2 The traditional analysis and the Gettier problem

In the last chapter we considered the view that knowledge is epistemically justified true belief. In this chapter, we shall consider some counter-examples to the justified true belief (JTB) account and consider some attempts to repair the definition of knowledge in light of these examples. The objection we shall first consider was made prominent by Edmund Gettier in his brief, yet famous, 1963 essay ''Is Justified True Belief Knowledge.'' The difficulty for the traditional account to which he calls our attention has become known as ''the Gettier Problem.'' Since 1963, it has received a great deal of attention in epistemological circles and there have been a great many attempts to solve it. It would be fair to say, however, that there remains no widely accepted solution. Many of the attempted solutions are quite ingenious and many are quite complicated and difficult to evaluate. In this chapter we shall have to content ourselves with considering some very simple proposals. The solutions we shall consider are fairly early attempts to solve the problem, solutions that appeared within ten years of Gettier's original essay. None of them are adequate, but the ways in which they fail are instructive and many of the more promising attempted solutions involve refinements and developments of these simple proposals. The three approaches we shall consider are (1) the No False Grounds approach, (2) the Defeasibility approach, and (3) the Causal approach.

The Gettier problem

According to the traditional account of knowledge examined in the last chapter, propositional knowledge is epistemically justified

true belief. Recall that in the last chapter, we introduced the following definition:

D3 S knows that p = Df. (1) S believes that p, (2) p is true, and (3) p is epistemically justified for S.

In his brief two and a half page essay, Edmund Gettier presents two counter-examples to the traditional definition. Gettier shows that some cases of justified true belief aren't instances of knowledge. If some instances of justified true belief aren't instances of knowledge, then traditional JTB accounts, such as D3, are mistaken. Let us consider Gettier's counter-examples.[1]

Case 1. Smith and Jones have applied for a certain job. Smith has strong evidence for the following proposition:

(d) Jones is the man who will get the job and Jones has ten coins in his pocket.

Let us suppose that Smith's evidence for (d) is that the company president has assured Smith that Jones will get the job and let us suppose that Smith has only minutes ago counted the coins in Jones's pocket. Let us suppose that from (d), Smith deduces:

(e) The man who will get the job has ten coins in his pocket.

So, Smith is justified in believing (d) and deduces (e) from (d). Smith is therefore justified in believing that (e) is true. But now imagine that unbeknownst to Smith, *he*, not Jones, will get the job, and also, unbeknownst to Smith, *he* has ten coins in *his* pocket. So, (e) is true. In this example, all of the following are true: (i) (e) is true, (ii) Smith believes that (e) is true, and (iii) Smith is justified in believing that (e) is true. But clearly Smith does not *know* that (e) is true. It is a matter of luck or sheer coincidence that Smith is right about (e).

Case 2. Suppose that Smith has strong evidence for the following proposition:

(f) Jones owns a Ford.

Let us imagine that Smith's evidence includes that, for as long as Smith can remember, Jones has owned a car, and always a Ford, and has just offered Smith a ride in a Ford. Let us assume that Smith is justified in

[1] Edmund Gettier, "Is Justified True Belief Knowledge?," *Analysis*, 23 (1963), 121–23.

believing that (f). Now, suppose that Smith has another friend, Brown, whose whereabouts are unknown to Smith. Smith selects some place names at random and deduces from (f) the following:

(g) Either Jones owns a Ford or Brown is in Boston.

(h) Either Jones owns a Ford or Brown is in Barcelona.

(i) Either Jones owns a Ford or Brown is in Brest-Litovsk.

Since Smith is justified in believing (f) and sees that (f) entails (g)–(i), he is justified in believing each of them. But, suppose that (f) is false. Jones does not own a Ford, but has been recently driving a rented car. Moreover, suppose that by sheer coincidence and utterly unknown to Smith, Brown *is* in Barcelona. In other words, (h) is true. So, again, the following conditions are met: (i) (h) is true, (ii) Smith believes that (h) is true, and (iii) Smith is justified in believing that (h) is true. But Smith does not know (h). It is only by sheer coincidence or mere luck that Smith is right about (h).

In Cases 1 and 2, Smith has evidence for, and is justified in believing, some false proposition. From this falsehood he deduces a true proposition. On the basis of this inference he acquires a justified true belief, but not knowledge. What these cases show is that one can satisfy the requirements of the JTB account of knowledge, that one can meet the requirements laid out in D3, and yet fail to have knowledge.

Gettier notes that the counter-examples he presents presuppose two things about epistemic justification. First, they presuppose that one can be justified in believing a false proposition. In Case 1, Smith is justified in believing the falsehood, (d), Jones is the man who will get the job and Jones has ten coins in his pocket. In Case 2, Smith is justified in believing the falsehood, (f), Jones owns a Ford. As we noted in chapter 1, it is commonly assumed that one can be justified in believing a false proposition. To be justified in believing a proposition on the basis of nonconclusive evidence is to have evidence that does not guarantee the truth of what is believed. As long as we accept that a proposition can be justified for us on the basis of nonconclusive evidence or reasons, we must accept that we can be justified in believing some false proposition.

Second, the examples presuppose the following *Principle of Deductive Closure* (PDC):

Principle of Deductive Closure

> If S is justified in believing that *p* and *p* entails *q* and S deduces *q* from *p* and accepts *q* as a result of this deduction, then S is justified in believing *q*.

