

ALVIN GOLDMAN'S "A CAUSAL THEORY OF KNOWING"

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1. Introduction

Alvin Goldman is most well known for a series of naturalistic account of knowledge and justified belief. The initial of these appeared in his paper "A Causal Theory of Knowing", according to which knowledge amounts to true belief appropriately caused by the fact that makes it true. Soon after, he replaced this account with a different one, according to which knowledge amounts to true belief that is produced by a reliable process. Various problems determined this new account and others that Goldman published after it. However, those accounts have been perhaps the most influential theories of knowledge and justified belief produced in the last half-century. They offer a new approach to their topics – an approach that appeals to naturalistic notions like causation and reliability as opposed to normative notions like permissibility and obligation. The use of such naturalistic notions in place of normative notions was fairly distinctive to Goldman's work when he wrote it, but has since come to be fairly common among analytic epistemologists. This trend is due in no small part to Goldman's own writings.

Epistemologists have always recognized the significance of causal processes in accounting for our knowledge of things. In discussions of perception, memory and reasoning, for example, it is usually assumed that these ways of coming to know are fundamentally causal. We perceive things and thus come to have knowledge about them via complex causal processes; memory is, at least in part, the retention of previously gained knowledge through some sort of causal process; and reasoning is a causal process that takes beliefs as inputs and generates beliefs as outputs.

A causal theory of knowledge is a form of externalism and is based on the fundamental idea that a person knows some proposition, p , only if there is an appropriate causal connection between the state of affairs that makes p true and the person's belief in p . Although this kind of theory has roots that extend to ancient times, contemporary versions try to make more accurate the nature of the causal connections required for knowledge. The causal theory is closely related to other forms of externalist theories, such as the conclusive reasons theory, information-theoretic views and the various forms of reliabilism.

Usually epistemologists have generally recognized the following different sources of knowledge (of justification or evidence): perception, introspection, reason, memory, and reliable (or appropriate) authority (that is, testimony). One of the virtues of Goldman's article (besides its attempt to overcome Gettier's problems) is his focus upon a variety of sources of evidence, and his careful analysis of what must be the case if these sources are to give up knowledge.

2. Causal connections and perception

The causal theory of perception is an exercise in what Sir Peter Strawson famously called descriptive metaphysics. Descriptive metaphysics aims 'to lay bare the most general features of our conceptual structure'; (P. F. Strawson 1959: p. 9) and the causal theory purports to identify one of these features, one element in the 'massive central core of human thinking which has no history'. (Ibid. 10.) It says that the concept of a causal connection, which unquestionably has a fundamental place in our thinking about the natural world we inhabit and in our thinking about our own power to effect or prevent changes in it, is also implicit in 'the ordinary notion of perceiving.

When I see a chair in front of me, as a result, I come to believe that there is a chair in front of me. In this case, the fact that there is a chair in front of me causes my belief in the appropriate way.

Structure upon Paul Grice's causal theory, (Paul Grice, 1961; pp. 121-152). Goldman claims that "...a necessary condition of S's seeing that there is a vase in front of him is that there be a certain kind of causal connection between the presence of the vase and S's believing that a vase is present."

Perception is probably the simplest type of causal connection leading to knowledge. Goldman adopts the analysis of Paul Grice, according to which a necessary condition for S's seeing that there is a vase in front of him is that there is a causal connection of a certain sort between S's belief that he sees a vase and "the presence of the vase." Goldman does not try to explain the specific causal process involved. But he notes that we would not say that someone sees something unless the relevant causal process has occurred.

To drive this point, Goldman suggests a thought-experiment. Suppose someone interposed a hologram of a vase between S and the vase, thus cutting off the causal connection between S and the vase. In that case, we would not say that he sees the vase, though we could allow that he knows (by some other means) that there is a vase before him. So "seeing that" is treated as a special case of "knowing that." It requires a causal connection.

