Inquiry for Fallibilists

Bob Beddor

Why inquire?

Inquiry plays a central role in our lives.

Question

Why bother inquiring? What's the point of engaging in inquiry?

Inquiry & knowledge

Question

Why bother inquiring? What's the point of engaging in inquiry?

An emerging consensus:

Knowledge Aim (K-Aim)

The aim of inquiring into a question Q is to come to know the answer to Q.

Kvanvig 2009; Kappel 2010; Kelp 2011, 2014, 2018, 2021, forthcoming; Rysiew 2012; Friedman 2013, 2017; Whitcomb 2017; Sapir & van Elswyk 2021

Trouble in store

In this talk, I'll argue against this emerging consensus.

In particular, I argue that K-Aim stands in tension with a highly plausible thesis about knowledge:

Fallibilism

It's possible for a rational agent to know p without being absolutely certain that p.

- Cf. Cohen 1988; Reed 2013; Worsnip 2015; Brown 2018

Inquiry & epistemic value

Question

Why bother inquiring? What's the point of engaging in inquiry?

A better answer:

Epistemic Value Aim (EV-Aim)

The aim of inquiring into a question Q is to make your credence in the answer to Q as epistemically valuable as possible.

Advantages:

- Fully compatible with Fallibilism
- Plays nicely with epistemic decision theory

Why it Matters

I'll go on to argue that replacing K-Aim with EV-Aim has important implications for:

- The dogmatism paradox
- The norms govering practical reasoning
- The value of knowledge (or lack thereof)

Outline

Inductive knowledge

Manatee Research

Mia is a researcher at UF interested in monitoring how many mantees are in Florida. Based on extensive surveys, she comes to know *m*: *There are over 7,500 manatees in Florida*. But she is not completely certain of *m*: she rationally assigns at least some credence to the possibility that there was a flaw in her survey methodology.

Inductive knowledge

More Manatee Research

One day Mia receives an email from a researcher at FAU. They announce that they have just completed a new, comprehensive study of manatee populations in Florida. As a courtesy, they have attached all of their data.

What should Mia do?

Inductive knowledge

More Manatee Research

One day Mia receives an email from a researcher at FAU. They announce that they have just completed a new, comprehensive study of manatee populations in Florida. As a courtesy, they have attached all of their data.

Claim: Mia has a reason to look at the results of the survey.

Inductive knowledge

Claim: Mia has a reason to look at the results of the survey.

Knowledge Aim (K-Aim)

The aim of inquiring into a question Q is to come to know the answer to Q.

According to K-Aim, the aim of inquiring into the question, *Is m true?* is to come to know whether *m* is true. But Mia already knows *m* is true. So, by the lights of K-Aim, there should be no reason to look.

Recollective knowledge

Ancient History

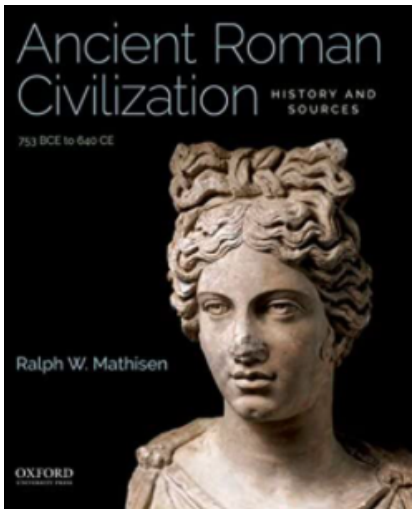
Tess is about to take her Roman history test. She learned the material well, but it has been awhile since she reviewed. She is fairly confident in *r*: *The Western Roman Empire fell in 476*. However, she assigns some credence to the possibility that she got the dates wrong. As a matter of fact, her memory is correct.

If Fallibilism is true, presumably Tess can know *r*, even though she is not completely certain of it.

Recollective knowledge

More Ancient History

Before the test, her teacher announces: “Since it’s the last day of class, I’ll be nice. One of the questions you’ll be asked is, ‘When did the Western Roman Empire fall?’ You now have five minutes to review your materials.” Tess has her textbook in front of her. To check the date, she could easily flip it open.