The PDC tells us, roughly, that justification is transmitted through deduction from propositions one is justified in believing. In Case 1, Smith is justified in believing (e) because he deduces it from (d). In Case 2, Smith is justified in believing (h) because he deduces it from (f). In these cases, Smith gains justification for believing a true proposition by deducing it from a false proposition that he is justified in believing.

In responding to Gettier's counter-examples, it is tempting to defend the traditional JTB account by calling into question one or both of these presuppositions. One might, for example, deny the PDC. One might hold that in Case 1, Smith is justified in believing (d) and correctly deduces (e) from (d), but deny that Smith is justified in believing that (e). *If* justification is not transmitted through deduction in Smith's case, then we need not hold that Smith is justified in believing (e) and we need not hold that he has a justified true belief in (e).

Whether the PDC is true is controversial. Some philosophers hold that in some cases justification is not transferred through deduction. But even if that is true in some cases, it is not clear why it would be true in either of these cases. Why would Jones *not* be justified in believing (e) on the basis of (d)? Why would Smith *not* be justified in believing (h) on the basis of (f)? In each case, it seems intuitively plausible that he is justified in believing the one proposition by deducing it from the other. Moreover, as a general strategy for dealing with Gettier cases denying the PDC seems inadequate. This is because there seem to be some Gettier-type cases that do not involve deducing one proposition from another. Suppose, for example, you are visiting your friend in the physics department. As you walk down the hall you look in the doorway and seem to see a man in the room. You form the perceptual belief "There's a man in that room." Your perceptual belief is not formed on the basis of an inference. You simply look in the room and form the belief. Now suppose that what you saw was in fact an extremely realistic holographic image of a man. Still, given the realistic holographic image, it seems that your perceptual belief is justified. But now let's suppose that your belief is also true — there is a man in the room. He's simply not visible to you from the doorway. In this case, your belief that there is a man in the room is true and justified, but it is not an instance of knowledge.

This seems to be another case in which we have a justified true belief that is not knowledge. But note that in this case your justified true belief is not formed by inferring it from some other justified belief. Consequently, it is not clear how denying the PDC would help with this case.

Alternatively, one might respond to the Gettier problem by denying that it is possible for someone to be justified in believing a false proposition. Suppose that one cannot be justified in believing a false proposition. Why would this matter for Gettier's counter-examples? Gettier claims that (e) and (h) are instances of *justified* true belief that are not instances of knowledge. Smith gets his justification for (e) and (h) by deducing them from (d) and (f), falsehoods that he is supposedly justified in believing. But if one can't be justified in believing a falsehood, then Smith isn't justified in believing (d) and (f) and, consequently, he isn't justified in believing (e) and (h). In short, if one can't be justified in believing a falsehood, then Smith doesn't have a justified true belief in either (e) or (h) and Gettier doesn't have an objection to D3.

Unfortunately, this line of response does not seem promising. Again, as we noted in chapter 1, a common assumption about justification is that one can be justified in believing a false proposition. Such an assumption seems quite plausible. I am justified in believing that Lisa went into the library if unbeknownst to me Lisa has an identical twin and the woman I saw enter the library was the twin. Again, suppose I incorrectly predict that the next marble drawn from an urn will be red. Wouldn't such a false belief be reasonable or justified for me if I knew only that the urn contained 1,000 marbles and 998 of them were red? Consider again Smith's position with respect to (f). Suppose that Smith knows that Smith has always owned a car in the past and always a Ford, that Smith has just offered Smith a ride while driving a Ford. Suppose we add to Gettier's original description that Jones shows Smith a cleverly forged title to the car stating that the Ford is Jones's and Jones tells Smith, "This is my Ford. I own it." It seems quite plausible to assume that Smith is justified in believing Jones owns a Ford.

Defending the traditional JTB account of knowledge by rejecting one or both of Gettier's presuppositions about justification does not appear to be a promising approach. The philosophical literature is rich, however, with other sorts of approaches. Some philosophers have focused on the justification requirement for knowledge. They hold that knowledge requires

epistemic justification, but, they suggest, it also requires that one's justification be of "the right sort." According to this idea, a Gettier case involves justified true belief, but the subject's justification is in some way "defective" or not the right sort to yield knowledge. Those who take this view hold that knowledge that *p* requires that one's justification for believing *p* meet some further condition, e.g. that one's justification does rest on any false grounds. Other philosophers have focused on the idea that knowledge requires that one not be right "by accident." Knowledge requires true belief where one's true belief is not the result of accident or coincidence. This view has led some philosophers to hold that knowledge requires some *causal* connection between the fact that *p* and one's belief that *p*.

As we have noted, there are many attempts to solve the Gettier problem. While there is no possibility of surveying them here, let us consider a few fairly straightforward, simple and suggestive approaches.[2] As we noted earlier, the three approaches we shall consider are (1) the No False Grounds Approach, (2) the Defeasibility Approach, and (3) the Causal Approach. Of these three approaches, the first two tend to focus on the role of epistemic justification and develop the idea that one's justification must be of the right sort. The third is an early attempt to use the notion of causal connection to make sense of the idea that knowledge is true belief that is not the result of accident or coincidence.

