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What it Means to be Rational: An Analysis on Knowledge, Rational Deliberation, and Action

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What it Means to be Rational:

An Analysis on Knowledge, Rational Deliberation, and Action

by

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A THESIS

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Abstract

The following thesis is an analysis on the relation between knowledge and reasoning about how to act. It seems fairly intuitive that one is rational to act on what one knows. But unfortunately, the issue is not so simple. In constructing a normative framework for practical reason, one could either require knowledge to be a necessary requirement for practical reason or one might only hold that knowledge is sufficient for reasoning about what to do, though having knowledge is not a necessary requirement. In this thesis, I will defend the latter.

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Introduction

Some of our practical decisions have very little at stake such as in deciding on whether one should wear a red shirt or a blue shirt to work, while other decisions have a lot riding on their outcomes such as in deciding whether to keep one's money in the stock market during an economic downturn. Regardless of the importance of a decision and its prospective outcome, we generally hold a particular norm in place for practical decisions. We judge that one ought to make a decision leading to an action in a *rational fashion*. The type of rationality that ties reason and action together is referred to as *practical rationality*.

Practical rationality is often seen as being distinct from *epistemic rationality*. But they both share the similarity of having normative significance in that the concept of rationality, broadly construed, *prescribes* a certain way or process of reasoning that a subject *ought* to abide by in order to achieve intellectual or practical success.

What each form of rationality is aimed at differs, however. The distinction can be roughly explained as such: practical rationality determines *what is rational for one to do* and epistemic rationality determines *what is rational for one to believe*. The latter type is concerned with reasons for believing some proposition on the basis of having evidence. The former type is concerned with reasons for acting and assessing whether acting on a given belief will produce a preferable outcome (see Wallace 2008).

The two forms of rationality are quite distinct in their aims, but it is not quite clear how far apart these two brands of rationality are from one another. As

I see it, the split between them at times is very minimal. Some reason-action-based scenarios close the gap and form a strong relationship or even a unity held between them. The close relationship emerges when both forms of rationality overlap where a reason to believe may also be a reason to act.

For example, suppose that I know that (1) *Babe Ruth* candy bars are made with peanuts. I also know that (2) I have a severe allergy to peanuts. And I know that (3) if anyone that has a severe allergy to peanuts consumes them, then they will likely have an allergic reaction that could be fatal. Given these facts, I am entitled to infer that (4) if I consume a *Babe Ruth* candy bar, I will likely have an allergic reaction that could be fatal. (1), (2), and (3) are reasons for believing (4).

Now, consider an instance where I am invited to participate in a blindfolded taste-test of candy bars for market research. It is possible that one of the candy bars that will be tested is *Babe Ruth*. Should I participate in the research study? No, because there might be a *Babe Ruth* candy bar or another peanut-based candy bar in the assortment. And because I believe that if I consume a *Babe Ruth* or peanut-based candy bar, I will likely have an allergic reaction that could be fatal, I ought to refrain from participating in the study. I have the desire not to suffer from an allergic reaction that may be fatal, so the reasons listed above are also practical reasons for refraining from participating. Here is a case where my reasons for believing some proposition are also reasons for acting a certain way. So we may occasionally find that epistemic reasons for belief also serve as practical reasons for action.

In determining what counts as a sufficient reason for belief, we may

assume that a sufficient epistemic reason for believing a proposition is a reason that a subject *knows*. If a subject knows that p and p entails q, then the subject is at least justified in believing q on the basis of p. Since the subject knows that p, p is a sufficient reason for believing q given that p is appropriately related to q. But the question about the epistemic status of sufficient practical reasons for acting remains open. Must a subject's reason for acting meet a particular epistemic standard in order to be a sufficient reason? More specifically, does a *justified belief* count as a sufficient reason for acting? Or must the *justified belief* also be *true* in order to appropriately treat the belief as a reason for acting? Or is *knowledge* required for having a sufficient reason to act? These questions are highly important to the study of practical reason and rationality and they have recently been discussed in the field of epistemology. As a consequence, the epistemic nature of reasons has secured its place within the study of practical reason and rationality, from an epistemological standpoint.¹

In the study of practical reason and action theory, the belief-desire model has been at the forefront since the time of David Hume (1739). In epistemology, traditional issues such as justification, epistemic luck, skepticism, etc. have been the primary issues of concern. But in recent times, knowledge and its relation to practical reason has become quite the popular topic. It almost seems like an entire industry has been devoted to the issue since John Hawthorne and Jason Stanley (2008) controversially proposed the view that *knowledge is the norm for*

¹ Philosophers have been long discussing practical knowledge since the time of Aristotle. Kant provided a thorough explication of practical knowledge (see Engstrom 2002, 2009). And contemporary philosophers such as G.E.M. Anscombe (1957) and Kieran Setiya (2008, 2009) have written on the nature of practical knowledge. But it has only been more recent that epistemologists have been talking about the issue.

practical reason. Their view entails that a subject is rational to treat a belief as a reason to act only if her belief constitutes knowledge. Otherwise, acting on a belief that does not constitute knowledge is practically unacceptable.

In considering the normative proposal from Hawthorne and Stanley, we might think that assigning knowledge as the standard for practical reason is intuitive on the face of it since if a subject were to know that *p* and *p* were to be a reason to do some action *x*, then the subject may rationally do *x* for the reason *p*. Knowing that *p* in this instance would almost guarantee success in the subject's practical pursuit, provided that *p* is not defeated by other reasons. But we often witness in a number of situations a subject who is faced with acting on a belief, yet her belief does not constitute knowledge. Practical situations can sometimes be highly demanding where an action must be performed. A subject cannot wait, then, until her reason to act has secured the epistemic status of knowledge. She must act. In many situations of uncertainty, however, we usually do not regard the subject as practically irrational for acting under demanding constraints.

I will first argue in this thesis that although the attempt to defend knowledge being the norm for practical reason is a fruitful endeavor, knowledge is not a *necessary* requirement for practical reason and rationality. The knowledge standard for practical reason is overly demanding of rational agents and imposes impractical and irrational consequences for decision-making. So Hawthorne and Stanley's view is false.

But there is a conflict. It is intuitive to think that knowledge ought to be utilized in rational decision-making in that knowledge helps ensure that we are

successful in our practical pursuits. I do not disagree with this sentiment and I think that there is a way to preserve the link between knowledge and practical reason, but we must weaken our commitment to the logical relation between the two. Hawthorne and Stanley argue that knowledge is *necessary* for practical reason. However, Jeremy Fantl and Matthew McGrath (2009) have argued that knowledge is *sufficient* but not necessary for practical reason. From Fantl and McGrath's view, we can infer that if a subject has relevant knowledge, then she should act on it, but if she does not have knowledge, she is not necessarily required to refrain from acting. In other words, there may be times when a subject is justified in acting without having knowledge. But the latter claim requires qualification and I will discuss the view in depth and defend it against some critical objections.

The following thesis is divided into two substantively large parts. In the first part, I focus particularly on the knowledge norm for practical reason proposed by John Hawthorne and Jason Stanley, which entails that knowledge is necessary for practical reasoning. I go on to motivate the knowledge norm to show its intuitiveness. But the intuitiveness only goes so far. There are instances that falsify the knowledge norm principle. Consequently, having knowledge, I argue, is not a necessary relation one must bear to a relevant proposition in her reasoning on how to act. I defend the latter claim by providing a case against the principle where an agent is rational to act on a proposition but fails to know it. I then explore the ramifications of the case against the knowledge norm principle.

The second part of the thesis considers what I take to be the more

attractive, though weaker, alternative to Hawthorne and Stanley's proposal. In the second part, I explicate the view proposed by Fantl and McGrath and show why their view ought to be preferred to Hawthorne and Stanley's view. But the weaker alternative does not go unchallenged. There have been a few counterexamples raised toward the principle that Fantl and McGrath use to support their account. I respond to these objections and show why the counterexamples are not all that problematic. I consider one final potential objection toward the end. The objection is an infallibilist concern. Fantl and McGrath's view rests on a fallibilist account of knowledge, but the fallibilist base may be undercut by a particular infallibilist concern. I respond to the potential objection and argue that the infallibilist alternative is highly problematic and leads to consequences that many would be unwilling to accept. So the only feasible epistemological base is fallibilism. Thus, Fantl and McGrath's view holds.

Part 1: The Knowledge Norm of Practical Reason

To begin the analysis, we first ought to speculate about what knowledge may be. In the enterprise of epistemology, epistemologists have traditionally held that knowledge depends on a subject satisfying a fixed set of epistemic conditions in order for her to be in a position to know some proposition. Conditions such as a subject, S, holding a belief that p, the proposition p is true, S's belief that p is sufficiently justified, S has reliable belief-forming processes, S's evidence for p favors the truth of p rather than not-p, S's belief that p satisfies some anti-luck condition, if S acquires p via testimony, the source of the testimony is reliable, and on some accounts S's evidence for p achieves probability 1 (see Gettier 1963; Goldman 1999, 2009; Lackey 2006; Pollock 1984; Pritchard 2005; Williamson 2000). It is arguable that not all of the mentioned conditions are necessary for knowledge and many accounts vary on which conditions are necessary and sufficient.

Some epistemologists such as Jeremy Fantl and Matthew McGrath (2009), John Hawthorne (2004), and Jason Stanley (2005) have recently challenged the traditional conception of knowledge. They claim that knowledge is not entirely dependent on the epistemic. According to them, knowledge also depends on practical factors such as the subject's practical interests and her practical environment.² This view has become known as *subject-sensitive invariantism* (SSI). The proponents of SSI claim that we can ascribe knowledge to a subject who (1) satisfies a set of epistemic criteria (belief, truth, justification, etc.) and is

² The subject's practical interests matter on this view, not the attributer's as the contextualist would have it.

able to (2) rationally treat her belief as reason to act. (2) extends knowledge beyond the epistemic and into the pragmatic. It is argued that the subject's practical interest importantly affect whether she is in a position to know.

The connection between (1) and (2) in the SSI account of knowledge might not be all that clear, but SSI proponents argue that variations in practical environments raise or lower what is at stake for a subject. The stakes of a situation affect whether a subject is in a position to know a proposition. Assuming that a subject has satisfied the necessary epistemic criteria, she may still fail to know a proposition if her practical environment has raised the stakes. In high stakes situations, a subject would be in a position to know a proposition p if it is rational for her to treat p as a reason to act. If it is not rational for the subject to treat p as a reason to act, then she fails to know that p . Given these considerations, SSI entails that the pragmatic encroaches on knowledge.³

In motivating SSI, John Hawthorne and Jason Stanley (2008) have proposed a knowledge-reason principle, which they take the principle to be the epistemic norm for practical reason.

Knowledge-Reason Principle: Where one's choice is p -dependent, it is appropriate to treat the proposition that p as a reason for acting iff you know that p .⁴

³ I will provide a more detailed analysis of SSI in the second part of the thesis.

⁴ Similarly, a weaker principle has been provided by Jeremy Fantl and Matt McGrath who maintain, "If S knows that p , then if the question of whether p is relevant to the question of what to do, then it is proper for S to act on p " (Fantl & McGrath 2009, 59; see also Fantl & McGrath 2002, 2007).

Provided the norm, Hawthorne and Stanley claim that if a subject does not know that p and yet decides to act on p , then she has acted on unacceptable practical reasoning and is subject to criticism for acting. The latter claim is highly controversial and it will be the focus of Part 1.

For the purposes of this first part, I will generalize the KR principle and also illustrate it in a logically equivalent form. Thus,

KN: It is appropriate for S to rely on p in practical reasoning iff S knows that p .

KN = (If it is appropriate for S to rely on p in practical reasoning, then S knows that p) & (If S knows that p , then it is appropriate for S to rely on p in practical reasoning).

I take KN to be roughly equivalent to KR, so when I use KN, I am implicitly referring to the principle developed by Hawthorne and Stanley. I do not think that they would object to this translation.

Moreover, to illustrate how we might come to accept the KN principle above, consider an example presented by Hawthorne (2004) where a subject does not have knowledge of a certain proposition and thus the proposition is not appropriate for her to rely on in her practical deliberation. Suppose that a subject has bought a lottery ticket and is contemplating selling it for a penny. Her

reasoning is as follows:

- (1) The ticket is a loser.
- (2) So if I keep the ticket I will get nothing.
- (3) But if I sell the ticket I will get a penny.
- (4) So I'd better sell the ticket. (Hawthorne 2004, 29)

Hawthorne claims that the above practical reasoning is unacceptable because the subject does not know that the ticket is a loser. If the lottery is fair, then the subject may not be in a position to know that her ticket is a loser, despite the statistical odds against her winning, because she does not possess sufficient evidence that would allow her to be in a position to know that the ticket is a loser, even if (1) is true. If the subject were to sell the ticket without having sufficient evidence that the ticket is a loser, then she would be subject to criticism.

Let us now consider the first direction of the KN biconditional and the practical reasoning schema above. The first direction reads, 'If it is appropriate for S to rely on p in practical reasoning, then S knows that p'. But in the lottery case, the subject does not know that the ticket is a loser. So by a simple logical deduction, assuming the KN principle, we can show that it is not appropriate for S to rely on the belief that the ticket is a loser in her practical reasoning:

- (1) If it is appropriate for S to rely on the belief that the ticket is a loser in practical reasoning, then S knows that the ticket is a loser.

(2) S does not know that the ticket is a loser.

(3) Therefore, it is not appropriate for S to rely on the belief that the ticket is a loser in her practical reasoning.

