimately leads to his refutation.

II. In "Knowledge--By Examples"<sup>3</sup> Radford constructs an example in which a French-Canadian, Jean, is asked some

<sup>1</sup>"Memory Unchained Again," forthcoming in Analysis, XXXVI (1975-6).

<sup>2</sup>"Does Unwitting Knowledge Entail Unconscious Belief?" Analysis, XXX (1969-70), pp. 103-7.

<sup>3</sup>Parentetical page references to Radford in this section will be to this article.

questions about English history. At the beginning of the questioning Jean believes that he does not know, and that he never learned, the correct answers to any such questions, and his first few answers seem to bear this out. Yet, as the questioning progresses, it becomes clear that Jean can correctly answer nearly all of the questions concerning the Tudor and Stuart monarchs. This success begins to puzzle Jean, for throughout most of the questioning, indeed right up to the end, he believes that he is just guessing and even that his answers are wrong. At the end of the questioning, his questioner, Tom, confronts Jean with the pattern of his correct answers, and gets him to try to recall that he once learned some English history, particularly concerning the Tudor and Stuart monarchs. Jean then claims to remember having learned the relevant material, and this marks the end of the example. Radford goes on to argue that Jean knew some English history all along even though, until Tom confronts him and his memory revives, Jean believed that he did not know any English history, and neither believed, nor was justified to believe, that his answers were correct.

On the other hand, in "Belief and Knowledge"<sup>1</sup> Lehrer argues that this example cannot support Radford's position because Jean does not know what Radford says that he knows. Lehrer schematizes Radford's argument as follows:

- (1) Jean knows the correct answer to the question.
- (2) The correct answer to the question is that Elizabeth died in 1603.
- (3) If Jean knows the correct answer to the question and the correct answer is that Elizabeth died in 1603, then Jean knows that Elizabeth died in 1603.
- (4) Jean knows that Elizabeth died in 1603.

He then argues, partly on the basis of his own example in which a quiz show contestant correctly answers one question ("When did Elizabeth die?"), that (3) is false.

Lehrer's argument for rejecting (3) amounts to this: "Jean knows some correct answers, [but] he does not know that his answers are correct. This is shown by the fact that he has no idea which of his answers are correct and would be unable to tell the correct answers from the

<sup>1</sup> Parenthetical page references to Lehrer in sections II and III will be to this article.

incorrect ones" (495).<sup>1</sup> But Lehrer could not mean here, as might be suggested by his use of the phrase 'no idea', just that Jean is not aware that his answer is correct, and therefore that Jean would not sincerely say that it is correct. Nor, alternatively, could he mean just that Jean is not aware that he has the ability to answer the question correctly. For by doing so Lehrer would surely beg the question at issue.

This leaves us with the problem of understanding how Lehrer uses the phrase 'unable to tell'. His claim could not be that Jean does not have the ability to answer the question correctly, for Jean's having such an ability is presupposed by his own argument. (Jean knows the correct answer to the question.) Consequently, I suggest that Lehrer means to claim that Jean is not justified to answer the following questions affirmatively: Is your answer to the question correct? Or, can you answer the question correctly? By saying that Jean is not justified to answer such questions affirmatively, I do not mean to suggest only that he does not believe that his answer is correct or that he has the ability to answer Tom's question correctly. I also mean to suggest that he has no good reason to believe this. Or again, in Radford's terms, Jean neither knows, nor is justified to claim, that he knows that Elizabeth died in 1603.

If this is what Lehrer's claim amounts to, and I can see no alternative,<sup>2</sup> then in itself it carries no force as an argument against Radford. On the contrary, it lends some measure of support to his position, by revealing the significance and strength of his denial, on the basis of his compelling example, that in order to know that Elizabeth died in 1603, Jean should know, or be justified to claim, that he knows that Elizabeth died in 1603.

This sort of problem is repeatedly embedded in Lehrer's arguments. For instance, Lehrer has this to say about his own quiz show example: "Assuming that George was guessing, however, then, although we might concede that George knows the correct answer, we should want to insist that he did not know that Elizabeth died in 1603. A lucky guess is

<sup>1</sup>Lehrer now admits that an assumption underlies his arguments in "Belief and Knowledge," although he does not see the assumption as I do here and in the following section. See section IV below.

<sup>2</sup>Indeed, this sort of claim is also required by Lehrer's "proof" of the entailment thesis. See the following section.

not a case of knowing that  $p$ " (496). I agree with Lehrer that a lucky guess is not a display of knowing, but why move from this to the claim that George does not know? If George actually guesses that  $p$ , he is clearly not justified in claiming that he knows that  $p$ . The reasons upon which he bases his answer, if indeed there are any such reasons (for there need not be), are not thought to be, nor need they be, good ones. But, on the other hand, George may have underestimated himself and his resources, or may not have been in a context ideally suited to utilizing his resources fully. That is to say, George may still know that  $p$ .

For suppose that the quiz master asks George whether some complex algebra theorem is provable. George is in no position to try to prove this theorem. Suppose as well that he does not recall whether he had ever proven that particular theorem. So he guesses, and merely by chance the answer is correct. Does George know whether the theorem is provable? Lehrer would be forced to say that he does not know. But suppose even further that George sits down with pencil and paper after the quiz show and proves the theorem. Does George know then? And suppose finally that he had once proven the theorem, and that he had the ability to prove it all along, even during the quiz show when he guessed. Did George know all along?

Surely, this is the question at issue here,<sup>1</sup> and Lehrer cannot just stipulate an answer as he has done so far. After all, at this point we might accept that George's ability to prove the theorem, an ability which he possessed at the time that he guessed, constitutes his knowledge that the theorem is provable. We cannot, of course, accept this if we allow that in order to know George should be justified in claiming to know. Yet if we allow this, we are apparently denying knowledge to mathematicians who could not remember which theorems they had once proven and still could prove. Consequently, we must turn to Lehrer's "proof" of the entailment thesis to see if he can supply the missing arguments for his interpretations of Radford's and his own examples.

<sup>1</sup>One might say that George knows how to prove the theorem but not that the theorem is provable, but this same shift applies to Radford's example: one might say that Jean knows how to answer correctly but not that his answer is correct. This shift is thus the heart of the issue in question.