The no false grounds approach

One approach to solving the Gettier problem begins by noting that in Gettier's examples Smith deduces a true proposition from a falsehood. His justification for believing the true proposition depends upon his being justified in believing a false proposition. Proponents of the No False Grounds approach claim that Smith's justification for believing the true proposition is defective, at least from the standpoint of knowledge, insofar as his grounds for believing the true proposition include one or

[2] For a detailed and acute survey of a wide variety of attempted solutions see Robert Shope, *The Analysis of Knowing: A Decade of Research* (Princeton, NJ: Princeton University Press, 1983) and his "Conditions and Analyses of Knowing," in *The Oxford Handbook of Epistemology*, ed. Paul K. Moser (Oxford: Oxford University Press, 2002).

more falsehoods. This suggests a fairly simple solution, namely, that we modify D3 as follows:

D6 S knows that p = Df. (1) S believes that p, (2) p is true, (3) p is epistemically justified for S, and (4) S's grounds for believing that p do not include any false propositions.

How is D6 supposed to help with the Gettier problem? Consider Case 1. Smith's grounds for believing (e), the man who will get the job has ten coins in his pocket, include the false proposition (d), Jones is the man who will get the job and Jones has ten coins in his pocket. Smith has a justified true belief in (e). According to D6, then, Smith does *not* know (e), since his grounds for believing (e) include the false proposition (d). Smith's belief in (e) does not meet our added fourth condition. Similar considerations would apply to Case 2. In that case, Smith's grounds for believing (h), Jones owns a Ford or Brown is in Barcelona, include the falsehood, (f), Jones owns a Ford. So, Smith's belief in (h) fails to meet the added fourth condition and, thus, we get the right result that Smith does not know (h). When applied to Cases 1 and 2, D6 gives us the right result.

Unfortunately, D6 is not satisfactory. There are two problems with D6. First, it is too weak to rule out some Gettier cases. Second, it is too strong insofar as it rules out some plausible instances of knowledge. Let us consider first the objection that D6 is too weak.[3] Let us consider the following case.

Case 3. Suppose that Smith knows, and is thus justified in believing, the following:

(j) Jones, who works in my office, has always driven a Ford in the past, has just offered me a ride in a Ford, and says that he owns a Ford.

From (j), Smith deduces:

(k) There is someone, who works in my office, who has always driven a Ford in the past, has just offered me a ride in a Ford, and says that he owns a Ford.

[3] The following objection was raised by Richard Feldman in "An Alleged Defect in Gettier Counterexamples," *Australasian Journal of Philosophy*, 52 (1974), 68–69. See also Feldman's discussion of the Gettier problem in his *Epistemology* (Upper Saddle River, NJ: Prentice-Hall, 2003), pp. 25–37.

On the basis of (k), Smith believes:

(l) Someone in my office owns a Ford.

Given that Smith is justified in believing both (j) and (k), Smith is justified in believing (l). So, Smith has a justified belief in (l). Now, let us suppose that, as in Gettier's original case, Jones does not own a Ford. Jones has recently been pretending to own a Ford. But let us also suppose that, completely unbeknownst to Smith, someone else in Smith's office, Brown, *does* own a Ford. So, (l) is true. Thus, the following conditions are met: (i) (l) is true, (ii) Smith believes that (l) is true, and (iii) Smith is justified in believing that (l) is true. Still, Smith does not *know* (l). It is only by sheer coincidence or luck that Smith turns out to be right about (l).

In Case 3, as in Gettier's original cases, we have an instance of justified true belief that isn't knowledge. But our amended definition, D6, appears too weak to rule out Smith's belief in (l) as an instance of knowledge. Why? The reason is that D6 requires that one's grounds for believing that *p* do not include any *false* propositions. But in Case 3 Smith's grounds for believing (l) are the propositions (j) and (k) and they are both *true*. Since Smith's grounds for believing (l) are true, his belief in (l) meets the requirements for knowledge laid out in D6. Therefore, D6 is too weak to rule out Smith's belief in (l) as an instance of knowledge. D6 gives us the wrong result in Case 3.

D6 also seems too strong insofar as it rules out some beliefs that are clearly instances of knowledge. Suppose, for example, that you have a lot of evidence for believing some proposition. Most of your grounds consists of truths that you know. But suppose that your grounds include *some* false propositions. In some cases, it seems reasonable to think that you would still have knowledge even if your grounds included some false propositions. Suppose, for example, that Smith wants to know who won last night's basketball game. He sees a group of his friends and asks them who won. Each friend says that he watched the game and that the home team won. It seems reasonable to believe that Smith knows on the basis of their testimony that the home team won. But suppose that one of his friends, Jones, caught up in an uncharacteristic yet pathetic urge to fit in, lies about watching the game. Jones says, ''I watched the game. It was great. The home team won.'' As a result, Smith's grounds for believing that the home team won includes the falsehood that Jones watched the game and said the home

team won. Still, this fact would not seem to prevent Smith from knowing that the home team won.

As it stands, D6 is not satisfactory, though, perhaps, some modification of it will be acceptable. Let us consider a different approach, but one that like D6 also focuses on the role of falsehoods. Let us consider:

D7 S knows that p = Df. (1) S believes that p, (2) p is true, (3) p is epistemically justified for S, and (4) S's grounds for believing that p do not justify any false proposition for S.

