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Author(s): G. C. Stine

Source: *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, Vol. 29, No. 4 (Apr., 1976), pp. 249-261

Published by: [Springer](#)

Stable URL: <http://www.jstor.org/stable/4319027>

Accessed: 25-02-2015 18:38 UTC

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SKEPTICISM, RELEVANT ALTERNATIVES,  
AND DEDUCTIVE CLOSURE

(Received 2 February, 1975)

Discussions of skepticism, defined with varying degrees of precision, are of course perennial in philosophy. Some recent discussions of the issue<sup>1</sup> give prominence to the notion of 'relevant alternatives', according to which a claim to know that  $p$  is properly made in the context of a limited number of competing alternatives to  $p$ ; to be justified in claiming to know  $p$  (or simply to know  $p$ ) it is sufficient to be able to rule out alternatives relevant to that context. This seems to me to be a correct and heartening development. Recent epistemological discussions have also brought up a relatively new subject, which is the validity of the general form of argument:

$$\begin{array}{l} \text{(A)} \quad a \text{ knows that } p \\ \quad \quad a \text{ knows that } p \text{ entails } q \\ \hline \therefore a \text{ knows that } q \end{array}$$

I shall call this the principle of epistemic deductive closure, or simply, in this paper, deductive closure.<sup>2</sup> What is interesting about recent comments on this principle is that it is perceived to have something to do with skepticism – in fact to lead to it – and hence is currently of very bad repute. And 'relevant alternatives' views of knowledge vis-à-vis skepticism are supposed to show us the falsity of the principle.

In this paper I propose to do three things. First, to give a qualified argument for deductive closure. Second, to give a qualified argument against skepticism which will make use of the relevant alternatives idea. It will be similar to others in leaving rather indeterminate the way in which the context determines what is taken to be a relevant alternative, although I shall distinguish different sources of this indeterminateness and draw some further conclusions. Third, I shall give an unqualified argument to the effect that the questions of the validity of the principle of epistemic deductive closure and skepticism are completely *irrelevant* to one another, and that in fact proper attention to the idea of relevant alternatives tends to confirm the principle. This, of course, puts me in direct conflict with the recent trend I have mentioned.

## 1. EPISTEMIC DEDUCTIVE CLOSURE

I am in principle suspicious of all principles of epistemic logic on the general grounds that while the logic of a knower who is in some way simplified and idealized may be useful for limited purposes, what we are ultimately interested in are actual knowers who can be pretty obtuse and idiosyncratic, yet still lay claim to knowledge. For this, among other reasons, I have elsewhere been concerned with epistemic logic which eschews possible worlds semantics imposing strong constraints on knowers.<sup>3</sup> Certainly, I would reject the pattern which goes:

$$(B) \quad \begin{array}{l} a \text{ knows that } p \\ p \text{ entails } q \\ \hline \therefore a \text{ knows that } q \end{array}$$

However, the pattern which I have labeled epistemic deductive closure does seem to represent a certain bare minimum. One looks naturally for counter-instances involving failure of belief where  $p$  and  $q$  are very complicated, but any such case I can imagine turns out to be apparent only because it invariably raises doubts about the truth of the second premise which are as strong as the doubts about the truth of the conclusion. The principle seems to be on a par with epistemic conjunction, to wit:

$$(C) \quad \begin{array}{l} a \text{ knows } p \\ a \text{ knows } q \\ \hline \therefore a \text{ knows } p \text{ and } q \end{array}$$

There have, of course, been problems in reconciling this principle with commitments to rational belief in terms of degrees of confirmation and knowledge in terms of rational belief,<sup>4</sup> but one feels strongly inclined to the view that the adjustment must be made in the area of these commitments and not in the principle of conjunction.

In addition to failure of belief, one may look for counter-examples to the principle of epistemic deductive closure in the area of failure of evidence or warrant. One's initial reaction to this idea is that if one's evidence is not sufficient for knowing  $q$ , it is not sufficient for knowing  $p$ , either, where  $p$  is known to entail  $q$ . I shall be returning to this subject later, for some philosophers to whom I have referred deny this point

which seems, initially, fairly obvious and I shall argue that their reasons are mistaken.