Because the subject's reason did not satisfy the normative constraint of KN, then selling the ticket for a penny is practically unacceptable. The lottery case is somewhat peculiar and puzzling since the chance of winning the lottery is so minimal. But in evaluating the total body of evidence, the subject ought to conclude that her evidence is not strong enough to claim that she is in a position to know that she will win or lose the lottery.

The lottery example vindicates the knowledge requirement for practical reason. Hawthorne thinks what follows from the evaluation of the lottery case is that *acting on propositions that one does not know is unacceptable in practical reasoning*. He explicitly states, "...one ought only to use that which one knows as a premise in one's deliberations" (Hawthorne 2004, 30). Violating the norm warrants an attributer to criticize the subject and describe her reasoning as practically irrational. According to Hawthorne, many should find these claims to be uncontroversial. Thus, endorsing KN as the epistemic standard for practical reason accords with intuition.

1.1 Undermining the First Direction of KN

Despite the intuitiveness of KN via the lottery case, I intend to argue that one should not concede to the first direction of the principle. The lottery case

generates the intuition that knowledge is necessary for practical reason, but there are examples that show that knowledge is not a necessary requirement.

The first direction of the KN principle is false in some instances. And if one entertains the instances in which the conditional is false, then one ought to be willing to reject the first direction of the principle and subsequently the principle entirely. Jessica Brown (2008) has provided a falsifying instance via a Gettier case that involves a subject whose reason appears to be intuitively appropriate to act on, but the subject's reason does not constitute knowledge. Consider a variation of her Gettier case:

TRAIN: On Tuesday, Sarah and her partner John decided to make arrangements to meet for lunch on Wednesday afternoon at 1:00PM in downtown Calgary. John, who works in finances downtown, would arrive at restaurant within a matter of minutes from his office. Sarah, however, would have to catch a train from University Station since she works at the University of Calgary. It would take Sarah approximately 25 minutes to get from University Station to Seventh Street Station in downtown. And because of budgetary issues with the city, the train only runs every half-hour. In order for Sarah to make the lunch on time, she would need to catch the 12:30PM train at University Station on Wednesday. So on Wednesday, Sarah double-checked the arrival and departure schedules online at noon to make sure that there were no delays. The trains were on schedule, so Sarah planned on leaving at 12:20PM to catch the train arriving at 12:30PM.

However, unbeknownst to Sarah, a hacker infiltrated the Calgary public transportation system and changed the scheduled times with the hope of creating mass confusion and disruption to those who relied on public transit. Sarah, who took the online schedule to be reliable, continued acting on her belief that the train would arrive at 12:30PM. In fact, the train did arrive on time at 12:30PM. By a slip of a key, the hacker's alteration to the 12:30PM slot did not cause it to change. So Sarah's belief turned out to be true.

In the TRAIN example, Sarah had a *justified true belief*—the train would arrive at 12:30PM—but the belief failed to be knowledge. Her belief was made true only by luck. Epistemologists nowadays frequently worry about epistemic luck due to Gettier's (1963) counterexample against knowledge being justified true belief (JTB). So I cannot imagine that the proponents of KN ignore cases that involve epistemic luck. Thus, I think it is safe to say that the consensus on TRAIN is that Sarah did not have knowledge that the train would arrive at 12:30PM. In this case, the consequent of the conditional for the first direction of KN is false.

In order to preserve the truth of the first direction of KN in the TRAIN example, the KN proponent would need to argue that the antecedent of the conditional is also false. A way to deny the antecedent in this case is by raising the possibility that Sarah may not have gotten lucky and thus she would have missed the train. By considering counterfactually that Sarah missed the train and arrived after the planned meeting time, an attributer could criticize her on the grounds of

only believing the proposition but not knowing it. After all, there is a nearby world in which Sarah formed the same belief in the same manner, but her belief is false in that world. The attributer might even ascribe blame to Sarah for not taking precautionary measures since she lacked knowledge. But I question why the attributer's criticism is warranted? From the subject's standpoint, she took the online timetables to be reliable, and seeing that the train would arrive at 12:30PM justified her belief. The structure of her practical reason might have been something like this:

- (1) I agreed to have lunch with my partner at 1PM on Wednesday.
- (2) In order to fulfill my agreement, I need to arrive on time.
- (3) It takes approximately 25 minutes to get to the destination from my workplace.
- (4) The train will arrive at 12:30PM.
- (5) If the train will arrive at 12:30PM, then I will reach my destination at 12:55PM.
- (6) If I reach my destination at 12:55PM, then I will arrive on time.
- (7) If I arrive on time, then I will have lunch with my partner and my agreement will be fulfilled.

Premise (4) contains the belief that does much of the work in the above practical reason schema. Given the structure of Sarah's practical reasoning and the fact that her belief is true and justified, it is difficult to deny that (4) is appropriately

reliable. The argument schema illustrates an instrumentalist view of practical reasoning where Sarah's belief that the train would arrive at 12:30PM is instrumental to her fulfilling the agreement to have lunch with her partner at 1PM on Wednesday. Even if Sarah were to be unlucky and (4) turned out to be false (though she must not be aware that (4) is false), it still seems rationally appropriate for her to rely on (4) in her reasoning given the validity of the above argument structure. If one is in agreement here, then it need not be the case that Sarah needs to know that the train will arrive at 12:30PM. And if knowledge is not necessary for practical reasoning, then JTB might just do the trick, at least for this case. But in admitting that (4) is appropriately reliable in practical reasoning, even though its truth arose from luck, the antecedent of the first direction of KN is true and the consequent false. Thus, the first direction of KN is false and subsequently KN is false.

The Gettier case might not be entirely convincing that the subject's reason was appropriate for her to rely on in practical reasoning. We might even assume that the subject would feel slightly embarrassed for acting after being told about the hacker incident. So I would like to offer an instance that is more convincing for rejecting KN. Consider the following case where a subject has knowledge, but her knowledge is lost at the time that she is about to perform an act:

LIBRARIAN: In a library full of philosophical texts, one book is missing from the numerous stacks. Professor X has borrowed Wittgenstein's *Tractatus Logico-Philosophicus*. The book must be returned to the

philosophy library on Monday by noon. The librarian, Linda, eagerly awaited for Professor X to return the book. At 11:55AM on Monday, Professor X showed up with the *Tractatus*. Once Professor X departed, Linda formed a belief (call it p) at time t_1 that there is one empty space in the stacks and the book belongs in that space. She formed this belief from the fact that there was one and only one book listed in the computer system's queue, which had just been returned by Professor X.

Unbeknownst to Linda, a mischievous teenager had climbed through the back window while she and Professor X were chatting. Hearing Linda approach, the mischievous teenager took *On Certainty* off of the shelf and pushed the *Philosophical Investigations* to the left, filling the empty space where the *Tractatus* should be placed and then climbed out the window with *On Certainty*. Once Linda arrived at the stack where the rest of the works of Wittgenstein were located, she immediately noticed one empty space on the shelf. In order to perform her job properly, she must attempt to keep a well-run library where all of the books are placed in an organized manner. Given Linda's belief that p that was formed at time t_1 , acting on p is instrumental toward fulfilling her goal of keeping a well-run library. So she put the book in the empty space.

Assuming KN, Linda's belief that p satisfied the knowledge requirement at the earlier time t_1 and therefore was appropriate to treat as a reason for acting. But at the later time t_2 when the act was performed, her belief that p was no longer

appropriate to rely on since her belief had been made false by a change in the state of affairs.

In evaluating the case, we may assume that when Linda first formed the belief, the belief was justified in that the computer system was reliable and untampered with. The computer system contained a queue of all of the books that were borrowed. In the queue, the only book listed was the *Tractatus*, which was borrowed by Professor X and was due back at noon on Monday. When Professor X returned the book, Linda had no reason to suspect that it was the wrong book or a fake copy. And in fact, it was the actual book. So all of the books in the library were placed in the stacks except for the *Tractatus*. Under the given conditions, Linda was in a position to know that p while walking toward the stacks.

Moreover, at the later time t_2 , the KN proponents would claim that Linda's belief that p was no longer appropriate to rely on since her belief had been made false. As Linda walked toward the stack labeled 'W', the mischievous teenager grabbed *On Certainty*, pushed the *Philosophical Investigation* into the *Tractatus*' place, and snuck out the window. When Linda arrived at the stack labeled 'W', she found the works of Wittgenstein and saw that there was only one empty space on the shelf. Since the area contained the only place where there was an empty space in the entire stack, Linda decided to act on her belief that p, even though at this later time she no longer knew that p.

What is interesting about LIBRARIAN is that Linda's belief was made false after a sequence of events and therefore cannot be claimed as knowledge at the time of performing the action. The question that we are most interested in asking

is: was Linda's belief inappropriate to rely on in her practical reasoning? It would be unusual to say 'yes' to this question since an affirmative answer would require the standards for practical reasoning to be very strict. Such strictness is highly unintuitive. Linda was in a position to know that p at time t_1 before the mischievous teenager removed *On Certainty*. At time t_2 , the mischievous teenager affected the truth of Linda's belief by altering the state of affairs. However, Linda was ignorant of the fact that her belief was no longer true after the state of affairs had changed. Despite her ignorance, Linda's evidence did not change from time t_1 to t_2 . She still had evidence in favor of her belief being true, more so than evidence in favor of her belief being false. It does not seem warranted, then, to claim that Linda's practical deliberation was unacceptable, especially in regard to evidential considerations.

Consequently, Linda ought to be free from criticism for the reason that she had acquired no new evidence that would indicate to her that the belief was false at time t_2 . Linda was not alerted by any noise in the back, so there was no reason to be suspicious that someone was in the rear rearranging the collection. Her justification remained stable throughout the event. Thus, it was practically rational and doxastically responsible for Linda to continue holding the belief and acting on it.

From a third-person perspective, however, an attributer might criticize Linda on this occasion for failing to check the security cameras or taking notice of the windows being opened or closed. The attributer might stipulate that it is the librarian's responsibility to take all necessary precautions, including checking the

security cameras and the windows. But if Linda were required to check the security cameras and the windows each time that she replaced a book, the standards for practical rationality, at least in this case, would impose an impractical consequence. Linda would never finish her work if she were to be constrained by such strict standards. Following these standards to ensure that one has not lost knowledge would also lead to practical irrationality. If practical rationality is aimed at satisfying one's ends, then one must take the appropriate means toward satisfying her ends. If Linda had a large number of books to reshelv, then it would not be possible to perform the task in a timely manner by adhering to the KN requirement and therefore the norm would prevent the goal of maintaining a well-run library from being satisfied. Abiding by KN principle would violate the standard notion of practical rationality.

I think that it is rather intuitive to claim that Linda's belief that *p* was appropriate for her to rely on in practical reasoning, especially when considering the first person or the subject's point of view. If one accepts that her belief was rationally permissible to treat as a reason to act, the antecedent in the conditional of the first direction of the biconditional of KN has been satisfied, but we have clearly shown that Linda lacked knowledge at the time of her action and thus the consequent is false. Linda did have knowledge at the earlier time, but it was later lost near the time that she performed the act.

To put the argument against KN more explicitly, it goes as follows:

- (1) It was appropriate for the subject to treat the belief that *p* as a reason

for acting at time t_1 . [Assumption]

- (2) If it is appropriate for a subject to treat the belief that p as a reason for acting at time t_1 , then it is appropriate for the subject to treat the belief that p as a reason for acting at time t_2 , provided that the subject's evidence has not changed from t_1 to t_2 . [Assumption]
- (3) Therefore, it was appropriate for the subject to treat the belief that p as a reason for acting at time t_2 , provided that the subject's evidence had not changed from t_1 to t_2 . [Modus Ponens, 1,2]
- (4) The subject failed to know that p at time t_2 . [Assumption]
- (5) If it was appropriate for the subject to treat the belief that p as a reason for acting at time t_2 , provided that the subject's evidence had not changed from t_1 to t_2 , and the subject failed to know that p at time t_2 , then KN is false. [Assumption]
- (6) It was appropriate for the subject to treat the belief that p as a reason for acting at time t_2 , provided that the subject's evidence had not changed from t_1 to t_2 , and the subject failed to know that p at time t_2 .
[& Introduction 3,4]
- (7) Therefore, KN is false. [Modus Ponens, 5,6]

The LIBRARIAN example, I think, supports the above argument against the knowledge norm of practical reason. As far as practical rationality is concerned, the loss of knowledge where the subject is ignorant of the fact that she has lost knowledge but her evidence remains strong should not affect whether the

subject's practical deliberation was rationally appropriate. According to KN, though, knowledge is the standard for practical reason. But in cases that involve *diachronic beliefs* we occasionally tend to lose knowledge. The KN proponent would claim that a subject has acted on unacceptable reasoning when knowledge that *p* is lost, yet an act is still performed on the basis of *p*. By accepting KN, however, agents may rarely be considered practically rational for the reason that achieving the idealization is quite difficult in many decision situations.

1.2 Diachronic Beliefs

A belief may constitute knowledge, depending on a variety of epistemic factors and the *time of indexing*. The epistemic status of a belief is sensitive to temporal indices and therefore the epistemic status of the belief is subject to change over time. If new information is acquired over time, one ought to update her beliefs in accordance with the information given.⁵ This rational requirement preserves *diachronic coherence* (see Christensen 2000).