III. Lehrer's "proof" is as follows:

- (5) If S does not believe that p, then S does not believe that he knows that p.
- (6) If S does not believe that he knows that p, then, even though S correctly says that p and knows that he has said that p, S does not know that he correctly says that p.
- (7) If, even though S correctly says that p and knows that he has said that p, S does not know that he correctly says that p, then S does not know that p.
- (8) If S does not believe that p, then S does not know that p (498).

Lehrer claims that Radford would readily accept (5) because it plays an important role in Radford's own argument, but I cannot see that this is so. Radford does suggest at the end of his article that perhaps (5) holds, yet prior to that point he argues not that (5) holds but rather that one reason among others for S's not believing that he knows that p could be his not believing that p. In any event, Radford could accept (5), especially if he assumes, as Lehrer does, that S is the kind of person whose beliefs are consistent.<sup>1</sup>

Setting (5) aside, we find that the first crucial argument is given in support of (6): "The reason for adopting this premise is simply that if a man does not believe that he knows that p, then, even if he correctly says that p and knows he has said this -- in a quiz, for example -- he should, if he is honest, not say he knows that his answer is correct. If we ask such a man, 'Do you know whether the answer you have given is correct?' the only right answer is 'No'" (497, my underlining). This passage again reveals the way in which Lehrer repeatedly blurs the distinction between a man's being justified in claiming to

<sup>1</sup>David Annis' reply to Lehrer, "A Note on Lehrer's Proof that Knowledge entails Belief" (Analysis, XXIX (1968-69), pp. 207-8), turns on the fact that, according to Lehrer's proof, knowing entails believing that one knows. Annis claims that this entailment does not obtain, for his four-year old nephew can be said to know that his favorite toy is his but cannot be said to believe that he knows this because he has no conception of knowledge. Even if the nephew's beliefs could be supposed to be consistent, this sort of claim would not undermine Lehrer's argument. Lehrer could simply eliminate (5) and replace the antecedent of (6) with 'If S does not believe that p', and his argument for (6) could still be given with the same change as in (6) itself, as should be clear after I discuss the argument for (6) below. According to the modified version of Lehrer's "proof," knowing need not entail believing that one knows.



know that p and his being right in claiming to know that p. If we interpret the last question in the quote as equivalent to "Do you know that p?", the only justified answer is "No," or even more precisely, "I don't claim to,"<sup>1</sup> for I agree that, if a person does not believe that he knows that p, he is not justified in claiming to know that p. Only if we do as I suggest in Section II above and interpret the last question in the quote as equivalent to, say, "Do you know that you know that p?" can we consider "No" as the right answer. Otherwise, the right answer is "Yes," or so Radford would argue. Consequently, Lehrer's argument collapses.

We should nevertheless consider Lehrer's argument for (7): "This assumption rests on the fact that if a man correctly says that p and knows that he has said that p, then all he needs to know in order to know that he correctly says that p is simply to know that p" (497). But what does Lehrer mean here when he says that someone knows that p? Obviously, he means more than that the person has an appropriately acquired ability to answer certain questions correctly, for otherwise his argument would be otiose. Given Lehrer's arguments for rejecting (3) and adopting (6), the missing condition could be that the person believes, or is able to tell, that he has such an ability. But we cannot just accept this sort of condition without some justification from Lehrer. For his opponents would contend both that all S needs to have in order to know that p is an appropriately acquired ability to answer certain questions correctly (or perhaps, an ability to show that p), and that S's having such an ability does not depend upon his believing, or upon his being able to tell, that he has it. That is to say, if S can satisfy us that he has such an ability, even though he himself does not realize his own capacity, then it is the question at issue whether or not he knows that p. Hence, Radford's example still stands intact as support for his position.

IV. From the very beginning of Lehrer's article one tends to feel that he simply refuses to use the term 'knowledge' as Radford uses it, for how else can one explain his constant failure to come to grips with Radford's position. Radford makes a similar comment,<sup>2</sup> and ultimately so does Lehrer himself in "Believing That One Knows."<sup>3</sup> There Lehrer

<sup>1</sup>The latter answer was suggested by J. M. Hinton in conversation.

<sup>2</sup>"Analysing" 'Know(s) That'," Philosophical Quarterly, XX (1970), pp. 228-9.

<sup>3</sup>Parenthetical page references to Lehrer in this section will be to this article.

acknowledges that in "Belief and Knowledge" he "assumed that knowing that p and believing that p require a conscious conviction that p and an associated readiness to assert that p in appropriate circumstances." He then continues, "Those with whom I disagree obviously have a different conception of knowledge and belief. There are grounds for both conceptions in ordinary language" (135). Lehrer thus admits that Radford has legitimate grounds for using the term 'knowledge' as he does in claiming that Jean knows that Elizabeth died in 1603. Yet at the same time Lehrer tries to undermine Radford's counter example to the entailment thesis, by bringing into question Radford's use of the term 'belief'.

Lehrer begins by claiming that Radford assumes that "a man knows something that he is not consciously convinced of or ready to assert" (136). Lehrer then wishes to show that Radford cannot complete his argument without being unfaithful to his so-called assumption about the concept of knowledge.

For Radford assumes that the man does not believe that p because he says he is guessing. This does now follow on the current assumption. We have assumed that a man can know or believe that p even though he lacks conscious conviction that p and a readiness to assert that p.... [U]nder the current assumption, a man may say in all sincerity that he neither believes nor disbelieves that p, even though he does in fact believe that p, just as he may say that he does not know that p, even though in fact he does know that p (136, my underlining).

But whose assumption is it that is, according to Lehrer, current? Radford does not assume that a man can believe that p even though he lacks conscious conviction that p and a readiness to assert that p. On the contrary, if he assumes anything, he assumes just the opposite. Is he forced in some way by his so-called assumption about the concept of knowledge to make the same assumption about the concept of belief, as Lehrer's argument implies? I do not see why this is so, but Lehrer apparently thinks that it is, for he wishes "to argue that whether or not one assumes that a conscious conviction that p and a readiness to assert that p in appropriate circumstances are conditions of knowledge and belief, ... [the entailment thesis] may be sustained." He thus proceeds to make his argument first under the assumption that both knowledge and belief carry such conscious conviction, and then under the assumption that neither knowledge nor belief carries such conscious conviction (135-8). In fact, the second

assumption is the current assumption to which Lehrer refers in the argument quoted above.