According to D6, knowledge requires that none of one's grounds are false. In contrast, D7 requires that one's grounds do not justify any false proposition. How would D7 handle Gettier's original examples? Consider Case 1. Smith's grounds for believing (e), the man who will get the job has ten coins in his pocket, *also* justified Smith in believing the false proposition, (d) Jones is the man who will get the job and Jones has ten coins in his pocket. Since Smith's grounds for believing (e) also justify a false proposition for him, D7 gives us the right result that Smith does not know (e). Something similar is true in Case 2. In that case, Smith's grounds for believing (h), Jones owns a Ford or Brown is in Barcelona, *also* justified for Smith the false proposition (f), Jones owns a Ford.

As we have seen, D6 failed to give us the right results in Case 3. Does D7 fare any better? In Case 3, we assumed that Smith had no false grounds for believing (l), someone in my office owns a Ford. However, among Smith's grounds for believing (l) was (j), Jones, who works in my office, has always driven a Ford in the past, has just offered me a ride in a Ford, and says he owns a Ford. We assumed that Smith did in fact know (j). But note that (j) does justify Smith in believing the falsehood (f), Jones owns a Ford. Since Smith's grounds for believing (l) justify him in believing a false proposition, D7 implies that Smith does *not* know (l). D7 seems to yield the right result in Case 3.

Unfortunately, D7 is also too strong. Consider again Case 3. We assume that Smith knows,

(j) Jones, who works in my office, has always driven a Ford in the past, has just offered me a ride in a Ford, and says he owns a Ford.

From (j) Smith deduces,

(k) There is someone, who works in my office, who has always driven a Ford in the past, who has just offered me a ride in a Ford, and says he owns a Ford.

Surely Smith knows (k). But here's the problem with D7. Smith's grounds for (k) include (j) and (j) justifies Smith in believing the falsehood (f), Jones owns a Ford. Since Smith's grounds for believing (k) justify a false proposition for Smith, D7 implies incorrectly that Smith does not know (k). As with D6, it might be that some modification of D7 will prove acceptable.[4]

The defeasibility approach

Another approach to solving the Gettier problem begins with the observation that in Gettier's original cases, there is some true proposition which is such that *if* one were justified in believing it, then one would no longer be justified in believing the spurious instance of knowledge. To illustrate this point, consider again Case 3. Smith knows (j) and (k) and these propositions are evidence for (l), someone in my office owns a Ford. But now consider the true proposition, Jones is just pretending to own a Ford, (m). If Smith were justified in believing (m) or if (m) were added to his evidence, then he would *not* be justified in believing (l). We may say that (m) defeats (j) and (k) as evidence for (l).

According to one version of the Defeasibility approach, one's justification for believing *p* is defective, at least from the standpoint of knowledge, if one's evidence for believing *p* could be defeated by the addition of some true proposition to one's body of evidence. The basic idea here is that if one's justification for believing *p* would be defeated by the addition of some true proposition, then one's justification for believing *p* is not the right sort for knowing that *p*. Given this assumption, perhaps we could say that one knows that *p* only if there is no true proposition that could be added to one's evidence for *p* and defeats one's justification for believing *p*. We might say, roughly, that one knows that *p* only if there is no true proposition which would defeat one's justification for believing that *p*. This is an intriguing idea. Let's consider this view more closely.

[4] Roderick Chisholm writes, "The various Gettier cases also have this feature in common: the proposition involved is made evident by a proposition that makes some *false* proposition evident." *Theory of Knowledge*, 3rd edn. (Englewood Cliffs, NJ: Prentice-Hall, 1989), p. 98. Chisholm's proposed solution may be seen as a sophisticated development of the basic idea that underlies the flawed D7.

One way to develop this idea is as follows:

D8 S knows that p = Df. (1) p is true, (2) S believes that p, (3) p is epistemically justified for S, and (4) there is no true proposition, q, such that if S were justified in believing q, then S would not be justified in believing that p.[5]

How would D8 help us with the Gettier cases? Consider Case 1. Smith's belief in (e), the man who will get the job has ten coins in his pocket, does not meet condition (4) in D8. This is because there is a true proposition which is such that if Smith believed it, then he would not be justified in believing (e). If Smith were justified in believing the true proposition that Jones will not get the job, then he would not be justified in believing the false proposition (d), Jones is the man who will get the job and Jones has ten coins in his pocket, and, consequently, he would not be justified in believing (e). Since Smith's belief in (e) does not meet condition (4) in D8, D8 implies that Smith does not know (e). This is the right result.

Similar considerations apply to Case 2. Smith's belief in (h), either Jones owns a Ford or Brown is in Barcelona, does not meet condition (4) in D8. Again, this is because there is a true proposition which is such that if Smith believed it, then he would not be justified in believing (h). If Smith were justified in believing the true proposition, that Jones is merely pretending to own a Ford, then he would not be justified in believing the false proposition (f), Jones owns a Ford, and, consequently, he would not be justified in believing (h). Since Smith's belief in (h) does not meet condition (4) in D8, D8 implies that Smith does not know (h). Again, this is the right result.

