

## Near Triviality of Conclusive Reasons

### Abstract

The purpose of this paper is to examine a version of externalist epistemology based on the notions of "conclusive reasons" and "decisive indicators", and to decide whether it is a viable option. There are some good points to be taken from existing criticisms of this position, but my judgment is that they fail to block an extreme externalist reply suggested by Suppe. However, at the same time, I show that almost any pair of experiential state and belief can meet the condition of conclusive reasons (or decisive indicators) using stronger counterexamples. Thus, these notions are nearly trivial, and the version of externalism based on these notions is unattractive.

In the last three decades, increasing number of epistemologists has adopted an externalist position. Externalism is the view that what makes true belief knowledge (i.e. a warrant for knowledge) is a certain relationship of which the cognizer herself may not be aware. However, as for the nature of the relationship, there is a wide range of disagreements among externalists. Some think what is important is the reliability of the process used, and others believe that a stronger condition is required for a warrant.

As a recent addition to the literature, Frederick Suppe proposed a version of non-reliabilist externalism based on the notion of decisive indicators, a refinement of the notion of conclusive reasons by Fred Dretske (Suppe 1993; Suppe 1997). The purpose of this paper is to examine this line of analysis, and to decide whether it is a viable option. Even though the 'conclusive reasons' analysis of knowledge can reply to many existing criticisms, I believe that it has a serious flaw and that it fails in giving a plausible account of knowledge.

In this paper, first I explain the notions of conclusive reasons and decisive indicators explained by Dretske and Suppe (section 1). Their analyses are fairly close, and they can be lumped together as the 'conclusive reasons' analysis of knowledge' (CRAK). Second, I look at some of the existing counterexamples to CRAK, and consider whether they succeed (section 2). There are some good points to be taken in these counterexamples, but my judgment is that they fail to block an extreme externalist reply suggested by Suppe. To preclude such a move, I develop stronger counterexamples to CRAK (section3). Basically my counterexamples push the circumstances C (an important part of CRAK) to the limit and

show that almost any pair of experiential state and belief can meet the condition of conclusive reasons (or decisive indicators) under such C. The result is summarized as the Near Triviality Thesis (NTT) on CRAK. CRAK does not have effective means to rule out such extreme C. The arguments have consequences not only for Suppe's straightforward version of CRAK, but also for Dretske's slightly mild version.

## 1. The notion of conclusive reasons

### 1-1. Dretske's notion of conclusive reasons

Let us begin with looking at Fred Dretske's analysis of conclusive reasons. This notion was introduced in his classic Seeing and Knowing (Dretske 1969, p. 124) and developed in a later paper, "Conclusive reasons" (Dretske 1971). In this paper I mainly refer to the more developed version. According to this version, R is a conclusive reason for believing that P if and only if the following CR1 is satisfied:

(CR1) R would not be the case unless P were the case.

This notion is closely related to the notion of knowledge. Dretske argues that "S knows that P and he knows this on the basis (simply) of R" entails "R would not be the case unless P were the case" using various cases (Dretske 1971, pp. 2-12). Let us look at one of his examples to see what he means. Suppose that S correctly believes that his child's temperature is normal (i.e., the child has no fever) based on a reading of a thermometer. Now compare the following statements (Dretske 1971, p. 2):

(1) S knows that his child's temperature is normal, and he knows this on the basis of the (normal) reading of the thermometer (which he has just placed in the child's mouth, etc.).

(2) The thermometer would not have read 98.6F unless the child's temperature was normal.

Dretske asks the reader if one can consistently affirm (1) and deny (2). What he finds is that grounds for rejecting (2) (say, the thermometer's malfunctioning) serves as grounds for rejecting (1) at the same time. That is, if (2) does not hold, S does not know that his child's temperature is normal. Here, if (2)

holds, by definition, R (i.e. the thermometer's reading 98.6F) is a conclusive reason for P (i.e. the child's temperature is normal); and certainly it seems to be the case that R's being a conclusive reason is a necessary condition for S's knowing.

There are a few things to be noted here. First, the word "reason" seems to suggest that the reason is used by the cognizer to justify her belief, but Dretske consistently refuses this interpretation of "reason" (Dretske 1969, pp. 126-139; Dretske 1971, pp. 14-15). Dretske claims that the cognizer needs to be aware of the state of affair that constitutes the conclusive reason (e.g., the reading of thermometer), but need not be aware of the relationship that makes the state of affairs a conclusive reason (e.g., the relationship stated in (2)).

Second, the relationship depicted in (2) presupposes certain background conditions. In Dretske's own words, "the uniformity in question concerns the relationship between states similar to R and P under a fixed set of circumstances. Whenever (a state such as) R in circumstances C then (a state such as) P where the circumstances C are defined in terms of those circumstances that actually prevail on the occasion of R and P" (Dretske 1971, pp. 8-9. emphases in original). It is important to note that we cannot include anything we like into C (if it is allowed, CR1 can be made true almost vacuously). One requirement suggested by the quote is that the conditions to be included are fixed and prevalent for R and P. Let us call this the prevalence requirement. There is an important addition Dretske makes to this requirement in his argument of the thermometer case; that is, "this fixed set of circumstances includes the actual state of the thermometer (defective or accurate)" (p.9; emphasis in original). To put in a more general way, he seems to be suggesting that actual circumstances are regarded as "fixed". Since this can be seen as a distinct requirement, this could be called the actuality requirement. He also adds that the circumstances are "logically and causally independent of the state of affairs expressed by P" (p. 11). Let us call this the independence requirement. The independence requirement is introduced to avoid the situation in which P is made true simply by virtue of background circumstances C. Thus, we have three requirements for descriptions to be included in C: the prevalence requirement, the actuality requirement, and the independence requirement. Given the importance of C for the notion of conclusive reasons, it is reasonable to redefine the notion of conclusive reasons as Pappas and Swain do (Pappas and Swain 1973, p.73):

(CR2) In circumstances C, R would not be the case unless P were the case.