But Radford cannot work under either of Lehrer's assumptions, for he is trying to show that any belief which carries conscious conviction is external to Jean's knowledge, or rather, that Jean's knowledge need not carry conscious conviction. Radford does not assume that Jean knows even though he is not consciously convinced, but rather tries to construct an example in such a way that any reader would be compelled to ascribe unwitting knowledge to Jean, thereby revealing the grounds in ordinary language for Radford's use of the term 'knowledge'.

Nevertheless Lehrer's argument does suggest a weakness in Radford's position: Radford merely assumes that he need not be concerned with belief which does not carry conscious conviction and, consequently, which might not be external to Jean's knowledge. But Lehrer does not actually make clear that this weakness is fatal to Radford's position. For Radford might just be able to show that there is no such belief which is not external to Jean's knowledge, or perhaps that there are no impressive grounds in ordinary language for such belief. At this point Armstrong's reply to Radford in "Does Knowledge Entail Belief?"<sup>1</sup> becomes significant, since Armstrong does try to show that the weakness is fatal.

V. Armstrong claims that the cognitive aspects of Radford's example, as Radford describes it, can be represented by the following three sentences:

- (9) Jean knows that Elizabeth died in 1603.
- (10) Jean neither knows, nor believes, that he knows that Elizabeth died in 1603.
- (11) Jean believes that it is not the case that Elizabeth died in 1603.

Armstrong clearly accepts Radford's claim that (9) is true, but he also tries to show that the context as described is compatible with a fourth sentence, namely, (12) Jean believes that it is the case that Elizabeth died in 1603. If these four sentences are compatible (and it would seem at first glance rather unlikely that they are), then Radford's argument is inconclusive, and Armstrong can try to show that (12) is true.

The first step is to point out that (11) does not imply the negation of (12).

<sup>1</sup> Parenthetical page references to Armstrong will be to this article.

[T]here is no entailment here. For it is possible that you have a split mind on the issue. It is at least logically possible that you hold contradictory beliefs simultaneously.... The simultaneous holding of contradictory beliefs.... is not a contradictory state of affairs.... The [most] problematic case is that of being currently aware of holding two obviously contradictory beliefs. But even here the situation seems a possible one, although it must include our recognition that we are in an irrational state (28).

Armstrong thus wishes to claim that a person may hold two contradictory beliefs which both carry conscious conviction, especially when the beliefs are not obviously contradictory. Nevertheless, in certain contexts, such as Radford's example, a person who holds contradictory beliefs would most likely not realize that he holds both beliefs. For surely it is doubtful that the beliefs represented by (11) and (12) can both carry conscious conviction. Normally, if not always, a person would have no difficulty deciding that the beliefs represented by sentences (11) and (12) are inconsistent, and consequently deciding which of the two beliefs to hold. Anticipating this problem, Armstrong contends: "[I]t is clear that one of the beliefs -- the belief that Elizabeth died in 1603 -- would have to be one that its possessor was not aware of holding. And surely there can be no objection to an unconsciously held belief contradicting a consciously held one.... It would be extraordinarily arbitrary for Radford to allow the possibility of unconscious knowledge yet deny the possibility of unconscious belief" (29). We are thus confronted by a contention quite like Lehrer's, although here it seems to bear the weight required of it.

Yet Armstrong's account of the inconclusiveness of Radford's argument is itself inadequate and misleading. It is misleading because we can remain faithful to Radford's example even if we claim either that (11) is false, or that, if the belief represented by (11) is to carry conscious conviction, then (11) will be false. Since Jean may profess to have no opinion about his answers one way or the other, even according to Armstrong (27), we should look elsewhere for what forces the belief represented by (12) not to carry conscious conviction. Thus, Armstrong's account of the inconclusiveness is also inadequate.

If we have Jean say, "I do not believe that Elizabeth died in 1603," Armstrong must challenge Jean by arguing that his saying this does not justify the claim that he does not believe that Elizabeth died in 1603; it justifies only the claim that he believes that he does not believe that Elizabeth died in 1603. Not only do we assume that the latter claim is true by challenging Jean in this way, but we also assume that the belief

represented by that claim carries conscious conviction. This is most likely the best basis for the conclusion that, if the belief represented by (12) is to carry conscious conviction, then (12) will be false. For if this conclusion were false, Jean would, in effect, consciously believe both that he does believe, and that he does not believe, that Elizabeth died in 1603. Consequently, the belief represented by (12) will not carry conscious conviction if (12) is true: Jean consciously believes that he does not believe that Elizabeth died in 1603, and according to Armstrong and perhaps even to Lehrer, Jean unconsciously believes that Elizabeth died in 1603. Radford does not anticipate this sort of response to his example, and so Armstrong is right in thinking that he can try to show that Jean does after all believe that Elizabeth died in 1603.

VI. Armstrong considers the same sort of context that Radford does. An examinee is asked when Queen Elizabeth died, and he answers with what he thinks is a guess. The examinee was once taught the correct answer to the question, i.e., "1603," and there was a memory trace created as a result of his being taught this. Armstrong outlines four variations on this basic context by specifying additional features of the creation and subsequent history of the memory trace: (I) the memory trace is "completely causally irrelevant" to the examinee's giving an answer that just happens to be correct, and the actual history of the memory trace is thus irrelevant; (II) the memory trace is "causally responsible" for the examinee's giving the correct answer; (III) the memory trace originally encoded '1603' but degenerated to encode '1306' and it is the latter trace that is "causally responsible" for the examinee's giving the incorrect answer "1306"; and (IV) the memory trace initially encoded '1306' (and thus the examinee never really learned the correct answer) but degenerated to encode '1603', and it is the latter trace that is "causally responsible" for the examinee's giving the correct answer. Armstrong argues that one can classify these four cases as follows: (I) neither knowledge nor belief, (II) knowledge, (III) false belief, (IV) mere true belief. Of course, he wishes to conclude from this that case (II) is as much a case of true belief as it is a case of knowledge, and we must try to decide if he is successful.

The first crucial passage concerns case (III): "[C]onsider the ordinary case of false belief due to muddled memory. The subject is taught '1603', but then the memory trace degenerates and, as a result, the subject believes that Elizabeth died in 1306, and is aware that this is his belief.... Asked the question, he may reply: '1306, I believe' or 'I know the answer: 1306'" (31). Although this passage is

meant to support Armstrong's claim that case (III) is a case of false belief, it does no more than interject the subject's awareness of his belief between the formation of that belief and his answer to the question. This is no help to us, for we wish to learn why Armstrong says that the subject believes at all (not to mention any difficulty Armstrong might have in explaining how the memory trace, rather than the subject's being aware of his belief, is casually responsible for the subject's replying as he did). How then shall we interpret Armstrong's claim that, as a result of a person's memory trace degenerating to encode '1306', he believes that Elizabeth died in 1306, and presumably no longer believes that Elizabeth died in 1603?

