Belief Fragments and the Virtue Epistemological Viewpoint of Rationality

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I The Atlas Model of Belief and the Problem of Rationality

According to Frank P. Ramsey, "A belief of the primary sort is a map of neighbouring space by which we steer" (Ramsey (1929); reprinted in Ramsey (1990), 146). This is the slogan cited by numerous scholars who investigate the nature of belief. Needless to say, this is a metaphor. However, some philosophers take this metaphor literally by insisting that belief is a cartographic representational state.[1)] The dominant view about belief since 1970s is the so-called "sentential model," according to which belief has propositional content with a linguistic structure that can be decomposed into parts. The map theorist says that belief does not have such linguistically structured content; rather, it has unstructured content. This unstructured content is standardly cashed out by means of a set of possible worlds.

An idea associated with the map model is that one's belief system is composed of belief fragments (Lewis (1982), Stalnaker (1984)). Let us call this idea "fragmentationism." The unstructured content of the map-like belief entails a *holistic* nature of one's belief system; holistic, in the sense that all information entailed by belief content is given to the subject simultaneously. This holistic nature causes a set of familiar problems for the map model.[2)] One of these problems is that the holistic nature poses a strong constraint to the rationality of the subject. Traditionally, a rational subject is supposed to possess a unified belief system that is coherent and logically closed (for simplicity, we ignore the fact that beliefs usually come in degrees). In the real world, however, human

1) The proponents of the map model are Armstrong (1973), Braddon-Mitchel (1996), Lewis (1982), Stalnaker (1984), Yalcin (2016, 2021), among others.

2) Another major problem is that of logical omniscience. For the fragmentationist solution of it, see Yalcin (2016).

beings do not necessarily have such a wholly coherent belief system; we may have incoherent beliefs unconsciously. David Lewis illustrates this point by the following example.

> I used to think that Nassau Street ran roughly east-west; that the railroad nearby ran roughly north-south; and that the two were roughly parallel. (By 'roughly' I mean 'to within 20°.') So each sentence in an inconsistent triple was true according to my beliefs, but not everything was true according to my beliefs. (Lewis (1982), 436)

The holistic nature of one's belief system does not allow any incoherent sets of beliefs to satisfy the rationality constraint, however slightly the incoherence is. This makes almost all human beings irrational. To avoid this consequence, the map theorist says that one's belief system is compartmented relative to what is at issue on each occasion. Each compartment—a fragment—consists of a set of particular beliefs. Truly, *intra*-fragment coherence is required for the subject to be rational, i.e., each fragment must be coherent. But *inter*-fragment coherence is not required; a fragment need not be coherent with another fragment if the subject does not have a cognitive access to these fragments at the same time. An important function of belief is to navigate its agent. Thus, as far as the agent can steer by a belief fragment on each occasion, it is unproblematic that the other fragments that are hidden in a background at that moment are incoherent with the foregrounded fragment. This idea characterizes a particular belief state as a single map while the whole belief system as a set of maps. Following Seth Yalcin, let us call this fragmented version of map model the "atlas model of belief" (Yalcin (2016, 2021)).

Although fragmentationism is a step to a more realistic picture of rationality, it still leaves some issues unsolved. In this paper, I focus on the following issue. On the atlas model, having an intra-fragmentary coherent belief system is a necessary condition for being a rational subject. But this requirement is just a minimum constraint; without any other constraints, it allows so many subjects to be rational. For example, a subject who has a coherent delusion seems to be classified as a rational subject although intuitively we tend to regard her as irrational. Furthermore, we can imagine the following person. When they encounter a question, they always form a belief fragment with a minimum number of beliefs. Most of such small fragments are inter-*in*coherent, but they never unify them. For instance, when they are asked whether or not they should be a vegetarian, they answer "Yes" at t^1, "No" at t^2, "Yes" at t^3, and so on without noticing how they answered before. Since they always meet the intra-fragment coherence condition, they are evaluated as being rational. But again, we do not want to call them rational.