According to the above definition, R can be a conclusive reason for believing that P even if nobody actually believes that P. However, it is implausible that a person knows that P if he does not believe that P. Thus Dretske introduces the notion of "having a conclusive reason", and gives the following formulation (Dretske 1971, pp 12-13. emphases in original) :

(CR3) S has conclusive reasons, R, for believing P, if and only if

(A) R is a conclusive reason for P, i.e., R would not be the case unless P were the case.

(B) S believes, without doubt, reservation or question, that P is the case and he believes this on the basis of R.

(C) (i) S knows that R is the case, or

(ii) R is some experiential state of S (about which it may not make sense to suppose that S knows that R is the case; at least it no longer makes much sense to ask how he knows).

We have to be careful about the relationship between knowing and having a conclusive reason. At first, Dretske says, "with only minor embellishments, ..., I believe that S's having conclusive reasons for believing P is both a necessary and a sufficient condition for his knowing that P is the case" (p.13). However, later in the same paper, he admits that there are serious difficulties in regarding having the conclusive reason as a sufficient condition for knowledge (p.20).<sup>1</sup> Thus, even though there is a room for different interpretations on the actual position Dretske takes in this paper, it is safer if we say that Dretske is committed to the view that having a conclusive reason is a necessary condition for knowledge, without clear commitment to the sufficient condition side.

1-2 Suppe's notion of decisive indicators

Dretske's ideas were recaptured recently by Suppe in the context of the philosophy of science, under

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<sup>1</sup> William Boardman's criticism of Dretske, discussed later in this paper, is based on the assumption that Dretske regard having a conclusive reason is not only necessary but also sufficient condition of knowledge (Boardman 1978). It is true that some passages (like the one quoted here from p. 13 of his book) support this interpretation, but overall his position on this issue is unclear.

the name of "decisive indicators". Suppe has several different formulations for the notion, but let us use what he calls the 'Ur' version (Suppe 1993, pp. 158-159).<sup>2</sup> His analysis of knowledge, in this version, goes as follows:

(DI) S knows that P if and only if

i. S is in an experiential state R;

ii. S believes that P, and being in the experiential state R is a cause of that belief;

iii. The circumstances are such that there is a C descriptive of actual circumstances (including both the presence and absence of various factors) such that

$\sim \langle c \rangle (C \ \& \ R \ \& \ \sim P) \ \& \ \langle c \rangle (C \ \& \ \sim P) \ \& \ \langle c \rangle R$

is true.

Here, "C descriptive of actual circumstances" denotes a set of descriptions which depicts appropriate aspects of the experiential situation.  $\langle c \rangle$  stands for 'causally possible'.

When R meets these conditions, R is called a 'decisive indicator' of the truth of 'P' (Suppe 1993, 159). However, as you can see by comparing CR3 and DI, DI is a slight modification and restatement of CR3, incorporating other requirements. The first conjunct in clause (iii),  $\sim \langle c \rangle (C \ \& \ R \ \& \ \sim P)$ , is a formal representation of CR2, making clear that the necessity in question is a causal necessity.<sup>3</sup> The second conjunct in clause (iii) corresponds to the independence requirement. The third conjunct is added to avoid trivial ways of fulfilling this condition. If R is not causally possible (i.e., if the third conjunct is not satisfied),  $\sim \langle c \rangle (C \ \& \ R \ \& \ \sim P)$  holds for any pair of C and P. However, this requirement is somewhat

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<sup>2</sup> Even though he has a seemingly more elaborate version in a later paper (Suppe 1997), the analysis in the paper is not self-sustained in terms of explaining all technical concepts used there (it frequently refers to his unpublished book). Thus, I think it is still appropriate to refer to the 'Ur' version until the book comes out.

<sup>3</sup> It is not clear what kind of modality Dretske has in mind. At one point, he says that the relationship depicted in CR1 is "stronger than a causal relationship" but "weaker than a universal association" (Dretske 1971, p. 6).

redundant because clause (i) states that the state R is indeed present, which implies that R is causally possible. Another change is that Suppe uses the word "cause" to refer to the relationship between R and the belief in question, while Dretske used the expression "on the basis of R". The expression "on the basis of" gives the impression that this is a certain conscious process (though that is not Dretske's intention), while the expression "a cause of" does not have the implication. The phrase "C descriptive of actual circumstances" suggests that each description included in C is true, which corresponds to the actuality requirement.<sup>4</sup>

There are significant differences as well between CR3 and DI. Suppe makes DI a necessary and sufficient condition for knowledge, while Dretske allowed the possibility that CR3 does not give a sufficient condition for knowledge. Also, Suppe does not include the prevalence requirement. These differences are rooted in the differences in their positions on contextualism. Even though they are both externalists, they have different strategies in dealing with internalistic intuitions. Dretske incorporates some of the intuitions into his analysis, and this is (at least) a part of the reason why Dretske does not make CR3 a sufficient condition for knowledge. On the other hand, Suppe deals with internalist intuitions by separating the analysis of knowledge and the analysis of knowledge claims completely.<sup>5</sup> In other words, Suppe thinks that warrant and justification are completely unrelated matters. Also, Dretske is a contextualist, and as such he had no problem with admitting that the criterion of prevalence is context dependent. Suppe rejects contextualism in the analysis of knowledge, even though he is a contextualist in

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<sup>4</sup> Again, since Dretske's comments on the actuality requirement are ambiguous, it is not clear if Suppe's formulation is equivalent to Dretske's idea. Under one reading, Dretske seems to make the actuality requirement a sufficient condition, but in Suppe's version the requirement is a necessary condition. If it is a sufficient condition, the prevalence requirement becomes redundant; this makes it harder to avoid the criticisms discussed later on. In the following I interpret the requirement as a necessary condition for C.