I can imagine myself, for instance, being alive during the time that Kennedy was the President of the US. On November 22, 1963, I would have acquired new reliable information via the media's testimony that Kennedy was assassinated in Dallas, TX. Acquiring the latter information would rationally require me to

⁵ 'Updating' here is referred to a feature of belief revision theory. Updating in belief revision theory is applied to full belief unlike updating a degree of belief in Bayesian epistemology (see Kelly 1998a, 1998b). For the purpose of this paper, I will regard any belief *B* or epistemic state *S* as being a member of a broad set *R*, which contains the totality of information that an agent possesses. The structure of the set *R* might resemble Quine's (1951) *web of belief*. Furthermore, the sort of belief revision that I will be concerned with is less difficult to analyze than the intricacies that belief revision theorists deal with and seems fairly simple with little ramifications. The main idea is that acquiring new information leads to the updating beliefs within the belief set and does not create inconsistencies among beliefs so long as the beliefs are updated.

update my belief. Updating the belief, however, would depend on learning that Kennedy was assassinated. But if I were to be in a remote location without access to current events, I might have continued to believe that Kennedy is the President of the US for some duration of time until I learned that he was assassinated. So it is primarily by learning that we update, revise, or just do away with prior beliefs.

From the above example, we can imagine that I satisfied all of the epistemic requirements to be in a position to know that Kennedy is the President of the US prior to November 22, 1963. But any time after November 22, 1963, the belief is false. Now, suppose that I were indeed placed in a remote location and I continued to hold the belief. I would fail to know that Kennedy is the President of the US because the belief would have been made false by the events that occurred in Dallas, TX, but I am ignorant of this fact. So there is *epistemic asymmetry* between the earlier and later times regarding my epistemic position with respect to the belief that Kennedy is the President of the US. This example is meant to illuminate the point that one cannot assume that once she has knowledge of the empirical kind that the knowledge will persist at a later time. States of affairs may change and therefore one's epistemic states are open to revision as a consequence.

On certain occasions, we hold beliefs that are no longer true while being ignorant of the fact. There are times when it would be reasonable for one to criticize us for not inquiring further to find out whether a given belief has been made false. We would even be doxastically irresponsible for failing to inquire about a belief that we are aware that could easily be made false. But there are

times when we may be excused because of the limitation placed our ability to double-check the epistemic status of every belief due to the lack of access. We are not God. Yet, we still tend to reason on the basis of beliefs that have been made false and sometimes even act on them as if they are true.⁶

The issue raised here regarding beliefs that are subject to being made false pertains to beliefs that a subject retains over time. Beliefs that are retained over time are what I will call *diachronic beliefs*.

Diachronic Belief: for any belief state β , β is a diachronic belief iff β is held by a subject for all time indices in a temporal interval t such that $t = \{t_1, t_2, \dots, t_n\}$.⁷

Some diachronic beliefs may be *safe* over time so long as the subject does not

⁶ A KN proponent may criticize the agent here for not always updating her information, but given the agent's current information, she is rational for holding the belief. There is a parallel here with a principle in formal epistemology. Consider van Fraassen's (1984) *reflection principle*: $Cr_0(A|Cr_1(A) = r) = r$. Let Cr be a credence function, A be some proposition, and r be some numerical value assigned to A by Cr . Cr_0 is a credence function at time t_0 and Cr_1 is a credence function at some later time t_1 . By *reflection*, an agent's initial credence ought to be equal to any future credence of A . If one notices in $Cr_1(A) = r$, A is unconditional meaning that there is no assumed new information that is gained of future selves. When no new information is given, one must calibrate her initial credence with the unconditional credence of future selves or else she will be susceptible to a Dutch book. By *Bayesian conditionalization*, when new information is acquired, an agent must update her new prior probability, e.g. $P_{\text{new}}(H)$, to the old posterior probability, e.g. $P_{\text{old}}(H|E)$. But as one can see that in reflection, no new information is given and thus the credence of the prior probability doesn't change. So it is rational to continue to hold the same degree of belief in A under the assumption that the credence function has output a value that meets a rational acceptance threshold. A parallel can be drawn through supposing that there is some undefined probabilistic threshold k that achieves the status of 'knowing'. And let's suppose that a subject S has credence k in a proposition p . From time t_1 to time t_2 , S 's future self does not learn anything new with regard to p . In following reflection, S 's credence k ought to be equal at t_1 and t_2 , $Cr_1(p|Cr_2(p) = k) = k$.

⁷ The precise formulation here is very similar to what Kwall (2010) calls 'enduring belief'.

suffer from any cognitive mishaps of memory or computation.⁸ But some diachronic beliefs may only be initially safe for a short amount of time and unsafe thereafter.

For the most part, epistemologists often tend to focus on *synchronic beliefs*, i.e. beliefs that are indexed to an individual at a particular time *t*. However, the epistemic nature of a synchronic belief is limited to its specific time index. But there are many instances when we need to consider beliefs that persist over time and thus we need to consider an extended temporal frame of reference in which the belief is continuously held. For instance, when beliefs become reasons for acting, we often consider diachronic beliefs. Reasons for acting tend to be based on prior beliefs that a subject has retained for some duration of time. But the truth or falsity of a belief that is treated as a reason for acting may change between the time the belief is first conceived and a later time when an action is performed on the basis of that belief, e.g. LIBRARIAN.

Provided the definition of diachronic belief, it should not be difficult to realize that as temporal entities, all of the information that we hold fits the definition. Some of the beliefs in the latter category may achieve the epistemic status of knowledge, depending on the time of indexing. Others, however, loom in

⁸ The *safety principle* requires a subject to have a true belief that *p* where *p* may not easily be false. From a modal perspective, safety requires that in all nearby worlds, if *S* formed the belief that *p* on the same basis as in the actual world, *p* would continue to be true (Pritchard 2012). See Sosa (1999) and Pritchard (2009, 2012) for defenses of the safety principle.

Many empirical diachronic beliefs will not satisfy the safety condition. Others, however, will satisfy the condition. For instance, a subject may entertain diachronic beliefs about historical, logical, and mathematical propositions that are safe over time. The truth-values of the latter types of beliefs are not sensitive to time indices, however, for the reason that the propositions of those beliefs either have fixed time indices as part of their propositional content (historical beliefs) or the propositional content is temporally unrestricted (logical and mathematical beliefs). Thus, the latter types of beliefs could not be made false over time.

the subject's corpus of information. The beliefs that are not true relative to specific temporal frames of reference or beliefs that remain to be unproven, i.e. hypotheses and future propositions, do not constitute knowledge within the relevant temporal frame of reference. This is because, as many assume, truth is a necessary condition for knowledge.

1.3 Skepticism as a Consequence

One consequence that we may draw here is that the notion of diachronic belief opens the epistemologist up to a unique form of skepticism. One may grant that S has knowledge that p at time t, but it is not necessarily the case that S will know that p over the temporal span between t and t'. Since every unsafe diachronic belief is open to this worry, then we might be skeptical that a subject can have knowledge of an unsafe belief that is quantified over a domain of time indices. The skepticism here is not of the form that S cannot know anything or that S cannot know that there is an external world. Rather, this sort of skepticism grants that S may have knowledge, but the longer a belief is held, the more worried the subject ought to become about whether she has lost knowledge or not.

Some might not see the threat here, but the reason for why we should take this skepticism seriously is because it has wider application beyond the departments and classrooms of philosophy. It is real world skepticism. Many ordinary folk do not entertain the possibilities of whether they are constantly in a dream state or a brain in a vat. However, the goal of philosophical skepticism is

not to convince ordinary folk that they are dreaming, handless, brains in vats. Rather, the traditional philosophical skepticism tracing back to Descartes seems to be methodological in analyzing what we are capable of knowing. To illustrate what the goal of philosophical skepticism is and the intellectual challenge that it provides, we might consider Barry Stroud's (1984) explication of what it is to know something. In order to know that p , one must be able to rule out all relevant possibilities that would make p not to be the case or $\sim p$ be the case. Unfortunately, we cannot rule out the possibility that we are dreaming or handless BIVs.

David Lewis (1996) has provided one of the most intuitive responses to the skeptical challenge through a contextualist analysis of knowledge that accepts the plausibility of skeptical hypotheses and simultaneously retains ordinary knowledge ascriptions.⁹ Lewis agrees with Stroud's requirement of what it is to know something. However, Lewis narrows in on the universal quantifier 'all' in the phrase 'all relevant possibilities' and argues that the domain of the quantifier is context-dependent. The context in which a sentence or utterance is produced determines what elements are in the quantifier domain. In normal circumstances and conversations, the quantifier domain does not include the possibilities of constant dreaming or handless BIVs.

On his account, Lewis claims that it is not proper to ignore possibilities that actually obtain, possibilities that a subject believes obtain, and possibilities of salient resemblance. It is proper to ignore possibilities where one's faculties

⁹ For other contextualists accounts, see Cohen (1986) and DeRose (1999, 2009).

fail (i.e. malicious demon, BIV, and dreaming scenarios), possibilities that others ignore, and possibilities that are ignored when just that, they are actually ignored (Lewis 1996, 554-559).

In ordinary contexts, a knowledge attributer can truly claim that some subject S knows many things. This is because in ordinary contexts, it is likely that the subject is properly ignoring skeptical possibilities that are brought up only in the classrooms of philosophy. According to Lewis, however, once the subject begins thinking about skeptical hypotheses, then she is no longer ignoring them and they do become part of the context domain. But since most ordinary folk do not make it that far in intellectual thought and discourse, they tend to properly ignore the philosophical skeptical hypotheses.

Lewis's response to philosophical skepticism is a powerful one, but only insofar as the dreaming and BIV scenarios are concerned. If we consider the skepticism generated above regarding retaining knowledge over time, Lewis's account does not answer this form of skepticism. The reason for why his account does not answer the latter skepticism is because the possibility that one's beliefs about non-analytic truths have been made false over time is a relevant possibility that is always part of the quantifier domain. Since Lewis is an infallibilist about knowledge, there is not much wiggle room here to properly ignore the possibility.

The skepticism that I have raised is a much more likely possibility and it turns out that beliefs are indeed frequently made false over time. To reiterate, this is real world skepticism. So the skeptical hypothesis postulated here is a serious concern. Lewis's response seems to be very commonsensical and is, I

think, a knockdown argument toward dreaming and BIV skepticism because those scenarios are so difficult to imagine actually obtaining. But the skeptical hypothesis of not being able to retain knowledge over time has much more power and influence in the domain of the ordinary for the reason that it is located in reality and the possibility does actually obtain from time to time. This skeptical hypothesis, then, is a real world concern in that it would be worrisome if we have to give up knowledge of diachronically believed propositions. It will take more than a contextualist response to solve this problem.

1.4 Fallibilism, Defeasible Reasoning, and Defeaters

The skeptical worry is problematic enough for knowledge, but the KN proponent faces another skeptical consequence. By making knowledge a requirement for practical reason, the skeptical worry may transfer over to our practical lives in that the beliefs that we treat as reasons for acting may always be inappropriate reasons since those beliefs could have been made false without us ever being aware. If the transference from the epistemic to the practical is plausible, then skepticism of practical rationality arises.

However, we may provide a positive account against the skeptical worry posed above that incorporates the notion of diachronic belief. The response that I will offer to the skeptical problem does not eliminate it, but I think that it will hold it at bay. The positive account requires us to endorse two epistemological tenets. The first tenet one must endorse is a fallible knowledge principle.

Fallible Knowledge Principle: ...S has fallible knowledge that p iff S knows that p but S's strength of epistemic position regarding p is not maximal with respect to justification (i.e. there are stronger epistemic positions regarding p with respect to justification). (Fantl & McGrath 2007, 559)

From the above definition, we can infer that (1) empirical beliefs that a subject is in a position to know may be fallible—those beliefs could be false given that a subject's justification is not maximal and thus there is the possibility of error—and (2) diachronic beliefs that a subject is in a position to know may be rendered false over time by changes in states of affairs and therefore these beliefs, in many cases, provide the subject with possible knowledge that is not infallible.

Claim (2) might be a contentious consequence of the fallible knowledge principle, but I find that it follows from the principle for the reason that if one's justification is not maximal, then it is possible that the subject is ignorant of facts (possibly future facts) that might falsify a given belief. But by considering the subject's epistemic position, the subject may be in a position to know some proposition p, despite the chance of error, if the fallible knowledge principle is indeed true. Given that there is the possibility that one's diachronic belief that p may be rendered false over time, the possibility does not preclude that the agent could be in a position to know that p.

If we accept the fallible knowledge principle and the consequences (1) and (2), then it ought to be clear that we are sometimes prone to losing knowledge. We cannot do much about the loss of knowledge in cases of ignorance about

relevant facts. But we might prescribe a remedy in the attempt to preserve rationality, epistemic and practical alike. This can be done, I think, by endorsing defeasible reasoning with special attention paid toward doxastic justification. In cases where one has knowledge of some proposition p and the belief that p is justified by deductively valid reasoning from fallibly known premises, then the belief that p is strongly justified. Supposing that a belief that p is justified by inductive reasoning, it is the case, then, that the justification for the belief that p is weaker and the justification is a product of defeasible reasoning. The distinction between the two forms of reasoning is not a subtle one. As John Pollock (1987) notes:

[I]nductive reasoning is not deductive...Such reasoning is defeasible, in the sense that the premises taken by themselves may justify us in accepting the conclusion, but when additional information is added, that conclusion may no longer be justified. (Pollock 1987, 481)

Many beliefs that we entertain have their support or justification from inductive practices. But in following Pollock's claim, when additional information is added to our reason schema, the justification might be weakened or possibly even lost. Thus, a subject may hold a belief that is *epistemically asymmetrical* with regard to justification between some time t_1 and t_2 , relative to the information that the subject has and later acquires.

Depending on the nature of the additional information that is acquired, one

may be presented with a defeater for a given belief.¹⁰ Pollock (1986) has provided two primary types of defeaters:

Rebutting Defeater: a rebutting defeater d for some belief that p is a reason for holding the negation of p or holding some incompatible proposition q with p.