For the moment, we will regard the process leading to perceptual knowledge as not involving inference. It does not seem reasonable, from our experience, that we do make inferences from "ideas" or "sense data" or brain states when we know something perceptually.

3. Causal connections and memory

When I remember a past event, there must be a causal connection between my earlier experience and my present thought. Some of our knowledge is based at least in part on memory, and memory itself is a causal process. A belief at the present can be traced back to a previous belief as a cause. As before, Goldman does not try to give a detailed account of how the process works.

The need for a causal connection is shown by considering two types of cases. In the first, one believes that *p* at a time and then later believes *p* again. This may occur without being a case of remembering. In the second, one knows that *p* at one time and knows that *p* later. This second type of case could happen without memory, as there could be a different source of the belief or knowledge at the two times, such as perception at the first time and testimony at the second.

A further consideration is that the mere having of a “memory impression” is not sufficient for remembering. A memory impression may be stimulated by an external source, and in such a case is not caused by the original belief. Goldman holds that this is not a case of remembering.

Finally, knowledge may be transmitted by a combination of perception and memory. One sees that *p* at a time, forms a belief that *p*, and later comes to believe it anew on the basis of memory. A single causal process would have united the fact with the later belief.

4. Causal connections and inference

Goldman wishes to remain neutral on whether inferential processes are causal. (Notice that his account is supposed to apply to empirical propositions only – he considers the traditional JTB analysis sufficient for non-empirical claims.) But he does think that we can expand the causal chains of perception and memory using inferences, as long as these are warranted.

The cases of direct perception and remembering are fairly straightforward, because they involve processes that are clearly causal. The process by which someone reasons explicitly is also be pretty clearly a causal process. For example, one may carry out the reasoning process by a kind of interior conversation “Since such-and-such is true, *p* must also be true.”

But Goldman wants to take inference more broadly. One may have knowledge based on inference without having gone through the process of inferring explicitly. Goldman’s example is the belief that a nearby mountain has erupted hundreds of years ago. The basis for this belief is the observation of solidified lava lying about, along with “various ‘background’ beliefs about the production of lava.” It important to note that these “background” beliefs are not generally to be found in the chain linking the object to the belief.

Goldman thinks that knowledge in this case requires a causal process as well. He describes a variant similar to the hologram variant of the vase case. Someone long ago removed the lava that was blown off the mountain, then later someone else scattered some lava round. The causal chain would have originated from the new lava, and the person would not know that the mountain erupted. “A necessary condition of *S* knows that *p* is that his believing *p* be connected with *p* by a causal chain.

The example does not show, however, that S knows by inference that the mountain erupted. For this to hold, given Goldman's condition, the inferential process linking the perception of the lava to the conclusion that the mountain erupted. Here, Goldman says that he is inclined to construe the process of inference as a causal process, since the new belief is based on the belief from which it was inferred.

One need not do so, however, to reconcile the causal condition with inferential knowledge. All that need be done is to be careful about how "causal" is understood in the condition. Thus the "causal chain" required for any knowledge remains "causal" when inferential links are added to it. But this does not imply that there are "causal connections" as a result.

5. Causal connections and testimony

The other type of knowledge that might be given a causal account is knowledge from the testimony of another person. This type is somewhat more complicated than the others. Say that a person T comes to believe that p through a causal chain ending in perception. Then the belief causes an assertion that p (the testimony) as an audible sound. This sound causes S to believe that T is asserting that p, and that belief causes S to believe that T believes that p. Finally, this belief about the testifier's belief causes S to believe that p.

In this step process, background beliefs play a role again. Goldman calls attention to the fact that the belief that T believes that p may require, in addition to belief that T asserted that p, beliefs about T's sincerity. Perhaps even another belief is needed, to the effect that T understands what he is asserting.

The passage from the belief that T believes that p to S's own belief that p requires more risky background beliefs. At the minimum, S must believe that T is a competent judge with respect to the kind of information expressed by p. S should also believe that S is in a position to believe correctly that p in the present instance, say by seeing that p.