What should Tess do?

Recollective knowledge

More Ancient History

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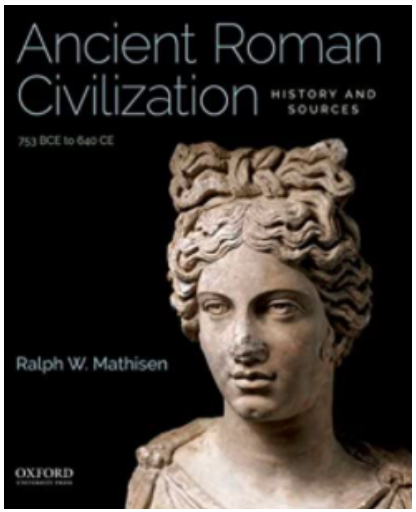


Claim: Tess has a reason to check her textbook.

But Tess already knows the answer to the question, *When did the Western Roman Empire fall?* So, by the lights of K-Aim, it would be pointless for her to inquire further.

Generalizing

A simple recipe for whipping up structurally similar cases:

1. Describe an agent who is inquiring into the truth of p.
2. Stipulate that as a result of their inquiry, they come to know p, even though they are not yet rationally certain of p.
3. Give them the opportunity to acquire decisive evidence regarding p, at no cost to themselves.

By K-Aim, they are under no rational pressure to acquire the evidence. But this conflicts with the intuition that they have a reason to take a look.

Outline

Diagnosing the source of the tension

These cases reveal a tension between K-Aim and Fallibilism.

But K-Aim and Fallibilism are not logically inconsistent.

So where does the tension come from?

Epistemic decision theory: background

Epistemic decision theory starts with the idea that rational agents assign epistemic value to credences (i.e., degrees of certainty).

- See a.o., Joyce 1998; Greaves et al 2006; Moss 2011; Pettigrew 2016; Schoenfeld 2016

What makes a credence epistemically valuable?

Natural thought: Part of the answer involves accuracy.

Valuable Accuracy

If A's credence in p is not maximally accurate, than A's credence in p is not maximally epistemically valuable.

Epistemic decision theory: background

What is accuracy?

Natural thought: The accuracy of a credence is its 'proximity' to the truth.

Alethic Proximity

If A's credence in a true proposition p is higher than B's, then A's credence in p is more accurate than B's.

Epistemic value and inquiry

OK, but how does this all connect up to the aim of inquiry?

Epistemic Value Aim (EV-Aim)

The aim of inquiring into a question Q is to make your credence in the answer to Q as epistemically valuable as possible.

Combine these ingredients (EV-Aim + Valuable Accuracy + Alethic Proximity) and we get a plausible diagnosis of why K-Aim stands in tension with Fallibilism.

Diagnosing the tension

- In **Ancient History**, Tess knows *r* (*The Roman Empire fell in 476*), but she doesn't know this with complete certainty.
- By Alethic Proximity, Tess' credence in *r* is not maximally accurate.
- By Valuable Accuracy, Tess' credence in *r* is not maximally epistemically valuable.
- By EV-Aim, she has not attained the aim of inquiring into the question, *When did the Roman Empire fall?*
- But this contradicts K-Aim.

The upshot

The idea that inquiry aims at maximizing the epistemic value of our credences (EV-Aim) seems very plausible.

Given some weak assumptions about epistemic value (Valuable Accuracy & Alethic Proximity), it follows that only extremal credences (that is, credences of 1 or 0) can be maximally epistemically valuable.

Given Fallibilism, this conflicts with K-Aim.

From aims to reasons

I've used epistemic decision theory to motivate the idea that Mia and Tess have not attained the aim of inquiry.

But why does it follow that they have reason to inquire further?

From aims to reasons

Maximize Expected Epistemic Value

Epistemic rationality requires you to maximize expected epistemic value.

Oddie's Theorem

Oddie [1997], building on Good [1967], shows that if gathering and conditionalizing on new evidence could change your credences, it always maximizes expected epistemic value to do so.