Undercutting Defeater: an undercutting defeater d for some belief that p is a reason for no longer believing p, but not for believing the negation of p.

And Michael Bergmann (1997, 2006) has suggested another:

No-reason Defeater: a no-reason defeater d for some belief that p is a reason for no longer finding it reasonable to believe that p assuming that (1) one has no reason for believing that p and (2) believing that p is only reasonable if one has evidence that p.

Given the variety of defeaters, it is not difficult to imagine that when a subject has a belief of some proposition p, the belief that p is sometimes defeated by new information q that fits under one of the categorical defeaters. And when a belief that p is defeated, the subject must weaken her epistemic commitment to the

¹⁰ In the literature, defeaters have been described as being propositional or psychological. Propositional defeaters are true propositions that defeat a subject's belief. Psychological defeaters are mental states, such as beliefs, that defeat a subject's belief or her justification for a belief (see Bergmann 2006). I will be primarily concerned with psychological defeaters in this thesis.

belief that p or give it up altogether.

But bear in mind that a subject's knowledge may be defeated by a propositional defeater, though the subject may not be presented with a psychological defeater for her belief. We must be clear, however, that the subject would no longer have knowledge if her belief is made false, but the loss of knowledge does not entail that one cannot still be epistemically rational with regard to her holding the belief. This is evident in the Kennedy case above.

The justification for believing that Kennedy is the President of the US was not weakened in the above scenario because I had not learned anything new. A diachronic belief that maintains stable justification or is not defeated by a psychological defeater may be rationally held by an excellent defeasible reasoner, even though her belief may be false. This is supported by Pollock's claim above since it follows that a subject must acquire additional information in order for the belief's justification to be weakened. If one allows for the propositional and psychological defeater distinction, then we are able to preserve epistemic rationality in terms of defeasible reasoning with regard to diachronic beliefs.

My solution works only insofar as one is comfortable in accepting epistemological doctrines, but of course there is much debate in epistemology on fallible knowledge and defeasible reasoning. Infallibilists would outright deny the first tenet and I imagine that many infallibilists would also deny the second as well. A crucial point to make here is that I assume that Hawthorne and Stanley

would deny both tenets.¹¹ However, if one is willing to accept what has been said about fallible knowledge and defeasible reasoning, then it should not be difficult to see how we are able to fit the notion of diachronic belief into the overall epistemological picture and disregard the skepticism from above with respect to knowledge and epistemic rationality.

The picture that has been painted in this section provides a modest solution to the skeptical worry posed in the previous section. Primarily, the acceptance of the fallible knowledge principle allows for a subject to be in a position to know a proposition *p*, even in light of the possibility of error. When knowledge that *p* is lost by the subject's belief being made false, however, the subject must follow a rational procedure. The rational procedure is captured by the constraint that defeasible reasoning and psychological defeaters place on a subject's belief.

When a subject is faced with new information that defeats a given belief, then she ought to weaken her epistemic commitment to the belief or give it up altogether. If the subject does not give up the belief or at least weaken her epistemic commitment to the belief, then it is warranted to describe her as epistemically irrational. But an irrationality ascription is only warranted in cases that involve psychological defeaters. A propositional defeater without a psychological defeater does not necessarily warrant the ascription of irrationality. So one may still be rational in holding a belief as long as she is not faced with a psychological defeater for that belief. From this account of epistemic rationality,

¹¹ Hawthorne and Stanley both subscribe to a particular kind of infallibilism. They subscribe to what is called Knowledge First Epistemology. I will discuss the view in greater length in the second part of the thesis.

we are able to derive a practical implication such that the account allows a subject to rationally act for a reason without her reason constituting knowledge, e.g. LIBRARIAN.

1.5 The Problem of Diachronic Beliefs and KN

I have spent quite a bit of space attempting to explicate and vindicate the notion of diachronic belief and addressing the skeptical consequences that follow, but one might wonder how it is related to KN? The relation between the two is highly important. Since we are temporal entities, all of our beliefs are diachronic. Many of these diachronic beliefs are treated as reasons for acting in our daily lives. But we may end up with awfully impractical consequences by holding KN as the standard for practical reasoning due to the skeptical worry raised in section 1.3.

If one denies the fallible knowledge principle but accepts KN as a rational constraint, which Hawthorne and Stanley do, then Linda in the LIBRARIAN case would be required to perform a “double-check procedure” for her belief that p at time t_2 to ensure that she is certain about the relevant proposition before acting. Performing this process each time a book needs re-shelved would be highly impractical for Linda. Having to repeat the double-check procedure in a large number of decision situations would be nearly impossible for a rational decision maker. This is not only true for Linda but for all rational decision-makers. Nonetheless, if infallible knowledge is required for proper reasoning before acting, as the KN proponents contend, then decision-makers would be forced to

double-check the strength of their epistemic position for every diachronic belief that is relevant in deciding on how to act due to the skeptical worry that knowledge may have been lost. The skeptical issue that I have brought to the surface regarding diachronic beliefs forces the KN proponent to advocate the latter. And the double-check procedure seems to be the only feasible solution for the KN proponent.¹²

One might think that I am being uncharitable to the KN proponent, especially because scenarios like LIBRARIAN are not all that common. But let me illustrate another case:

CLETUS THE CONSERVATIVE: Cletus is a southern conservative. Cletus has ultra-conservative values and political views. He despises President Obama and hopes that Romney will win the 2012 presidential election. He believes that he ought to do his part in helping Romney win by voting for him in November. What Cletus finds so compelling about Romney's political platform is that he opposes same-sex marriage. Cletus finds Romney's standpoint aligned with his own view about marriage. Now, suppose that Romney makes a last-minute stop in Mobile, Alabama on October 29, 2012 for his political campaign. Cletus attends and listens to Romney's speech. In his speech, Romney spends quite a bit of time talking about his opposition to same-sex marriage. Romney's testimony is reliable in the sense that he

¹² There is a possible alternative. Hawthorne and Stanley could deny the double-check procedure and allow agents to continue acting as they normally do. The problem with this alternative, however, is that many agents will often behave irrationally if KN is held as the standard.

actually believes that same-sex marriage should be prohibited. Given the reliable testimony, Cletus believes that Romney opposes same-sex marriage and he is in a position to know that Romney opposes same-sex marriage.

The night before the election, Romney's son Matthew tells his father in confidence that he is gay and has been seeing another man for several years. Upon hearing the news, Romney reacts furiously. But he comes around after a few hours and accepts that his son is gay. This news has affected his stance on same-sex marriage since he loves his son and wants him to be happy. So now he decides that if he wins the election, he is going to leave same-sex marriage laws up to the states to determine. Cletus, however, ignorant of this fact goes to the polls the following morning and votes for Romney. At this time, Cletus has lost knowledge that Romney opposes same-sex marriage. Had he known about Romney's change in heart, he would not have voted for him.

We can ask the question of whether it was rationally permissible for Cletus to act on his belief (aside from moral and political considerations)? The KN proponent must say 'no' here, but the intuitive answer seems to be 'yes'. Cletus had not learned that Romney's opinion on same-sex marriage changed—a change in the state of affairs may produce a propositional defeater, but not a psychological defeater. What is important here is that Cletus might be an excellent defeasible reasoner by some standard, but in this case he was not presented with a psychological defeater that would undermine the justification for his belief. So he

continued to act as if his belief was true. We could even further suppose that Cletus had some hunch that the probability of his belief being true decreased slightly. But his justification favoring the truth of his belief remained intact. He had no way of verifying his hunch, so the justification remained stable. And it would be irrational for Cletus to adjust the epistemic strength of his belief without any evidence for doing so.

Of course, the case above is rather crude, but what is interesting about the case is that it is not entirely a philosophical fiction. States of affairs change often in politics and economics leaving many voters in the dark about what policies will actually be carried out. The internal workings of governmental and economic systems are dynamical. These systems rely on the people, at least in democratic societies, to elect the officials who will run them, but it is not possible for the people to know all of the facts in making decisions. Thus, they are forced to make important decisions, relative to their practical interests, under uncertainty that will essentially affect policy. However, it is not as if we criticize people for making decisions in states of uncertainty since we are all faced with making uncertain decisions that have highly important outcomes. We might criticize them for many other things, but not because they lacked knowledge.

What I hoped to have accomplished in this first part is showing that we often times do lose knowledge in everyday practical matters, but it does not prevent us, in ordinary contexts, from acting and thinking that we were rational in doing so. I understand the proposal for an idealization of practical rationality such as KN, but that idealization is very unlikely to manifest in decision-making

processes since subjects are rationally bounded by the information that they have. And from what I have argued in this first part, acting under uncertainty does not entail practical irrationality.

1.6 Conclusions

From the counterexample that motivated my arguments in this part, I have explicated the notion of diachronic belief and raised a skeptical threat from the notion. Further, the skeptical threat may transfer over to practical reason for those who endorse KN. I have responded to the threats by offering what I take to be a modest solution to the skepticism. If the modest solution is acceptable, then diachronic beliefs need not threaten epistemic and practical rationality. But as I have shown, the notion of diachronic beliefs poses a significant challenge to the knowledge norm of practical reason. Since there appears to be no feasible way of rectifying KN and the skeptical worry, we ought to just reject the norm.

Part 2: A Weaker Alternative to the Knowledge Norm

As I have illustrated in Part 1, the KN principle is false. I have argued that knowledge is not necessary for practical reason through the exposition of a counterexample that falsifies the KN principle. The counterexample that I provided has important epistemological ramifications. Specifically, it has generated an interesting skeptical problem toward retaining knowledge over time. As I see it, the KN proponent will have quite a difficult time responding to the counterexample and the skepticism that follows.

Even though I have generated a handful of philosophical problems toward the KN principle, there still seems to be an intimate relation between knowledge and reasoning about what one ought to do. After all, we often do rely on knowledge in reasoning about the actions that ought to be carried out for the purpose of satisfying our practical goals.

We can accommodate this fact with a weaker alternative linking knowledge and practical reason together. The alternative is what has been referred to as the *sufficiency principle for practical reason*. The sufficiency principle entails that knowledge is sufficient, though not necessary for practical reason. Since the sufficiency principle does not make knowledge necessary for practical reasoning, the principle can sidestep the challenges brought up in the first part that would prevent the principle from getting off of the ground. The sufficiency principle allows for one to be justified in acting for a reason without the subject's reason necessarily achieving the epistemic status of knowledge.

As we will see in this second part, the sufficiency principle is much more

attractive than KN, but it does not go without facing its own difficulties. The goal in this second part will be to first lay out an epistemological consequence of endorsing the sufficiency principle of practical reason, provide a detailed explanation of what the sufficiency principle is and the various forms that it comes in, and finally consider some objections to the principle and its epistemological consequence and provide responses to each.

2.1 Subject-Sensitive Invariantism

The sufficiency principle for practical reason asserts that “If S knows that p, then it is appropriate for S to rely on p in practical reasoning.” Before explaining the sufficiency principle in detail, I will first explain the epistemological view that is entailed by the principle. The epistemological view supported by the principle is *subject-sensitive invariantism* (SSI). I have briefly stated what SSI entails in the first part, but in this section, I will explain in more detail what the key features of SSI are. It should be clear later on that if the sufficiency principle is true, then SSI is also true.

Here is a general characterization of subject-sensitive invariantism: what determines whether a subject is in a position to know a proposition is not entirely epistemic. Pragmatic or practical factors are also relevant in determining whether a subject is in a position to know a proposition, in addition to the subject meeting a set of epistemic conditions. From SSI, it follows that the pragmatic encroaches on knowledge. Jeremy Fantl and Matthew McGrath (2002, 2007, 2009) have developed this view in detail. Their motivation for endorsing a pragmatic view of

knowledge, in part, is to show that the orthodox epistemological doctrine that they call 'epistemic purism' is false. They define epistemic purism as:

Epistemic Purism: For any two possible subjects S and S', if S and S' are alike with respect to the strength of their epistemic position regarding a true proposition p, then S and S' are alike with respect to being in a position to know p. (Fantl & McGrath 2007, 558)

In traditional epistemology, most epistemologists have endorsed a version of epistemic purism, relative to a set of necessary and sufficient epistemic conditions. Fantl and McGrath, however, reject the orthodox purist view and instead adopt a broader epistemological view that is more inclusive in the conditions for knowledge, namely pragmatic or practical factors. Let us call the broader thesis *impurism* or *pragmatic encroachment*.

By introducing pragmatic factors into the analysis of knowledge, however, some may worry about what the relevant pragmatic factors are that encroach on knowledge. The salient pragmatic factors relevant to a subject's position to know a proposition may vary from context to context and therefore are not clearly identified. Impurism has no objective criteria, then, to determine whether one subject knows and another does not when both hold the same epistemic position in varying contexts. A subsequent worry to consider is that impurism allows for much more individual-based subjectivity than traditional purism because impurism allows for the subject's own *personal interests* to affect whether she is

in a position to know a given proposition. Purists avoid these issues of relativity and subjectivity by holding an objective requirement between epistemic positions, i.e. if A's strength of epistemic position allows A to be in a position to know that p and B's epistemic position is nearly identical to A's, then B is in a position to know that p.

It seems, then, that there is more explanatory work needed for impurism rather than purism. So why bother with impurism at all when purism may be good enough? It is a difficult task in identifying the practical factors for impurism, and it might be turn out to be a hopeless endeavor. But an impurist may answer the challenge by offering a general theoretical test to determine what the relevant practical factors are. The test involves determining what is at stake for the subject. One may analyze a subject's position to know a proposition in shifting contexts with regard to stakes. So let stakes be the pragmatic criterion within the impurist view.