Actually, if instead of (A) we adopt the stronger epistemic deductive closure principle:

- (D)       $a$  knows  $p$   
            $a$  knows  $q$   
            $a$  knows ( $p \cdot q$  entails  $r$ )  


---

            $\therefore a$  knows  $r$

(A) and (C) may be seen as instances of a common principle, provided we allow ' $a$  knows ( $p \cdot q$  entails  $p \cdot q$ )' as an uncontroversial instance of the third premise.<sup>5</sup> (D) is, ultimately, what we need, anyway to capture the idea of knowing the known logical consequences of what one knows, for (A) covers only the known consequences of the things one knows taken individually, not the known consequences of one's whole body of knowledge. And although (D) is stronger than (A), the arguments for (A) work just as strongly for (D), and, so far as I can see, there are no arguments that anyone might seriously offer against (D) which do not also apply to (A). However, for the sake of simplicity and conformity to other discussions in the literature, I shall continue to discuss deductive closure in the form of (A).

In summary, I am not absolutely convinced of the validity of the principle of epistemic deductive closure, as I am not absolutely convinced of the validity of the principle of epistemic conjunction, but in neither case can I think of an objection, and in both cases, apparent problems they lead to (skepticism, inconsistency) are either apparent only or are better handled by giving up other less obvious principles.

## 2. SKEPTICISM

In *Belief, Truth and Knowledge*, D. M. Armstrong argues:

It is not a conclusive objection to a thermometer that it is only reliable in a certain sort of environment. In the same way, reliability of belief, but only within a certain sort of environment, would seem to be sufficient for the believer to earn the accolade of knowledge if that sort of environment is part of his boundary-conditions.<sup>6</sup>

For example, I know that the striped animal I see in the zoo is a zebra.<sup>7</sup> I know this despite the fact that I have no particular evidence that it is

not a mule painted to look like a zebra (I have not looked for a paint can, tried paint remover on the animal, etc.). In this context – under normal circumstances, in zoos of integrity, etc. – that an animal on display has been deliberately disguised to fool trusting zoo-goers is just not a relevant hypothesis, one that I need trouble myself about rejecting. If the skeptic tries to persuade me to his position by stressing my lack of evidence against such an hypothesis, my proper response is to turn a deaf ear. He has ensnared me by improper means and is more than halfway to (illegitimately) winning his point if he gets me to agree that I must argue with him, go look for further evidence, etc.

This view, which I call the relevant alternative view, seems to me fundamentally correct. It does leave a lot of things unsaid. What are normal circumstances? What makes an alternative relevant in one context and not in another? However, in ordinary life, we do exhibit rather strong agreement about what is relevant and what is not. But there are grey areas. Alvin Goldman makes this point nicely with the following example which he attributes to Carl Ginet: if on the basis of visual appearances obtained under optimum conditions while driving through the countryside Henry identifies an object as a barn, normally we say that Henry knows that it is a barn. Let us suppose, however, that unknown to Henry, the region is full of expertly made papier-maché facsimiles of barns. In this case, we would not say Henry knows that the object is a barn, unless he has evidence against it being a papier-maché facsimile, which is now a relevant alternative. So much is clear, but what if no such facsimiles exist in Henry's surroundings, although they do in Sweden? What if they do not now exist in Sweden, but they once did? Are either of these circumstances sufficient to make the hypothesis relevant? Probably not, but the situation is not so clear.

Another area of obscurity resides not in the nature of the case but in the formulation of the view in question. Goldman seems to hold what I regard as the correct version of it, which is that:

- (1) an alternative is relevant only if there is some reason to think that it is true.

But there is also the view that:

- (2) an alternative is relevant only if there is some reason to think it *could* be true.

