Shawn O'Neil
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Goldman's Causal Chains

In Alvin Goldman's paper, "A Causal Theory of Knowing," the author espouses an analysis of knowledge which claims to be an alternative to the traditional analysis. This causal analysis is both more encompassing than the traditional analysis (it allows for such things as knowledge of the future), and more restricting at the same time (it discounts Gettier type examples.) In this paper I will attempt to take a closer look at the causal theory of knowledge, including examining the lava examples as given by Goldman. Further, I will analyze Edmund Gettier's second counterexample in light of the causal theory, describing why Smith does not have knowledge according to Goldman's theory, and what Smith would need in order to gain knowledge.

According to Goldman, knowledge in a belief **p** for a subject **S** is a function of a "causal chain" which connects the fact that **p** and **S**'s belief that **p**. If the causal chain is present, then **S** can be said to know that **p**. Goldman's conditions for **S** knowing that **p** are as follows:

> ***S** knows that **p** if and only if the fact that **p** is causally connected in an "appropriate" way with **S**'s believing **p**.*
>
> *"Appropriate" knowledge producing causal processes include the following:*

(1) Perception

(2) Memory

(3) A causal chain, exemplifying either Pattern 1 or Pattern 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)

["A Causal Theory of Knowing," Alvin Goldman]

Thus, according to Goldman, **S**'s belief that **p** is only knowledge if there can be constructed, in an appropriate way, a causal connection between the the fact that **p** and the belief that **p**. There are four appropriate knowledge producing causes. The first two and the fourth are relatively simple, while the third requires deeper explanation.

The first appropriate knowledge producing causal process is that of experience. If the fact that **p** causes **S**'s belief that **p** because **S** perceives the fact that **p**, then this can be said to be an appropriate knowledge producing causal process. The second such process is that of memory. If the fact that **p** causes **S** to believe that **p** because **S** remember the fact that **p**, then this also can be said to be an appropriate knowledge producing causal process.

Goldman's third type of appropriate knowledge producing process makes use of causal chains, either of type one or type two. A type one causal chain is the more straightforward of the two types. A type one causal chain is a "string" of events, the first being the fact that **p** and the last being **S**'s belief that **p**, such that each event caused the next. A type two causal chain is what I would best describe as a "tree" of events. The fact that **p** and **S**'s belief that **p** are both causally connected to a common fact **q**, such that **q** is causally connected with the fact that **p**, and **q** is causally connected with **S**'s belief that **p**.

In both of these types of causal chains, some of the “links” in the chain may be inferences made by **S**, however these inferences must be warranted. Note that these type two chains are what allow the causal theory of knowledge to allow for knowledge of the future. For example, if Smith's intending to go to the store next week both causes Jones to believe Smith will go to the store next week and causes Smith to actually go to the store next week, then this is a type two causal chain. In this chain, Jones belief that Smith will go to the store next week is causally connected to the fact that Jones goes to the store next week.

The fourth type of appropriate knowledge producing process is simply any combination of the first three types. Because causal chains would often want to use the first to types of processes as connecting “links,” Goldman specifically allows for mix and match combinations to also represent appropriate knowledge producing causal processes.

In order to present a better picture of these conditions for Goldman's analysis of knowledge, some examples would be in order. Although Goldman presents many examples in his paper, the lava examples are perhaps the easiest to understand and give the clearest interpretation of causal chains. The lava examples compare two similar situations, one of which constitutes knowledge under the causal analysis due to the type one causal chain that can be constructed, the other of which doesn't constitute knowledge because of a lack of a causal connection.

In the first example, there is a subject **S** who perceives that there is solidified lava around the countryside. **S** also has a number of various other “background”beliefs concerning the production of lava. **S**'s belief that there is lava around the countryside coupled with **S**'s background beliefs lead **S** to believe **p** - that a nearby mountain erupted many centuries ago. Next, it is assumed that this a highly warranted inductive inference, and that **p** is also in fact true. The question now posed is whether **S** can be said to know that **p**. According to the causal analysis, if a causal chain can be constructed (not

necessarily by **S**) between **S**'s belief that **p** and the fact that **p**, then **S** can be said to know that **p**.