It is important to note that D8 makes use of a subjunctive conditional. A subjunctive conditional is a statement that tells us that if one thing *were* true, then something else *would* be. The statement "If I were to hit my thumb very hard with a hammer, then it would hurt" expresses a subjunctive conditional. People often use such statements and, in many cases, we have no difficulty in assessing whether they are true or false.

[5] This definition is similar to one offered by Peter Klein, "A Proposed Definition of Propositional Knowledge," *The Journal of Philosophy*, 68, no. 16 (August 1971), 475. One can find similar definitions discussed in Paul Moser, Dwayne H. Mulder, and J. D. Trout, *The Theory of Knowledge: A Thematic Introduction* (Oxford: Oxford University Press, 1998), p. 98, and Richard Feldman, *Epistemology*, pp. 33–36.

But, sometimes subjunctive conditionals are tricky and they often invite difficulties in definitions. That seems to be the case in D8.

To appreciate the difficulty with D8 let's consider the following example. Stan's wife notices that he is awfully quiet and seems troubled about something. She asks if he is upset or angry with Tom, a co-worker. Suppose that Stan knows that he is not angry at Tom. Stan introspectively reflects and finds that he is not. So, Stan knows and is justified in believing,

(n) I am not angry at Tom.

But suppose that earlier in the day, unbeknownst to Stan, Tom had gotten into a rather nasty squabble with Stan's mother. Suppose that the following proposition is true:

(o) Tom grossly insulted Stan's mother.

If Stan *were* justified in believing (o), then he would not be justified in believing (n). For if Tom were justified in believing (o), then he *would* be very angry at Tom. And, if Stan were very angry at Tom, then Stan would know it and he not be justified in believing (n). Tom's belief in (n) does not meet condition (iv) of D8. According to D8, then, Stan does not know (n). But that is the wrong result.

Let us consider a second example suggested by Richard Feldman. Suppose that Smith is sitting in his study with the radio off. Smith knows that the radio is off. But a radio station, Classic Hits 101, is playing Neil Diamond's ''Girl, You'll Be a Woman Soon.'' If Smith had the radio on and tuned to that station, he would hear the song and know that the radio is on. Now, in this case, Smith knows,

(r) The radio is off.

Still, there is a true proposition such that *if* Smith were justified in believing it, then he would not be justified in believing (r). Such a proposition is:

(s) Classic Hits 101 is now playing ''Girl, You'll be a Woman Soon.''

If Smith were justified in believing (s), it would probably be because he had the radio on and was listening to the song. So, according to D8, Smith does not know (r). Again, that is the wrong result.

Feldman nicely sums up the basic difficulty with D8. He writes, ''. . . one can know some facts and there can be other facts such that if one knew the

other facts, then one would not know the original facts. This is because, if one were in a position to know the latter facts, then one would not be in a position to know the former facts. And, in some cases, if one knew the latter facts, the former facts would not even be true."[6]

There are, however, versions of a defeasibility approach that do not make use of subjunctive conditionals. Let us consider one simple version of such a view. To appreciate this view let's recall our definition of evidential defeat:

D4 *d* defeats *e* as evidence for *p* = Df. *e* is evidence for believing that *p*, but *e and d* is not evidence for believing that *p*.

Following Mathias Steup,[7] let's introduce the concepts of "justificational defeat" and "factual defeat":

Justificational defeat

D9 *d* justificationally defeats S's evidence for believing that *p* = Df. (i) S has evidence *e* for believing that *p*; (ii) S has also evidence *e*' for a proposition *d* that defeats *e* as evidence for *p*.

Factual defeat

D10 *d* factually defeats S's evidence for believing that *p* = Df. (i) S has evidence *e* for believing that *p*; (ii) there is a proposition *d* such that *d* is true, S does not have evidence for *d*, and *d* defeats *e* as evidence for *p*.

There are some significant differences between justificational and factual defeat. First, in order for a proposition to be a factual defeater it must be *true*. Justificational defeaters, however, can be either true or false. So, for example, if Jones, who is honest and usually quite reliable, misinforms me that Brown has been convicted three times for embezzlement, then the proposition that Brown is a thrice convicted embezzler is a justificational defeater for my evidence that Brown is honest. But that proposition cannot be factual defeater because it is not true.

[6] Richard Feldman, *Epistemology*, p. 35. Cf. Robert K. Shope, "The Conditional Fallacy in Contemporary Philosophy," *The Journal of Philosophy*, 75, no. 8 (August 1978), 397–413.

[7] Cf. Matthias Steup, *An Introduction to Contemporary Epistemology*, p. 14.

Second, justificational defeat involves propositions for which one has evidence. In order for a proposition *d* to justificationally defeat S's evidence for believing that *p*, one must have *evidence* for both *d* and *p*. In contrast, if a proposition *d* factually defeats S's justification for believing that *p*, then S has *no* evidence for *d*. Factual defeaters are, in this respect "hidden" defeaters. They are defeaters for which one has no evidence.

Third, justificational defeat matters to one's justification in a way that factual defeat does not. If one's evidence for believing some proposition is justificationally defeated, then one loses one's justification for believing that proposition (assuming that the justificational defeater is not itself defeated). But again, one has *no* evidence for factual defeaters. Factual defeaters are hidden. If one's evidence for believing some proposition is factually defeated, this does not affect one's justification for believing that proposition. A proposition can factually defeat one's evidence for believing a proposition without affecting one's justification for believing it.

