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JUSTIFICATION and RELIABILITY

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ABSTRACT

In "What Is Justified Belief?" Alvin I. Goldman argues that a belief is justified if and only if it is produced by a reliable belief-forming process in the absence of an undermining reliable cognitive process. That is, a belief is justified if and only if it is an outcome of a reliable cognitive process such as a standard perceptual process, remembering, and introspection, and there is no undermining reliable cognitive process. In this article, I argue that the reliability of a belief-forming process is neither a necessary nor a sufficient condition for justification of a belief. What is crucial for justification is the reliability of a belief-checking process and evidence rather than the reliability of a belief-forming process.

Key Words: Justification, belief, externalism, evidence, internalism, knowledge, reliabilism.

ÖZET
Gerekçelendirme ve Güvenilirlikçilik

"Gerekçelendirilmiş inanç nedir?" adlı yazısında Alvin I Goldman, bir inancın, ancak ve ancak karşıt bir güvenilir bilişsel süreç yokluğunda, güvenilir bir inanç- oluşturma sürecinde üretilmişse gerekçelendirildiğini tartışmaktadır.Yani, bir inanç ancak ve ancak standart bir algı süreci, hatırlama ve içe bakış gibi güvenilir bir bilişsel sürecin ürünü ise gerekçelendirilmiş sayılır.

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Bu makalede bir inanç- oluşturma sürecinin güvenilirliğini bir inancı gerekçelendirilmiş saymak için ne gerekli ne de yeterli bir koşul olduğunu tartışmaktayım.Gerekçelendirme için olmazsa olmaz koşul, bir inanç- oluşturma sürecinin değil, bir inancının doğruluğunun kontrol edildiği bir sürecin güvenilirliği ve kanıtıdır.

Anahtar Kelimeler: *Gerekçelendirme, inanç, dışsalcılık, kanıt, içselcilik, bilgi, güvenilirlikçilik.*

I

One of the most important developments in epistemology during the last decades has been a change in emphasis from justifying reasons to the reliability of various belief-forming processes. Reliabilism was an attempt to solve the Gettier problem[1] by replacing the justification condition in the classical conception of knowledge as justified true belief. According to reliabilism, to be justified a belief must be produced by reliable processes, which are reliable in the sense that it is more likely for such processes to produce a true belief than a false belief (Swain 1981, pp. 389-407; Goldman 1979, pp. 1-24). A typical trait of reliabilist epistemologies is that true beliefs at times count as genuine knowledge for these epistemologies even where the justification condition of the traditional analysis of knowledge is not met.

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[1] According to the traditional analysis of knowledge, propositional knowledge, which has the form "*S* knows that *P*" where *P* stands for a declarative sentence expressing some proposition, has three necessary and jointly sufficient conditions: justification, truth and belief. In his paper "Is Justified True Belief Knowledge," Edmund Gettier showed that there are cases of justified true belief that are not cases of knowledge and thus the traditional analysis of knowledge is wrong. Gettier suggests two cases in which a person has justified true belief but lacks knowledge. The common pattern in both cases is this: A person, *S*, justifiably believes *P* (which happens to be false) and bases his belief in *Q* (which happens to be true) on *P*. Since *P* logically implies *Q*, and *S* knows it does, *S* has good resons for believing *Q*. But, Gettier notes, *S* does not know that *Q*. In each case, even though *S* has a justified true belief in *Q*, *S* does not know *Q*. So knowledge cannot be defined as justified true belief. See Edmund L. Gettier, "Is Justified True Belief Knowledge?" *Analysis* 23 (1963): 121-23.

Reliabilism is a sort of epistemological externalism.[2] It claims that paradigmatic instances of true beliefs are those that are outputs of reliable belief-forming processes, irrespective of the capacity of the cognizer to justify the belief. More specifically, the cognizer's ability to provide reasons or his awareness of the reasons for his beliefs is neither necessary—as the cognizer may reasonably trust on false reasons—nor sufficient—as certain beliefs such as perceptual beliefs can be justified even though the cognizer lacks reasons for the justification of his perceptual beliefs. What justifies a belief for a reliabilist such as Alvin I. Goldman is its being produced by a reliable belief-forming process in the absence of an undermining reliable cognitive process (Goldman 1979, p. 20). However, the reliability of a belief-forming process is, I argue, neither a necessary nor a sufficient condition for justification for the reasons stated below.