Let us call this problem the "anything goes problem."[3)] This problem suggests that intra-fragment coherence is not sufficient for rationality. What more do we need? Cristina Borgoni proposes a promising idea (Borgoni (2021)). Borgoni maintains that, to be rational, a subject must meet another requirement as well: *responsiveness to the available evidence*, or simply, *evidential responsiveness*. She points out that intra-fragment coherence may wrongly count irrational subjects as rational. These subjects include a self-deceiving person, a person

3) Yalcin seems to commit himself to the anything goes problem. See Yalcin (2021).

who has implicit biases that cause an assertion-behavior dissonance to her, and so on. According to her diagnosis, these subjects are irrational because they fail to respond to the available evidence. For instance, consider a self-deceiving person. Suppose Tom has believed that taking a medicine everyday mitigates his disease, and he has taken this medicine for 5 years. One day, he happened to read a scientific article in a reliable academic journal according to which the medicine had no effect. Subconsciously, however, he did not want to think that his effort so far was in vain, so despite the evidence he obtained from the article, he continued to believe that the medicine is effective. One way to interpret Tom's behavior is to regard him as having different belief fragments relative to different contexts; one is the fragment that contains the false belief, and the other is that contains the evidence against this belief. With this interpretation, in sticking to the false belief, he does not respond to the available evidence. This shows that he is irrational. The other counterexamples can be treated in a similar way.

I think that Borgoni is on the right track in proposing that the fragmented mind needs two different criteria for rationality: intra-fragment coherence and evidence responsiveness. However, I also think that her proposal needs some modifications because it is both too weak and too strong. In what follows, I will explain why it is so, and argue how to improve her proposal. Before this, however, two preliminaries are in order.

II Two Preliminaries

2.1. The Fragmentation of Belief System

First, let us clarify how one's belief system is fragmented. Different accounts are available for this. Here, I follow Yalcin (2016, 2021), who develops the atlas model along the line of David Lewis and Robert Stalnaker.[4] An idea that is common among the different accounts is that beliefs are stored in memory and some of them are foregrounded on each occasion, which form fragments. Although belief fragments are independent from each other, the same belief can be shared by different fragments. In the possible world model of content, believing is picking out a set of possible worlds as actuality from all possible worlds. According to Yalcin, this picking out process is "question-sensitive" (Yalcin (2016)). A fragment is an answer to some question. What and how many particular beliefs are gathered as a fragment depend on what questions the subject has to solve. Yalcin describes the process of forming an answer by two steps. First, once a question is given, a partition of logical space, a representation of the distinctions between possibilities, is made by being indexed to this question. This partition is fixing a "resolution" for the space by which only the distinctions relevant to the question becomes visible (Yalcin (2021), 158). Second, given a partition, one can form an answer to the question by picking out a set of cells from that partition. The set of cells that amount to an answer to the question are "accessible" or explicit beliefs while the other cells of the resolution are "implicit" beliefs (*Ibid*., 159).

4) For a different formulation of belief fragment, see Greco (2015).

2.2. Rationality

Rationality is another key concept in this paper. As briefly explained in Section 1, in the debates about fragmentationism, two kinds of standards for rationality have been focused: coherence and responsiveness to the available evidence. Coherence is a property of belief system or fragment, i.e., a set of beliefs. It is difficult to spell out this notion precisely. But we can state its minimum constraint like this: one's belief system or fragment is coherent only if the set of beliefs that constitute that system or fragment is not contradictory. An obvious case that violates this condition is that both belief P and belief ¬P belong to the same belief fragment. A not so obvious case is that a contradiction is implied by the set of beliefs. Most proponents of the map model accept the assumption that a belief fragment is logically closed. Under this assumption, if both belief P and belief ¬P are implied from other beliefs in the same belief fragment, even if the subject does not realize this implication, this subject regarded as irrational. This entails that, for a rational subject, P automatically belongs to a belief fragment that is different from another fragment that contains belief ¬P as its member.