Clearly, the force of the 'could' cannot be mere logical possibility, or the relevant alternative view would lose its distinguishing feature. However, if the 'could' is read in some stronger way, we could still have a version of the relevant alternative view. Dretske's 'Conclusive Reasons'<sup>8</sup> paper, espousing a view according to which if one knows, then given one's evidence, one could not be wrong (he reads 'could' as 'physically possible') suggests that we should consider an hypothesis a live one unless it *could not* be true, given one's evidence. Hence any alternative would be relevant, in the sense of blocking knowledge, if one has not the evidence to rule it out, so long as it is physically possible, given one's evidence. Also, the passage in 'Epistemic Operators' where Dretske says: "A relevant alternative is an alternative that *might* have been realized in the existing circumstances if the actual state of affairs had not materialized",<sup>9</sup> is more akin to (2) than (1), although so taking it depends on the force of his 'might'. This, I think, is the wrong way to take the relevant alternative view. First of all, however unclear it may be as to when there is some reason to think an alternative is true, it is much more unclear as to when there is reason to think it could be true. Certainly, if there is a difference between (1) and (2), (2) is weaker, allows more to count as a relative alternative. So possibly Descartes thought there was some reason to think that there *could*, in some sense stronger than logical possibility, be an evil genius. But it seems safe to say he was wrong if he thought that there was some reason to think that there *was* an evil genius. That is, the evil genius hypothesis is not a relevant alternative according to (1) but may be according to (2) (although I shall qualify this). But the whole thrust of the relevant alternative position, as I conceive it, is that such an hypothesis is not relevant. To allow it as relevant seems to me to preclude the kind of answer to the skeptic which I sketched in the opening paragraph of this section.

In truth, Dretske does combine a relevant alternative view with an answer to skepticism. But his account is tied in with a view of knowledge, which, although it does defeat skepticism, does so in a way which gives small comfort. On his account, we do know many things, i.e., there are many things about which given our evidence, we could not be wrong. However, he does not merely reject the view that knowing entails knowing that one knows.<sup>10</sup> He also seems committed to the view that one rarely, if ever, knows that one knows, for it is well high impossible on his account

to defend the claim that one *knows*, given one's evidence, that one *could not* be wrong, in his sense of 'could'. Perhaps this is preferable to skepticism, but at best it is going from the fire into the frying pan.

Here some qualifications of this position that the relevant alternative view provides an answer to the skeptic are in order. In truth, *in some sense* skepticism is unanswerable. This rather supports the relevant alternative view, for the uncertainty which infects (1) as to when there is some reason to think an alternative true explains why this is so. The relevant alternative view does provide a kind of answer to the skeptic – the only kind of answer which can be given. But the skeptic has an entering wedge, and rightly so. It is an essential characteristic of our concept of knowledge that tighter criteria are appropriate in different contexts.<sup>11</sup> It is one thing in a street encounter, another in a classroom, another in a law court – and who is to say it cannot be another in a philosophical discussion? And this is directly mirrored by the fact we have different standards for judging that there is some reason to think an alternative is true, i.e., relevant. We can point out that some philosophers are very perverse in their standards (by *some* extreme standard, there is some reason to think there is an evil genius, after all) – but we cannot legitimately go so far as to say that their perversity has stretched the concept of knowledge out of all recognition – in fact they have played on an essential feature of the concept. On the other hand, a skeptical philosopher is wrong if he holds that *others* are wrong in any way – i.e., are sloppy, speaking only loosely, or whatever – when they say we know a great deal. And the relevant alternative view gives the correct account of why a skeptic is wrong if he makes such accusations.