This gives one route to the conclusion that Mia and Tess have reason to continue their inquiries.

Outline

Outline

Inquiring into other questions

One reconciliation strategy: In both of our cases, there are various other questions whose answers our protagonists don't know.

- Before reading the study, Mia doesn't know the answer to the question, *What are the results of the researcher's study?*
- Before checking the textbook, Tess doesn't know the answer the question, *When does the textbook say the Roman Empire fell?*

Perhaps this is why it is rational for them to inquire further: they have not achieved the K-Aim on these further questions.

Problem

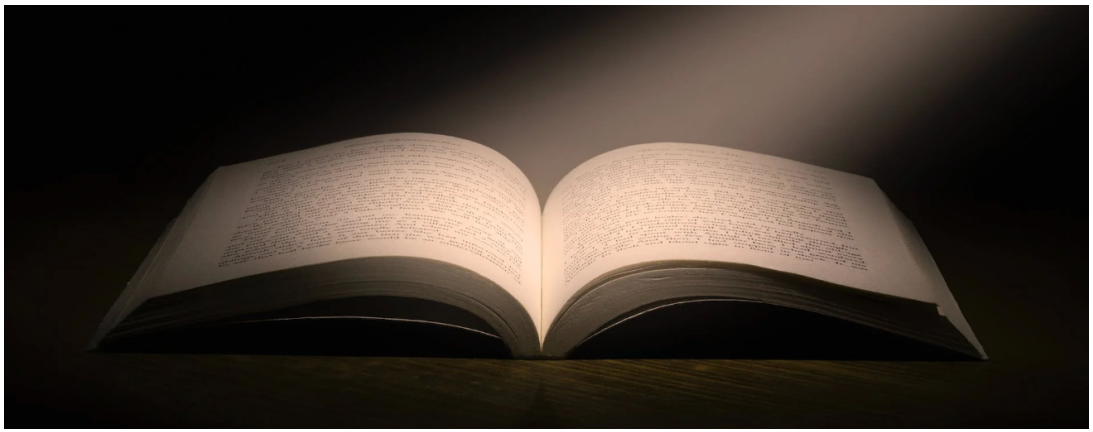
We can stipulate that our characters are only derivatively interested in answering these further questions: they are interested in answering them insofar as they will help them inquire into the original question.

- Tess is only interested in answering the question, *When does the textbook say the Roman Empire fell?* because she wants to conclusively answer the question, *When did the Roman Empire fall?*
- Still, it seems rational for her to check the textbook.

A Further Problem

We can concoct a version of **Ancient History** where Tess not only fallibly knows *r*; she also fallibly knows that her textbook says *r*.

In this case, she has achieved the K-Aim on the relevant further questions.



Still, if she is not certain that her textbook says *r*, it seems rational to check.

Outline

Impurism

Impurism

Knowledge depends on practical factors.

Fantl & McGrath 2002, 2009; Stanley 2005; Weatherson 2012; Ross & Schroeder 2014

Basic strategy: Knowledge doesn't require certainty, so Fallibilism is true. But in both of our cases, practical factors deprive our agents of knowledge. So they haven't achieved the K-Aim after all.

Stakes-Based Impurism

How do practical factors affect knowledge?

Stakes-Based Impurism

The higher the stakes, the harder it is know.

This doesn't account for our cases: we can stipulate that very little is at stake for our agents (e.g., Tess is not taking her class for credit). Still, the intuition that they have reason to inquire remains.

Practical Adequacy Impurism

Say that p is practically adequate for you iff the action you actually prefer, given your epistemic position, is the same as the action you prefer conditional on p. (Anderson & Hawthorne 2019)

Practical Adequacy Impurism

A knows p only if p is practically adequate in A's situation.

- Once Tess hears her teacher's announcement, the action that Tess actually prefers given her current epistemic position is *checking the textbook*.
- The action she prefers conditional on r is *not bothering to check*.
- By Practical Adequacy Impurism, she ceases to know r.