Internalist theories of knowledge, in contrast to externalist theories, require that a cognizer have awareness of whatever renders his belief justified. That is, for internalist theories, all of the factors necessary for a belief to be justified must be cognitively accessible—known or experienced by—the knower and hence internal to the knower's mind. In his "Externalist Theories of Empirical Knowledge," Laurence BonJour presents a through criticism of externalism (1980, pp. 53-73; 2000, pp. 178-98). He maintains that any adequate account of knowledge cannot fail to ignore the requirement that beliefs that constitute knowledge must be epistemically justified (2000, p. 178). That is to say, any belief satisfying this requirement must be inferentially justified by other beliefs.[3] I think BonJour is on the

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[2]   According to externalism, some of the justifying elements may be external to the subject's cognitive perspective. That is, some of the facts that make a true belief knowledge may be unknown to the knower. While externalism is a negative thesis, as it denies that justification and knowledge are totally internal, reliabilism is a positive approach arguing that what turns a belief into knowledge is the reliability of its linkage to the facts. What makes reliabilism an externalist view is the absence of any condition that the subject has any sort of cognitive access to, any appraisal of the relation of reliability, which makes a belief knowledge.

[3]   BonJour maintains that the most obvious way of indicating that a belief is justified is to provide a justificatory argument in which the belief to be justified follows inferentially from some other belief, which gives in this way a reason for accepting the belief to be justified. His criticism of foundationalism with respect to the justification of basic beliefs reveals the reasons of his emphasis on inference: "... if basic beliefs are to provide a suitable foundation for empirical knowledge, if inference from them is to be the sole basis for the justification of other empirical beliefs, then that feature, whatever it may be, in virtue of which an empirical belief qualifies as basic must also constitute an adequate reason for

right track in his attack. What is crucial for justification of a belief is not its being formed through reliable cognitive processes; rather, it is evidence adduced to support the belief. Nevertheless, like many internalists BonJour seems to neglect the fundamental role of the reliability of cognitive processes in justification. As Gettier's counterexamples have shown, evidence by itself may not be sufficient for having knowledge. In effect, Goldman's reliabilism is an attempt to overcome the difficulties encountered in the traditional analysis of knowledge. But the overemphasis he puts on the reliability of belief-forming processes makes his account as problematic as the theories of knowledge whose stress primarily is on evidence. In this paper, I shall try to synthesize some positive aspects of reliabilism and internalist theories, as an initial attempt to establish a new and a firm foundation for the analysis of knowledge. I argue that the point of emphasis in justification of a belief must be shifted from the reliability of a *belief-forming* process to the reliability of a *belief-checking* process. A belief may be formed through perceptual processes, memory, etc. which are completely defective. What is necessary for justification is not the reliability of the way a belief is formed, but rather the reliability of the way a belief is checked out for proving its truth or falsity. For instance, a color-blind person may believe that the leaves of a tree in his garden, which are in fact green, are red. Now what is significant for justification is not the reliability of his visual processes in coming to hold the belief about the color of the leaves of the tree. Rather, what is required for justification is the reliability of the perceptual processes of the person who checks out whether the leaves of the tree are actually red. Though the reliability of belief-checking processes is necessary however, it is not sufficient for justification. In the absence of evidence for the reliability of the relevant belief-checking processes and evidence for a belief, justification can barely be said to be complete. While remaining mostly silent on the requirement of evidence for justifying a belief, some externalists attempt to accommodate their formulation of reliabilism by conceding the need for some reason for believing that a

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thinking that the belief is true. And now if we assume, plausibly enough, that the person for whom a belief is basic must *himself* possess the justification for that belief if his acceptance of it is to be epistemically rational or respınsible, and thus apparently that he must believe *with justification* both (a) that the belief has the feature in question and (b) that beliefs having that feature are likely to be true, then we get the result that this belief is not basic after all, since its justification depends on that of these other beliefs. See Laurence BonJour, "Externalist Theories of Empirical Knowledge," *Midwest Studies in Philosophy* 5 (1980): 53-73; reprinted in Sven Bernecker and Fred Dretske (eds), *Knowledge: Readings in Contemporary Epistemology* (Oxford: Oxford University Press, 2000), p. 180.

cognitive process is reliable. In this essay, I shall focus on Goldman's attempt to provide a theory of justified belief along with these lines.