Events can be causally linked to our beliefs through chains of testimony. Why does Goldman think we need to reconstruct the causal chain leading from the event to our beliefs in such cases?

"In his *Contemporary Epistemology*, Ralph Baergen maintains that what goes wrong in the Gettier cases is: "the target belief is true, but the way in which it is true isn't what the subject has in mind. One has the feeling that these beliefs are only accidentally true, and this seems to be what prevents us from regarding these beliefs as knowledge. The weakness of the JTB theory, then, seems to be that it doesn't rule out the possibility that the target belief could be true only accidentally" (Ralph Baergen, 1995; p. 110). According to Baergen, "...it is important that your mental reconstruction of the causal chain be correct; any error would prevent the belief from counting as knowledge. For example, suppose you read a newspaper account of a hockey game and form the belief that the final score was 3 to 1 for Chicago. This is the correct score, but the newspaper has actually misprinted it as 8 to 1; in your copy of the paper the left-hand side of the "8" is faded and you misread

it as a "3." In this case your belief is true and justified, but because your reconstruction of the causal chain is incorrect it does not count as knowledge. Your reconstruction of it would go something like this: The final score was 3 to 1 for Chicago, the sports reporter observed this, the newspaper printed it (this is the mistaken part—what it printed wasn't the correct score), and I read it. You might think that this constraint is just another example of Internalism, but actually it has another motivation. Placing this restriction on reconstructions prevents accidentally true beliefs from counting as knowledge (as in the Gettier cases)" (Ibid. p. 117).

6. Formulation of the causal theory of knowing

In the internalist-oriented environment which dominated epistemology from the time of Descartes until the middle of the twentieth century, it was not considered appropriate to refer to the causal history of a belief in providing an analysis, or definition, of the positive epistemic status of that belief. Rather, the epistemologist's work was to provide definitions of concepts such as justification and knowledge independently of any assumed causal connections with the external world, and then to show how, from such analyses, one could argue ("internally") that such causal connections exist. To do otherwise would be to beg the question against skepticism about the external world.

Since the 1960s, there has been a change away from the internalist position in epistemology. The causal theory of knowing is one of the early versions of externalism, introduced by Alvin Goldman and conceived primarily as a response to the Gettier problem which had appeared only a few years earlier. In Gettier examples, a person, *S*, has a justified belief in something that is only coincidentally true. This element of coincidence, which is perhaps the most important feature of Gettier cases, is very difficult to explain without introducing some element of external connection between the individual's belief, the justification for that belief and the state of affairs which is the object of the belief. Goldman's original proposal was to focus on the causal connections that typically obtain between these various epistemically relevant items when a person has knowledge.

Goldman expressed his proposal as a set of truth-conditions for knowledge, in the following plan form:

[A person] *S* knows that *p* if and only if the fact *p* is causally connected in an 'appropriate' way with *S*'s believing *p*.

The ways that are 'appropriate' include perception, memory, various other kinds of causal chains and combinations of these. Goldman adds to this the further condition that the relevant causal connections obtaining between the state of affairs *p* and one's belief must be 'correctly reconstructed by inferences, each of which is warranted'. This further condition is designed to accommodate the fact that causal chains can sometimes take much unexpected routes. If the route is unusual enough, then even though it results in a true belief that *p*, it does not provide knowledge. For example, suppose that Sally perceives an object only through a complex network of mirrors, or via some holographic imaging device which produces a very realistic image of the object. Then, she might come

to believe that the object is in front of her when in fact it is, but she might fail to know that it is there, as she knows nothing about the unusual causal mechanism. If she were in a position to correctly reconstruct the causal chain, however, then she would have knowledge.