In the first example, the objective truth of the situation is that the nearby mountain did erupt many centuries ago, which caused solidified lava to be strewn about the countryside. The strewn lava in turn caused **S** to perceive this lava, causing his belief that **p**. According to the causal theory, because there is a continuous causal chain between the belief that a nearby mountain erupted centuries ago and the fact that the nearby mountain really did erupt centuries ago, **S** can be said to know that the nearby mountain erupted centuries ago.

In Goldman's second example, the situation is almost entirely the same except for the fact that the objective truth of the situation is set up differently. In the second example, the mountain still erupts, leaving lava around the countryside. However, at some point in time a strange, perhaps disturbed lava hating man **T**, removes the solidified lava from the countryside. Then, at another point in time, some fanatical lava loving man **U** places new lava around the countryside. According to the causal theory, even though **S**'s belief in **p** (that a nearby mountain erupted centuries ago) is true, **S** cannot be said to know that **p** precisely because a casual chain cannot be constructed between the fact that **p** and the belief that **p**. The mountain in this case still leaves lava around the countryside, but this is in no way causally connected to **U**'s placing lava around the countryside, and therefore also not causally connected to **S**'s belief that a nearby mountain erupted centuries ago.

In a 1963 paper entitled “Is Justified True Belief Knowledge?,” Edmund L. Gettier gave a counterexample to the traditional analysis of knowledge (that any justified true belief constitutes knowledge.) In Gettier's counterexample, a person named Smith is justified in believing one of his coworkers, Jones, owns a Ford - because he has seen Jones drive a Ford numerous times. Further, by the principle of deductive closure, Smith comes to the justified belief **p** that Jones owns a Ford or his friend Brown is in Barcelona,

even though Smith has no idea where Brown really is. In reality, Brown is in Barcelona, making the justified belief true. The fact this is a justified true belief and is also not knowledge makes it a counterexample to the traditional analysis of knowledge.

The second lava example is rather similar to Gettier's counterexample to the traditional analysis of knowledge. At least, according to Goldman, both fail to constitute knowledge because of a lack of a causal chain. Truth of Smith belief in **p** (Jones owns a Ford or Brown is in Barcelona) is reached by Brown actually being in Barcelona – pure luck on Smith's part. While this would be a counterexample to the traditional analysis, it is not for the causal analysis. According to Goldman, because a causal chain does not connect the fact that Jones owns a Ford or Brown is in Barcelona (it is very important to note here that the factual part of the statement is Brown being in Barcelona) and the corresponding belief, Smith does not have knowledge of the belief.

Having this more limiting (at least in the case of Gettier examples) theory of knowledge in mind, it might be asked how Smith could come to know that Jones owns a Ford or Brown is in Barcelona. As noted above, the lack of a causal chain connecting the fact (Brown is in Barcelona) with the belief (Jones owns a Ford or Brown is in Barcelona) is what disqualifies it from being knowledge, so all that is necessary is to construct an example where the chain is present. Brown's being in Barcelona must somehow have caused (or caused a chain of causes which in turn caused) Smith's belief. Possibly Brown sends Smith a postcard from Barcelona; any number of causes would suffice, so long as the fact and the belief are connected.

Because Goldman's causal theory of knowledge is very complex, I have not covered it here beyond it's relation to the Gettier examples and a basic understanding of causal chains. Goldman's theory is very encompassing; as was stated in the beginning of this paper it is even more encompassing (in some ways) than the traditional analysis. Controversial points include allowing for knowledge of the future. Nevertheless, the

causal theory of knowing both seems clearer and more exact in its description of knowledge, and has the added benefit of discounting Gettier type examples.