II

In "What Is Justified Belief?" Goldman offers a theory of justified belief. Before stating his theory, he mentions some constraints he adopts in developing his theory. The principle for justification that is to be developed must be expressed in non-epistemic terms such as "believes that," "is true," "causes," and "is probable," according to him (1979, p. 1). In addition, a theory of justified belief should state not only necessary and sufficient conditions for justified belief but it also must be explanatory. That is, the theory should explain why a person who believes p believes p justifiably (1979, p. 2). His thesis is that a justified belief obtains its justification from some justification-conferring processes, which are standard perceptual processes, remembering, good reasoning and introspection. That is, a belief is justified if and only if it is produced by a reliable process, and there is no any other reliable process undermining the reliability of the belief-forming process in question (1979, p. 20).

Goldman conceives of reliability as a tendency. The notion of reliability applies to persistent and repeatable types of mechanisms such as a visual system. He attempts to develop a principle based on the notion of *conditional reliability*, according to which a process is *conditionally reliable* "when a sufficient proportion of its output-beliefs are true *given that its input-beliefs are true*" (1979, p. 13). He further introduces the notions of *belief-dependent* and *belief-independent* cognitive processes. Whereas *some* of inputs in belief-dependent processes are belief-states,[4] *none* of inputs of belief-independent processes are belief-states. Accordingly, he suggests the following base-clause and recursive-clause principles:

> (1_A) If S's belief in p at t results ('immediately') from a belief-independent process that is (unconditionally) reliable, then S's belief in p at t is justified.

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4   Though it is not so clear what Goldman means by "belief-states," the distinction he has made between belief-dependent and belief-independent processes suggests that by "belief-states" he possibly means the mental states of a certain believer in believing something.

(1_B) If *S*'s belief in *p* at *t* results ('immediately') from a belief-dependent process that is (at least) conditionally reliable, and if the beliefs (if any) on which this process operates in producing *S*'s belief in *p* at *t* are themselves justified, then *S*'s belief in *p* at *t* is justified (1979, p. 14).

The theory says that a belief is justified if and only if it is produced by reliable and/or conditionally reliable cognitive processes such as standard perceptual processes, remembering, good reasoning, and introspection.

An immediate problem with Goldman's analysis is its vagueness as to whether one has a reason to believe that a belief-forming process is reliable. That is, for a belief to be justified *S* has to have a reason for believing that his cognitive processes are reliable. Even if *S*'s belief is caused by a reliable belief-forming process, if he has no reason to believe that it is, then his belief is unjustified. "Worse yet," Goldman says, "suppose *S* has reason to believe that his belief is caused by an *un*reliable process (although *in fact* its causal ancestry is fully reliable). Wouldn't we deny in such circumstances that *S*'s belief is justified?" (1979, p. 18). He then goes on to provide the following example in order to show the necessity for a justification condition for the reliability of a cognitive process. Suppose that Jones's parents—a fully reliable authority—tell Jones a false story that Jones suffered from amnesia when he was seven years old and later he developed pseudo-memories of that period. Even though Jones has a reason to trust his parents, he persists in believing the memories from his seven-year-old past. Jones's memory beliefs seem to be justified according to Goldman's proposal because these beliefs arise from genuine memory and original perceptions, which are reliable (1979, p. 18). Since the actual reliability of a belief-forming process is not enough for justifiedness and since "the cognizer must be *justified in believing* that the ancestry of his belief is reliable," Goldman attempts to revise (1_A) as follows:

(2) If *S*'s belief in *p* at *t* results from a reliable cognitive process, and there is no reliable or conditionally reliable process available to *S* which, had it been used by *S* in addition to the process actually used, would have resulted in *S*'s not believing *p* at *t*, the *S*'s belief in *p* at *t* is justified (1979, p. 20).