<sup>5</sup> The strategy is very close to Goldman's distinction between strong and weak justification (Goldman 1988). Even though I do not discuss this aspect of Suppe's position in this paper, the division between knowledge and knowledge claims sounds dubious. If they are totally separated, it is puzzling why we want a justification of knowledge claims at all. If justifiedness has nothing to do with the warrant for knowledge, what is the point of justifying a claim?

the analysis of knowledge claims (this aspect of Suppe's position is also discussed in Suppe 1993). When we talk about prevalence, the question of "how prevalent is prevalent enough?" is inevitable, and the answer seems to depend on the context. I think that this is one of the reasons Suppe excludes this aspect of Dretske's analysis from his own DI.

According to Suppe, DI has some advantages in its application to science. First, what we find in scientific experiments is that decisive indicators (like a vapor trail as a decisive indicator of the path of an electron) play an important role (Suppe 1997, p. 388). The emphasis on the decisive indicator in DI can account for this feature of scientific practice. Second, science is heavily dependent on long chains of transmission of knowledge, especially in so-called 'big science' (pp. 188-189). If we adopt a probabilistic view about evidence, such a long chain of knowledge transmission would be impossible. The non-probabilistic nature of DI is an advantage from this point of view. These are the reasons why Suppe adopts a refined version of conclusive reasons as his analysis of knowledge.

### 1-3 'Conclusive reasons' analysis of knowledge

Even though there are some significant differences, since Dretske's position and Suppe's position are very close, I think we can justifiably lump them together as the 'conclusive reasons' analysis of knowledge (CRAK). Let us review some of the basic features of CRAK before turning to its criticisms.

CRAK is non-reliabilistic externalism, to use Suppe's terminology (Suppe 1997). First, the analysis is externalist because this analysis says nothing about conscious justification of knowledge claims. The evidential basis of knowledge is given by CR2 or clause (iii) of DI, of which the cognizer may not be aware (though both Dretske and Suppe require that the cognizer is aware of R itself). Second, this analysis is non-reliabilist because belief formation processes play little role in this analysis. Reliabilistic theories of externalism (e.g. Goldman 1986) regard the belief formation processes of the cognizer as the source of justification of a belief, and their analyses focus on such processes. According to CRAK, what makes P a piece of knowledge is the evidential basis R, not the belief formation process, though some descriptions of the process may come in as a part of C. Another difference between reliabilism and CRAK is that CRAK is non-probabilistic, while reliabilism is usually probabilistic in terms of the evidence.<sup>6</sup> We

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<sup>6</sup> There are epistemologists who define knowledge in terms of non-probabilistic reliability of the belief

have already seen that Suppe thinks that the non-probabilistic nature of CRAK is its advantage in analyzing scientific practice.

Another feature of DI is worth mentioning. The first conjunct in clause (iii), and presumably CR2, says that if the experiential state R and the circumstance C hold in a causally possible world, then P is also true in that world. Other parts of the analysis say that R and C do hold. Thus, if S (in a causally possible world, exactly speaking) is warranted in believing that P in this sense, P cannot turn out to be wrong in a causally possible world, and the real world is, almost by definition, causally possible. This feature allows supporters of CRAK to avoid Gettier-type paradoxes by excluding the possibility of justified false beliefs.

## 2 Critics of CRAK

Dretske's analyses invited various counterexamples (I couldn't find objections directed to Suppe's version). However, most of the counterexamples seem to fail to discredit CRAK. Especially, most of them overlooked the kind of move introduced by Suppe (though, of course, Suppe's version came later than the original criticisms). Let us look at some of the counterexamples and where they fail.

### 2-1. counterexamples by Pappas and Swain

The first set of counterexamples is proposed by George Pappas and Marshall Swain (1973). These cases are supposed to show that a conclusive reason is not necessary for knowledge. The first counterexample is the case of a hologram (Pappas and Swain 1973, p. 74):<sup>7</sup>

Hologram: S is having visual experiences of a cup on a table. He is attentive, the lighting is adequate, and

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formation process (e.g. Armstrong 1973). For the purposes of the present paper they can be grouped together with CRAK because they share the same problem that is presented later.

<sup>7</sup> The presentations of the cases that follow are slightly simplified to save space, but the structure of the cases is not altered. I often refer to the cognizers in these cases as 'he' because that's the gender given in the original presentation of the cases.

there is nothing wrong with S's sensory mechanism. But we can imagine a case in which the visual experience is caused by a cup hologram.

In this example, the statement "there is only a cup hologram on the table" is not logically independent of P (i.e. there is a cup on the table). Thus, the negation of the statement cannot be included in C. Because of this, the visual experience (R) does not meet CR3, so it is not a conclusive reason for P. However, we certainly want to say that we know that there is a cup on the table based on the visual experiences.