One example developed by Goldman that illustrates the intuitive appeal of his proposal involves a person, Smith, who perceives solidified lava lying around a mountain. On the basis of beliefs about this lava, and background beliefs, Smith inferentially comes to believe, correctly, that the mountain erupted many centuries ago. Assuming that Smith's inferences are warranted, does he know? To answer this, we must ask what sort of causal ancestry obtains between the eruption of the mountain and Smith's belief that it has erupted. If the lava that he sees resulted from the eruption, as he imagines, then Smith does have knowledge. However, suppose that unknown to Smith the lava has been placed there by promoters who wish to make it look as though the area was once volcanic. The lava actually produced by the eruption has been completely covered by years of sedimentation, and cannot be seen. Then, there is no appropriate causal connection between eruption and perceived lava, and Smith does not know. The naturally intuitive appeal of such an example is confirmation that Goldman's causal theory captures at least part of what we require for knowledge.

7. The Gettier Problem

Goldman's early article was one of many that appeared within a few years of the publication of Edmund Gettier's vastly influential paper, "The Analysis of Knowledge" (1963). Gettier gave a couple of counter-examples to what he called the "traditional" analysis of knowledge. According to this analysis, S knows that q if and only if:

- p is true
- S believes that p
- S is justified in believing that p

As Goldman notes at the end of the article, an analysis is not intended to give the meaning of the term it analyzes, but only its truth-conditions. Nor does it give "verification conditions," conditions under which one could tell that S knows that p.

Gettier showed that these conditions can be satisfied in the absence of knowledge. One of his examples involves a person, Smith, who works in the same office as Jones. Smith has excellent evidence that:

q: Jones owns a Ford

Jones has owned a Ford for a long time and has just offered Smith a ride in one. The glitch is that Jones does not now own a Ford, having just sold it. He has offered Smith a ride in a rental car. So q is false, and Smith does not know that q.

Nonetheless, Smith has made a logical inference from *q* to another proposition which he believes:

p: Jones owns a Ford or Brown is in Barcelona

This follows logically from *q*. That is to say, if *q* is true, then *p* must be true by the meaning of the logical word "or." Gettier plausibly maintains that if Smith is justified in believing *q*, then he is justified in believing *p*.

We suppose further that Smith made his inference by picking a city at random. He had no idea of Brown's whereabouts. But it turns out, by the purest coincidence that Brown in fact is in Barcelona. This means, again by the logic of "or," that *p* is true. So by the "traditional" analysis, Smith knows that *p*. Yet it is implausible that Smith has this knowledge, since his belief is true only by coincidence.

Goldman's Solution

In the 1967 paper, Goldman proposed that the problem here is that "what makes *p* true is the fact that Brown is in Barcelona, but that this fact has nothing to do with Smith's believing that *p*." Smith's belief that *p* was arrived at from *q*. He could have substituted any truth in the place of the truth that Brown is in Barcelona and arrived at a justified belief about that.

So Goldman offered as a solution a new condition on knowledge, not found in "traditional" analysis: that what makes *p* true must be the cause of *S*'s believing that *p*. (Note that this is offered only as a condition for empirical knowledge.) What Goldman must do to make his account plausible is to show that it can be generalized to all cases of empirical knowledge. He does this by providing a survey of types of causal connections.

8. Problems for the causal theory

Correct reconstruction without knowledge: In some cases, it seems that one does not know that *p*, even though one has properly reconstructed the causal chain from the fact that *p* to one's belief that *p*. For example, if *S* infers that the mountain erupted many centuries ago from his belief that there is solidified lava throughout the countryside for haphazard reasons; *S* doesn't seem to count as knowing that the mountain erupted many centuries ago.

This is why Goldman requires that the inferences in a reconstruction of a causal connection be warranted: "the propositions on which [the subject] bases his belief of *p* must genuinely confirm *p* very highly, whether deductively or inductively" (p. 363).