Accordingly, Jones, who had strong evidence against some of his beliefs regarding his past, would stop believing them if he were to follow (2). He

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"failed to do something which, epistemically, he should have done" (1979, p. 20). Thus, Goldman completes his account of justified belief.

III

The revised formulation in (2) bases justification primarily on negative evaluation. It suggests that *S* is justified in his *p*-belief if and only if *S*'s *p*-belief is not undermined by a belief-forming process. What is intuitively necessary for justification, however, is a positive evaluation of a belief-forming process. *S* must be positively justified in believing that his belief is reliably formed. This is because being justified in holding a certain belief relies on how rational and "epistemically responsible" *S* is in coming to holding the belief, and this requires some positive evidence for the reliability of a belief-forming process. Among those who support a positive reason requirement is, for instance, Laurence BonJour. He argues for the necessity of some positive reason using the following example:

> Norman, under certain conditions which usually obtain, is a completely reliable clairvoyant with respect to certain kinds of subject matter. He possesses no evidence or reasons of any kind for or against the general possibility of such a cognitive power or for or against the thesis that he possesses it. One day Norman comes to believe that the President is in New York City, though he has no evidence either for or against this belief. In fact, the belief is true and results from his clairvoyant power under circumstances in which it is completely reliable (1985, p. 41).

According to BonJour, Norman is not justified in believing that the President is in New York City although his belief is reliably formed, and there is no undermining reliable process for his belief-forming process. Since Norman fails to be justified in believing that his belief is reliably formed, reliability, even along with there being no undermining belief-forming process, is not sufficient for justified belief. One must have some positive reasons, i.e., one must be justified on the basis of some positive argument in believing that one's belief is reliably formed.

It is tempting to appeal to introspection in order to avoid this difficulty. If *S*'s *p*-belief is reliably formed, *S* will have some positive evidence to believe that it is reliably formed. By inspecting his past experiences concerning the relevant belief-forming processes, *S* can positively check out their reliability. In effect, Goldman makes use of this line of reasoning in his reply to BonJour:

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BonJour describes this case as one in which Norman possesses no evidence or reasons of any kind for or against the general possibility of clairvoyance, or for or against the thesis that he possesses it. But it is hard to envisage this description holding. Norman *ought* to reason along the following lines: 'If I had a clairvoyant power, I would surely find *some* evidence for this. I would find myself believing things in otherwise inexplicable ways, and when these things were checked by other reliable processes, they would usually check out positively. Since I lack any such signs, I apparently do not possess reliable clairvoyant processes (Goldman 1986, p. 112).

Accordingly, one might find some evidence to be justified in believing that his belief was reliably formed if he checked out his past experiences relevant to the belief-forming process in question by another reliable cognitive process. Since Norman lacks such evidence, he fails to be justified in believing that clairvoyance is a reliable process. Thus, what Goldman has in mind in his reply to BonJour must be something like the following revised formulation of (2):

(3) If S's belief in p at t results from a reliable cognitive process, and S believes at t that his p-belief is reliably formed, and this meta-belief results from a reliable process, and there is no reliable or conditionally reliable process available to S which, had it been used by S in addition to the process actually used, would have resulted in S's not believing p at t, then S's belief in p at t is justified.[5]

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[5] It might be argued that in BonJour's counterexample, introspection is the reliable undermining process, which Norman has failed to use, and thus he is unjustified in his belief resulting from clairvoyance. That is, Goldman can defeat BonJour's objection without revising his original formulation. But such an argument misses an important element of justification, which is evidence—the main point of BonJour's criticism. That there is a reliable undermining process for Norman makes sense only if the process includes some undermining evidence. Introspection by itself is not an undermining process; it becomes undermining only if the evidence or its input-beliefs undermine the reliability of clairvoyance. Since there is no such evidence—Norman lacks evidence for clairvoyance but also lacks evidence against clairvoyance—introspection can hardly be regarded as the reliable undermining process in this instance.