Although the practical environments shift when stakes are raised or lowered, most impurists require that the epistemic features available to the subject remain fixed in each context, i.e. belief, justification, truth, and the like. Fixing the epistemic features is the invariantist aspect of SSI. So (1) a subject must have a belief, (2) the belief must be justified, (3) the belief must be true, and (4) the truth of the belief must not be due to sheer luck. Here are some examples where a subject has a belief that satisfies all of the good making epistemic features for knowledge, but the stakes differ within the practical environments:

BUS-Low: Jill has plans to meet a friend for a picnic near downtown Calgary. She does not have a car and will have to take the bus to get to her destination. Jill has been on the bus so many times that she has memorized its schedule. She believes that the bus will arrive at time t_1 . Jill also believes that if she gets on the bus at time t_1 , then she will make her destination on time. Confident that the bus will arrive on time, Jill walks to the bus stop with only a few minutes to spare before the arrival time.

BUS-High: Jill has a very important interview in downtown Calgary for a position at an art gallery. She has always wanted to work at an art gallery and would be unhappy doing anything else. In addition, Jill is unemployed and needs a job desperately. Her bills are due at the end of the month and she does not have the money to pay. Having no other callbacks for interviews, Jill needs to perform well in her interview. She knows that showing up late to an interview can hurt her chances. Jill, who does not have a car, has to ride the bus downtown to her interview. Jill has been on the bus so many times that she has memorized its schedule. She believes that the bus will arrive at time t_1 . Jill believes that if she gets on the bus at time t_1 , then she will make her destination in time. Jill, however, gets on an earlier bus at time t_0 rather than t_1 , despite her belief.

From Low and High, Jill contemplates performing an act that is based on the belief that the bus will arrive at time t_1 . Jill has exactly the same evidence for her

belief. However, the practical environments differ with respect to stakes. The stakes vary in each instance where the cost of being wrong is more detrimental to Jill's practical interests in High rather than Low.

The question that we are most interested in, given the two scenarios, is whether Jill *knows* that the bus will arrive at time t_1 . Let us assume that Jill's belief is sufficiently justified, true, and absent of epistemic luck in both instances. From a general purist standpoint, Jill would be in a position to know that the bus will arrive at time t_1 in both scenarios, *ceteris paribus*. But in High, Jill did not act on her belief. It seems that if Jill had knowledge, then it would have been rationally appropriate for her to rely on her belief in her practical reasoning and therefore treat the belief as a reason to act in High. But because of what was at stake for Jill, with respect to her practical interests, she did not find the belief to be rationally appropriate to rely on in practical reasoning. The belief was a reason to act as if the bus would show up at time t_1 . But missing the bus had detrimental consequences to her practical interests and thus prevented her from acting. The refraining from acting indicates that the cost of being wrong affected Jill's position to know and therefore Jill in High did not in fact know that the bus would arrive at time t_1 .

On the other hand, Jill acted on her belief in Low. The strength of her epistemic position is the same as in High, but the practical environment differs. Since the stakes in Low were not salient to Jill's position to know, she confidently walked to bus stop with only a few minutes to spare before the arrival time. Jill's action indicates that the cost of being wrong did not affect her being in position to

know. The impurist would claim, then, that Jill knows that the bus will arrive at time t_1 in Low. As a consequence, impurism allows Jill to be in a position to know in one context but not in the other. Since the epistemic features were held fixed across both scenarios, the most plausible explanation for why Jill had knowledge in Low but not in High is that the subject's practical interests also determine whether she knows a proposition and therefore the pragmatic does indeed encroach on knowledge.

The impurist answers the question of what pragmatic factors encroach on knowledge by claiming that the salient features of a subject's practical environment that raise or lower the stakes, with respect to her practical interests, are what affect whether the subject has knowledge or not. The purist may still find this response to be wanting, but if one considers the subject's point of view in a particular context, identifying the salient features of the practical environment for the subject ought to be fairly straightforward.

Purists will likely be resistant toward accepting the impurist view of knowledge for the reason that the strength of Jill's epistemic position is identical in both cases. If she knows in Low, then she should also know in High. And it might also be difficult for the purist to see what the merit is in endorsing impurism. So we need a way to show what the motivation is for being an impurist. In the attempt to convince the opposition, Fantl and McGrath first begin by endorsing fallibilism about knowledge, rather than 'Knowledge First'

infallibilism such as Hawthorne and Stanley.¹³ So purist fallibilists will be happy so far. Fallibilism about knowledge may come in two forms:

Weak Epistemic Fallibilism: S knows that p, even though p is not maximally justified for S.

Strong Epistemic Fallibilism: S knows that p, even though there is a non-zero chance for S that not-p.¹⁴

Traditionally, most fallibilists have adopted epistemic purism, i.e. pragmatic factors do not play a role in whether a subject is in a position to know a proposition. Despite being purist or impurist, all fallibilists generally accept that a subject may know a proposition without achieving certainty with regard to the proposition. S may know that p even though there is a small chance that S might be wrong that p.

Infallibilists, however, find the fallibilist claims to be absurd and tend to propose that the fallibilist faces two serious concerns. The first concern is in regard to the lack of certainty that a subject has toward some proposition. If S is not certain that p, then S might be right that p or S might possibly be wrong that p. But knowledge seems to be something that is not uncertain and does not allow

¹³ Hawthorne (2004) and Stanley (2005) have both defended an SSI view, but they reject fallibilism. They both appear to be infallibilists of the Williamsonian spirit or 'Knowledge Firsters' (see Williamson 2000). It is important to note that the discussion of fallibilism will pertain specifically to Fantl and McGrath. I will come back to the knowledge first account toward the end.

¹⁴ Fantl and McGrath seem to endorse the strong version.

for S to be wrong about p, no matter how small the possibility of error is. The second concern is that granted fallibility, if knowledge need not achieve certainty, then the fallibilist has to find a non-arbitrary way to provide an epistemic threshold for knowledge. On a probabilistic scale, S believes that p and S's evidence for p confers $\Pr(p) = .99$. Is the latter sufficient for knowledge? Suppose that $\Pr(p) = .99$ is sufficient to know that p and it is set as the epistemic threshold for knowledge. If so, what about S's evidence conferring $\Pr(p) = .98$? The $\Pr(p) = .98$ does not meet the threshold if .99 is required. Thus, when S's evidence confers $\Pr(p) = .98$ or lower for p, S's belief that p does not constitute knowledge. But is there really that significant of a difference between .99 and .98? Would a subject be less willing to bet on a proposition if her degree of belief changed from .99 to .98? Probably no. Defining the epistemic threshold for knowledge, then, leads to vagueness and arbitrariness in setting a numeric value. Whether we are concerned with knowledge or justification, all threshold accounts are faced with the challenge of providing a non-vague, non-arbitrary threshold.

It is difficult to provide a convincing fallibilist account that resolves these problems, especially from a purist fallibilist point of view. A purist fallibilist may attempt to answer the first concern by claiming that the possibility of error must be an idle one (Fantl & McGrath 2009, 4). But an idle possibility of error still requires that a subject's degree of belief meets a threshold that is not probability 1. Determining what the threshold is, however, cycles back to the threshold problem again. And at this point in time, there is no convincing argument for what numerical threshold sticks for knowledge or justification.

If we step away from purist fallibilism and move toward impurist fallibilism, the threshold problem may be eased a bit. How might this be achieved? It can be achieved by considering the practical environment and interests of the subject. A subject's practical interests and the stakes of the situation dictate how she will act. We may assume that it is rationally appropriate for a subject to rely on what she knows in practical reason and subsequently a subject is justified in acting on what she knows. If it is not rationally appropriate for a subject to rely on a proposition p in practical reason and a subject is not justified in acting on p , then she does not know that p . If the subject is not justified in acting on a proposition p , then there must be a salient weakness in her position to know that p . Barring any salient weakness in the subject's position to know that p , the subject would be rational to act on p .

So instead of offering a numeric probabilistic threshold, impurist fallibilists emphasize that if one is in a position to fallibly know that p , then the subject has satisfied all of the good making epistemic features and is rational to act on the proposition p . Certainty is not required and the threshold problem is eased a bit.¹⁵ Therefore, impurist fallibilism is preferable to purist fallibilism for two reasons. The first is that impurist fallibilism has what I take to be an adequate response to the infallibilist concern of knowledge being less than certain, whereas purist fallibilism does not. Specifically, impurist fallibilism provides a heuristic method in determining when a subject knows or does not

¹⁵ The threshold problem does not go away completely for impurist fallibilism, but when comparing impurist fallibilism with purist fallibilism, the former redirects the focus to what would be rational for a subject to act on. Provided this practical aspect of SSI, one does not need to analyze knowledge ascriptions down to a precise threshold. Rather, an SSI proponent can deny a subject of knowing a proposition if it is not rational for her to act on the proposition.

know without the need of specifying a precise numeric threshold. The second is that impurist fallibilism creates a bridge between a subject's knowledge and her practical reason, whereas purist fallibilism does not. I will take up the relation between knowledge and practical reason in the following section.

2.2 Knowledge is Sufficient for Practical Reason

In deriving a principle linking knowledge and practical reason, we have already considered the equivalence thesis (KN) in the first part. As I have shown, the first direction of KN is false and subsequently KN is false. The other direction by itself, however, is the *sufficiency principle for practical reason*. Fantl and McGrath (2009) have put forth what I will call the *strong version* of the sufficiency principle. The principle that they defend expresses the thesis that knowledge *justifies* action:

KJ: If S knows that p, then p is warranted enough to justify S in φ -ing, for any φ .¹⁶

If KJ is true, then it follows that if p has the epistemic status of knowledge for S, then p, treated as a reason, is appropriate within S's practical reasoning since practical reasoning precedes intentional action. Since φ -ing would constitute an *intentional action*, then practical deliberation is a necessary precondition for the intentional action φ to come about. Otherwise, if S does not practically deliberate

¹⁶ See Fantl & McGrath 2009, 66.

on doing φ for the reason p (where doing φ is p -dependent), then if φ were to occur, φ would not constitute an intentional action.

Assuming that the latter claims hold, we can derive the following *weak version* of the sufficiency principle from KJ:

KN-S: If S knows that p , then it is appropriate for S to rely on p in practical reason.

In considering the practical scope of KJ and KN-S, both principles are stated in very general form and thus, the particular aims of an agent in her practical reasoning and intentional action may not be fully realized. Given the generality consideration of both principles, we might also consider a variety of principles that specify some practical aims of KJ/KN-S. They are:

Action: If S knows that p , then if the question of whether p is relevant to the question of what to do, then it is proper for S to act on p .

Best Results: If S knows that A will have the best results of the available options, then S is rational to do A .

Preference: If S knows that p , then S is rational to prefer as if p .

Inquiry: If S knows that p , then S is proper not to inquire further into

whether p.¹⁷

As one can see, the above principles *Action*, *Best Results*, *Preference*, and *Inquiry* may be interpreted as aligning themselves with the KJ and KN-S principles. For the purposes of this thesis, I will focus primarily on KJ and KN-S and take them together as the ‘sufficiency principle’, but on occasion refer to one of the more specific principles above.

Moreover, KJ/KN-S has a weak normative component where if we were to treat the sufficiency principle as a norm and an agent were to violate the norm, then an attributer would be warranted in criticizing her for not at least attempting to succeed in her practical aims given that she had the intellectual means for attempting to do so.¹⁸ Otherwise, if the subject conforms to the norm, depending on her practical situation, then the subject is just following a standard procedure of practical rationality. What do I mean here by following a standard procedure of practical rationality? Consider the following instance that illuminates the procedure:

MURDERER: A man was found murdered on the corner of State Street and Main Street. The police have narrowed down three suspects. Suspect 1 has brown hair, Suspect 2 has red hair, and Suspect 3 has blonde hair. Suspects 1 and 2’s heights are 5’ 4” and 5’ 3”. Suspect 3 is 6’ 5”. Forensic

¹⁷ See Fantl & McGrath 2009, 59-60.

¹⁸ I say a weak normative commitment for the reason that KJ and KN-S are not as normatively demanding as KN.

scientist McGrath shows up to the crime scene and takes the body back to the lab. After closely examining the body, McGrath determines that the cause of death was blunt force trauma to the head. Looking more closely, he compares the height of the victim to the height of the suspects. McGrath concludes that the perpetrator must have been over six feet tall given the angle that the object was struck down on the victim's head. After closer examination, McGrath finds a blonde strand of hair on the victim's coat. He runs a DNA test and it is a positive match for Suspect 3. Detective Fantl shows up with another piece of evidence. The evidence is a crowbar that has the victim's hair caught on the end and the fingerprints of Suspect 3. Detective Fantl asks McGrath, "Do you want me to bring the three suspects in so you can compare?" McGrath replies, "No, arrest Suspect 3. I know that Suspect 3 is the murderer!"

Intuitively, I assume that many folk would not object to McGrath's command in the above scenario. A way that we might explain why we are not inclined to object to his command is because it is a standard procedure of practical rationality for one to act on what one knows. In this case, provided the evidence, McGrath knows that Suspect 3 is the murderer. As long as he is in a position to know that Suspect 3 is the murderer, then one should have no qualms with him acting as if Suspect 3 is the murderer. The act performed here was commanding Detective Fantl to arrest Suspect 3. So if one were to ask McGrath, "Why did you command Detective Fantl to arrest Suspect 3?" an appropriate response might be something

like, “Because I know that Suspect 3 is the murderer.” This seems like a very intuitive and natural response to such question.