This additional requirement avoids the problem, but it also makes the resulting theory not a purely causal theory: traditional notions of justified inferences are now playing a crucial role.

knowledge without correct reconstruction: In some cases, it seems that one can know that p, even though one has improperly reconstructed the causal chain from the fact that p to one's belief that p. Goldman might respond by revising his account so that one can count as knowing something if one makes a series of warranted inferences that reconstruct a causal chain that would have been sufficient to bring about the fact in question, even if that chain didn't as a matter of fact bring it about. However, this once again adds a bigger role to warranted inferences in the overall theory. (Also, there is a worry that this way of revising the theory makes it susceptible to Gettier-style counterexamples.)

Knowledge of existential and universal generalizations: The causal theory is best designed to handle our knowledge of specific facts about the external world; it has a more difficult time accounting for our knowledge of existential generalizations and universal generalizations. After all, these sorts of facts do not seem to have causes, or to cause anything.

Goldman proposes the following principle broadening of our use of the word "cause" (p. 368):

If x is logically related to y, and if y is a cause of z, then x is a cause of z.

Then we can include existential and universal generalizations in causal chains, and apply the theory in the standard way to account for our knowledge of such facts.

One problem: sometimes Goldman interprets "x is logically related to y" to mean "x entails y," and other times Goldman interprets "x is logically related to y" to mean "x is entailed by y."

9. **Some (supposed) Benefits of the Causal Theory**

- The causal theory nicely handles the standard Gettier cases.
- The causal theory doesn't require that one be able to state one's justification for believing that p. This makes it easy to account for one's knowledge of facts whose justification one has forgotten.
- Because the list of appropriate causal processes is left open, the causal theory leaves room for presently controversial causal processes that we may later deem to be genuinely knowledge-producing.
- The causal theory unseats the traditional assumption "that epistemological questions are questions of logic or justification, not causal or genetic questions"

10. **Goldman's Analysis of Knowledge:**

S knows that p the fact that p is causally connected in an "appropriate" way with S's believing p." Where "appropriate ways" are:

- (1) perception
- (2) memory

- (3) a causal chain, exemplifying either Pattern 1 or 2, which is correctly reconstructed by inferences, each of which is warranted (background propositions help warrant an inference only if they are true)
 - (4) combinations of (1), (2), and (3).
- "...the causal requirement and the correct-reconstruction requirement are absent from... older analysis [es]. These additional requirements enable my analysis to circumvent Gettier's counterexamples to the traditional one. But my analysis is weaker than the traditional analysis in another respect. In at least one popular interpretation of the traditional analysis [JTB], a knower must be able to justify or give evidence for any proposition he knows. For S to know p at t, S must be able, at t, to state his justification for believing p, or his grounds for p. My analysis makes no such requirement, and the absence of this requirement enables me to account for cases of knowledge that would wrongly be excluded by the traditional analysis."
 - Goldman claims, for example, that his belief that Lincoln was born in 1809 is knowledge even though it is grounded by memory, and where he has forgotten the memory grounds.
 - Goldman would treat knowledge of one's own mental states as a causal situation wherein there is an identity between what is believed and the believing in the normal situation—a "degenerate causal chain" which is "zero links long."

11. **Internalism and Externalism**

An important distinction in contemporary epistemology is that between the orientations of "externalism" and "internalism." In his *Unnatural Doubts*, Michael Williams maintains that:

The essence of externalism...is to allow knowledge when a person in fact meets certain conditions, whether or not he knows he meets them. These conditions may be "external," not just in not being represented in the person's knowledge or beliefs, but in having to do with his actual situation. The capacity for knowledge is thus like any other capacity: it depends partly on the powers of the individual and partly on the circumstances in which he is required to exercise them Michael Williams, 1991; p. 319).

In his "Understanding Human Knowledge in General," Barry Stroud says that externalist accounts of knowledge:

...would explain knowledge in terms of conditions that are available from an "external," third-person point of view, independent of what the knower's own attitude towards the fulfillment of those conditions might be (Barry Stroud, 1989; pp. 31-50).