That is to say, S is justified in believing that his p-belief results from a reliable process if his meta-belief is caused by a reliable process. Nonetheless, this reply does not remove the difficulty at issue. Even if Norman finds some positive evidence for the reliability of clairvoyance, he has no reason to believe that the process by which he checks out the reliability of clairvoyance is itself reliable. Norman's memory might be defective, unbeknownst to him, and upon inspecting his past experiences, he might mistakenly believe that clairvoyance is generally a reliable process. The plausibility of Norman's being mistaken about the reliability of his belief-forming process for his meta-belief requires another reliable process, whose reliability has to be checked out by another reliable process for the satisfaction of the justification requirement. To iterate the same reasoning gives, thus, way to the problem of regress of justification. To avoid the regress problem, Goldman might revise (2) as follows:

> (4) If S's belief in p at t results from a reliable cognitive process, and S believes at t that his p-belief is reliably formed, and this meta-belief results from a reliable process, and S has good grounds for the reliability of the process, and there is no reliable or conditionally reliable process available to S which, had it been used by S in addition to the process actually used, would have resulted in S's not believing p at t, then S's belief in p at t is justified.

Goldman precludes the appearance of epistemic terms like "justified," "warranted," "has (good) grounds," and "knows that" in the antecedent of a base-clause because the appearance of such terms in the base-clause would be illegitimate. Given his assumption that the appearance of epistemic terms such as "has good grounds" is illegitimate in the antecedent of the base-clause, this formulation is once again unacceptable within the framework of Goldman's reliabilism. Briefly, to concede the need for some positive evidence for justification leads Goldman either into the problem of a troubling regress or into an inconsistent position.

Admittedly, Goldman might insist that there is no need for positive evidence for having a justified belief. But to say that a reliably formed belief is justified only if there is no undermining process is to make justification too weak; it prepares the ground for accepting unjustified beliefs as justified, such as, for example, Norman's belief that the President is in New York City. A reliable process with incorrect or inadequate inputs produces false beliefs or weakly supported beliefs. He might add the adequacy and reliability of inputs as a requirement into his account but this would be a

confession of the inadequacy of the reliability of a cognitive process for the justification of a belief. That is, it amounts to saying that the reliability of a belief-forming process by itself, even in the absence of an undermining reliable process, is not sufficient for justification.

In addition, without having some positive evidence for the reliability of a process, one can scarcely check out whether the process at issue is reliable or not. The absence of an undermining process is in its own right inadequate to justify the reliability of a belief-forming process. Suppose that a color-blind person, Ms. Visue, undergoes a brain surgery, and after a device has inserted in her brain, her visual system becomes intact. Imagine also that she has no idea that the device has been inserted in her brain, and after the surgery she has a complete loss of her past memories. As a result, she sees red as red, green as green, and so on. Is she justified, however, in believing that the tree she sees is green? The answer is rarely in the affirmative. Her belief about the color of the tree is correct but she does not know that her belief is correct. She has no idea why she has this belief although her beliefs about colors are almost always correct, i.e., there is no reliable undermining process for her beliefs about colors.

IV

Even if we ignore the difficulties Goldman faces with in incorporating the requirement of some positive evidence into his account, still his account of justification encounters serious problems. Goldman's reply to BonJour's objection presupposes that the cognizer already has some evidence for the reliability of his belief-forming process. Accordingly, what justifies the cognizer in his belief about the reliability of a belief-forming process is the cause or the input-beliefs of the process by which he checks out the reliability of his first-order belief-forming process. But this is a confusion of the reason he has for his belief with the cause of his believing it. Sometimes, the evidence by which one is justified in his *p*-belief causally explains the belief; but sometimes, a belief is justified independently of its cause. Suppose that a scientist finds a mathematical equation on the relation between temperature, pressure, and volume of some gases while dreaming. Imagine that after awaking, he comes to believe in the alleged relation expressed in the equation and goes on to check out whether his belief actually matches the facts in his laboratory. Suppose further that upon his experiments, he firmly establishes the equation in question as a law of nature. In this case, the reasons that justify his belief do not causally explain his belief. The belief is the result of a dream; but it is confirmed by reasons, which provide justification for his belief. Even though his belief may have

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something to do with his background and a reliable cognitive process, the evidence based on such experiences is incidental to justification; he may not have such evidence at all. As Keith Lehrer accurately puts forward:

> The explanation for the belief may rest on political, erotic, or other extraneous influences, but the explanation of how a person knows that his belief is true, when the justification of his acceptance of the belief is based on evidence, must be in terms of the evidence. It is how a person knows what is explained by evidence that justifies his acceptance of it. Why he believes what he does may be explained by almost anything. Justification for acceptance of a belief that is known to be true is based on specific evidence if and only if his having that evidence explains how he knows that the belief he accepts is true. The evidence explains how the person knows, moreover, if and only if the evidence justifies the person's acceptance of the belief (2000, p. 198).