It might appear at first glance that having a memory trace encoding '1306' is taken to be a sufficient condition for holding a belief that Elizabeth died in 1306, yet this would be in outright conflict with what Armstrong says about case (I) and can thus be eliminated. Obviously, what we add to having a memory trace encoding '1306' should connect the memory trace to the subject's behavior in appropriate circumstances, i.e., to behavior which can count as a manifestation of his belief. I can think of only one such condition: the memory trace would be causally responsible, say, for the subject's answering "1306" to appropriate questions.<sup>1</sup> This sort of condition fits well with what Armstrong says about all four cases, so that I do not see how we can avoid concluding that in case (III) holding a belief that Elizabeth died in 1306 is nothing but having a memory trace encoding '1306' which would be causally responsible for the subject's answering "1306" to appropriate questions. I suggest that we keep this conclusion in mind, and turn to Armstrong's attempt to show that cases (II) and (IV) are, in the appropriate way, both cases of true belief.

Armstrong begins by claiming that, as far as Radford goes in characterizing his example, he has not yet ruled out the possibility that the example is an instance of case (IV) rather than case (II): "I think Radford was wrong in thinking, as he seems to think, that case (II) is inevitably a case of knowledge. For in case (IV) all the conditions mentioned in the description of case (II) are repeated -- but with additions that make it clearly not a case of knowledge" (32). There is nevertheless good reason to question Armstrong here, for Radford no doubt intends his example to force the memory trace always to encode '1603'. Why else would Radford say that, in giving what he takes to be a guess, Jean is actually remembering

<sup>1</sup>In fact, as I learned after I wrote this portion of my paper, Armstrong would maintain exactly this. See the following section.

what he had been taught? Consequently, being fair to Radford would exclude making the case IV additions to his example, although this in itself does not mean that Armstrong cannot successfully make the rest of his argument.

Given Armstrong's terms, there will still be no way to differentiate cases (II) and (IV) at the time the examinee answers the question; the two memory traces both encode '1603', and the answers are identical. The difference between the two cases lies solely in the past history of the two memory traces, and this supplies Armstrong with a basis for the following conclusion: "[T]he object of the two putative cognitive states [in cases (II) and (IV)] is the same viz., 'Elizabeth died in 1603'. Assuming that these are cases of knowledge and belief, respectively, do not the two cognitive states have a common factor? And what can that common factor be except that in both cases the subject believes that Elizabeth died in 1603" (33)? But what can that common factor be except that in both cases the subject has a memory trace which encodes '1603' and would be causally responsible for his answering "1603" to appropriate questions? I see no alternative.

Consequently, our concern about the relationship between holding a belief and having a memory trace is well founded, for if the common factor is nothing but having a certain memory trace, Armstrong's introduction of memory traces in order to make the "causal mechanisms....explicit" (30) needs to be defended. The following questions expose the weaknesses in Armstrong's argument:

- (a) What constitutes the knowledge state in case (II)?
- (b) Why is the common factor of the two cases (necessarily) an element of the knowledge state in case (II)?
- (c) Why is it, or is it, in any way necessary for Radford to have the causal mechanisms made explicit?
- (d) Are there in fact any causal mechanisms to make explicit?

In order for Armstrong's argument to show that knowing entails believing, the consideration of remembering, or at least of memory traces, must somehow be essential to Radford's argument that his example is a case of knowledge, for otherwise knowing need not entail the sort of believing which Armstrong specifies in terms of memory traces. That is to say, if in saying that Jean knows that Elizabeth died in 1603 there is no forced reference to memory traces or the like, and if in saying that Jean believes that Elizabeth died in 1603 there is a forced reference to memory traces (and this is apparently what Armstrong is claiming), then the so-called common factor is external to the knowledge in case (II), and Armstrong's argument fails.

VII. Armstrong might support his argument in the following way. We already know that Jean gives the correct answer to the question as to when Elizabeth died, and that he answers other questions in an impressively supportive pattern which compels us to say that his correct answer is no fluke: he has the ability, which he exercises in the example, to answer the question correctly. Even if we cannot agree that his exercising the ability constitutes remembering, we certainly can agree that he has had the ability for at least some time, or rather, that he has retained it. According to many memory theorists, for example, C. B. Martin and Max Deutscher,<sup>1</sup> we cannot understand this sort of retention without making reference to such causal mechanisms as memory traces. Therefore, the consideration of remembering, or at least of memory traces, is essential to Radford's argument, and the so-called common factor in cases (II) and (IV) is not external to the knowledge in case (IV).

Radford himself would reply to this argument by claiming that, if Jean's performance is sufficiently impressive, his knowing some English history can be inferred simply and immediately from his performance. Accordingly, there is no forced reference to the history of Jean's ability to give the performance, and therefore no forced reference to memory traces.

But this type of reply is not only wrong, as I show in section IX below, but also unnecessary, as I show in "Memory Unchained Again."<sup>2</sup> My foil there is Sydney Shoemaker's claim that the notion of memory, as well as that of retention, play some sort of special role which require them to be given a causal analysis.<sup>3</sup> In defending his claim Shoemaker criticizes Roger Squires' rejection of Martin and Deutscher's causal analysis of remembering,<sup>4</sup> but he nevertheless fails to appreciate the force of Squires' position: simply put, there is no forced reference to causal mechanisms or connections in describing someone as having stayed the same in a certain way, such as by retaining an ability. If we suppose, for example, that Jean acquired the ability to give the correct answer by listening to a teacher some time ago, then all that we need to

<sup>1</sup>"Remembering," Philosophical Review, LXXV (1966), pp. 161-96.

<sup>2</sup>Forthcoming in Analysis, XXXVI (1975-6).

<sup>3</sup>"Persons and Their Pasts," American Philosophical Quarterly, VII (1970), pp. 269-85, especially section V.

