

The zetetic turn and the procedural turn

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1 Introduction

I **Bounded rationality** Fundamental turn is the **procedural turn** from *substantive* to *procedural rationality* (Simon 1976):

We must give account not only of *substantive rationality* — the extent to which appropriate courses of action are chosen — but also *procedural rationality* — the effectiveness, in light of human cognitive powers and limitations, of the *procedures* used to choose actions. (Simon 1978, p. 9).

Interpretation of procedural turn: From attitudes → processes of inquiry.

II **Epistemology of inquiry:** Fundamental turn is the **zetetic turn** from belief to inquiry:

According to the doxastic paradigm, epistemic norms are norms that bear almost exclusively on having, forming, revising, maintaining (etc.) beliefs and other belief-like attitudes. (Friedman forthcoming b).

Taking the zetetic turn . . . means moving to thinking of the norms of epistemology as speaking to the entire process of inquiry. (Friedman forthcoming b).

Interpretation of zetetic turn: From doxastic attitudes → theoretical inquiry.

III **Project of paper:**

- i Argue for treating the zetetic turn (in zetetic epistemology) as part of a broader procedural turn (in bounded rationality). (§3).
- ii Use this interpretation to:
 - i Clarify the zetetic turn (§2).
 - ii Draw lessons for zetetic epistemology. (Offstage).
 - iii Motivate a second zetetic turn in practical philosophy (§4).

2 Two interpretations of the procedural turn

2.1 The interpretations

I **Direct interpretation:**

- i **Substantive rationality:** Evaluates the rationality of attitudes.
- ii **Procedural rationality:** Evaluates the rationality of processes of inquiry.
- iii **Relationship between substantive and procedural rationality:** Complementary theories with different objects (attitudes/processes).
- iv **Taking the procedural turn:** Normative theorizing should be *process-focused*.

II **Indirect interpretation:** Friedman (2020)?, Podgorski (2017)?, Simon (1976).

- i **Substantive rationality:** Evaluates the rationality of attitudes based on their own merits.
- ii **Procedural rationality:** Attitudes inherit the rational status of the inquiries that produced them.
 - Behavior is procedurally rational when it is the outcome of appropriate deliberation. (Simon 1976, pp. 66-7).
- iii **Relationship between substantive and procedural rationality:** Competing theories with same object (attitudes).
- iv **Taking the procedural turn:** Rejecting substantive theories in favor of competing procedural theories.

III **Why the distinction matters:** We get cases of apparent tension between attitudes and the inquiries that produced them:

- i **For consequentialists:** Parfit (1984), Railton (1984).
- ii **In the epistemology of inquiry:** Friedman (2020), Thorstad (2021).
- iii **In bounded rationality:** (below).

In such cases, indirect (but not direct) approaches exert pressure against traditional attitudinal norms.

2.2 Apparent tension between (the rationality of) attitudes and inquiries

I **A procedural norm:** Resource-rationality.

- i **Theme from bounded rationality:** Rational inquirers are *resource-rational*, making rational use of scarce cognitive resources (Lieder and Griffiths 2020).
- ii **A minimal consequence:**

(Minimal Resource-Rationality) For all processes of inquiry I and all valuable resources R consumed by I , the fact that I consumes R is a reason against engaging in I .

II **An attitudinal norm:** Evidentialism.

(Evidentialism) For all agents S and propositions p , if S believes that p , then S 's belief that p is rational just in case S 's total evidence supports p , and S 's belief that p is based on her evidence.

III Apparently irrational inquiry → apparently rational belief

(Long Video) Gertrude is in charge of security for a large retail store. She wants to know whether Bonnie has been stealing from her store. Gertrude has seventeen hours of video footage showing Bonnie's visits to the store during the past year. After reviewing one hour of footage, Gertrude has extremely convincing evidence that Bonnie has been shoplifting. But instead of closing her inquiry, Gertrude watches all seventeen hours of footage before concluding that Bonnie has been stealing.

- i **Apparently irrational inquiry:** Gertrude expends large amounts of cognitive (and noncognitive) resources for miniscule expected gain. (Irrational by Minimal Resource-Rationality).
- ii **Apparently rational belief:** Gertrude's belief is (let us suppose) abundantly supported by evidence and based on that evidence. (Rational by Evidentialism).

IV Apparently rational inquiry → apparently irrational belief

(Two Cities) Shoshanna is mildly curious whether Mainz is more populous than Lübeck. She considers what she knows about both cities, and the first two-dozen facts she considers all suggest that Mainz is indeed more populous. For example, Mainz is a state capital whereas Lübeck is not, and state capitals tend to be larger than noncapitals. Having no reason to suspect that the information she has considered so far is biased, unrepresentative or underpowered, Shoshanna closes inquiry with the judgment that Mainz is more populous than Lübeck. Unfortunately, Lübeck is slightly more populous than Mainz, and Shoshanna's total evidence favors this conclusion.

- i **Apparently rational inquiry:** Shoshanna's inquiry is frugal and highly reliable (maybe too reliable!?). (Rational by Minimal Resource-Rationality).
- ii **Apparently irrational belief:** Shoshanna's belief is evidentially unsupported. (Irrational by Evidentialism).

2.3 Three normative reactions

I **First reaction:** Deny procedural norms (some unbounded theorists).