The second case is the case of a private generator. Since another generator case will be discussed later, let us call this case Generator Case 1:

Generator Case 1: S works for the local electric company, and knows that the company's generators work well. He visits the home of his friend (whose electricity is usually supplied by S's company), and notices that the lights are on. Based on the information, S concludes that his company's generators are at that time causing the lights to be on in his friend's house. However, unknown to S, the friend has rigged a private generator, which would produce electricity automatically if the electricity from the company failed.

Pappas and Swain claim that the condition that the private generator is off cannot be included in C, because it is causally dependent on P, i.e. S's company's generators are at that time causing the lights to be on in his friend's house. Without this last condition, the lighting of the friend's house does not meet the condition CR2, that is, does not seem to be a conclusive reason for believing that P. On the other hand, according to Pappas and Swain, "surely we do not want to say that the fact that his friend has a generator in his basement prevents S from having knowledge that the company's generators are causing the lights to be on" (Pappas and Swain 1973, p.76).

Do Pappas and Swain succeed in showing that conclusive reasons are not necessary for knowledge? I submit that there are things to be said on behalf of CRAK. Even though the Hologram case and Generator Case 1 seem similar, they are quite different in that the hologram in the first case is only imagined, while the private generator in the second case is supposed to be a real one. In Generator Case 1, if we include the existence of the private generator in C, certainly R does not seem to be a conclusive

reason for P. The case for the inclusion can draw further support from the actuality requirement that actual circumstances are regarded as fixed. However, in a sense, S's belief that S's company's generators are causing the lights to be on in his friend's house seems nothing more than a "lucky guess" (borrowing Boardman's comment on this case; Boardman 1978, p. 34, n. 9). Thus, we cannot be so sure as Pappas and Swain that P in this case is a piece of knowledge.

On the other hand, the Hologram case can be dealt with by rejecting the claim that R is not a conclusive reason in this case. It is true that the statement "there is only a cup hologram on the table" is not logically independent from P, but we can avoid the problem by including a (true) statement "there is no hologram machine around" in C. This latter statement is logically and causally independent of P (there is a cup on the table), and by including it in C, the counterpossibility stated in the former statement can be ruled out.

The reason why Pappas and Swain thought that these cases constitute counterexamples for the notion of conclusive reasons is that these two cases should be treated in the same manner. Indeed, whether an unknown hologram machine or a generator is merely imaginary or does really exist does not seem to have influence on the justificatory state of the cognizer. However, this is an internalistic intuition, which, as an externalist, Dretske would not accept. Thus, Pappas and Swain's argument seems to fail in providing a case that convinces an externalist.

## 2-2 Boardman's counterexample

William Boardman agrees with my analysis of Pappas and Swain, but still thinks that Dretske's analysis is flawed. The counterexample by Boardman (1978) is as follows:

Generator Case 2: The situation is almost the same as Generator Case 1, but in this case S knows that the friend has a private generator in the basement. In addition, the private generator is broken and incapable of generating electricity. S is unaware of this recent development, and S claims that he knows that P (S's company's generators are at that time causing the lights to be on in his friend's house) based on R (the light at the friend's house).

Boardman claims that S does not seem to know that P, while S does have a conclusive reason in Dretske's sense. Since the private generator is broken, R would not be the case unless P is the case, which seems to meet the condition of a conclusive reason.

Is this a counterexample to CRAK? The argument amounts to the claim that having a conclusive reason is not a sufficient condition for knowledge. As I pointed out, Dretske does not claim that CR3 is a sufficient condition for knowledge; thus, this is not a problem for Dretske. However, this is a problem for Suppe, who wants his DI to be both necessary and sufficient condition for knowledge. Is there anything we can say for Suppe? I can think of at least two lines of reply.

One way of dealing with Generator Case 2 is to appeal to the prevalence requirement. To repeat, according to this requirement, the conditions included in C are those which "actually prevail on the occasion of R and P." Can we use this condition to deal with Generator Case 2? The requirement suggests that a condition that is not prevalent should not be included in C, so probably we should not include the condition that the private generator is broken in C. Without including this condition, R and C do not necessitate P (because of the possibility that the private generator is causing the lighting).

However, besides the fact that Suppe does not adopt the prevalence requirement, it is hard to apply this kind of requirement consistently. For example, having a private generator is not a prevalent circumstance in a modern city. Rather, the opposite is the prevalent circumstance. If we are not allowed to include the fact that the friend has a private generator in C because of this, we have to reconsider the reply to Generator Case 1. On the other hand, if the fact that the generator is really there is enough to cancel the prevalence requirement in Generator Case 1, then the fact that the generator is really broken should be enough to cancel the requirement in Generator Case 2. (More on this line of argument comes later.)

There is another line of reply Suppe can take.<sup>8</sup> That is, he can choose to be an extreme externalist who admits that S knows that P even in cases like Generator Case 2. Dretske does not seem to be willing to go that far. However, for Suppe, the analysis of knowledge and the analysis of knowledge claims are separated, and the internalistic intuition associated with Generator Case 2 is related to justification of knowledge claims made by S, not to warrant of knowledge.

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<sup>8</sup> Though this seems to be Suppe's own intention, Suppe states his reply in a more specific manner, referring to the KK thesis, namely the thesis that one knows p entails one knows that one knows p. However, KK thesis is just one of many internalistic intuitions appealed in this debate, and we need a more general form if we want to defend CRAK against these criticisms.