### 3. DEDUCTIVE CLOSURE AND SKEPTICISM

Proponents of the relevant alternative view have tended to think that it provides grounds for rejecting deductive closure. Although many philosophers have recently taken this position, Dretske has provided the fullest published argument to this effect. He writes:

To know that *X is A* is to know that *X is A* within a framework of relevant alternatives, *B*, *C*, and *D*. This set of contrasts together with the fact *X is A*, serve to define what it is that is known when one knows that *X is A*. One cannot change this set of contrasts without changing what a person is said to know when he is said to know that *X is A*. We have subtle ways of shifting these contrasts and, hence, changing what a person is said to know *without changing the sentence that we use to express what he knows*.<sup>12</sup>

Consider the following instance of (A):

- (E) John knows that the animal is a zebra  
 John knows that [*the animal is a zebra entails the animal is not a mule painted to look like a zebra*]  
 -----  
 ∴ John knows that the animal is not a mule painted to look like a zebra

In Dretske's zoo example, the animal's being a mule painted to look like a zebra is not a relevant alternative. So what one means when one says that John knows the animal is a zebra, is that he knows it is a zebra, as opposed to a gazelle, an antelope, or other animals one would normally expect to find in a zoo. If, however, being a mule painted to look like a zebra became a relevant alternative, then one would literally mean something different in saying that John knows that the animal is a zebra from what one meant originally and that something else may well be false. Now, normally, in saying that one knows that *p*, one presupposes (in some sense) that not-*p* is a relevant alternative; hence one does not know *p* unless one has evidence to rule out not-*p*. This is in fact Dretske's view, for he holds that one does *not* know that the animal is not a mule painted to look like a zebra because one has no evidence to rule out the possibility that it is. However, according to Dretske, so long as the animal's being a mule painted to look like a zebra is not a relevant alternative, the fact that John does not know that it is not does not count against John's knowing that it is a zebra. Hence, deductive closure fails (we are assuming that John's knowing an animal's being a zebra entails his knowing that it is not a mule); i.e., (E) and hence (A), are invalid.

I submit that there is another account of this example on the relevant alternative view which does not entail giving up deductive closure. On this account, to say that John knows that *p* does normally presuppose that not-*p* is a relevant alternative. This is, however, a pragmatic, not a semantic presupposition.<sup>13</sup> That is, it is the speaker, not the sentence (or proposition) itself, who does the presupposing. Thus, the presupposition falls in the category of those which Grice labels 'cancellable'.<sup>14</sup> It is possible for 'John knows that *p*' to be true even though a pragmatic presupposition, that not-*p* is a relevant alternative, is false. I would say that we may create some sort of special circumstance which cancels the normal presupposition when we utter the sentence in the course of making

a deductive closure argument. After all, the utterance has got to be an odd case where we are given that *not-p* is not a relevant alternative to begin with – we can expect something unusual to happen, other than being forced to admit that it is a relevant alternative, after all. For even if we would not normally *affirm* ‘John knows that *p*’ in such a situation, we would not normally *say* that John does *not* know that *p*, either. Or it may happen that stating a deductive closure argument affects normal presuppositions in another way. If we hesitate to say “John knows that the animal is not a mule painted to look like a zebra”, we *may* well hesitate to affirm “John knows the animal is a zebra”. If this is so, not being a mule painted to look like a zebra will have become a relevant alternative – we will have decided there is some reason to think it true – with respect to the latter sentence as well. Perhaps the mere utterance of the former sentence is enough to make us loosen up our notion of what counts as a relevant alternative.

Either way, my account holds the set of relevant alternatives constant from beginning to end of the deductive closure argument. This is as it should be; to do otherwise would be to commit some logical sin akin to equivocation. If the relevant alternatives, which have after all to do with the truth or falsity of the premises and conclusion, cannot be held fixed, it is hard so see on what basis one can decide whether the argument form is valid or not. And if the set of relevant alternatives is one thing for the first premise and another for the conclusion, how do we determine what it is for the second premise, and how does this affect the truth of the second premise? There is no reason for my account of the matter to make skeptics of us all. The skeptical argument goes: If you know it is a zebra, and you know its being a zebra entails its not being a painted mule, then you know it is not a mule painted to look like a zebra. But you do not know the last, so you do not know the first – i.e., you do not know it is a zebra. With our account in hand, let us see how the skeptic is to be treated. There are two possibilities. First, the skeptic may be up to something legitimate. He is beginning by suggesting that being a mule painted to look like a zebra is a relevant alternative – i.e., that there is some reason to think it is true. We point out to the skeptic that under normal circumstances, given what we know of people and zoos, etc., this is not the case. The skeptic may, however, persevere, playing on the looseness of ‘some reason to think true’. At this point, while we cannot argue the skeptic