But why would such a response be taken as intuitive and natural? Since McGrath’s goal was to identify the murderer and report the murderer to the police, then the fact that he knew who murdered the victim indicates that he fulfilled the first part of his goal of identifying the murderer, and reporting to Detective Fantl that Suspect 3 was the murderer fulfilled the other half of the goal. So McGrath was successful in satisfying his practical aims in this situation. If practical reasoning and intentional action are aimed at succeeding in one’s goals, then we must agree that McGrath followed exceptional practical reasoning that led to a successful intentional action. On the normative side, if McGrath had the above goal and knew that Suspect 3 was the murderer but withheld the information from Detective Fantl, we should find his withholding to be practically irrational and we ought to criticize him for failing to at least attempt at succeeding in his practical goal when he had the intellectual means available for doing so. Having the relevant knowledge constitutes having the intellectual means for attempting to fulfill one’s practical goal. And knowledge, as an intellectual means, will improve one’s chance in succeeding in her practical goals. For these reasons, we should find KJ and KN-S to be compelling.

Although the above analysis seems to accord with intuition, some might find the ‘why/because’ engagement to be an inadequate explanation, especially because knowing some thing does not explain an agent’s motivation for acting. So if one were to take KJ and KN-S on the face of it without considering any agential

motivational implications, the subject's intentions and actions are not fully described by the fact that she knows some proposition. The story seems to be more complicated than just a simple response: "Because I know that x." We need more than just knowledge to explain why someone intentionally acted. I take there to be some implicit motivational factors in McGrath's practical reasoning that need to be cashed out.

From an internalist perspective about motivation, a Humean requires that one must have a *desire* in order to be motivated to act. Knowing some thing is distinct from desiring some thing. If S knows that p, then S believes that p. S believing that p is an entirely different cognitive attitude than S desiring the effect that acting on p would yield. And from the Humean account of motivation, only S desiring the effect that acting on p would yield will provide the motivation for S to do φ for the reason p. S simply believing that p does not necessarily motivate S to φ . So to answer the question, "Why did you do x?" one must also cite a desire in addition to a belief in order to adequately answer the 'why' question, at least according to the Humean.¹⁹

A belief, however, is important in that a belief becomes an instrumental reason for acting with the aim of satisfying a desire. If a belief p and a desire d are combined together with an agent's will, the agent may form the intention to do φ . Thus, one may fully answer the above question "Why did you do x?" by stating that she had a desire d, an instrumental reason p to do x such that x-ing would

¹⁹ Providing a defense of Humean internalist theory of motivation is beyond the scope of this thesis. But for a comprehensive defense, see Schroeder (2007, 2009).

satisfy d, formed the intention to x, and intentionally did x. Call this the *psychological explanation of action* (PEA). PEA seems to be descriptive of ordinary folk in their deliberative process in deciding on how to act. More precisely, we can state the notion as such:

Psychological Explanation of Action (PEA): for any agent A, if A intentionally does action φ , then A desired the effect that φ -ing would produce, had an instrumental reason p to φ such that φ -ing would bring about the desired effect, and formed an intention (based on the belief and desire) to do φ .

Provided the psychological explanation of action, a critical question comes to mind: does PEA undermine KJ/KN-S by showing that knowledge is not sufficient for justifying one in practical reasoning and action? KN-S and KJ, taken together, entail that knowledge is sufficient for practical reason and action, but I have just argued that what is sufficient for practical reason and action is more than knowledge since knowing some fact does not motivate an agent. It might appear, then, that PEA undermines KJ and KN-S. However, we might avoid this issue if we were to assume PEA as a background condition to KJ and KN-S.²⁰

Before I explain PEA as a background condition, we first ought to consider the KJ and KN-S principles independent of PEA and the deontic commitments of

²⁰ Hawthorne and Stanley claim that one's decision must be "p-dependent" or "p-relevant". The relevance of p is important since one would not be motivated to do φ for the reason p if she did not desire the outcome of φ . But to spell out the full details, I think we need to consider PEA as a background condition to KJ and KN-S

each. The KJ principle is not committed to necessarily, S knows that p *obligates* S to φ for the reason p. The way that I interpret KJ through a deontic perspective (independent of PEA) is that φ is a rationally *permissible* act for the reason p if S knows that p, but S is not rationally obligated to do φ .²¹ Doing φ might be in S's best interest, but not doing φ could also be in S's best interest. If S does not have any desire that will be satisfied by performing φ , then despite the fact that S knows that p, doing φ for the reason p might not be in S's best interest. Therefore, I do not think that the strong version of the sufficiency principle, independent of PEA, rationally obligates one to do φ for the reason p, given that S knows that p.

Similarly, the weaker version of the sufficiency principle, KN-S, is not committed to p being an *obligating* reason for S to do φ if S knows that p. Rather, p is just an *appropriate* reason, treated as a premise in S's practical reason schema, to have in deliberating on doing φ . But p could be overridden by another reason q, especially if q, coupled with a strong desire, is a stronger reason to do ψ rather than φ . Despite the possibility of having overriding reasons, an overriding reason does not take away the fact that it is still appropriate for S to treat p as a premise in her practical reasoning. The reason p might not be S's strongest reason in her practical deliberation to act, but treating p as a premise in S's practical reasoning does not violate her practical rationality either, as long as p is relevant. Therefore, KN-S does not entail that a belief p that constitutes

²¹ Fantl and McGrath disagree here and take KJ to express a rational obligation. The "warranted enough to justify" part of the consequent of the conditional is meant to be read as S is obliged to φ assuming that p is warranted enough to justify S in φ -ing.

knowledge is a rationally obligating reason to do φ . A relevant belief that achieves the epistemic status of knowledge is a non-obligatory but rationally permissible reason to act a certain way.

Looking at the larger normative scope over the entire principles, KJ and KN-S do not make a strong normative commitment to the relation between knowledge and practical reason/action the way that KN does, which the latter rationally obligates S to only act on what she knows and refrain from acting when her reason to act does not constitute knowledge. For KJ and KN-S, anyone with an elementary understanding of logic will see that S may fail to know that p, yet p may still be warranted enough to justify S in φ -ing for any φ . Suppose that S knows that p and p is appropriate to treat as a reason for acting, but S has an overriding reason q that is correlated to a desire d. However, S does not know that q. The KN proponent would not permit S to act on q since q does not have the epistemic status of knowledge and S has a rational obligation to refrain from acting when knowledge is not present. But KJ and KN-S are not violated in this instance if S chooses to act on q (assuming S is warranted in acting on q). The antecedent of the conditional may be false and the consequent true yielding the conditional to be true. So KJ and KN-S do not make knowledge necessary for justifying one in φ -ing for the reason p. Rather, I interpret the principles as supplying S with the *rational permissibility* of acting on what S knows.

The point that I am trying to draw out is that knowing a proposition p does not rationally obligate the agent to perform an action φ for the reason p when considering the principles of KJ and KN-S alone, without any psychologically

motivating conditions. Deontically, from KJ and KN-S (independent of PEA) I think that it is plausible to assume that it is only rationally permissible for S to φ for the reason p, but it is not rationally obligatory for S to φ for the reason p.²² If the deontic account here holds for the sufficiency principle, then S may not φ if she so chooses, even when p is warranted enough to justify S in φ -ing. And S cannot be criticized on a rational basis for not φ -ing since S does not hold a rational obligation.

But we need to tread carefully here. The deontic account above applies only to KJ and KN-S independent of PEA. By placing PEA into the account of practical rationality as a background condition, however, if S desires the effect that φ -ing will produce, S *ought* to φ in order to satisfy her desire. And if S knows that p, p is a justified reason to φ , and S desires the effect that would be produced from φ -ing, then S is justified in φ -ing. In this case, the “justified in φ -ing” part should not be interpreted deontically only as rational permissibility since S now holds a *rational obligation*. The rational obligation is an obligation to one’s self. The most rational thing for S to do is to achieve the practical goal of satisfying the desire. If S does not at least attempt to achieve her practical goal when she has the intellectual means (knowledge) for doing so, then it is warranted to criticize her. We may appropriately describe her failure to make an attempt as a product of practical irrationality. That is why it would seem warranted to criticize McGrath in MURDERER if he would have failed to report that Suspect 3 was the murderer. McGrath had a goal and the intellectual means for at least attempting

²² Again, Fantl and McGrath take KJ to be obliging.

to achieve his goal, so he held a rational obligation to himself to satisfy the goal.

Treating PEA as an implicit background assumption for KJ/KN-S might make things confusing, especially when it comes to permissibility and obligation. So we ought to bring PEA out of the shadows and conjoin it with KJ/KN-S to eliminate the confusion. The truth of the conjunction of PEA & KJ/KN-S entails that S holds a rational obligation to herself to φ . From the latter, we may derive what I will call the *principle of common practice* of ordinary practical deliberation and behavior.

Principle of Common Practice: for any agent A, A follows common practice iff A satisfies her rational obligation to φ that is required by the truth of the conjunction PEA & KJ/KN-S.²³

From the principle of common practice, I have added stronger normative requirements to practical reason and practical rationality. As argued above, when PEA and KJ/KN-S are conjoined, a subject S holds a rational obligation to herself to φ , provided that φ -ing will potentially achieve some practical goal for S.

A key point to keep in mind is that accepting the principle of common practice requires the acceptance of the sufficiency principle that links knowledge

²³ The principle of common practice here is somewhat inspired by Moore's (1925) common sense approach to epistemology. 'Common practice' moves beyond the epistemic and into the practical. The motivations are different in that Moore was attempting to defend knowledge of the external world against idealism and skepticism. My motivation is to defend descriptive practices in practical reasoning and behavior against those who reject the belief-desire model. I take the principle of common practice to be common sense in thinking about how one makes a decision to act. In addition, the principle of common practice takes the conjunction of PEA with KN-S/KJ. As I have argued, we should find that KN-S/KJ fits nicely alongside PEA.

and practical reason/action together since the principle of common practice depends on the truth of the conjunction of PEA and KN-S/KJ.

What I have attempted to do in this section is construct a standard model of practical rationality. Within the model, it seems that one is rationally permitted to treat knowledge that p as a reason to act. Alongside, I have provided the psychological explanation of action (PEA) to give a fully sufficient account of practical reason and rationality. To resolve any tension between PEA and KJ/KN-S, I have revealed the deontic commitments of KJ and KN-S independent of PEA and the deontic commitments when PEA is conjoined with KJ/KN-S. The conjunction entails that a subject S has a rational obligation to herself to φ . Assuming that S satisfies her rational obligation that is entailed by the truth of PEA & KJ/KN-S, she follows common practice. The name should speak for itself in that when one thinks about how rational decision-makers deliberate on what to do, the principle is descriptive of such practice.

2.3 Knowledge Does Not Always Justify Action

I hope that it seems fairly obvious that practical rationality dictates that one ought to act on what one knows at this point given the MURDERER case and the principle of common practice. There, however, may be times when a subject has knowledge, but she is not justified in acting on it, even when she has a desire that might be satisfied by acting. If such instances arise, then the sufficiency principle is false. If the principle turns out to be false, then the falsifying instances undermine Fantl and McGrath's account for the pragmatic encroaching

on knowledge, i.e. impurist fallibilism is false. In addition, such instances would also undermine the principle of common practice. If KJ/KN-S is false, then the conjunction of PEA & KJ/KN-S is false. If the conjunction is false, then the right side of the biconditional would be false. Thus, the principle of common practice is false. Unfortunately, it seems that those instances do exist. Consider the following example provided by Baron Reed (2010):

PUNISHMENT/REWARD: You are participating in a psychological study intended to measure the effect of stress on memory. The researcher asks you questions about Roman history—a subject with which you are well acquainted. For every correct answer you give, the researcher will reward you with a jellybean; for every incorrect answer, you are punished by an extremely painful electric shock. There is neither reward nor punishment for failing to give an answer. The first question is: when was Julius Caesar born? You are confident, though not absolutely certain, that the answer is 100 BC. You also know that, given that Caesar was born in 100 BC, the best thing to do is to provide this answer (i.e., this course of action will have the best consequences—you will be one jelly bean richer!). (Reed 2010, 228-29)

Reed's case picks on the *Best Results* principle, which I have taken to be closely related to KJ and KN-S. Here is how the case is supposed to work. In the above case, you know that Caesar was born in 100 BC and you know that answering the question will produce the best results. But it is not rational for you to answer the

question! Therefore, KJ and KN-S are false.

The best result is to receive a jellybean. Receiving a jellybean is preferable to receiving nothing at all. So there is an incentive for answering the question opposed to not answering the question. Suppose that you really like jellybeans. Then you ought to answer the question in order to receive a jellybean. But given the possible consequence of being wrong, you ought to stay quiet, even though you know that answering the question will produce the best result. If you remain quiet, it seems that you do not find your knowledge to be rationally appropriate in your practical deliberation and subsequently the knowledge does not warrant you to answer the question. It follows, then, that the antecedent of the KJ/KN-S conditional is true, but the consequent is false thereby making the conditional false. The above case provides a reason for denying the sufficiency principle. And if the sufficiency principle is false, then one also loses her grounds for endorsing SSI. The sufficiency principle is an important thread in the pragmatic interpretation of knowledge. SSI will unravel if the sufficiency principle is cut.