<sup>4</sup>"Memory Unchained," Philosophical Review, LXXVIII (1969), pp. 178-96.



say to connect his present correct answer to his listening is that he retained the ability he acquired by listening until he exercised it in giving the correct answer. We need not say, as Shoemaker, and Martin and Deutscher do, that his listening is causally necessary for his present correct answer.

Yet in "Memory Unchained Again" I also point out that, once we remove the tendency to see a causal component as entering via the notion of the retention of an ability, it is open to us to see one as entering via the notion of acquiring, exercising, or merely having an ability. I take this to be Armstrong's central project in A Materialist Theory of the Mind: "[T]he concept of a mental state is primarily the concept of a state of a person apt for bringing about a certain sort of behavior [and secondarily, in some cases] apt for being brought about by a certain sort of stimulus."<sup>1</sup> Thus, for Armstrong, in describing someone as being disposed, or as being able, to do something there is already a forced reference to some sort of causal mechanism, in this case a state with causal powers. (We should note, of course, that one way a person can stay the same is by retaining such a state, so that no further causal mechanisms or connections are required to account for retention here.) This analysis fits well with what I say in the preceding section about Armstrong's notion of unconscious belief.

However, even though we might be able to salvage a causal analysis of remembering in this way, and thereby to support Armstrong's argument against Radford, we would also be carried far beyond a mere analysis of remembering and into a causal analysis of cognitive abilities in general. These two analyses work at different levels. We can proceed to analyze remembering simply in terms of acquiring, retaining and exercising an appropriate ability. If it turns out that Armstrong is right in thinking that there is a forced reference to some sort of casual mechanism in describing someone as being able to do something, then we should incorporate this particular analysis of having abilities into our analysis of remembering. But this incorporation could in no way undermine what we had already accomplished in analyzing remembering.

Furthermore, we can say the same thing about Armstrong's four cases. If we can reconstruct them simply in terms of Jean's acquiring, retaining and exercising appropriate abilities, then whatever we do on that basis cannot be undermined by the acceptance or rejection of a causal analysis of having

<sup>1</sup>(London, Routledge and Kegan Paul, 1968), p. 82.

abilities. It turns out that this reconstruction also affords us a solid basis for defending the entailment thesis and for criticizing Radford's examples and arguments.

VIII. I shall now reconstruct Armstrong's four cases:

- Case (I):
- (a) Someone teaches Jean the date of Elizabeth's death and, as a result, Jean learns (gets to know) the date of Elizabeth's death. That is to say, Jean can now answer the question "When did Elizabeth die?" (Call the question 'Q'.) Or again, Jean has acquired the ability to answer Q correctly. (Call the ability 'A', and the correct answer, "Elizabeth died in 1603," 'P'.)
  - (b) Jean retains A at least until Tom asks Jean Q.
  - (c) When Tom asks Jean Q, Jean answers P, but in doing so Jean does not, even unwittingly, exercise A -- he merely guesses.<sup>1</sup>

- Case (II):
- (a) As in Case (I) (a).
  - (b) As in Case (I) (b).
  - (c) When Tom asks Jean Q, Jean answers P, and he thinks that he is merely guessing

<sup>1</sup> Obviously, I do not use the word 'ability' here so that someone's merely doing X entails his having the ability to do X and thus entails his exercising the ability to do X. This allows me to say that Jean's answer P is not given as a result of his exercising A. (Of course, for certain performances, bringing them off may entail having the ability to do so. See the following section.) To illustrate what I mean here, I offer the following example: without aiming at all, a skilled marksman hits the bull's eye (because the wind blows the bullet into the bull's-eye); or, by aiming carelessly (jokingly) at a rock, a skilled marksman hits the bull's-eye with out, even unwittingly, exercising his ability to do so -- his hitting the bull's eye is a fluke or a total accident.

but actually he is unwittingly exercising A.<sup>1</sup>

- Case (III):
- (a) As in Case (I) (a).
  - (b) Jean does not retain A until Tom asks Q; his memory becomes muddled in such a way that, rather than having the ability to answer Q correctly, he has instead the ability to answer Q incorrectly by saying, "Elizabeth died in 1306." Or he has instead the ability to give what is in fact a wrong answer to Q, namely, "Elizabeth died in 1306." (Call the ability 'Aw', and the incorrect answer 'Pw'.) Jean retains Aw at least until Tom asks him Q.
  - (c) When Tom asks Jean Q Jean answers Pw, and he thinks that he is merely guessing but actually he is unwittingly exercising Aw.

- Case (IV):
- (a) Someone teaches (tries to teach) Jean the date of Elizabeth's death, but Jean does not learn the date of Elizabeth's death -- he (mis-) learns instead that Elizabeth died in 1306. That is to say, Jean has acquired the ability to answer Q incorrectly by saying, "Elizabeth died in 1306." Or again, Jean has acquired Aw.
  - (b) As in Case (III) (b), except that Jean's memory becomes muddled in such a way that he no longer has Aw but instead has A.
  - (c) As in Case (I) (c).

<sup>1</sup>When I say that Jean unwittingly exercises A, I could just as well say that, without realizing it, Jean is remembering when Elizabeth died. This sort of thing can happen with respect to many different sorts of abilities. Suppose that once I was a good golfer, but I have not played for years, and thus I think that I no longer have the ability to hit golf balls consistently down the middle of the fairway. Yet when I hit the first few balls, they all land quite near the middle of the fairway, and eventually I realize that I never lost my ability to hit golf balls well -- indeed, I even unwittingly exercised it in hitting my first few balls.

The basis for this reconstruction is that the phrase 'can answer Q' is often used as a paraphrase of 'knows the answer to Q'. Of course, in using the former phrase, by 'answer' we mean 'answer correctly', and I thus render the former phrase by 'has the ability to answer Q correctly' or by 'has A'. But then in (III) (b) it may seem awkward to continue using the base expression 'has the ability to answer Q'. When we say that Jean no longer has the ability to answer Q correctly, but has instead the ability to answer Q incorrectly, we say something quite odd. Why be so generous and still call what Jean has 'an ability'? Why not simply say that Jean tends to give Pw in answer to Q? But even though saying this appears to fit nicely with what Armstrong says about Case (III), we should not be tempted to do so, as I shall show in the rest of this section.