In his *Contemporary Epistemology*, Ralph Baergen maintains that:

...internalists perform their epistemic evaluations from the first-person point of view, taking into account only that which was available to the subject when the belief being evaluated was formed (or maintained, or revised), while externalists evaluate from the point of view of a fully informed observer—what one might call the third person point of view (Ralph Baergen, 1995; p. 9).

The importance of the distinction is emphasized by Robert Fogelin in his *Pyrrhonian Reflections on Knowledge and Justification*:

...justificatory performances come in a variety of forms ranging at the extremes from those that involve complex ratiocination to those that rely upon the unreflective use of a perceptual power or capacity. Both can be carried out in a responsible or an irresponsible manner; both can establish or fail to establish the truth of some belief. Both are sources of knowledge. Until relatively recently, philosophers have often tended to think of knowledge as solely the product of intellectual activity. The externalists have made an important contribution to epistemology by breaking the spell of this intellectualist prejudice (Robert Fogelin, 1994: p. 48).

We need to ask: "Does Goldman's causal theory constitute an "externalism"?" Not quite, I contend—his "correct reconstruction condition" seems to leave him with at least one foot in the internalist camp! As Fogelin recommends, Goldman may appear to have inclinations both ways. The central motivation for the "causal theory," however, is strongly externalist—it is the appeal to "external," "third-person," causal connections which is to overcome the Gettier problems and ensure the adequacy of the analysis of knowledge! And the issues which Goldman raises in his discussion of the various cases center upon whether the causal connections obtain, not whether the individual is aware of their obtaining. Fogelin maintains, however, that as Goldman shifts from simply demanding the existence of unbroken causal chains to demanding that the individual be able to also offer the right sort of "reconstruction," his view shifts significantly: that these are very different positions is clear because the first condition would not disbar animals from processing knowledge, whereas the second condition presumably would" (Ibid. p. 54).

12. Goldman's answers to possible objections

To those who maintain that he offers a bad analysis of the meaning of 'knowledge':

- Goldman maintains he is interested in only giving the truth conditions for knowledge. Goldman's reply to such critics above is important. The distinction between providing an analysis of the meaning of a term and providing an account of the truth conditions for the application of a term will be important as we continue through the course.

To those who complain that his analysis makes it difficult to tell whether someone knows something:

- Goldman maintains that "verification" conditions" (rather than truth conditions) are what

are important relevant to this issue, and he it is the latter he is concerned with-- thus he is not concerned with the issue of verifying whether individuals have knowledge.

- Goldman, then, is not attempting to answer the questions "What do we mean by knowledge?" or "How can we tell when we know?" Instead, he is only interested in answering the question "What is knowledge?"

To those who raise skeptical problems:

- Goldman maintains that he has not attempted to respond to skeptical problems.
- Goldman recognizes that his analysis deviates from a strong tradition in philosophy which separated questions of justification from questions of causation.

13. Criticisms of Goldman's Causal Theory

01. Ralph Bergen maintains that:

One wonders whether, if and when we do arrive at a more complete understanding of causation, the causal connections in all these cases will be found to have much in common. To put this another way, what reason have we to suppose that we'll be able to point to a single sort of causal connection (or to a single set of features of such connections) and say that these and only these suffice for knowledge? Why might it not be that the cases in which we judge a subject as having knowledge exemplify a wide range of causal stories, and that what is common to all these cases of knowledge is something other than causal origins? (Ralph Baergen, 1995: p. 115).

Baergen also goes on to criticize Goldman's theory, however, as being too strong: If, as many philosophers are inclined to think, pure sets, numbers, or possible worlds are abstract objects, Goldman's theory would not permit us to have knowledge of them; the reason for this is that such entities cannot be involved in any causation whatsoever." (Ibid., p. 119).

This critique is unfair however. As I noted at the beginning of our discussion of Goldman's essay, he explicitly limits himself to empirical knowledge claims!