## 2-3 Sosa's counterexamples

Ernest Sosa (1974) also presents various counterexamples to CRAK. Let us look at some of them:

Speedometer: S is driving a car, and paying close attention to the speed. The car is hit by something that, unknown to S, simultaneously brakes the normal mechanism of the speedometer and pierces through the speedometer with the effect that the needle reading remains a normal function of the speed. S believes correctly that the speed is 60 m.p.h (P) on the basis of speedometer reading (R).

In this case, R is indeed a conclusive reason for P, but this is a condition obtained totally by accident, and S has no idea about what is going on. This case has basically the same structure as Boardman's case other than the cognitive state of S. S in Generator Case 2 knows about the private generator, while S in Speedometer does not know about the accident. Despite the difference, the available replies are basically the same as the one to Generator Case 2. Dretske's CR3 does not intend to provide a sufficient condition of knowledge, so this is not a counterexample for CR3, and Suppe can choose to take an extreme externalist position as the reply.<sup>9</sup>

Sosa's other counterexamples are directed to the notion of conclusive reasons itself. He thinks that CR1 or CR2 is not a good analysis of this notion (and, if asked, he would say the same thing to clause (iii) of DI as an analysis of the notion of decisive indicator). One of the cases he gives for this argument is the following:

Explosion: a meter measures the force of an explosion, and the reading is f. The meter is in working condition, and the force of the explosion was indeed f. However, the meter's being in working condition is itself causally dependent on the explosion's having had force f.

Sosa does not give details, but we can imagine various stories that meet the condition. For example,

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<sup>9</sup> Odegard (1976) offers a different line of reply, but his version seems to be too internalistic for a Dretske type analysis.

the meter might be originally broken, and the only thing that can initiate the repair work might be the explosion, with force *f*. Another example of this has almost the same structure, other than the direction of causal dependence.

Instrument on the Skull: There is an instrument which measures whether the person is awake or asleep, but to be used appropriately it should be attached to the skull, and the very attachment of the instrument makes the person awake.

These counterexamples are directed at the independence requirement for C. The condition that the instrument is functioning normally is certainly what we want to include in circumstances C, because, without presupposing the condition, no measurement instrument can produce a conclusive reason. However, in both cases, the normal functioning is causally dependent on P (either as a cause or an effect).

From CRAK's point of view, there are two ways of replying to this charge. One is to accept the validity of counterexamples and add some further conditions to CR2 (or clause (iii) of DI). Actually, this is the line Sosa suggests, and he even proposes an alternative analysis of the notion of conclusive reasons (Sosa 1974, p. 391). However, I think there is another reply open to CRAK. As for the case of Explosion, is it so clear that R (the reading of the meter) should be regarded as a conclusive reason for P (the explosion's having had force *f*)? In situations like Explosion, there is a real possibility that R is obtained without P because the meter does not function correctly when P is not the case. As for the case of Instrument on the Skull, the reading of the instrument is redundant: you do not have to look at the reading to know that the subject is awake because the setting itself assures that. In such a case, there is something wrong with calling the reading of the instrument as a conclusive reason, and this is why the independence requirement is introduced in the first place.

Thus, in the end, I do not think Sosa's counterexamples pose serious problems to CRAK. The first counterexample is no more problematic than Broadman's case, and the second set of counterexamples can be dealt with by rejecting that these are cases of conclusive reasons.

2-4 Martin's counterexample

Raymond Martin (1975) proposes yet another type of counterexample:

Racetrack: At a racetrack, S places a bet that Gumshoe will win in the first race or Tagalog will win in the second race, and leaves the racetrack. In the race, actually Gumshoe won and Tagalog lost. Without knowing the result, S comes back and gets a payback. Solely based on the fact that he has gotten the payback (R), he believes that Gumshoe won (P), which happens to be the case.

Here, if we include in C the description that Tagalog lost, R meets the condition CR2 in relation with P. Moreover, the description that Tagalog lost certainly meets the independence requirement and the actuality requirement. However, intuitively speaking, R is not a conclusive reason at all. Even though Martin's case seems similar to Broadman's, this case is directed at CR2, rather than CR3; that is, this is supposed to be a counterexample to CR2 as an analysis of the notion of conclusive reasons. Since Dretske thinks CR2 is both necessary and sufficient condition for being a conclusive reason, this counterexample is relevant not only to Suppe but also to Dretske.

Suppe himself discusses Martin's counterexample, so let us look at it first (Suppe 1989, pp. 374-376). Suppe's argument is that the intuition behind the example confuses knowledge with knowledge claims. It is true that S could not defend himself if he were asked why he believed that Gumshoe won even though it is possible that Tagalog won (remember that S does not know about the outcome of the second race at all). To ask somebody to show a conclusive reason to support his knowledge claim is to appeal to the KK thesis (see note 8) and such a move begs the question to the epistemological view that denies the KK thesis, including Dretske's and Suppe's positions.<sup>10</sup>

I find Suppe's own reply somewhat misleading. Martin is not appealing to the KK thesis. He is not asking the person to show a conclusive reason to believe that Gumshoe won; all he is asking is a reasonably good reason. Given the obvious counterpossibility, the reason the person can give is outrageously insufficient. We can doubt whether such a person can have knowledge if we use the definition of knowledge in which knowledge is a justified belief (most epistemologists agree with this),

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<sup>10</sup> Suppe claims that his recent analysis of causal possibility operator has resolved the racetrack paradox (Suppe 1997, p. 397), but here he is referring to his unpublished manuscript. As far as his published writings are concerned, the problem still remains, including in his more elaborate analysis in Suppe 1997.

and a notion of justification in which justification involves the ability to provide a reasonably good reason when asked. This position does not appeal to the KK thesis.