Worry #1: Natural Patterns of Reasoning

Imagine that after hearing her teacher's announcement, Tess reasons as follows:

> *"I'm pretty sure that I know when the Roman Empire fell. But I'm not completely certain I know it, so I might as well check."*

Reasoning seems perfectly good, but hard to reconcile with Practical Adequacy Impurism.

Worry #2: Epistemic Instability

As Anderson & Hawthorne (2019) point out, practical adequacy impurism seems to license an unwelcome epistemic instability.

Imagine that as Tess starts to flip to the relevant page in her textbook, her teacher pipes up:

> *"Oh, but if you do check your textbook, I'll charge you $10,000."*

Now, *r* becomes practically adequate for Tess, allowing her to regain her knowledge of *r*.

And if a moment later the teacher announces they were just joking, Tess loses her knowledge of *r* again...

A more general worry for the reconciliation strategies

Both reconciliation strategies are inconsistent with the epistemic decision theoretic framework.

In particular, both will be forced to deny one of these principles:

Three Plausible Principles

- **EV-Aim:** The aim of inquiring into a question Q is to make your credence in the answer to Q as epistemically valuable as possible.
- **Valuable Accuracy:** If A's credence in p is not maximally accurate, than A's credence in p is not maximally epistemically valuable.
- **Alethic Proximity:** If A's credence in a true proposition p is higher than B's, then A's credence in p is more accurate than B's.

Outline

The infallibilist route

Infallibilism

Whenever one knows *p*, one is rationally required to have credence 1 in *p*.

If we go infallibilist, we can't derive any contradiction between EV-Aim and K-Aim.

But is it plausible?

According to infallibilism, our cases (**Manatee Research** + **Ancient History**) can never arise, at least as described.

E.g., if Tess rationally assigns any credence, however slight, to $\neg r$, then she does not know r.

Hard to make sense of patterns of reasoning such as:

> *"I'm pretty sure that I know when the Roman Empire fell. But I'm not completely certain I know it, so I might as well check."*

Against infallibilism: further data

"Knows for certain" isn't redundant

(1) Bill knows that Sara was at the party.

(2) Bill knows for certain that Sara was at the party.

Not merely a quirk of English…

Examples from Italian, Romanian, Indonesian, Korean, and Japanese:

(3) So per certo che Ronaldo non giochera' la prossima partita
I know for sure that Ronaldo not will play the next game

'I know for sure that Ronaldo will not play the next game'

(4) Bine, dar stii tu sigur ca vine maine?
OK, but know you sure that she's coming tomorrow?

'OK, but do you know for sure she's coming tomorrow?'

(5) Tetapi anda tidak tahu dengan pasti.
But you do not know with certainty.

'But you do not know for certain.'

(6) na.nun pi-ga o.go-it'a-nun.kos-ul hwakʃɾ-i an-da.
I rain falling certain know.

'I know for certain that it's raining'

(7) [doko-ni iru-noka], [dou shi-teiru-noka]-o kakujitsu-ni shiru-tame-no houhou.
where be how do certain know-for method.

'methods for knowing with certainty where [they] are and how [they] are doing'

Ascriptions from 'the wild'

"When [a false ID] is handed to a cop, he knows with near certainty the guy before him is not the guy identified on the flimsy piece of paper."[1]

"In less than half an hour, the doctor knows with near certainty which influenza virus—if any—is present in the patient's respiratory tract."[2]

"[W]e know without certainty, but with a high degree of probability, that returns over the next 10 years or so will be very poor."[3]

"We now know with near-certainty that Russia did this with the goal of electing Trump."[4]

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[1] Geeting, *Truckers and Troopers*, p.96

[2] `https://www.nature.com/articles/d41586-019-02754-7`

[3] `http://www.smithers.co.uk/news_article.php?id=16&o=50`.

[4] Chait, 'Trump, McConnell, Putin, and the Triumph of the Will to Power", *New York Mag*

Outline

If not knowledge, then what?

If K-Aim is false, then what is the aim of inquiry?