In addition, Baergen notes that many believe the notion of causation is itself bankrupt, and Goldman's theory must have a response to these concerns.

02. In his "Scientific Realism and Naturalistic Epistemology," Richard Boyd maintains that:

...the issue in scientific knowledge is not the reliable production of beliefs. The reliability which scientific practice displays is not so much a matter of how beliefs are produced or even of how they are initially accepted, but of the tendency over time for beliefs to

be sustained only if they are approximately true and for beliefs to be modified in the direction of closer and closer approximations to the truth. What is at stake is reliability in the regulation of belief (over time) rather than reliability in the initial production or acceptance of particular beliefs. Indeed, I think that this will prove to be true in many cases of everyday belief as well (Richard Boyd, 1981: pp. 613 – 662).

03. Fred Dretske offers a criticism which arises out of Goldman's "lava" case. Dretske asks us to imagine two mountains, M and N, and a lava flow which comes from M but could have come from N. Of this case Dretske says the following:

In such circumstances Goldman's necessary condition is satisfied, but mine is not. (2d) is false; it is false that the lava would not be there, and distributed in this fashion unless M had erupted. For if, contrary to hypothesis, M had not erupted, N would have; leaving the very same (relevant) traces.

In such circumstances I do not think we could say that S knew that M erupted on the basis of the present existence and distribution of lava." (Fred Dretske, 1978: pp. 41 – 60).

04. In his "Epistemic Luck and the Purely Epistemic," Richard Foley maintains that:

We can criticize the person's intellectual character, or his cognitive equipment, without criticizing everything which is a product of that character or equipment. A belief can be rational even though what prompts the believer to choose his belief or what cognitive equipment causes him to have the belief regularly produces epistemic howlers. In such cases, we should admit...that the believer has been epistemic ally lucky (Richard Foley, 1984: pp. 113 – 124).

05. A number of interesting criticisms are contained in Marshall Swain's "Knowledge, Causality, and Justification." (Marshall Swain, 1972: pp. 291 – 300).

06. In his "The Gettier Problem and the Analysis of Knowledge," Keith Lehrer offers a distinction which empowers a critique of causal theories of knowing:

Lehrer distinguishes between acceptance and belief: "to accept a proposition in this context means to assent to it when one's only purpose is to assent to what is true and to refuse to assent to what is false." (Keith Lehrer, 1979: pp. 65 – 78).

He clarifies: "a person may believe something for the wrong reasons, perhaps he cannot help but do so, and, nevertheless, know that it is true because he assents to it for the right reasons." (Ibid., p. 66). Believing something [causally] because the "stars" say it is so, but assenting to it on proper epistemic grounds.

According to him, "this distinction...vitiates those causal theories of knowledge that maintain that whether a person knows something to be true depends on the causal relation between a person believing something and the fact that it is so. Belief may arise

in particular and sundry ways, but no matter how a person comes to believe something, and no matter how his belief is sustained, he may know that what he believes is true if he accepts the proposition in question on proper grounds." (Ibid).

He offers an additional criticism of causal theories:

While considering modifications of the original Nogot example, I should also like to make it clear that a very simple modification of that example suffices to defeat attempts to deal with the Gettier problem in causal terms, for example, by requiring the fact that makes a proposition a person believes true be a cause of his believing it.

14. Goldman's Revisions

In discussing Alvin Goldman's more recent views (expressed in his "Epistemic Folkways and Scientific Epistemology"), in his *An Introduction to Contemporary Epistemology*, Matthias Steup maintains that:

Goldman's new approach to the analysis of justified belief, though still reliabilist, proceeds in terms of intellectual virtues and vices. Thus Goldman is now merging two different theoretical strands: reliabilism and virtue epistemology. According to the virtue approach to the analysis of justified belief, a belief is justified if it results from an intellectual virtue and unjustified if it results from an intellectual vice....According to Goldman, intellectual virtues are cognitive processes we deem reliable, and intellectual vices are cognitive processes we deem unreliable. The criterion for discriminating between the intellectual virtues and vices, then, is that of reliability (Matthias Steup 1996: p. 170).