Armstrong's claim that Case (I) does not seem to be a case either of knowledge or of belief is well founded to the extent that, if Jean fails to answer Q correctly often enough, we might be forced to conclude that he could not, after all, have A. If a person who claims that he is a skilled marksman fails to hit the bull's-eye often enough, we might be forced to conclude, at the very least, that he could not be what he professes to be. Gilbert Ryle provides the following justification for drawing such a conclusion: "[W]hen we say of a person that he can bring off things of a certain sort, such as solve anagrams or cure sciatica, we mean that he can be relied on to succeed reasonably often even without the aid of luck. He knows how to bring it off in normal situations."<sup>1</sup> This justification is not completely successful, however, for it blurs the distinction between someone's being able to bring off things of a certain sort and someone's tending, or being prone, to bring off things of a certain sort. For Ryle, when we say that someone tends to bring off things of a certain sort, we mean, roughly, that it is a good bet that he will bring off such things (131). But surely this is not all that different from saying that he can be relied on to succeed reasonably often even without the aid of luck.

This difficulty can be overcome, I think, by making the following sort of addition to Ryle's analysis of having an ability: when we say of a person that he can bring off things of a certain sort, we mean that he can be relied on

<sup>1</sup>The Concept of Mind (New York, Barnes and Noble, 1966), p. 130; parenthetical page references to Ryle will be to this book.

to succeed reasonably often even without the aid of luck, if he tries.<sup>1</sup> As an illustration of the force of this modified analysis, consider a skilled marksman who does not try to hit the bull's-eye and, as a result, whose shots do not hit the bull's-eye reasonably often even without the aid of luck (or perhaps, even with the aid of luck). He has the ability to hit the bull's-eye, but it need not be the case that he can be relied on to hit the bull's-eye reasonably often without the aid of luck, because he may not try to do so very often or at all. (This is, I suppose, the reason why Ryle points out that, in order to determine whether or not a person's shot is a fluke, we must consider not only his shooting record, but also "his explanations and excuses, the advice he gave to his neighbor and a host of other clues of various sorts" (45-6).) Ryle does say, "'tends to' implies 'can', but is not implied by it" (131), and perhaps I can make this explicit by rendering 'he tends to bring it off' by 'it is a good bet that he will display his ability to bring it off'. But, of course, if a person simply has the ability to bring it off, it need not be a good bet that he will display his ability, that is, unless he tries to bring it off. We might thus render 'he can bring it off' by 'it is a good bet that he will display his ability to bring it off, if he tries'.

Accordingly, the apparent awkwardness of (III) (b) should be removed by rendering it in the following way: Jean does not retain A until Tom asks him Q; his memory becomes muddled in such a way that it is no longer a good bet that he will answer Q with P if he tries to answer Q, but instead it is a good bet that Jean will answer Q with Pw if he tries to answer Q; it remains a good bet that Jean will answer Q with Pw if he tries to answer Q, at least until Tom asks Jean Q. Rendering (III) (b) in this way removes its apparent awkwardness without losing the sense of Armstrong's Case (III), and without giving Case (III) a construction which is not analogous to the other three cases. In fact

<sup>1</sup>I should explain here that I am not trying to give anything like a complete or definitive analysis of having abilities. Rather, I am trying to suggest one way to give such an analysis, so that I can proceed to draw a distinction between capacities and tendencies, a distinction which I need in order to reconstruct and clarify Armstrong's four cases. I have also discovered that A. S. Kaufman advocates a similar device. See his "Abilities," Journal of Philosophy, LX (1963), pp. 537-51. Also compare Richard Taylor, Action and Purpose (Atlantic Highlands, N. J., Humanities Press, 1973).

our being forced to clarify (III) (b) in this way helps to show that Armstrong's claim that Case (III) is a case of false belief that  $P_w$  is, after all, correct.

There are, it may be argued, two fundamental types of belief. Following Roderick Chisholm,<sup>1</sup> the "self-presenting" type of belief can be characterized as follows: what justifies Jean in counting it as evident that he believes that  $P$  ( $P_w$ ) is simply the fact that he believes that  $P$  ( $P_w$ ). We could say of such a belief that it is epistemologically (but need not be ontologically) prior to its typical behavioral manifestations. The other type of belief is characterized by reversing the roles of the belief and its typical behavioral manifestations. We could say of such a belief that its typical behavioral manifestations are epistemologically (but need not be ontologically) prior to it. Or again, in Chisholm's terms, what justifies Jean (or anyone) in counting it as evident that he believes that  $P$  ( $P_w$ ) is simply the fact that his behavior constitutes the typical behavioral manifestations of such a belief. Let us call this 'the non-self-presenting type of belief'.

Usually, the argument continues, when we say that Jean has a non-self-presenting belief that  $P$ , we mean, roughly, that it is a good bet that he will give  $P$  as an answer to appropriate questions (whether or not he is aware that this is the case). However, the argument continues further, there is good reason to extend what we mean when we say that Jean has a non-self-presenting belief that  $P$ , so that Jean still has such a belief in case that it is a good bet that he will give  $P$  as an answer to appropriate questions only if he tries to answer these questions (whether or not he is aware that this is the case). The reason for this extension is that the latter type of non-self-presenting belief cannot and should not be sharply distinguished from the former type, even though there is usually thought to be a clear distinction between tendencies and capacities.

Although there is, it can be agreed, a formally clear distinction between tendencies and capacities, that distinction should not be taken as grounds to eliminate the second type of non-self-presenting belief, in as much as with respect to matters of belief we place the stress on the fact that there is one particular way of answering the appropriate questions which has prime significance for Jean. For both types of non-self-presenting belief,  $P$  has the required

<sup>1</sup>Theory of Knowledge (Englewood Cliffs, N. J., Prentice-Hall, 1966), p. 28.

significance. Furthermore, the formally clear distinction between tendencies and capacities does not have in practice sufficient significance to eliminate the second type of non-self-presenting belief. Given that Jean once had a non-self-presenting belief of the first type and now only has one of the second type, no sharp dividing line between these two phases of belief can be determined. Perhaps it became less automatic and more of an effort for Jean to answer Q in a certain way, until now it takes some considerable effort for Jean to answer Q in that way. But surely we can only arbitrarily set the time when his answering Q in that way was no longer sufficiently automatic, and was enough of an effort, so that he no longer had a non-self-presenting belief of the first type. We should simply say that Jean had a non-self-presenting belief all along.<sup>1</sup>