That is to say, it is not necessary that a reason causally explains the relevant belief in order to justify it. In other words, the reliability of a *belief-forming* process is *not a necessary condition* for justification. A belief might result from a totally unreliable process;[6] what is conclusive for justification is the evidence, which might be brought forth to justify the belief after one already and independently of the evidence at issue possesses that belief.

Furthermore, what is essential for justification is *trustworthiness* of evidence rather than the reliability of a belief-forming process. That is to say, evidence must be correct to justify the related belief. If the evidence S has justifies his p-belief, then the evidence provides a reason to S in explaining rationally how he knows that p is true. Suppose that although the scientist's visual and all other relevant cognitive processes are reliable, the

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6   Richard Foley also denies the necessity of reliability of belief-forming processes for epistemic rationality but the argument he provides for the rejection of reliability as a necessary condition for epistemic rationality is separate from the one presented here. He argues that reliability is not a necessary condition for epistemic rationality because it is possible that more of what one believes through one's cognitive processes to be false than to be true. That is to say, if mere confidence or belief in the reliability of cognitive processes is adequate, then the requirement that most beliefs produced by cognitive processes must be true to be accepted as reliable is unnecessary. See Richard Foley, "What's Wrong with Reliabilism?," *The Monist* 68 (1985): 188-202; reprinted in Bernecker and Dretske (eds), *Knowledge*: *Readings in Contemporary Epistemology*, (Oxford: Oxford University Press, 2000), p. 172.

thermometer by which he measures the temperature of gases, unbeknownst to him, is inaccurate. Suppose further that the barometer he employs is also inaccurate, unbeknownst to him, and the errors in the results of his readings the thermometer and the barometer cancel one another in his calculations such that the hypothesis he has tested is confirmed because of the evidence obtained by means of these devices. Is his hypothesis about the relation between temperature, pressure, and volume of gases justified in this case? The answer is in the negative because the evidence is untrustworthy. What this example shows is that even if the reliability of some processes—cognitive, methodological, heuristics—is relevant to justification, it is crucial at the stage of checking the truth or falsity of the relevant belief rather than at the stage of forming the belief. Trustworthiness of evidence depends on the reliability of the processes through which the evidence is gathered.[7]

Even a person's provision of some trustworthy evidence in its own right is inadequate to justify him in his *p*-belief in some cases; the reasons he provides must be good ones.[8] If his evidence is weak or only remotely

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[7] In effect, Goldman's distinction between primary justifiedness and secondary justifiedness implies that he has a proposal in line with this argument. He thinks that justifiedness chiefly depends on reliable psychological processes or native cognitive apparatus rather than on acquired techniques, heuristics, learnable methodologies, etc.; however, for full justifiedness it may be necessary to use both "approved processes" and "approved methods." See Goldman, *Epistemology and Cognition*, (Cambridge: Harvard University Press, 1986), p. 93. Such a solution faces new difficulties, nevertheless. First, such a requirement would be too strong in that it could exclude some clear cases of justification just because justification occurs under inaccurate circumstances. More important, it encounters the generality problem. That is, the specification of the relevant type of reliable processes is to be a serious obstacle on the way of such a solution. For a thorough discussion of the generality problem see R. Feldman, "Reliability and Justification," *The Monist* 68 (1985): 159-74. I think, however, that none of these problems is insurmountable. The point is that instead of trying to establish justification on the basis of a much more problematic notion—namely the reliability of belief-forming processes—dealing with the problems surrounding the role of belief-checking processes in justification would locate the issue in its correct framework and help us better understand the complicated problems of justification.