Jessica Brown (2008) gives another example that drives the intuition to think that knowledge is not always sufficient for acting. Her example goes as follows:

SURGEON: A student is spending the day shadowing a surgeon. In the morning he observes her in clinic examining patient A, who has a diseased left kidney. The decision is taken to remove it that afternoon. Later, the student observes the surgeon in theatre where patient A is lying

anaesthetised on the operating table. The operation hasn't started as the surgeon is consulting the patient's notes. The student is puzzled and asks one of the nurses what's going on: *Student: I don't understand. Why is she looking at the patient's records? She was in clinic with the patient this morning. Doesn't she even know which kidney it is? Nurse: Of course, she knows which kidney it is. But, imagine what it would be like if she removed the wrong kidney. She shouldn't operate before checking the patient's records.* (Brown 2008, 176)

In this case, the surgeon knows which kidney needs to be removed, but the costs of being wrong are extremely detrimental to the surgeon and the patient, if the surgeon just goes ahead and operates. So even though the surgeon knows that the left kidney needs to be removed, it is not rationally appropriate for her to rely on her knowledge in her practical deliberation of deciding how to proceed without first double-checking. Again, the antecedent of the KJ/KN-S conditional is true and the consequent false thereby making the conditional false. Thus, the sufficiency principle is false. This case provides further reason for denying that knowledge is always sufficient for action.

Reed and Brown have created some problems for KJ/KN-S. In both cases, the antecedents of KJ and KN-S are true, but the consequents are false in both instances. Therefore, KJ and KN-S are false by intuition. But I think that the response, at least from Fantl and McGrath's perspective, ought to be fairly obvious. In both cases, the subject just does not know. Reed and Brown think

that it is too high of a cost to deny the subject knowledge in both of their cases. By intuition, they think that it would be problematic not to ascribe knowledge to the subjects in both cases. But I, however, do not think that the intuition is definitive. Contrary to their view, there is an intuition in denying the subject knowledge in both cases. Let us consider Reed's example first.

In contemplating what you know rather than what you ought to do, we may ask in the above scenario, "Do you really know that Caesar was born in 100BC?" We may suppose that the strength of your epistemic position, from a purist standpoint, is rather good. A purist answer is, "Yes, I do know that Caesar was born in 100BC." Of course, your knowledge is fallible in that you might be wrong. Reed even allows for your knowledge to be fallible in this scenario. So we could question you, given that your knowledge is fallible, on what the epistemic threshold is for knowing in these circumstances. Since a non-arbitrary/non-vague response cannot be provided, one will revert back to the epistemic threshold problem for knowledge. A purist answer does us no good here.

To avoid the epistemic threshold problem, we might answer the above question from an impurist standpoint. The impurist considers what is at stake, and what is at stake seems to be fairly high since a painful shock is a very bad outcome for you. So in answering the question, "Do you really know that Caesar was born in 100BC?" the impurist would consider you being in a position to know and realize that there is a weakness in your position. The weakness lies in the pragmatic, not the epistemic, in this instance. The stakes are so high that the subject cannot ignore them in determining whether she knows. And since the

weakness is salient and not idle to her, she realizes that it is not rationally appropriate for her to rely on the belief in practical reasoning. And because it is not rationally appropriate for her to rely on the belief in practical reasoning, then she does not in fact know that Caesar was born in 100BC.

There are two consequences that we can draw from this argument. First, Reed's case is not an instance where one is not rational to act on what she knows because the subject does not know to begin with in his example. The sufficiency principle still stands. The second consequence is that when one considers whether the subject knows as opposed to determining whether the subject is warranted in acting, Reed's case redirects the attention back to the follies of purist fallibilism. In evaluating the case, we want to know whether the subject actually has knowledge. When asking the question, we may analyze the epistemic status of the subject's belief from purist and impurist (both fallibilist) standpoints. What we find is that the purist is going to face the epistemic threshold problem again since Reed admits that the subject is not certain that Caesar was born in 100BC. The purist does not have any pragmatic contextual factors available to appeal to, e.g. what is at stake for the subject.

The impurist, however, makes the threshold problem less relevant by incorporating the pragmatic into the analysis of knowledge. The stakes reveal a salient weakness in your position to know that Caesar was born in 100BC and you come to realize that you do not in fact know. If the weakness in your position to know were to be idle, then you would know and your knowledge would subsequently be rationally appropriate to rely on in your practical reasoning, but

in this case the weakness is not idle. So I think that Reed's case actually helps vindicate the sufficiency principle and SSI and shifts the attention back to the purist when one considers whether you actually know that Caesar was born in 100BC.

In looking at Reed's case more closely, the argument follows *epistemic closure*. Briefly, the general epistemic closure principle goes as follows:

Epistemic Closure Principle: If S knows that p, and S knows that p entails q, then S knows that q.

Reed's case assumes the closure principle.

- (1) S knows that Caesar was born in 100BC is the correct answer.
- (2) S knows that if Caesar was born in 100BC is the correct answer, then the best thing to do is give the answer, all things considered.
- (3) S knows that the best thing to do is give the answer.

We do not need to deny epistemic closure here. Assuming that closure holds, Reed's case is flawed and does not pose a threat to KJ/KN-S or impurism. As I have argued above, (1) is false. Premise (2) might be true since S may or may not know the entailment. Let us suppose that premise (2) is true and S does know the entailment. S is unable to infer the conclusion (3). Supposing that the epistemic operator 'knows' penetrates through the entailment, S still does not know the

antecedent. Without knowing the antecedent, S cannot make the inference S knows that the best thing to do is give the answer, all things considered. Because S is unable to infer the conclusion, then we should not be convinced by his argument. And if we are not convinced by the argument, then the case does not drive the intuition that KJ/KN-S is false.²⁴

The arguments against Reed's example apply to Brown's example also. The only striking difference between the two cases is that the stakes shift. We may justifiably classify both cases as being high stakes since the cost of being wrong in both instances would significantly affect the subject(s) practical interests. Nonetheless, because the stakes are very high for the subject in SURGEON, there is more at stake. The higher stakes reveal a less convincing case against KJ/KN-S. The reason why is that the weakness in the subject's position to know in SURGEON is much more salient than in PUNISHMENT/REWARD due to the costs of being wrong. That is not to say, however, that the stakes are low in Reed's case. We may consider the psychological study example to be high stakes, but the surgeon example yields even higher stakes, given the context. The subject in Reed's case may refrain from doing anything at all. And the subject could resist her own preference for a mere jellybean. The surgeon does not have the luxury of doing nothing since the patient has already been given the anesthesia. And the

²⁴ Another way one could reject the above argument, though it is not an appealing option, is by rejecting closure. We might suppose that (1) and (2) are true, but (3) is false. The reason why we could consider the conclusion to be false is because, as Dretske (1970) argued, the epistemic operator 'knows' is only a semi-penetrating operator, and in this case, the operator does not penetrate through the entailment. One could provide reasons for why the epistemic operator does not penetrate through the entailment in this case. However, appealing to this sort of argument would not only undermine epistemic closure, but it might also undermine KJ and KN-S. Neither is acceptable for our purposes. Luckily, we do not have to worry about the operator penetrating in this case since premise (1) and the conclusion are false, and so the argument remains valid.

surgeon cannot resist her own preference of being a good doctor since she has an obligation at this point.

The surgeon has two options such that she could either continue on with the procedure or stop everything and wake the patient up. As the case goes the surgeon proceeds, but not before double-checking the charts. Double-checking the chart, however, indicates that the surgeon does not know that the left kidney needs removed, according to the impurist, since if she knew then she would be rational to proceed without the need of double-checking. The weakness in the subject's position to know in this case is caused by the costs of being wrong, which might include wronging the patient with medical error (that could lead to subsequent medical issues that may even be fatal), malpractice lawsuit, inability to practice medicine, guilt toward the patient, embarrassment among colleagues, etc. It is clear that there is much at stake for the subject in this instance. Thus, the weakness of the subject's position to know is very salient given these factors that prevent her from being in a position to know that the left kidney needs removed and so explains why the surgeon double-checked. The surgeon example does not falsify KJ/KN-S.²⁵

2.4 Knowledge First Infallibilist Concerns

In the previous section, I considered some counterexamples to KJ/KN-S and the principle of common practice. I think that I have plausibly defended the

²⁵ Jennifer Lackey (2010) has also made an attempt to undermine KJ/KN-S with another medical case, similar to Brown's. But the same arguments that have been applied to both Reed and Brown's cases work against Lackey's attempt also. So there has not been any convincing cases in the literature that have made me think that KJ/KN-S is false, provided that SSI is true.

principles against the counterexamples. If my arguments are sound, then KJ/KN-S and the principle of common practice are true. Supposing that the latter are true, KJ/KN-S provides support for the truth of impurist fallibilism that was discussed earlier. But an objection may be raised where one denies impurist fallibilism, despite KJ/KN-S being true. I suspect that the objection would come from infallibilists. Regardless of whether one takes a purist or impurist stance on fallibilism, the infallibilist is going to deny that a subject can have knowledge without certainty. A more recent infallibilist candidate to raise such objection is the *Knowledge First* epistemologist. I have already considered some typical infallibilist concerns above, but here, I will provide a closer examination of possible concerns from Knowledge First infallibilists. In responding to the concerns, I will point out various problems for Knowledge First epistemology and ultimately show why fallibilism (specifically impurist fallibilism) is preferred.

According to Knowledge First epistemology, a subject's total evidence is the total content of her knowledge—"evidence = knowledge" or $E = K$ (Williamson 2010, 212). What is so interesting and controversial about Knowledge First epistemology is that it goes against much of the 20th century conceptual methodology of analyzing knowledge in terms of belief, justification, and truth. Instead, Knowledge First epistemology takes knowledge to be primary and belief as secondary. The reason for this is that knowledge entails truth, but belief does not. Beliefs can either be true or false. A subject can have false beliefs, but she cannot have false knowledge. Additionally, knowledge entails true belief, but true belief does not entail knowledge. If a subject is aiming for intellectual

success and knowledge guarantees intellectual success, then knowledge ought to be the primary focus, not belief given that true belief may be intellectually unsuccessful. Most epistemologists should not find these claims to be all that controversial so far. But the Knowledge Firster departs the traditional methodology by rejecting the sequence in analyzing knowledge. Traditionally, the procedure for evaluating whether a subject has knowledge is to first evaluate the subject's belief and determine whether it is true and justified. If such conditions are met along with an anti-luck condition, then the one can attribute knowledge to the subject.

Knowledge Firsters on the other hand suggest that knowledge is a primitive concept and the concept is unanalyzable in terms of belief, justification, truth, and the like. They argue that to know some proposition *p* is for the subject to have evidence for *p*. But Knowledge Firsters do not treat evidence as an additional component to knowledge such as evidence being a form of justification for a belief. If one has evidence, then she has the primitive mental state of knowledge. If one has the primitive mental state of knowledge, then she has evidence. In explaining the mental state, there is not a need for providing an account that involves belief, justification, truth, etc. It is as simple as that for Knowledge First epistemology. So evidence is equated with knowledge and thus the subject's total evidence is her total knowledge. The structure of a subject's total knowledge, according to Knowledge Firsters, is a foundationalism. The foundationalism entails a linear chain of justification within the structure of a subject's knowledge where each link in the chain is a piece of evidence for the

subsequent link. The subject may utilize her total knowledge to justify a belief such that p, q, r, s...justify her in believing some other proposition t. And we may also say that p, q, r, s...is the total evidence for S to be justified in believing t (Williamson 1997, 718).

The notion of evidence, on Williamson's account, has an *externalist* constraint placed on it where a subject's evidence does not supervene on her internal physical states (Williamson 1997, 722). Given the externalist constraint, it seems that infallibility of the subject's evidence is necessary in order to eliminate possibilities of error that the subject might be ignorant of. Any weakness in one's evidence is weakness in her position to know, but Knowledge Firsters do not think that knowledge can be anything that is uncertain. So Knowledge First epistemology is committed to infallibility about evidence and subsequently knowledge. In order to have evidence, then, evidence on a probabilistic scale must be equal to 1. The externalist constraint demands evidence to have probability 1 to prevent any possibility of error. Anything below probability 1 does not count as evidence. Thus, the notion of evidence and knowledge in Knowledge First epistemology entails the rejection of fallibilism.

In considering our base case MURDERER above, the total data collected by McGrath does not count as "evidence"²⁶ for the proposition that Suspect 3 is the murderer. McGrath may have a belief that Suspect 3 is the murderer, but even if the belief is true, he does not know that Suspect 3 is the murderer since the total data collected leaves open the possibility of error and therefore McGrath

²⁶ I put "evidence" in double quotes to indicate Williamson's notion of evidence.

does not have “evidence” for the proposition. The reason why the total data collected does not count as “evidence” for the proposition that Suspect 3 is the murderer is because Suspect 3 might have a twin brother, genetic similarity with others, the tests came back as false positives, Suspect 3 was framed, etc. If McGrath did have “evidence” that Suspect 3 was the murderer, then the “evidence” would rule out these possibilities. McGrath may be ignorant of such possibilities, but the externalist constraint placed on “evidence” prevents ignorance from being a mitigating factor in ascribing knowledge to McGrath.

Against the Knowledge First picture, the fallibilist may argue that the notion of “evidence” is too stringent. A reason for why one might think this is because in scientific practice, we find that there is usually some degree of error in our evidence (in the normal sense), no matter how small the chance. Since science is arguably one of the best sources for human knowledge, the possibility of error in scientific evidence cannot be ignored. So the notion of “evidence” in Knowledge First epistemology is an unrealistic idealization when we compare it with the practices of modern science. If one can show that the notion of “evidence” is an unrealistic idealization, then it would undermine the entire Knowledge First project since “evidence” is the foundation of the view. Contrary to the latter claims, Williamson thinks that $E = K$ is “...a view much closer to the way scientists treat evidence” (Williamson 2010, 212). Science, however, varies in the way it treats evidence. I will provide two cases against Williamson’s notion of “evidence” and his claim that scientists follow his notion.