However, if this is the point of Martin's criticism, it can be avoided by taking an extreme externalist position in which any kind of reason-giving is not required. Another possible reply is the use of the prevalence requirement, but this move has the above-mentioned difficulty in consistent application. Even though the target of Martin's example is different from Boardman's, because of the structural similarity, the same reply can deal with the both cases.

To summarize, most of the objections discussed here seem to be based on internalistic intuitions about knowledge. Assimilation of Hologram and Generator Case 1 seems to be based on the intuition that a difference in situation unknown to the cognizer does not change the justificatory state of the cognizer. However, this is exactly what externalism rejects. The Speedometer case is based on the intuition that the cognizer should not be completely wrong about the reason why R is a conclusive reason for P. Cases like Generator Case 2 and Racetrack are based on the intuition that a cognizer cannot be justified in believing something if the reason the person can give is outrageously insufficient. The latter two intuitions are much harder to reject than the first one, but they can be dealt with without giving up CRAK. A supporter of CRAK can choose either (like Dretske) to give up the 'sufficient condition' part of CRAK, or (like Suppe) to push aside the intuitions to the context of justification of knowledge claims, sticking to an extreme externalist position in the analysis of knowledge.

### 3 The remaining problem with CRAK

#### 3-1 The real reason why CRAK is problematic

Even if CRAK can deal with the above objections, I think it still faces a more serious problem. In short, there are nearly trivial ways to make an arbitrary (true) state R a conclusive reason for an arbitrary (true) proposition P. This threatens the entire project of CRAK. I present the argument in relation with Suppe's DI first, and then extend the result to Dretske's version.

The problem is actually suggested by the way Martin constructed his example. If the description C contains exclusion of counterpossibilities, what seems to be an inconclusive reason (or an indecisive indicator) can be turned into a conclusive reason (or a decisive indicator). For example, let us consider the

following case, which is a restatement of Racetrack in a scientific context:

Vapor Trail Case 1: a vapor trail in a cloud chamber (R) is usually used as an indication that an electron passes (P). Suppose that exactly the same vapor trail can be obtained when other types of particles than electrons pass. Stating the same thing in other words, suppose that there are causally possible worlds in which exactly the same vapor trail is observed but a particle other than an electron passes. Suppose further that a scientist, looking at a vapor trail, concludes that an electron has passed, which happens to be correct.

Our common sense tells us that the vapor trail in this case is not a decisive indicator, and the scientists does not seem to know that an electron passed. However, if the description C contains a description as a conjunct that "no other charged particles than an electron has passed the cloud chamber", which is true about the real world, the relationship  $\sim\langle c \rangle(C \& R \& \sim P)$  holds for the R and P in question, with other appropriate descriptions included in C. This means that the trail is a decisive indicator of P, according to DI (other conditions can be met easily). Again, Suppe may be able to deal with this case by taking an extreme externalist line. But how about the following case?:

Vapor Trail Case 2: a vapor trail in a cloud chamber (R) is not usually used to decide whether there was a mammoth in the region 10,000 years ago (P). Suppose (naturally) that exactly the same vapor trail can be obtained whether P is true or not. Stating the same thing in other words, suppose that there are causally possible worlds in which R is obtained and P is true and in which R is obtained and P is false. Suppose further that a scientist, looking at a vapor trail, concluded that P, which happened to be correct.

Again, our common sense tells us that the vapor trail in this case is not a decisive indicator. However, consider the following operation. Even though P is the case in the real world, there are all sorts of causally possible scenarios under which P is not the case. By rejecting all these scenarios one by one in C, that is, by including descriptions like "Scenario 1 is false" "Scenario 2 is false" and so on in C, we will

eventually rule out all the causally possible worlds in which P is false.<sup>11</sup> This means that by enriching C in this manner,  $\sim\langle c \rangle(C \& R \& \sim P)$  can be made true for the R and P in Vapor Trail Case 2.

The reader may suspect that such a maneuver does not work because it violates the independence requirement. To show that there is a way around this problem, let us analyze the situation in more general terms. For any pair of R and P, there are four types of causally possible worlds: worlds in which (R & P) holds, (R &  $\sim P$ ) holds, ( $\sim R$  & P) holds, and ( $\sim R$  &  $\sim P$ ) holds. To meet clause (iii) of DI, all we need is to construct a set of descriptions C with the following characteristics. First, the set of descriptions is true to the real world; second, it excludes all possible worlds in which (R &  $\sim P$ ) holds; third, it is consistent with at least one possible world in which ( $\sim R$  &  $\sim P$ ) holds. CR2 (the first conjunct) can be met by ruling out all the (R &  $\sim P$ ) worlds. The independence requirement (the second conjunct) is met by being consistent with a ( $\sim R$  &  $\sim P$ ) world. The actuality requirement is met by making the description consistent with the real world.

There is nothing conceptually difficult about doing this. In a situation where whether R is a decisive indicator of P is an issue, (R & P) holds in the real world. R is given as the necessary condition in clause (i). As for P, as is pointed out, clause (iii) implies that if R is a decisive indicator of P, it is causally impossible that P is false. Thus, by modus tollens, if P is false, R cannot be the decisive indicator of P.