[8] Along the similar lines, William P. Alston underlines the adequacy of evidence for the belief to be justified: "Not every grounded belief will be justified, but only one that has an *adequate* ground." In "An Internalist Externalism," *Synthese* 74 (1988): 265-83; reprinted in Bernecker and Dretske (eds), *Knowledge: Readings in Contemporary Epistemology*, (Oxford: Oxford University Press, 2000), p. 217. An adequate ground for a belief, according to Alston, is the one

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related to the issue, then its support for the belief in question will also be weak and as such insufficient to justify the belief conclusively. Suppose that the scientist, mentioned above, carries out the experiments by using noble gases only. Suppose also that the devices he employs are accurate, and the results of his measurements confirm his hypothesis. Imagine, however, that the equation he suggests does not perfectly fit the relation between temperature, pressure, and volume of all gases. Since his evidence is based only on noble gases, his hypothesis, as an allegedly universal law for all gases, is weakly confirmed. If he has carried out the experiments by various sorts of gases, and the evidence thus obtained matched his hypothesis, the support of the evidence would be greater. Briefly, mere reliability of one's cognitive processes for one's p-belief is insufficient to justify p; in some cases, evidence must be good in order for the justification of the belief at issue to be complete or sufficient.

V

Goldman's claim that if a belief is caused by the fact that p, then it is justified might be accepted as a general analysis of perceptual knowledge. But not all sorts of knowledge are perceptual and singular. We have general knowledge such as "When heated, all metals expand." A scientist might have this belief as a result of a reliable perceptual process by observing some metals without doing any experiment. But the reliability of the process is almost irrelevant for the justification of the belief. To show that the belief is a confirmed one, he has to design scientific experiments, which are inter-subjectively testable. It is the evidence resulting from these experiments that justifies the belief rather than the reliability of his perceptual process.

Goldman might argue that still reliability is necessary for confirming the belief while doing experiments. He might maintain that trustworthiness of evidence rests on the reliability of the process producing the evidence. If the scientist's cognitive processes are unreliable, the evidence he brings forth will not be trustworthy. If he made a mistake in his calculations, had problems with his visual processes, and so on, the evidence resulting from his experiments would hardly count as good evidence. That is to say, if the evidence is produced by unreliable processes, its support for the hypothesis becomes dubious. In effect, the inter-subjective testability of experiments is nothing but a requirement for reliability; for inter-subjective testability is just a caution to prevent pseudo-confirmations on the basis of unreliable

that renders the objective probability of the belief's being true very high. Ibid., p. 218.

processes. What is assumed by this requirement is that it is unlikely that all scientists have unreliable cognitive processes.

Note, however, that in this case the reliability of cognitive processes is necessary to *check out* whether the outcomes of the experiments fit the hypothesis at issue; there is no requirement for the reliability of *belief-forming* processes. As such, *belief-forming* processes might be distinguished from *belief-checking* processes. A belief may be formed by virtue of entirely unreliable processes such as dreaming, hallucinating, etc. The crucial point for the justification of a belief is not the reliability of some perceptual processes and/or memory in coming to hold the belief. What is required for justification is the reliability of those processes by means of which the evidence for the belief is produced. If a thermometer used in a laboratory does not work appropriately and/or the scientist who reads the thermometer has some visual defects, then the evidence based on these readings hardly justifies the scientist's empirical claim, which has been tested. The reliability of cognitive processes in checking out the truth of a belief, i.e. the reliability of *belief-checking* processes, is not adequate for justification, however. What is crucial for justification is evidence. The hypothesis "When heated, all metals expand" is confirmed on the basis of the results of measuring the expansion of metals rather than on the basis of the reliability of the experimenter's cognitive processes solely. If the results obtained do not match the hypothesis, however reliable the process producing these results is, the hypothesis will not be confirmed.

In sum, Goldman's concept of justification is too vague to meet the internalist challenge. Justification merely on the basis of the reliability of some cognitive processes does not satisfy the demand for justification put on an account of knowledge. In order to correspond to the internalist objection, Goldman needs to give up some of the constraints he imposed on his theory and revise the base-clause accordingly. Even in that case, however, reliability is not sufficient for justification. Without knowing the particular reasons for the subject's belief, it becomes hardly plausible to judge whether he is justified in his belief[9].

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