15. Conclusion

Alvin Goldman, once the main defender of the causal theory, formulated it as follows 'knows that p if the fact that p is causally connected in an 'appropriate' way with X's believing p.

(The above formulation obviously includes the idea that p is true ('the fact that p') and that X believes that p. It strongly suggests, contrary to Goldman's own remark that he wants to add the causal condition to the traditional analysis, that Goldman is in fact replacing the justification condition by the causal condition).

Goldman recognizes that his proposed analysis in the face of tradition. In the first place, it is entirely silent regarding skepticism. The skeptical question is just irrelevant to whether one knows, given the causal account. More importantly, it does not confine the analysis merely to "questions of logic or justification." Instead, it focuses on "causal or genetic questions." Although people did not use the expression at the time, we can say now that he is proposing an "externalist" account of knowledge.

In his later work, Goldman deserted the letter of the causal analysis, but not its spirit. In the 1979 paper, "What is Justified Belief" Goldman allowed that "principles of justified belief

must make reference to causes of belief." But rather than focus on actual "causal chains," he turned to the reliability of the processes that cause our beliefs. Thus he was one of the early advocates of "reliabilism" in epistemology, though the idea can be traced back at least to early period, when F.P.Ramsey gave an analysis of knowledge that made reliability a condition in a very brief paper entitled "Knowledge."

Notes:

01. Barry Stroud, "Understanding Human Knowledge in General," in *Knowledge and Skepticism*, eds. Marjorie Clay and Keith Lehrer (Boulder: Westview, 1989), pp. 31–50.
02. Fred Dretske, "Conclusive Reasons," in *The Australasian Journal of Philosophy*, v. 49 (1971), pp. 1 – 22. The essay is reprinted in *Essays on Knowledge and Justification*, eds. George Pappas and Marshall Swain (Ithaca: Cornell U.P., 1978), pp. 41 – 60.
03. Keith Lehrer, "The Gettier Problem and the Analysis of Knowledge," in *Justification and Knowledge*, ed. George Pappas (Dordrecht: D.Reidel, 1979), pp. 65 – 78.
04. Marshall Swain, "Knowledge, Causality, and Justification," in *Journal of Philosophy*, v. 69 (1972), pp. 291 – 300. The essay is reprinted in *Essays on Knowledge and Justification*, eds. George Pappas and Marshall Swain, op. cit, pp. 87 – 99,
05. Matthias Steup, *An Introduction to Contemporary Epistemology* (Upper Saddle River: Prentice Hall, 1996), p. 9.
06. Michael Clark, "Knowledge and Grounds: A Comment on Mr. Gettier's Paper," in *Analysis*, v. 24 (1963), pp. 46 – 48.
07. Michael Williams, *Unnatural Doubts*, (Oxford: Blackwell, 1991), p. 319.
08. Paul Grice, "The Causal Theory of Perception," *Proceedings of the Aristotelian Society supplementary*, vol. (1961), pp. 121 – 152.
09. Ralph Baergen, *Contemporary Epistemology*, (Fort Worth: Harcourt, 1995), p. 110.
10. Robert Fogelin, *Pyrrhonic Reflections on Knowledge and Justification*, (N.Y.: Oxford U.P., 1994), p. 48.
11. Richard Boyd, "Scientific Realism and Naturalistic Epistemology," in *PSA 1980 v. 2*, eds. P.D. Asquith and R.N. Giere (East Lansing: Philosophy of Science Association, 1981), pp. 613 – 662.
12. Richard Foley, "Epistemic Luck and the Purely Epistemic," *American Philosophical Quarterly*, v. 21 (1984), pp. 113 – 124.
13. Strawson, P.F, *Individuals*, (London: Methuen, 1959), p. 9.