out of his position, we are perfectly within our rights in refusing to adopt the skeptic's standards and can comfort ourselves by feeling that the skeptic, if not flatly wrong, is at least very peculiar. On the other hand, the skeptic may be up to something illegitimate. He may be trying to get us to doubt that we know it is a zebra without going through the hard work of convincing us that being a mule painted to look like a zebra is a relevant alternative. The skeptic seeks to persuade us of his conclusion by getting us to admit that we do not know it is not a mule painted to look like a zebra because we do not have evidence to rule out the possibility that it is. This is what Dretske believes and this is why he believes we must give up deductive closure to defeat the skeptic. I think this a wrong move. We do know it is not a mule painted to look like a zebra. Let us grant temporarily for the sake of this argument we do not have evidence. But Dretske is deluded by the fact that many knowledge claims require evidence on the part of the knower into thinking that all knowledge claims require evidence. Normally, as I have admitted, saying '*a* knows that *p*' presupposes that not-*p* is a relevant alternative. And it does sound odd to say that we know it is not a mule painted to look like a zebra when its being one is not a relevant alternative. But the fact that it sounds odd – is indeed perhaps misleading or even improper to say – does not mean as we have seen that the presupposition is not cancellable, and that the proposition in question is not true. We often get results which sound odd to *say* when we draw valid conclusions from true premises the utterance of which does not sound odd. 'John knows that it is raining may be true and quite in order to say to convey its literal meaning. But on the assumption of minimal logical competence on John's part and deductive closure, it entails 'John knows that it is either raining or not raining'. But this sentence, if uttered at all, is most likely to be used to suggest the negation of the first sentence. We might, in fact, say that the speaker presupposes it. Given knowledge of the first sentence, the latter is too obviously true to bother uttering at all, except for purposes of sarcasm, ironic effect, or some purpose other than conveying the information expressed by the literal meaning of the words. Yet, for all that, it is literally true. Or take a case with perhaps more analogies to our example. This is an example from Grice.<sup>15</sup> 'My wife is in the kitchen' implies 'My wife is in the kitchen or in the bedroom'. Yet, the utterance of the latter, in normal circumstances, presupposes the speaker's igno-

rance of the former and is thus an improper or at best misleading thing for him to say if he knows the former. But for all that, the latter is true if the former is, and the presupposition is cancellable.

The logical consequences of knowledge claims which the skeptic draws by deductive closure of the sort Dretske discusses, are the sorts of propositions which, in normal circumstances, are such that their negations are not relevant alternatives. Thus they sound odd to say and often have the effect of suggesting that the circumstances are abnormal. It is indeed improper to utter them in normal circumstances unless one explicitly cancels the relevant alternative presupposition which they carry, because one misleads. Nevertheless, they are literally true in normal circumstances. I endorse here a view which I believe to be Austin's.<sup>16</sup> This view is adumbrated in the following passage:

If, for instance, someone remarks in casual conversation, 'As a matter of fact I live in Oxford', the other party to the conversation may, if he finds it worth doing, verify this assertion; but the *speaker*, of course, has no need to do this – he knows it to be true (or, if he is lying, false)... Nor need it be true that he is in this position by virtue of having verified his assertion at some previous stage; for of how many people really, who know quite well where they live, could it be said that they have at any time *verified* that they live there? When could they be supposed to have done this? In what way? And why? What we have here, in fact, is an erroneous doctrine... about evidence.<sup>17</sup>

The point is that one does know what one takes for granted in normal circumstances. I do know that it is not a mule painted to look like a zebra. I do not need evidence for such a proposition. The evidence picture of knowledge has been carried too far. I would say that I do not have evidence that it is a zebra, either. I simply *see* that it is one. But that is perhaps another matter. The point I want to make here is simply that if the negation of a proposition is not a relevant alternative, then I know it – obviously, without needing to provide evidence – and so obviously that it is odd, misleading even, to give utterance to my knowledge. And it is a virtue of the relevant alternative view that it helps explain why it is odd.