Given the concept of factual defeat, let us consider the following defeasibility account.

D11 S knows that *p* = Df. (1) *p* is true, (2) S believes that *p*, (3) *p* is epistemically justified for S, and (4) there is no proposition *d* that factually defeats S's evidence for believing that *p*.[8]

According to D11, knowledge that *p* requires that there be no factual defeaters for one's evidence for *p*. Roughly, it requires that there be no hidden truths that defeat one's evidence for believing that *p*.

What does D11 imply about our Gettier cases? Consider Case 3. Smith has a justified true belief (l), someone who works in my office owns a Ford. Smith's evidence for this is,

(j) Jones, who works in my office, has always driven a Ford in the past, has just offered me a ride in a Ford, and says he owns a Ford, and

(k) There is someone, who works in my office, who has always driven a Ford in the past, who has just offered me a ride in a Ford, and says he owns a Ford.

[8] *Ibid*., pp. 17–18.

Is there some true proposition that factually defeats Smith's evidence for believing (l)? Let's suppose that the following proposition is true and one for which Smith has no evidence,

(t) Jones has been pretending to own a Ford.

It seems clear that the (t) defeats (j) and (k) as evidence for (l). In other words, it seems clear that *j and k and t* is not evidence for believing (l). So, (t) is a factual defeater for Smith's evidence for believing (l). Given D11, then, Smith does not know (l). So, D11 seems to give us the right answer in Case 3. It seems likely that D11 will also give us the right answer in Cases 1 and 2.

There is, however, a serious problem for D11. To understand the problem, let's consider the following case. Suppose that Smith sees his acquaintance Tom Grabit remove a book from the library shelf, stick it under his coat, and walk out of the library with it. Smith sees Tom steal the book. Let's assume that Smith knows that Tom stole the book. But now imagine that, completely unknown to Smith, Tom's mother, when informed of the charges against her son, swears that it wasn't Tom. She swears that Tom was a thousand miles away at the time and that it was his identical twin, John, who stole the book. Sadly, however, Tom's mother is insane and a pathological liar. Tom has no identical twin and John is a figment of the mother's deluded mind.

It seems plausible to many that Smith knows that Tom stole the book. However, it seems that D11 implies the Smith does not know that Tom stole the book. It seems that D11 gives us the wrong answer in this case. Consider the following true proposition,

(u) Tom's mother swears that Tom was miles away and Tom's twin stole the book.

The problem is that (u) seems to be a factual defeater for Smith's evidence that Tom stole the book. Smith has no evidence for (u), (u) is true, and the conjunction of (u) with the other propositions for which Smith has evidence are not evidence for believing that Tom stole the book. If (u) is a factual defeater, then D11 implies that Smith does not know that Tom stole the book.

D11 implies that one does not know that p whenever there is a factual defeater for one's evidence that p. The Tom Grabit case is intended to show that this is not so and that D11 is too strong, that it rules out some genuine

instances of knowledge. One problem for D11, then, is that factual defeaters, or hidden truths, sometimes take away our knowledge and sometime they don't. Proponents of defeasibility accounts need to explain when they do and when they don't.

The causal approach

The final approach we shall consider is the causal approach. A causal theory holds that knowledge that *p* requires that there be some causal connection between one's belief that *p* and the fact that makes *p* true. Such a view seems quite plausible when we reflect on some simple cases of perceptual knowledge. For example, I now know that there is a coffee cup on the desk. I know this because I see the cup. My belief that the cup is on the desk is causally connected through the various causal processes involved in perception to the fact that the cup is on the desk. Similarly, my belief that there was a cup here yesterday is causally connected to the fact that there was one here yesterday. Yesterday I formed that belief on the basis of perception and the belief was retained in my memory. What I now believe is causally connected through perception and memory to the fact that the cup was here then. It seems plausible to think that in many cases of perceptual and memory knowledge there is some causal connection between one's belief that *p* and the fact that *p*.

Suppose, then, one were to say that S knows that *p* if and only if the fact that *p* is causally connected to S's belief that *p*. Unfortunately, such a simple and straightforward view won't do. Suppose, for example, that Smith has a brain tumor that causes him to believe many strange things. He believes, for example, that aliens are in his basement, that cats and dogs are joined in a conspiracy against him. Suppose further that as a result of his brain tumor he forms the belief that he has a brain tumor. The fact that he has a brain tumor is causally connected to his belief that he has a brain tumor, but surely Smith's belief isn't an instance of knowledge. Other examples illustrate the same point. Suppose that unbeknownst to him, someone has slipped a drug into Jones's coffee. The drug causes Jones to form some paranoid beliefs. He starts to believe that people are watching him, that they are trying to read his thoughts, and that someone has put a drug in his coffee. The fact that someone has slipped a drug into his coffee is causally

connected with his belief that he has been drugged, but again his belief does not seem to be an instance of knowledge.

Recognizing these difficulties, Alvin Goldman proposed the following definition of knowledge in his 1967 essay ''A Causal Theory of Knowing'':

D12 S knows that p = Df. The fact that p is causally connected in an ''appropriate'' way with S's believing that p.[9]

D12 requires not just any sort of causal connection between a fact and one's belief, it requires that there be an ''appropriate'' connection. Presumably, the sort of connection between one's belief that one has a brain tumor and the fact that one does in our previous example is not of the right sort. The same may be said of one's belief that one has been drugged.