We've already sketched an answer: inquiry aims at improving the epistemic value of our credences (EV-Aim).

But what determines the epistemic value of one's credences, if not knowledge?

Accuracy

One option: epistemic value reduces to accuracy.

On this view, EV-Aim boils down to:

Accuracy Aim

The aim of inquiring into a question Q is to make your credence in the answer to Q as accurate as possible.

Fleshing out EV-Aim

Another option: generalize various conditions on knowledge to be conditions on epistemic value, e.g.:

Aptness Aim

The aim of inquiring into Q is to make your credence in the answer to Q maximally apt

where a credence is maximally apt iff it is maximally accurate in virtue of the exercise of a cognitive ability.

Epistemic certainty

Yet another option: appeal to *epistemic certainty*, where epistemic certainty is an epistemic status that is more demanding than knowledge.

- Cf. Beddor 2020

Underlying idea: Epistemic certainty is the epistemic state that warrants subjective certainty.

Epistemic certainty

On this view, EV-Aim boils down to:

Cartesian Aim

The aim of inquiring into a question Q is to attain complete epistemic certainty about the answer to Q.

Unattainable aims?

A Worry

Does this make the aim of inquiry unattainable? If so, does that mean we are condemned to endlessly pursue a line of inquiry once we've taken it up?

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Reply #1: In everyday life, we frequently claim to be certain of many things.

Unattainable aims?

A Worry

Does this make the aim of inquiry unattainable? If so, does that mean we are condemned to endlessly pursue a line of inquiry once we've taken it up?

Reply #1: In everyday life, we frequently claim to be certain of many things.

"Dr. Anthony Fauci said he is 'absolutely certain' the Omicron coronavirus variant will become the dominant variant in the US soon."[5]

"Scientists are absolutely certain that this warming trend is due to human activity."[6]

"Hunter Biden says he is '100 percent certain' he will be cleared of wrongdoing in tax investigation."[7]

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[5] https://www.cnn.com/us/live-news/omicron-covid-19-variant-12-16-21/index.html

[6] https://www.brookings.edu/wp-content/uploads/2019/09/20190920-global-response-to-the-climate-crisis.pdf

[7] https://thehill.com/homenews/sunday-talk-shows/546384-hunter-biden-says-he-is-100-certain-he-will-be-cleared-of/

Unattainable aims?

A Worry

Does this make the aim of inquiry unattainable? If so, does that mean we are condemned to endlessly pursue a line of inquiry once we've taken it up?

Reply #2: This objection cuts equally well against the infallibilist version of K-Aim.

Unattainable aims?

A Worry

Does this make the aim of inquiry unattainable? If so, does that mean we are condemned to endlessly pursue a line of inquiry once we've taken it up?

Reply #3: Even when we have not attained the aim of inquiry into question Q, it may still be rational to turn our attention to other matters.

Suppose that Poirot's credence that the butler is guilty is .9. But suppose it is unlikely that he will uncover further evidence re. the butler's guilt. Then it may be rational for him to turn his attention to other questions, esp. if doing so will promote the epistemic value of his credences on these other questions.

Outline

Outline

The Dogmatism Paradox

Imagine that when Mia gets the email from the FAU researcher, she reasons:

A fishy argument

"I know m is true. If I read the results of this new survey, I might find corroborating evidence that m is true, in which case I will retain my knowledge. But I might encounter evidence that m is false, which may defeat my knowledge. The safest course, then, is to delete the email!"

Mia's reasoning here seems absurd. But wherein lies her mistake?

- Cf. Harman 1973; Kripke 2011; Lasonen-Aarnio 2014; Borges 2015; Beddor 2019; Biro 2022; Fraser forthcoming

Diagnosing the Dogmatist's Error

- Mia is correct that deleting the email may protect her knowledge of *m*.
- But knowledge is not the epistemic *summum bonum*: as long as Mia is less than certain of *m*, her credence in *m* is epistemically suboptimal.
- So by deleting the email, she is consigning herself to remain in this suboptimal state.