Consequently, there are three key elements to consider in my reconstruction: (i) whether or not Jean has the ability to answer Q in a certain way (which need not be correctly), or whether or not it is a good bet that Jean will answer Q in a certain way if he tries to answer Q; (ii) whether or not the way in which Jean is able to answer Q is correctly; and (iii) whether or not Jean's ability to answer Q was acquired in a way which is appropriate to (its constituting) knowledge. Based on these elements, I believe that Armstrong would wish to be understood as making the following two claims: (1) a person believes, perhaps unconsciously, his answer to Q is true if and only if he has the ability (which he exercises) to answer Q in the way he does, and (2) a person knows, perhaps

<sup>1</sup>This argument can be reinforced by noting that we would usually say that Jean acquires the ability to answer Q with Pw or that Jean acquires the belief that Pw, but not that Jean acquires the tendency to answer Q with Pw. There is something odd about "acquiring a tendency," and we would usually say something like this: Jean developed the tendency to answer Q with Pw. I trace this oddness to a difference between those things which we have primarily through our doing something (or through our choosing to do something) and those things which we have primarily through something happening to us. I would usually place abilities and beliefs in the former group, and tendencies in the latter group. If right, this suggests not only that the preceding argument is well founded, but also that the second type of non-self-presenting belief is more basic than the first type, thereby providing an even better foundation for my reconstruction.

unconsciously, his answer to Q is true if and only if his answer is true or correct, he has the ability (which he exercises) to answer Q correctly, and he has acquired that ability in a way which is appropriate to knowledge.<sup>1</sup> It is immediately clear why Case (III) and Case (IV) are classified as a case of false belief that Pw and as a case of mere true belief that P, respectively. But now what about Case (II)?

Case (II) is just as clearly a case of both knowledge and belief that P. It is a case of belief that P because Jean has the ability (which he exercises) to answer Q in the way he does, *viz.*, correctly. And it is a case of knowledge that P because Jean answers Q correctly, he has the ability (which he exercises) to answer Q correctly, and he has acquired that ability in virtue of his having been taught the date of Elizabeth's death, or in a way which is appropriate to knowledge. Furthermore, the belief that P is clearly not external to the knowledge that P -- knowing, as in (2), entails believing, as in (1).

IX. I shall now consider Radford's reply to Armstrong, "Does Unwitting Knowledge Entail Unconscious Belief?"<sup>2</sup> Radford's argument can be outlined as follows (some of

<sup>1</sup>It is beyond the scope of this paper to consider what it means to say that a belief-constituting ability is acquired in a way which is appropriate to knowledge. In Part One, section XII, of Knowledge and Belief (unpublished doctoral dissertation, University of Oxford, England, 1973), I show that the way in which a belief-constituting ability is acquired is appropriate to knowledge if and only if it instantiates, or is, with respect to justifying the belief constituted by that ability, functionally equivalent to, warranted (and indefeasible) reasoning to that belief. My argument there turns on how we can justifiably criticize the way in which a person acquires a belief-constituting ability in cases where no (obvious) reasoning takes place. Compare Gilbert Harman's "Knowledge, Reasons, and Causes," Journal of Philosophy, LXVII (1970), pp. 841-55, and Thought (Princeton, N. J., Princeton Univ. Press, 1973). As I explain in Knowledge and Belief, especially in sections XII and XIV of Part One, my account of these cases is importantly different from Harman's.

<sup>2</sup>Parentetical page references to Radford in this section will be to this article.



which is quoted):

- A. 1. If Jean's performance is sufficiently sustained or impressive (i.e., if it shows itself not to be a fluke), his knowing some English history -- or, let us say, his knowing that P -- can be inferred simply and immediately from his answers.
- 2. It is thus not the case that Jean's knowing that P can be inferred from his answers only if he is remembering them (although, Radford concedes, in his original example Jean's remembering them is crucial). Or, more generally, in saying that Jean knows that P, there is no forced reference to whether or not the way he acquired the ability to give his performance is appropriate to knowledge.
- B. 1. For cases where Jean's knowing that P can be inferred simply and immediately from his answers, we should not conclude that Jean's believing that P can also be inferred from his answers. We should not draw this conclusion because it commits us to the thesis that Jean believes, perhaps unwittingly, whatever answers he produces as "guesses" to questions if these answers turn out to be right sufficiently often to force us to say that he knows. And this thesis requires that the inference from Jean's knowledge to his belief is immediate and vacuous (or else false) since there is nothing else and nothing less than his answers which, when correct, make up his knowledge, to constitute his belief.
- 2. For cases as described in B. 1., we should not conclude that Jean's believing that P can be inferred from his answers even if some causal explanation in terms of memory traces can be given for his answering as he does. There are two reasons for not drawing this conclusion: (i) if there is such a causal explanation, we will have an example of over-determination vis-a-vis the claim that Jean knows that P; and (ii) the additional requirement that there should be some mechanism at work is otiose and vacuous since we can, no doubt, always find some mechanism at work which is responsible in the sense of being necessary for Jean's giving his answers, whatever they may be. (Thus, B. 2 blends into B. 1., for according to Radford, once he can eliminate references to causal mechanisms, there is nothing else and nothing less than Jean's answers, which, when correct, make up his knowledge, to constitute his belief.)
- 3. For cases as described in B. 1., Jean's belief that P is a theoretical construct, whereas his knowledge

that P is not a theoretical construct.<sup>1</sup> Hence his belief that P must be external to his knowledge that P. (This argument could also undermine Armstrong's claim that, if Radford accepts the possibility of unconscious knowledge, he can hardly deny the possibility of unconscious belief.)

I shall now show how the various parts of Radford's argument fail.

Radford offers us no other argument for A. 2. than the one I give as A. 1., and A. 1. can be expanded as follows:

- A. 1. (a) If Jean's performance is sufficiently sustained or impressive, then Jean has the ability to give such a performance.  
(b) If Jean has the ability to give such a performance, then he knows some English history.

But, of course, (b) represents precisely the inference in question here. Can we overlook the way in which Jean acquired the ability to give such a performance? Radford simply says (that we are compelled to say), "Yes."