But what are the appropriate sorts of connections? Goldman says that the appropriate sorts of causal connections include perception and memory. In addition, one knows that p if one properly reconstructs the causal chain from the fact that p to one's belief that p. A proper reconstruction would involve only true beliefs of the subject about the important causal links. The idea of a proper reconstruction may illustrated by one's belief that there had been a campfire on the beach. Walking on the beach one sees the pile of ashes and burned timbers. One believes that the ashes and the burned timbers were caused by a campfire. One thus properly reconstructs the causal chain from one's belief to the fact of the fire. Since one can properly reconstruct the causal connection between the fact of the campfire and one's belief that there was one, one's belief that there was one is in this case an instance of knowledge. Similarly, one can know that centuries ago a nearby mountain erupted by reconstructing the causal connection between the fact of the eruption, the surrounding lava fields which one now sees, and one's belief that the mountain did once erupt. By allowing such reconstructions, Goldman's theory allows that what we know transcends what we perceive and what we remember. That seems clearly a merit of the theory insofar as we do know things which go beyond perception and memory.

How would D12 deal with the Gettier problem? Consider Case 2 and Smith's belief in (h), Jones owns a Ford or Brown is in Barcelona. Goldman notes that what makes (h) true is the fact that Brown is in Barcelona. But that fact is not causally connected to Smith's belief in (h) in any

[9] Alvin Goldman, ''A Causal Theory of Knowing,'' *The Journal of Philosophy*, 64, no. 12 (June 1967), 369.

appropriate way. Smith does not perceive or remember that Brown is in Barcelona and he cannot properly reconstruct the causal chain from his belief in (h) to the fact that Brown is in Barcelona. So, given D12, Smith does not know (h). Something similar would be said about Case 1. Smith has a justified true belief in (e) the man who will get the job has ten coins in his pocket. But what makes (e) true is the fact that he, Smith, is the man who will get the job and he has ten coins in his pocket. Yet this fact is not connected in any appropriate way to Smith's belief in (e). Therefore, according to D12 Smith does not know (e). Finally, in Case 3 what makes it true that (l), someone in my office owns a Ford, is the fact that Brown owns a Ford. But again the fact that Brown owns a Ford is not connected in any appropriate way with Smith's belief in (l). He cannot give a proper reconstruction from the fact that Brown owns a Ford to his belief in (l). D12 appears to yield the right results in Cases 1, 2, and 3.

In spite of its success in dealing with Gettier's original cases and some variations thereof, D12 faces some rather serious objections. First, D12 seems unable to accommodate our knowledge of various general propositions such as all men are mortal. The fact that all men are mortal does not seem to cause anything. It does not seem to be causally connected to one's belief that all men are mortal and, thus, it is not appropriately connected. If D12 were true, then we would not know such a generalization. But since it seems clear that we do, D12 must be false.

Second, consider those cases where knowledge involves a proper reconstruction of the causal chain. Goldman writes that if one is to know *p*, one's reconstruction of the chain must contain no mistakes. ''Though he need not reconstruct *every* detail of the causal chain, he must reconstruct all the important links.''[10] Goldman admits that it is hard to give criteria for what is an ''important'' detail and he suggests that what is important will vary from case to case. Some philosophers find this requirement unacceptably vague. There is, however, a more serious problem. Consider the following case.[11] Suppose that Omar falls down drunk in the street and

[10] *Ibid*., p. 363.

[11] Brian Skyrms gives an example of this sort in his ''The Explication of 'X knows that p','' *The Journal of Philosophy*, 64, no. 12 (June 1967), 385–86; cf. also Gilbert Harman's ''Inference to the Best Explanation,'' *The Theory of Knowledge: Classic and Contemporary Readings*, ed. Louis P. Pojman (Belmont, CA: Wadsworth Publishing Co., 1993), p. 154.

passes out. An hour later he dies of a heart attack. Shortly after that, a mad fiend comes along, sees Omar, and cuts off his head. Still later, Smith comes along and sees poor Omar. Smith sees that Omar's head has been cut off and Smith believes that Omar is dead because he was decapitated. In this case, Smith knows that Omar is dead. But Smith has *not* properly reconstructed the causal chain from the fact that Omar is dead to his belief that Omar is dead. Smith erroneously attributes Omar's death to the fact that he was decapitated. Since Smith has not properly reconstructed the causal chain, D12 implies incorrectly that Smith does not know that Omar is dead.

A third difficulty for the causal theory was raised by Goldman himself several years after the publication of "A Causal Theory of Knowing."[12] Goldman asks us to imagine that Henry is driving through the countryside and sees a barn. He forms the belief "There's a barn." But unbeknownst to Henry, he is driving through a region where the natives have constructed many facsimiles of barns, facsimiles that are really just barn facades without back walls or interiors. The facsimiles are so cleverly constructed that tourists like Henry typically mistake them for barns. Under these circumstances, Henry's true belief that there's a barn seems to be right by luck. Goldman suggests that Henry does not know that there is a barn before him. But, as Goldman points out, D12 seems to give us the wrong answer in this case. Henry's belief *is* causally connected in an appropriate way, i.e. through perception, to the fact that there is a barn before him. So, D12 implies that Henry has knowledge. Goldman, however, thinks this is a mistake and that D12 should be rejected.