There is another way in which (E) could be defended. This line could be to claim that John does, after all, in his general knowledge of the ways of zoos and people, etc., have evidence that the animal is not a mule painted to look like a zebra. The same would hold for other consequences of knowledge claims which the skeptic draws by deductive closure. This would involve a notion of evidence according to which having evidence

is not just limited to cases in which one has a specific datum to which to point. Malcolm expresses this point of view when he says:

... The reason is obvious for saying that my copy of James's book does not have the characteristic that its print undergoes spontaneous changes. I have read millions of printed words on many thousands of printed pages. I have not encountered a single instance of a printed word vanishing from a page or being replaced by another printed word, suddenly and without external cause. Nor have I heard of any other person who had such an encounter. There is *overwhelming evidence* that printed words do not behave in that way. It is just as conclusive as the evidence that houses do not turn into flowers. That is to say, *absolutely conclusive evidence*<sup>18</sup> (underscore mine).

It is true that in the last sentence of this passage Malcolm talks about evidence for a universal proposition to the effect that printed words do not behave in a certain way, but the thrust of his argument is such that he commits himself to the view that he also (thereby) has evidence that the printed words on his particular copy of James's book will not behave that way. I am not inclined towards such a view of what it is to have adequate evidence for the proposition that the print of my own particular copy of James's book did not undergo a spontaneous change. I am inclined to reject Malcolm's view, and others akin, in favor of the Austinian sort of one previously discussed – that is, that in such a case, evidence is not required to support a knowledge claim. I mention the view only as a possible alternative view of defending epistemic deductive closure in a way consonant with the relevant alternative view.

#### 4. SUMMARY

My view is that the relevant alternative position should be conceived of as in two parts:

(1) With respect to many propositions, to establish a knowledge claim is to be able to support it as opposed to a limited number of alternatives – i.e., only those which are relevant in the context.

(2) With respect to many propositions – in particular those which are such that their negations are not relevant alternatives in the context in question – we simply know them to be true and do not need evidence, in the normal sense, that they, rather than their negations, are true.

So conceived, the relevant alternative view neither supports the abandonment of deductive closure, nor is such abandonment in any way

needed to provide the relevant alternative view with an answer to the skeptic, insofar as he can be answered.<sup>19</sup>

Wayne State University

#### NOTES

<sup>1</sup> I am partial to J. L. Austin's approach in 'Other Minds' (*Philosophical Papers*, Oxford, 1961). and Chapter X of *Sense and Sensibilia* (Oxford, 1962). Other more recent and more explicitly developed accounts include those of Fred Dretske, most importantly in 'Epistemic Operators', *Journal of Philosophy*, LXXVII (1970), 1007–1023, but also in 'Contrastive Statements', *Philosophical Review* LXXXI (1972), 411–430; D. M. Armstrong, *Belief, Truth and Knowledge* (Cambridge, 1973); Alvin Goldman, 'Discrimination and Perceptual Knowledge', presented at the Annual Philosophy Colloquium, University of Cincinnati, 1973; James Cargile, 'Knowledge and Deracination', presented at the Annual Philosophy Colloquium, University of Cincinnati, 1973; Norman Malcolm in 'The Verification Argument' in *Knowledge and Certainty* (Prentice-Hall, 1963) is more concerned with certainty than knowledge but his discussion of when a proposition is 'possible' is very much in accord with considerations which go towards making a proposition a 'relevant alternative'.

<sup>2</sup> Dretske, 'Epistemic Operators', *Op. cit.*; Cargile, *Loc. cit.*; Goldman, *Loc. cit.*

<sup>3</sup> Cf. 'Quantified Logic for Knowledge Statements', *Journal of Philosophy* LXXI (1974), and 'Essentialism, Possible Worlds, and Propositional Attitudes', *Philosophical Review* LXXXII (1973), 471–482.