To counter Radford, consider the following argument: (i) no performance, however sustained or impressive, can itself eliminate the possibility that the performer acquired the ability to give that performance in a particular way; and thus no performance, however sustained or impressive, can itself eliminate the possibility that the performer acquired the ability to give that performance in a way which is not appropriate to knowledge, that is, provided that abilities can be acquired in ways which are not appropriate to knowledge; and (ii) abilities can be acquired in ways which are not appropriate to knowledge, e.g., as a result of a self-cancelling error of the sort presented in Case (IV).<sup>2</sup> It may be the case, as I think Radford wishes

<sup>1</sup>Presumably, Radford takes memory traces to be theoretical constructs. See J. J.C. Smart, "Reports of Immediate Experiences," Synthese, XXII (1971), pp. 346-359.

<sup>2</sup>In accord with the footnote at the end of section VIII above, the best way to deal with Case (IV) is to say that the way Jean acquired his ability did not function as warranted reasoning would have done. There are other examples of ways to acquire belief-constituting abilities which are not appropriate to knowledge, but which can or do function as warranted reasoning would have done, e.g., warranted reasoning which is defeasible. See my Knowledge and Belief, Part Two, Chapter Three; and also Harman's Thought, Chapters Two, Three and Nine.

to argue, that a performance can be sufficiently sustained and impressive to compel us to conclude that it is quite unlikely that the ability to give that performance was acquired in certain ways which are not appropriate to knowledge.<sup>1</sup> But if the ability to give that performance was acquired in a way which is not appropriate to knowledge (and even in a way which is quite unlikely), that ability does not constitute knowledge. And I think it is Radford's use of the phrase 'compel us to say that he knows' which gets him into trouble here, since we can be compelled to say that someone knows, when he does not know; that is, we can be justified to ascribe knowledge to a person, when he does not have such knowledge.

The explanation for B. 1. is that Radford concentrates solely on cases where the subject produces many correct answers, or rather, where he knows. And this allows Radford to force Armstrong's commitment to be of the form 'he believes if he knows'. But surely Armstrong would wish to commit himself to a thesis that allows for false belief as well, a thesis which might be as follows: Jean believes, perhaps unwittingly, whatever answers he produces as "guesses" to questions if these answers occur in a pattern which compels us to conclude that he has abilities to give such answers. This would allow Armstrong to draw a clear distinction between unconscious knowledge and unconscious belief. And as long as such a distinction can be maintained, it seems to me that for the sort of cases Radford considers it is rather a virtue that "the inference from unconscious knowledge to unconscious belief is immediate," since this is what we should expect if knowing is to entail believing. That is to say, for such cases Jean's abilities to give correct answers constitute both his knowledge and his belief. But with respect to his knowledge his answers must be correct, whereas with respect to his belief his answers need not be correct. Thus, the inference from unconscious knowledge to unconscious belief is not vacuous. (I assume that, in Radford's terms, an inference from p to q is vacuous if and only if both the inferences from p to q and from q to p are immediate.)

<sup>1</sup>If Jean gives many correct answers to varied and different questions on English history, then Jean has many abilities to give such correct answers. And if Jean has many abilities, then, Radford argues in a footnote (105), we cannot imagine that Jean acquired these abilities as a result of a systematic self-cancelling error of the sort presented in Case (IV).

This would have been even more obvious if the history of Jean's ability to give his performance had been allowed to play its normal role: in saying that Jean knows that P, there is a forced reference to whether or not the way he acquired the ability to give his performance is appropriate to knowledge, whereas in saying that Jean believes that P, there is no such reference.

I also see no reason why Armstrong would need to concern himself with B.2. To begin with, there is no overdetermination vis-a-vis the claim that the subject knows. Before Radford makes this point he says that "the subject knows because he produces a sufficiently impressive number of correct answers to compel us to say this." He then explains that the subject answers as he does because he knows, and presumably this is the explanation which is in competition with the explanation that the subject answers as he does because some causal mechanism is at work. But there are two things wrong with what Radford says. The first is that the two explanations are not in competition with each other. To see this, consider the following interpretations of Radford's and of Armstrong's explanations:

(a) Radford's explanation.

The subject answers as he does because he knows.

or

The subject answers as he does because he has the ability to do so.

or

The subject answers as he does because it is a good bet that he will answer in that way if he tries. Thus, the explanation should read as "We should expect the subject to answer as he does, because it is a good bet that he will answer in that way if he tries."

(b) Armstrong's explanation.

The subject answers as he does because he exercises his ability to do so.

plus

In describing someone as exercising the ability to answer in a certain way there is a forced reference to a memory trace at work.

Thus, the explanation should read as "The subject answers as he does because a memory trace is at work."

The second thing wrong with what Radford says is that he appears at first glance to be claiming both that the subject knows because he answers as he does (i.e., because he gives correct answers which compel us to say that he knows), and that the subject answers as he does because he knows. Consequently, Radford's use of the term 'explanation' is itself in need of some explanation.

Furthermore, it is not the case that Armstrong's requirement that there should be some mechanism at work is shown to be otiose and vacuous because "no doubt, we can always find some mechanism at work which is responsible in the sense of being necessary for a subject's giving the answers that he gives, whatever they may be" (106). As I indicate in sections VI and VII above, Armstrong would argue that, whenever an ability to answer is exercised, a particular sort of mechanism, i.e., one that is causally responsible for the subject's producing certain behavior in these circumstances, must be at work. Thus, we are not looking for just any mechanism which is necessary for a subject's giving the answers that he does. Nor can we overlook the kind of answers that he gives, for they may not require that a mechanism of the specified sort is at work; after all, not all answers are manifestations of abilities to give them. And, lastly, for Radford it still makes sense to allow that even when the subject's answers are impressive no such mechanism is at work.<sup>1</sup> But allowing this can make sense only if Armstrong's causal analysis of having cognitive abilities fails, and there is no argument in Radford's article to show that it does.

Radford's final objection to Armstrong in B. 3. does not anticipate both my reconstruction of Armstrong's four cases and, once again, Armstrong's analysis of having cognitive abilities. My reconstruction shows that, if unconscious belief is (not) a theoretical construct, then unconscious knowledge is also (not) one, and vice versa. And, on Armstrong's analysis, they are both theoretical constructs, at least to the extent that Radford is right in thinking that memory traces are nothing but theoretical constructs.

Therefore, I conclude that my reconstruction of Armstrong's four cases not only constitutes grounds for defending the entailment thesis, but also renders the thesis immune to Radford's examples and arguments.

John A. Schumacher  
Rensselaer Polytechnic Institute  
Troy, New York

<sup>1</sup>Footnote on p. 105, and in parentheses in the middle of p. 106.