In our previous example, Henry does not know that he is in a region filled with barn facsimiles. But consider a slightly different version of the case in which he *does* know this. Imagine that Henry *knows* that he is in such a region. Suppose he has read all about the famous barn facades erected by the locals and that he has on occasion inspected such facades up close. Now suppose that in spite of all the evidence that he is in such a region, Henry just ignores it, and forms the belief that there's a barn. Again, it seems that Henry would not have knowledge even though his belief is correct.

[12] Alvin Goldman, "Discrimination and Perceptual Knowledge," *The Journal of Philosophy*, 73, no. 20 (November 1976), 772–73.

But, again, his belief seems formed on the basis of perception, and therefore, according to D12, it is an instance of knowledge. But that seems mistaken.

The causal accounts of knowing that we have considered have been no more successful than the No False Grounds and the Defeasibility accounts. At present, it is hard to see how a simple causal account can be successfully modified to solve the Gettier problem.

Some concluding comments

Gettier's counter-examples show us that a simple and straightforward account of knowledge as epistemically justified true belief is mistaken. We have considered three sorts of approaches to providing a definition of propositional knowledge. The specific proposals we have considered are fairly simple and represent some of the earliest attempts to deal with the Gettier problem. Unfortunately, none of the specific proposals we have considered are successful. Still, we have only skimmed the surface of a vast body of literature on the Gettier problem and while it is true that there is no widely accepted solution, there has been a great deal of constructive work. Many of the more recent developments are refinements of the approaches considered here.

It is possible, I think, that some might exaggerate the significance of our failure to solve the Gettier problem and our not having a satisfactory definition of knowledge. Some might think that if we don't have a satisfactory definition of knowledge, then we can't pick out instances of it or make any headway in the theory of knowledge. ''How,'' they might ask, ''can we talk intelligently about knowledge, about its extent and scope, and about its other features without a definition of it?''[13] Some might suggest that without a satisfactory definition, we can simply make no progress in epistemology.

I think that would be a mistake. One does not need a definition of knowledge in order to pick out instances of it. In general, it is not necessary for one to know the definition of X in order to be able to pick out instances of X. One can know that this is a man or that is a table without knowing

[13] Cf. Socrates's comment in *Meno*: ''If I do not know what something is, how could I know what qualities it possesses?'' (71b), Plato, *Meno*, trans. G. M. A. Grube (Indianapolis: Hackett Publishing, 1976), p. 4.

a definition of man or table. It is no easy matter to define the concept of man or table, but we can all pick out instances of each. Young children, for example, can pick out men and tables without knowing a definition of either concept. By the same token, we can, I think, pick out instances of knowledge even without knowing a definition of knowledge. Each of us knows, for example, that we exist and that we think, and we know such things even without being able to define the concept of knowledge. Even without having a definition of knowledge or solving the Gettier problem we know that there are other people who think and feel, who have lived for many years. So, again, it is hardly clear that one needs a definition of knowledge or a solution to the Gettier problem in order to pick out instances of knowledge. Moreover, as we have surveyed various attempts to define the concept of knowledge, we have assumed that we could pick out instances of knowledge. For example, we have sometimes rejected a definition because it implies that someone doesn't have knowledge in a particular case when it seems that he does, or it implies someone has knowledge when it seems clear he doesn't. In examining and assessing various definitions, we have assumed that we can pick out instances of knowledge.

Furthermore, it seems false that we can't talk intelligently about knowledge without having a definition of it. One can talk intelligently about human beings and cars and tables without having a definition of those things. So, why should it be any different for knowledge? Even if we have not solved the Gettier problem, it hardly follows that we know nothing about knowledge. We know, for example, that if someone knows that *p*, then *p* is true. We know that knowing that *p* is not the same as having a mere true belief that *p* or making a lucky guess that *p*. We know that poor Smith in Gettier's examples lacks knowledge. Moreover, the idea that there can be no progress in epistemology without a solution to the Gettier problem or a definition of knowledge is mistaken. Consider our rejection of various proposed definitions. Rejecting mistaken views on the basis of sound reasons seems to be a kind of progress in epistemology. To discover that some seemingly plausible views about the nature of knowledge are mistaken is itself a kind of progress. These failures are instructive. To appreciate the difficulties with a defeasibility account that makes use of subjunctive conditionals or to see the problems with a simple causal account is in itself a kind of progress.

If some might exaggerate the significance of our failure to solve the Gettier problem or to have a satisfactory definition of knowledge, some might ask why should we care? Indeed, if we don't need to solve the Gettier problem in order to pick out instances of knowledge, then why bother answering the ancient question "What is knowledge?" One response is simply that some people are motivated by a kind of philosophical or intellectual curiosity. They simply want to know in an especially precise and clear way what knowledge is. Such a curiosity is familiar to the readers of Plato, who asked about the definitions of piety, justice, and virtue. It is an ancient sort of curiosity about the nature of things and curious minds want to know. For now, sadly, such curiosity must remain unsatisfied. We don't have a solution to the Gettier problem. Our brief attempt to answer the question "What is knowledge?" ends, as did Plato's, inconclusively.