<sup>4</sup> Cf. discussions of the place of a principle of conjunction in an account of rational belief in, for example, Isaac Levi, *Gambling With Truth*, Knopf (1967); and in *Induction, Acceptance, and Rational Belief*, ed. by Swain, Reidel (1970) the following papers: Marshall Swain, 'The Consistency of Rational Belief', Henry Kyburg, 'Conjunctivitis', and Keith Lehrer, 'Justification, Explanation, and Induction'. This case for conjunction holding for rational belief is, of course, more problematic than the case for knowledge.

<sup>5</sup> I owe this point to David Kaplan.

<sup>6</sup> Armstrong, *Op. cit.*, p. 174.

<sup>7</sup> The example is Dretske's in 'Epistemic Operators', *Loc. cit.*

<sup>8</sup> In *Australasian Journal of Philosophy* 49 (1971), 1–22.

<sup>9</sup> 'Epistemic Operators', *loc. cit.*, p. 1021.

<sup>10</sup> This view has been criticized, for example, by Ronald DeSousa in 'Knowledge, Consistent Belief, and Self-Consciousness', *Journal of Philosophy* (1970), against defenders of it such as Jaakko Hintikka in *Knowledge and Belief* (Cornell, 1962) and Keith Lehrer in 'Belief and Knowledge', *Philosophical Review* (1968). The view is also rejected by Armstrong, *Op. cit.* (p. 146), and at least implicitly rejected on such accounts of knowledge as, for example, those of Alvin Goldman, 'A Causal Theory of Knowing', *Journal of Philosophy* 64 (1967), 357–372; Brian Skyrms, 'The Explication of 'X Knows that P'', *Journal of Philosophy* 64 (1967), 373–389; and Peter Unger, 'An Analysis of Factual Knowledge', *Journal of Philosophy* 65 (1968), 157–170.

<sup>11</sup> Here I take a view directly opposed to that of Peter Unger, 'A Defense of Skepticism', *Philosophical Review* (1971), according to which knowledge is an 'absolute' concept, like the flatness of geometries.

<sup>12</sup> 'Epistemic Operators', *Loc. cit.*, p. 1022.

<sup>13</sup> Here I distinguish pragmatic from semantic presuppositions in the manner of Robert Stalnaker, 'Pragmatics', in *Semantics of Natural Language*, ed. by Davidson and Harman (Reidel, 1972), 380–397. Attributing the notion of a semantic presupposition to Bas van Fraassen ('Singular Terms, Truth Value Gaps, and Free Logic', *Journal of Philosophy* 63 (1966), 481–495, and 'Presupposition, Implication, and Self Reference', *Journal of Philosophy* 65 (1968), 136–151, Stalnaker says (p. 387):

According to the *semantic* concept, a proposition P presupposes a proposition Q if and only if Q is necessitated both by P and by *not*-P. That is, in every model in which P is either true or false, Q is true. According to the *pragmatic* conception, presupposition is a propositional attitude, not a semantic relation. People, rather than sentences or propositions are said to have, or make, presuppositions in this sense.

... In general, any semantic presupposition of a proposition expressed in a given context will be a pragmatic presupposition of the people in that context, but the converse clearly does not hold.

To presuppose a proposition in the pragmatic sense is to take its truth for granted, and to assume that others involved in the context do the same.

<sup>14</sup> H. P. Grice, 'The Causal Theory of Perception', *Proceedings of the Aristotelian Society*, Suppl. Vol. XXXV (1961).

<sup>15</sup> *Ibid.*

<sup>16</sup> In 'Other Minds', *Loc. cit.*, and Chapter X of *Sense and Sensibilia*, Oxford (1962).

<sup>17</sup> *Sense and Sensibilia*, pp. 117–118.

<sup>18</sup> 'The Verification Argument', *Loc. cit.*, p. 38.

<sup>19</sup> A slightly different and shorter version of this paper was read at the Eastern Division meetings of the American Philosophical Association, December 1974.