Cost: Lose much of traditional bounded rationality.

II **Second reaction:** Deny attitudinal norms (indirect theorists).

Cost: Lose much of traditional epistemology.

III **Third reaction:** Deny nothing (direct theorist).

This paper: Go direct.

3 From inquiry to bounded rationality, and back again

3.1 From inquiry to bounded rationality

I **Q:** Why treat the study of inquiry as a part of the study of bounded rationality?

II **A:**

- i Many of the most important questions about inquiry arise because we are bounded.
- ii These questions would fail to arise, or else become unrecognizable if the relevant bounds were removed.

III **Some examples:**

Challenge for inquirers	Motivating bound(s)
Gathering evidence	Informational bounds
Allocating attention	Attentional bounds
Double-checking	Fallibility
Selecting reasoning strategies	Computational bounds
Avoiding junk belief	Memory bounds (storage/retrieval)

IV **Removing the bounds:**

Challenge for inquirers	Unbounded solution
Gathering evidence	No need
Allocating attention	Attend to everything
Double-checking	No need
Selecting reasoning strategies	Execute all and aggregate
Avoiding junk belief	No need

V **Moral:** The study of inquiry, as we know it, is part of the study of bounded rationality.

3.2 From bounded rationality to inquiry

I **Q1:** Why should bounded rationality theorists study processes of inquiry?

II **A:** Because many paradigmatic cognitive bounds are felt most strongly as bounds on processes rather than attitudes.

- i **Examples:** Computational costs; reasoning abilities.

III **Q2:** Why should bounded rationality theorizing be process-*focused*?

IV **Sketch Answer:** Because when bounds drive substantive and procedural facts apart, substantive facts may give distorted, misleading or uncharitable pictures of normative reality.

V **A motivating example:** The psychology of poverty.

VI **Some troubling findings:**

- i Material poverty predicts substantially decreased performance across a variety of cognitive tasks including reasoning (Deck and Jahedi 2015; Mani et al. 2013), attention (Shah et al. 2012), memory (Evans and Schamberg 2009) and executive control (Mani et al. 2013; Vohs 2013).
- ii These deficits partially explain damaging patterns of behavior such as overborrowing (Shah et al. 2012), undersaving (Bernheim et al. 2015), and noncompliance with medical instructions (Kaplan et al. 2004).

VII **What must not be inferred:** The poor are highly irrational (... and that's why they're poor!?).

VIII **(Some part of) the salvage story:** (Mani et al. 2013; Morton 2017).

- i **Many challenges:** Material poverty creates large numbers of pressing short-term cognitive challenges.
- ii **Rational short-termism:** The rational response is to preferentially reallocate scarce cognitive resources (attention, computational bandwidth, ...) towards the most important short-term challenges.

The human cognitive system has limited capacity. Preoccupations with pressing budgetary concerns leave fewer cognitive resources available to guide choice and action. Just as an air traffic controller focusing on a potential collision course is prone to neglect other planes in the air, the poor, when attending to monetary concerns, lose their capacity to give other problems full consideration. (Mani et al. 2013, p. 976).

- iii **Predictable irrationality:** Rational short-termist policies heighten agents' risk of forming irrational attitudes in certain areas, including:
 - i **Lower-stakes decisions:** Fatima judges that one can of beans is a better value than another.
 - ii **Decisions with long-term consequences:** Emilio judges that a payday loan is a good bargain.
- iv **Taking normative stock:**
 - i **A substantive fact:** Fatima and Emilio's beliefs are irrational.
 - ii **A procedural fact:** Fatima and Emilio's beliefs are the direct result of rational cognitive processes, and could not have been avoided without switching to irrational processes.
 - iii **Process-focus:** These procedural facts provide a more charitable, complete and illuminating perspective into Fatima and Emilio's normative situations than the substantive facts do.

4 The other zetetic turn

I **Procedural turn:** From attitudes → processes of inquiry.

i **In epistemology:** Credence, belief ... → theoretical inquiry.

ii **In practical philosophy:** Plan, intention, preference, ... → practical inquiry.

II **The other zetetic turn:** The study of bounded rationality gives us just as much reason to take a second zetetic turn in practical philosophy.

i Practical attitudes are produced by costly and ability-constrained processes of practical inquiry. (Ex: Heuristics).

ii Paradigmatic bounds are often felt most strongly as bounded on processes of practical inquiry. (Ex: Deliberation costs, computational abilities).

iii Tension arises between traditional attitudinal norms and plausible procedural norms. (Ex: 1980s consequentialism; Fatima).

iv This tension reveals the importance of a process-focused practical philosophy. (Ex: Fatima).

III **The good news:** The bulk of bounded rationality theorizing has focused on practical philosophy:

i **Simon:** Came to bounded rationality through studying the economic behavior of managers (Simon 1947).

ii **Fast-and-frugal heuristics program:** Majority of work (not all!) on heuristic decisionmaking (Gigerenzer and Gaissmaier 2011).

5 Summing up

I **Aim of paper:** Treat the zetetic turn as part of a broader procedural turn in the study of bounded rationality, and see what follows.

II **Section 2:** Take a direct, not indirect interpretation of the procedural turn.

III **Section 3:** Why take the procedural turn, and why think of the zetetic turn as part of it?

IV **Section 4:** Expanding the zetetic turn into practical philosophy.

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