First case. In the forthcoming *Diagnostic and Statistical Manual for*

Mental Disorders V (DSM-V), “binge-eating disorder” is classified and diagnosed as such:

Both of the following must be present to classify as Binge Eating Disorder

- Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances
- Feels loss of control over eating during binge. In other words, they feel that they cannot stop eating and they cannot control what they are eating and how much they are eating.

Also, an individual must have 3 or more of the following symptoms:

- Eats an unusually large amount of food at one time, far more than an average person would eat.
- Eats much more quickly during binge episodes than during normal eating episodes.
- Eats until physically uncomfortable and nauseated due to the amount of food consumed.
- Eats when depressed or bored.
- Eats large amounts of food even when not really hungry.
- Often eats alone during periods of normal eating, owing to feelings of embarrassment about food.

- Feels disgusted, depressed, or guilty after binge eating.
- The binge eating occurs, on average, at least twice a week for 6 months.
- The binge eating is not associated with the recurrent use of inappropriate compensatory behavior and does not occur exclusively during the course Bulimia Nervosa or Anorexia Nervosa. (Diagnostic and Statistical Manual for Mental Disorders V, forthcoming)

From the above criteria, the DVM-V provides mental health practitioners with a *general guide* for classifying and diagnosing “binge-eating disorder.” If a patient presents all of the symptoms listed, it might be possible that there is “evidence” that the patient has a binge-eating disorder, though satisfying all of the criteria does not guarantee that all possibilities of error are eliminated. But if a patient only presents 3 of the additional symptoms, the psychiatric community considers the presence of 3 symptoms to be evidence (in a normal sense) that the patient has a binge-eating disorder. The latter would not be considered “evidence” by Williamson that a patient has a binge-eating disorder since the chance of error is even higher than the instance where a patient has all of the symptoms.

On either end (min-max symptoms), the practitioner may prescribe medication or therapy for the patient. Prescription of a remedy is permissible given that the practitioner has evidence that the patient has a binge-eating disorder. From one extreme to the other and everything that falls in between, the

practitioner is justified in prescribing a remedy on the basis of the psychiatric practices followed by the psychiatric community who have developed the manual. We regard the developers as scientists and the psychiatric scientists find that a range of symptoms all fall under the category of evidence, even though there is a recognized possibility of error and misdiagnosis. So what psychiatrists count as evidence for a proposition such as X has a binge-eating disorder is clearly not the same as Williamson's since they do not appeal to a philosophical infallibility notion of evidence. Williamson's claim that $E = K$ is the scientific way is false in this instance.

Second case. It will be difficult to find evidence in the sciences that satisfies the Knowledge First requirement due to the commonly practiced frequentist statistics in scientific methodology. The frequentist statistical framework presupposes error and statisticians do their best to minimize the chance of error. But since the chance of error is recognized as a presupposition in the frequentist statistical framework, theoreticians who work on the foundations of statistics attempt to provide plausible answers to questions such as "What should you believe? (Royall 1997, 4)" and "How do we obtain reliable knowledge about the world despite uncertainty and threats of error? (Mayo & Spanos 2011, 1)" There are two primary methods that have been developed to provide answers to these questions.

The first is *significance testing*, an idea proposed by R.A. Fisher (1925). In significance testing, the level of significance α is set at .10, .05, or .01 in statistical analyses. If the *p*-value (the probability of obtaining the experimental result given

that the null hypothesis is true) is lower than the significance level α , then the null hypothesis is rejected. But rejecting the null hypothesis might be erroneous. To identify possible error, a second method is used. The second method identifies *Type I error* and *Type II error* that are derived from Jerzy Neyman and Egon Pearson's (1933) theory of hypothesis testing. The errors are defined as such. If the null hypothesis is true but it is rejected on the basis of the results, then a Type I error occurs. If the null hypothesis is false but it is not rejected on the basis of the results, then a Type II error occurs. Statisticians attempt to minimize the occurrence of Type I and Type II error by setting the level of significance low so that one does not reject the null when it is true or fail to reject the null when it is false, but unfortunately, the possibility of error cannot be eliminated entirely.

Without going into any further technical detail about frequentist statistics, one should be able to see that the orthodox statistical practice in the sciences account for the chance of error. The chance of error brings the probability of the evidence below 1. Because scientists are unable to ignore the possibility of error, they do not appeal to the $E = K$ standard. So here is another instance where Williamson's claim is false.

Williamson may be able to offer a response that circumvents my arguments. He could respond that the evidence used by scientists on a probabilistic scale usually does not equal 1, but one can have "evidence" about the scientific data itself. Having "evidence" of the scientific data itself is to have knowledge about the scientific data. And having knowledge about the scientific data puts one in a position to provide sufficient explanations about worldly

phenomena. For instance, the proposition that it will rain today does not count as “evidence” from possible “evidence” of meteorological data that indicates a 15% chance of rain. But assuming that there were no flaws in the instruments and measurements used in gathering the meteorological data, the subject can be in a position to know that there is a 15% chance of rain today. Scientists can use this knowledge for providing sufficient explanations of natural phenomena. And since one of the main goals of science is to provide explanations, the E = K plan works with scientific practice.

In scientific practice, scientists do indeed have the goal of providing descriptive explanations of natural and social phenomena. Williamson’s “evidence” satisfies the latter goal. But explanations are not the only things that make science valuable. Science is also valuable for its *predictive abilities*. Experimental data is generated to *explain* some state of the world, but the data is also used to *predict* what is likely to happen in the future under certain conditions. The use of data to predict future phenomena is to treat the data as evidence for a prediction and a non-deductive inference. But the evidence one would have for making future predictions and non-deductive inferences does not satisfy the Williamsonian notion of “evidence.”

As stated before, the forensics unit in MURDERER had evidence for Suspect 3 being the murderer, but Williamson would not call the total data collected “evidence” for the proposition Suspect 3 is the murderer since the set of total “evidence” does not entail “evidence” that Suspect 3 is the murder. Scientists, I think, would beg to differ, especially since scientific methodology is

primarily inductive rather than deductive. If all of the evidence collected by scientists were to achieve the status of “evidence”, then all of their inferences would be deductive since probability 1 equals truth and so long as the argument is valid, the truth of the premises would guarantee the truth of the conclusion. But clearly, this is not how science works. Many wish it did work in such way, but it does not. Science is an inductive enterprise. Call it risky practice, but scientists tend to use experimental data to support predictions, even when the data does not entail the predicted hypothesis. Scientists care about predictions, so they interpret evidence in a more liberal way than the Knowledge Firster. The evidence that they appeal to has a fallibility characteristic. Therefore, scientists do not treat evidence the same way that Williamson does.

The tension between Knowledge First epistemology and fallibilism, generally speaking, has normative implications. Specifically, if we think that knowledge will lead to intellectual success, then knowledge is instrumentally valuable to our intellectual goals. I take it that Williamson worries that fallibilism about knowledge will undermine the achievement of intellectual success. Knowledge First epistemology on the other hand guarantees intellectual success. So if we identify intellectual success as a primary intellectual goal of rational beings, then we might say that what one is rational to accept is only what one is in a position to know. Following Knowledge First epistemology, the theory of rational acceptance is so strict that it will not allow us to be intellectually unsuccessful. But in setting the standard so high, we will face a major practical problem. We might end up being intellectually successful, but the Knowledge

First standard will affect our ability to be practically successful.

Williamson (2005, 2012), Hawthorne (2004), and Stanley (2005) all claim that one is rational to act only on what one has knowledge of (KN version). What one knows is what one is rational to accept. By their standard, one is only rational to accept a proposition if and only if she has “evidence” for the proposition. The standard looks attractive when we consider its assurance toward intellectual success. But the standard becomes unattractive when we realize how much information we must suspend judgment about or possibly even reject because we lack “evidence” to accept it. Since a lot of information will not meet the standard, then we will have very little information that may be appropriate to act on. And thus, a subject may rarely ever be rational to act. If she does not have knowledge, then she must refrain from acting. The subject, then, is very limited in what she may do in order to avoid being practically irrational. But this is absurd.

On the other hand, fallibilists, generally speaking, lower the bar for rational acceptance, but in doing so, they allow for the possibility of a rational subject to be intellectually unsuccessful. The possibility of being intellectually unsuccessful is a bullet that fallibilists are willing to bite. To smooth over the worry, purist fallibilists require that the possibility of error must be idle to the subject. The problem that arises for purist fallibilists, though, is identifying the threshold for knowledge and rational acceptance that will minimize the possibility of being intellectually unsuccessful. And we have returned to the threshold problem once again. Purist fallibilists avoid the Knowledge First pitfall of knowing very little, but they face the problem of figuring out a non-arbitrary

threshold for knowledge and rational acceptance.

Impurist fallibilists do not fully get by the threshold problem, but they redirect the focus to the practical. By considering the practical environment and interests of the subject, one is able to determine what is rational to accept on the basis of the costs of being wrong. If S were deciding to act for the reason p, p would be rationally acceptable as a reason to act if the costs of being wrong were low. However, if S were deciding to act for the reason p and the costs of being wrong were detrimental to her interests, S would be rational to suspend judgment or maybe even reject p as a reason to act. The impurist account makes rational acceptance context-sensitive to the subject's practical situation. Of course, impurist fallibilism does not escape all the challenges, but when comparing it to the alternatives it (1) allows one to set the bar lower than probability 1 for rational acceptance and (2) it softens the threshold problem and shifts the focus to the practical.

None of these arguments are rather new since they summarize what I have said throughout this thesis. But if we bring the discussion back to topic of this section, there is support for the impurist fallibilist account falling in line with scientific practice. First, in answering Deborah Mayo's worry, "How do we obtain reliable knowledge about the world despite uncertainty and threats of error?" a plausible answer is that we ought to accept the details of impurist fallibilism. The reason why is that the fallibilist aspect is consistent with science in regard to knowledge and evidence. Scientific knowledge and evidence is fallible, as I have argued above.

Second, the impurist aspect is consistent with the normative and practical commitments of science. The Neyman-Pearson theory of hypothesis testing is “... not interested in interpreting evidence but only in stating general rules for guiding “behavior” (Sober 2008, 58).” It might appear that the statistical method is purist in that it focuses on minimizing error. But we can interpret the theory more broadly and ask which type of error is more beneficial to test for. The type of error tested for will be an entirely practical matter. For instance, is it better to test for false positives or false negatives for diseases? The testing for a specific type of error will depend on the practical context and what is at stake. Sound familiar? So I think that it is plausible to conclude that science tends to be on the side of impurist fallibilism rather than Knowledge First infallibilism.

To bring this section to a close, I will suggest that the preferred account is the one that allows a subject to know a proposition without her evidence being probability 1 due to the concerns raised toward the stringency of the “evidence” standard. But if knowledge need not be certain, then one is committed to fallibilism. In order to avoid the follies of purist fallibilism, one ought to be an impurist such that one may know only if the weakness in the subject’s position to know that p is idle or is not salient to her practical interests (and of course she must also satisfy other epistemic conditions, too). If we accept this concept of knowledge, then we can know lots of things. And if we know lots of things, then we are justified in acting on what we know. And if we are justified in acting on what we know and we can know lots of things, then we can avoid the absurd conclusion that we are rarely ever rational to act or we can perform lots of

rational actions. The picture painted here is much more appealing than the picture that Knowledge First proponent tries to paint.

2.5 Conclusions

To end this second part, I have provided a defense of the sufficiency principle(s) for knowledge and practical reason/action. In addition, I have smoothed over any difficulties between the psychological explanation of action (PEA) and KJ/KN-S. After smoothing over the difficulties, I have conjoined the principles together to derive the principle of common practice. I hope to have shown that the principle of common practice is descriptive of ordinary practical deliberation.

Moreover, I have considered the most significant objections to KJ/KN-S and the principle of common practice. After evaluating the objections, I have argued that none of them undermine the principles that have been endorsed in this part. Thus, the sufficiency principle and principle of common practice still stand. What is more, the sufficiency principle also sidesteps the concerns brought against KN in part one.

Conclusion

From the beginning of the thesis, I have considered the KN principle that entails that knowledge is necessary for practical reason. In evaluating the principle, I have raised the issue of beliefs being diachronic and the possibility that a subject has lost knowledge over time. From this possibility, one might postulate skepticism toward retaining knowledge over time. If the skepticism is plausible, then the skepticism transfers to practical reason, given the KN standard, where one's reasons are inappropriate to rely on. I have responded to the skeptical challenge by stipulating that we must endorse fallibilism and defeasible reasoning and reject KN. Fallibilism allows one to have knowledge, even though there is chance of error. Defeasible reasoning allows one to be rational, even when she has lost knowledge, so long as she follows the rules for updating beliefs when being presented with a defeater. As long as one follows the rational procedures of defeasible reasoning, the subject is doxastically responsible and rational with regard to her beliefs and reasoning.

On the more positive side, I have agreed that there is a relation between knowledge and practical reason, but it is not KN. Instead, I have argued that the sufficiency principle illuminates the appropriate relation between knowledge and practical reason. I have taken the sufficiency principle and the psychological explanation of action together and have derived the principle of common practice. The principle of common practice is descriptive of our ordinary practical reasoning about how to act. Against the sufficiency principle and the principle of common practice, some have argued that knowledge does not always justify

action. I have considered the cases brought against the sufficiency principle by Brown and Reed and have shown that neither of them undermine the principle. In both cases, the subject fails to know, so the principle stands. Further, I also considered the Knowledge First objection against the fallibilist base for impurism. If the sufficiency principle is true but fallibilism is false, then the sufficiency principle does not entail impurist fallibilism. In response to the objection, I have shown why Knowledge First is unacceptable. Consequently, we should accept the sufficiency principle for practical reason and also be impurist fallibilists.

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