Now, let us call the real world 'i', and a causally possible world (arbitrarily chosen) in which ( $\sim R$  &  $\sim P$ ) holds 'k', and let us call the most complete descriptions of these worlds  $C_i$  and  $C_k$  respectively. Only the real world meets  $C_i$ , and only the world k meets  $C_k$ .<sup>12</sup> Now, let C be ( $C_i \vee C_k$ ). The only worlds that meet C are i and k, and no (R &  $\sim P$ ) worlds can meet C. Thus, C is the correct description of the real world, and it meets the descriptions in clause (iii). Since clause (iii) itself is an existential condition which can be met by the existence of a single instance, R is the decisive indicator of P as long

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<sup>11</sup> Of course, there is a problem of enumerating all the possible scenarios, but this problem exists in ordinary cases (like the thermometer case and the hologram case) too.

<sup>12</sup> To this criticism, Suppe may object that there can be no such complete descriptions like  $C_i$  and  $C_k$ . However, it suffices to point out that Suppe's original analysis presupposes a similarly unrealistic complete description C to meet this objection.

as such C can be constructed.<sup>13</sup> Of course, if there is no such causally possible world in which ( $\sim R \& \sim P$ ) holds, then there is no candidate for k. What I have shown here can be summarized as the Near Triviality Thesis (NTT) :

(NTT) For any pair of experiential state R and proposition P for which

(1) ( $\sim R \& \sim P$ ) is causally possible, and

(2) ( $R \& P$ ) holds in the actual world,

we can construct C that make R a decisive indicator of P.

To assess the force of NTT, we have to look at what the condition (1) implies. In ordinary cases, it is hard to imagine a pair of R and P such that ( $\sim R \& \sim P$ ) is causally impossible but both R and P hold in the actual world. In Vapor Trail Case 1,  $\sim R \& \sim P$  is the case when no trail was observed and no electron has passed the cloud chamber. This is almost always true when a cloud chamber experiment is not conducted. To look at the reverse side,  $\sim \langle c \rangle (\sim R \& \sim P)$  if and only if  $\langle c \rangle (R \vee P)$  (assuming the common translation rule that  $\sim \langle c \rangle \sim = \langle c \rangle$ , where  $\langle c \rangle$  stands for causal necessity). If either R or P is causally necessary, the condition  $\langle c \rangle (R \vee P)$  is satisfied, and the condition (1) of NTT fails to hold. However, it is quite unlikely that an experiential state R is causally necessary. There are indeed causally necessary propositions, but such propositions are probably very general claims about the causal structure of the world, and violates the second conjunct of clause iii,  $\langle c \rangle (C \& \sim P)$ .<sup>14</sup> Another possibility is that R and P constitute a mutually

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<sup>13</sup> Suppe may object that C in clause (iii) is supposed to take the form of conjunction of the descriptions about the actual world, rather than the form of disjunction. This objection can be met by simple logical techniques. Suppose that both  $C_i$  and  $C_k$  are composed of one thousand propositions, i.e.  $C_i = \{C_{i1} \& C_{i2} \& \dots \& C_{i1000}\}$ , and  $C_k = \{C_{k1} \& C_{k2} \& \dots \& C_{k1000}\}$ . Suppose further that the two worlds are different only in last hundred propositions, that is,  $C_{is} = C_{ks}$  for  $s=1, \dots, 900$ , and  $C_{is} = \sim C_{ks}$  for  $s=901, \dots, 1000$ . Then C can be transformed into a conjunction form  $[C_{i1} \& C_{i2} \& \dots \& C_{i900} \& \{ (C_{i901} \& \dots \& C_{i1000}) \vee (C_{k901} \& \dots \& C_{k1000}) \}]$ .

<sup>14</sup> This last point indicates that DI does not allow us to have knowledge on causally necessary proposition, such as the basic causal law of the world, because no such proposition can meet the condition  $\langle c \rangle (C \&$

incompatible and collectively exhaustive set of states of affairs for a causally possible world. This is the case for a pair of statements such as "all Xs are in the state of Y" and "some Xs are not in the state of Y". Thus, if R is the observation of vapor trail and P is "a vapor trail was not observed", this pair meets the condition [c] ( $R \vee P$ ) (i.e., fails to satisfy the condition (1) of NTT). This is a rather exceptional case. Intuitively speaking, this means that if R indicates the exact opposite of P, R is not a decisive indicator of P. If this is all DI can tell us about a decisive indicator, I do not find the notion very informative, and an experiential state that meet the condition does not seem to worth the name 'decisive'. In other words, clause (iii) of DI seems nearly trivial (this is why I call the above thesis the Near Triviality Thesis). Thus, DI seems to fail to give an adequate analysis of the notion of decisive indicator.

### 3-2. The implication of the above arguments

What is the implication of this argument for DI as an analysis of knowledge? Since Suppe regards CRAK as both necessary and sufficient for knowledge, a single counterexample in which we have a conclusive reason for P without knowing that P should be enough to show that CRAK is problematic. However, as we saw, Suppe can turn down each alleged counterexample by saying that the person does know that P in the case. The problem is that the existing counterexamples are based on internalistic intuitions in one way or another, and Suppe takes an extreme externalist position. My Vapor Trail Case 2 and NTT intend to show that CRAK is unacceptable even from an extreme externalist point of view. If almost any belief based on almost any experiential state can be knowledge, what is the point of calling such beliefs 'knowledge'?

So far we have been mainly talking about Suppe's version of CRAK. Let us now turn to Dretske's version. Does it do any better? What applies to clause (iii) of DI also applies to CR2 (except for the consideration of the prevalence requirement, which will be discussed soon). Just as "decisive indicators" in the sense of DI does not seem to worth the name "decisive", "conclusive reasons" in the sense of CR2 does not seem to worth the name "conclusive". Thus, like DI, CR2 seems to be nearly trivial and to fail to provide an adequate analysis of the notion of "conclusive reasons".