Diagnosing the Dogmatist's Error

Maximize Expected Epistemic Value

Rationality requires you to maximize expected epistemic value.

Oddie's Theorem

Oddie [1997], building on Good [1967], shows that if gathering and conditionalizing on new evidence could change your credences, it always maximizes expected epistemic value to do so.

- By Oddie's theorem, reading the results of the study is guaranteed to maximize expected epistemic value.
- So the rational course is to read.

The Upshot

The framework developed here delivers a simple solution to the dogmatism paradox.

By contrast, proponents of K-Aim face a real challenge; for them, it is far less clear where the dogmatist's reasoning goes wrong.

Outline

The Norm of Practical Reasoning

Knowledge-Action Norm (KN)

If A knows *p*, then A is permitted to take *p* for granted in practical reasoning.

- Cf. Hawthorne et al. 2008; Fantl et al. 2002, 2009; Weatherson 2012; Weisberg 2013; Ross et al. 2014; Moss 2018

The Norm of Practical Reasoning

Knowledge-Action Norm (KN)

If A knows *p*, then A is permitted to take *p* for granted in practical reasoning.

Assuming Fallibilism is true, our cases also provide counterexamples to KN.

Since Tess knows *r*, by KN she is permitted to take *r* for granted in practical reasoning. But if she is permitted to take *r* for granted, then there is no point checking the textbook.

Positive Upshot

Our alternative to K-Aim suggests an alternative norm of practical reasoning that avoids the problem:

Optimal Credence-Action Norm

If A's credence in a true proposition p is maximally epistemically valuable, then A is permitted to take p for granted in practical reasoning.

Outline

The Value of Knowledge (or Lack Thereof)

Some philosophers have been attracted to K-Aim because it offers to shed light on the value of knowledge. If we reject K-Aim, what should we say about the importance of knowledge?

The Value of Knowledge (or Lack Thereof)

One Possibility: Grant that knowledge is not important bc of its role in inquiry, but insist it still has other important epistemological functions.

A More Radical Option: Reject the assumption that knowledge has any important explanatory work to do.

THE END

Thanks everyone!

Bonus Slides

Aims vs. rational requirements

Another strategy for trying to reconcile K-Aim and Fallibilism to insist that I've assumed an overly simple connection between the aims of inquiry and the rational requirements governing inquiry.

Aims vs. rational requirements

Consider an archer who hits the bullseye from afar, but is told that they have missed. It might be rational for them to try again, even though they have already attained their aim.

Reply

The archer has good (albeit misleading) reason to think they have not attained their aim.

Not so with Tess and Mia: they have no reason to think that they don't know the answers to the questions at issue.

Reply

Surely there is some connection between aims and rational requirements, e.g.:

Call it Quits

If you are pursuing some aim A, and it's rational for you to believe that you have already attained A, then you are not rationally required to continue pursuing A.

Tess and Mia might well rationally believe (without being certain) that they know the answers to the question at hand.

Reply

Weak Call it Quits

If you are pursuing some aim A, and you *know* that you have already attained A, then you are not rationally required to continue pursuing A.

Presumably, if knowledge does not require certainty, then neither does knowing that one knows. So it seems that Tess and Mia could know that they they know the answers to the questions at hand, but still be rationally required to inquire further.

Merely Practical Reasons to Inquire?

Another reconciliation strategy: Distinguish between practical and epistemic reasons for inquiry.

- If someone offers a million dollars to research some question whose answer you already know, then it might well be rational to do so.
- But this case is hardly a refutation of K-Aim; after all, K-Aim is supposed to articulate a distinctly epistemic aim of inquiry.
- Perhaps this is what we should say about Mia and Tess: they have merely practical reasons to inquire further into the questions at hand.

Reply

Our protagonists may well have practical reasons to inquire further. But it also seems like they also *also* have epistemic reasons to do so.

Mia may have practical reasons for reading the FAU researcher's study (perhaps doing so will help her get her next paper published). But she also has a further reason: she wants to find out whether m is true! This seems like an epistemic reason *par excellence*.