How about CR3, Dretske's analysis of knowledge? It is true that Dretske does not see CRAK as a

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~P). Probably such a proposition is not included in the intended scope of analysis.

sufficient condition for knowledge, but my criticism shows that CRAK does not add much to our understanding of knowledge, even as a necessary condition. From the above argument, for any pair of R and P for which conditions in NTT hold, CR2 can be met by constructing an appropriate C. Since these conditions holds for almost any pairs of causally contingent actual states and true propositions, we can meet CR2 by picking up almost any (real) experiential state in the causal chain leading to the belief that P (which is true). Note that we would usually go through various experiential states before arriving at the belief that P. Even one of the states is ruled out because it does not meet the condition (1) of NTT (this is a rather exceptional case, as I argued), the possibility is that there are other states which are in the causal chain and still meet the condition (1). A necessary condition for knowledge that can be met so easily is practically vacuous.

Another difference between Suppe and Dretske was the prevalence requirement. Can the prevalence requirement save CRAK from this line of criticism? At a first glance, it seems to be able to do so. To repeat, Dretske requires that the conditions to be included in C are fixed and prevalent conditions for R and P. On the other hand, in the argument following Vapor Trail Case 2, various descriptions of the actual world are included in C to rule out possible scenarios in which P (there was a mammoth in the region 10,000 years ago) is false. It is possible that most of these conditions just happened to be the case; that is, it is possible that most of them are not fixed or prevalent. The more general argument using  $(C_i \vee C_k)$  has the same problem. So the prevalence requirement seems to foreclose the argument presented here effectively.

However, as I have already mentioned, there are at least two reasons why this solution is not attractive. First, for an externalist of non-contextualist type (like Suppe), the notion of prevalence may be unattractive because the notion seems to have an inevitable contextual element. Second, the prevalence requirement is hard to apply consistently. It revives the kind of counterexamples dismissed in the absence of the requirement. For example, the prevalence requirement seems to force us to exclude the existence of the private generator from C, and the person S in Generator Case 1 should be judged as having a conclusive reason.

But this argument is not yet conclusive. For, what if we back up further and admit that S does know that the company's generator is causing the lights to be on in Generator Case 1? Moving toward this direction saves CRAK from Generator Case 1, but it also invites a Gettier type paradox. The Speedometer

case serves as a fine example for this. Given the prevalence requirement, neither the accident nor the accidental correlation between the speed and the speedometer can be included in C. This makes the person to have a conclusive reason for believing that P, and P is indeed the case. However, this conclusive reason has nothing to do with the true reason why P is the case. It is counterintuitive to call such belief knowledge. The problem is an externalist version of the Gettier paradox. If avoiding a Gettier paradox is one of the basic motivations behind externalism, there is no point in taking an externalist position that cannot avoid the paradox.

Beside the problem with the Gettier-type paradox, there is another reason why Suppe might be unwilling to use the prevalence requirement as a way out of the problem posed by NTT. As I explained, one reason why Suppe adopted CRAK is it is non-probabilistic (or, in the way Suppe puts, non-reliabilist). However, the consideration of prevalence is, by its nature, probabilistic. This becomes clear by making the prevalence requirement in CR2 explicit:

(CR4) In prevalent circumstances C, R would not be the case unless P were the case.

CR4 implies that R would be the case in many less prevalent circumstances even if P were not the case. If we keep calling R a "reason" to believe that P despite this implication, that is due to the relative prevalence of C. Is this much different from saying that believing that P based on R is a reliable process, as reliabilists would say? I fail to see why. This is another reason why the prevalence requirement does not save CRAK, at least as an alternative to a reliabilist version of externalism.

Let me summarize the arguments in this section. Existing counterexamples to CRAK do not exploit the implication of CRAK to the limit, and this allows the room for an extreme externalist reply to them. Vapor Trail Case 2 and the subsequent arguments leading to NTT try to remedy the situation. The arguments are directed to the 'sufficient condition' side of CRAK, and it seems strong enough to block the extreme externalist reply. They also indicate that CR2 and clause (iii) of DI are flawed as the analysis of the notions such as 'conclusive reasons' and 'decisive indicators'. Moreover, NTT is also relevant to the 'necessary condition' side of CRAK, by making CRAK practically useless as a necessary condition. One way out of this problem is to appeal to the prevalence requirement mentioned by Dretske, but some features of the requirement makes it unattractive for non-reliabilist externalists.

#### 4. Concluding Remarks

If my arguments in this paper are sound, where do they leave us? I believe that they cornered CRAK in a difficult position. To avoid the counterexamples like Vapor Trail Case 2, proponents of CRAK may have to bite the bullet and admit that almost all true beliefs are knowledge. Or, alternatively, they can utilize the prevalence requirement extensively, but this move makes CRAK very close to its supposed alternative, probabilistic reliabilism.<sup>15</sup> Of course my arguments apply only to the particular analysis of the notion of conclusive reasons, so there may be other analyses that avoid the counterexamples successfully. For example, this can be done by finding a better definition of the prevalence requirement that rules out Vapor Trail Case 2 and rejects NTT without undesirable consequences. The burden of proof is now on the side of the supporter of CRAK, though. For the time being, CRAK does not seem to be very attractive, and Suppe's attempt to revive the position faces a serious difficulty.

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<sup>15</sup> It is quite probable that this is the reason why Dretske revised his position and moved toward a probabilistic view later (Dretske 1981). I think that he abandoned CRAK a bit too soon, but after all it was a good decision.

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