Responsiveness to the available evidence is another kind of rationality standard (Bortolotti (2009), Worship (2018), Schmidt (2020) and Borgoni (2021), among others). This is not the property of belief system but the property of the subject towards evidence. To understand this standard, two points must be clarified. The first one is about the epistemic status of the available evidence. Evidence itself must be epistemically justified to some extent. How and to what extent must it be justified? With regard to these questions, we can anticipate various forms of answer. For example, Borgoni suggests that the justification of evidence is done by some form of externalism (Borgoni (2021), 146). It is also possible to conceive its justification in an internalist way. I will propose a virtue epistemological account of the normativity of evidence in Section 4.

The second point is about the metaphysical status of the available evidence. Many scholars maintain that evidence is, or is turned out to be, a *mental state* of the subject or its content. Recall Tom, a self-deceiving person in Section 1. He rejects the information obtained from a scientific article. This information is counted as evidence available to him. Although he does not accept this information affirmatively, he at least recognizes it. This means that Tom forms a kind of doxastic state that represents that the medicine has no effect. In the framework of fragmentationism, this doxastic state is characterized as an implicit belief. Borgoni embraces this line of thought. According to her, "the person's inactive beliefs stand as pieces of evidence to which that active fragment ought to be sensitive" (Borgoni (2021), 146). She characterizes evidence responsiveness as "inter-fragment requirement" of rationality (*Ibid.*). This terminology suggests that evidence is stored in a belief fragment as a doxastic state. I will criticize the view that treats the available evidence as one's mental state later.

III Problems for Borgoni's Proposal

Now, let us look at the problems for Borgoni's proposal. First, we will see her proposal is *too weak* in the sense that it allows a subject we want to regard as irrational to be rational.

To show this point, I will borrow a case from BonJour (1980) which suggests that a subject is irrational though this subject satisfies the two standards of rationality. Laurence BonJour provides four versions of clairvoyance thought experiments against reliabilism (*Ibid*., 185-192). Among them, I focus on the fourth one.

> Case IV. Norman, under certain conditions that usually obtain, is a completely reliable clairvoyant with respect to certain kinds of subject matter. He possesses no evidence or reasons of any kind for or against the general possibility of such a cognitive power, or for or against the thesis that he possesses it. One day Norman comes to believe that the President is in New York City, though he has no evidence either for or against this belief. In fact the belief is true and results from his clairvoyant power, under circumstances in which it is completely reliable. (*Ibid*., 188).

Norman does not notice he is a clairvoyant, and just accepts his belief about the President. We have an intuition that Norman is irrational in believing that the President is in New York City, although this belief is formed by means of a reliable clairvoyant process (in fact, this is BonJour's diagnosis (*Ibid*., 189)). By supposition, however, Norman has no evidence for or against this belief. Thus, Norman meets not only the intra-fragment coherence condition, but also the evidence responsiveness condition because there is *no* such evidence in him to be referred. This suggests that Borgoni's proposal has a counterexample.

In order to make this counterexample more convincing, a couple of details will be helpful. Suppose Norman is a 20-year-old American undergraduate student in 2024. Two scenarios are available concerning why he has no evidence. First, by accident, all the people around him—his family, his friends, and so on—have not talked about supernatural power. The internet articles, TV programs, books, and so on that Norman has entertained so far have not mentioned the possibility or impossibility of supernatural power. However unlikely it is, in such an environment, it is no wonder that Norman has no evidence for or against his clairvoyant power. The second scenario states that Norman has no interest in supernatural powers. He might have heard someone talking about the impossibility of such powers a couple of times. But since he was not interested in it, he did not carefully listen to it. This may not be so surprising. After all, not all of us show our interests in all the things however popular they are. For example, not everyone is interested in who will win the next mayoral election. About these uninterested topics, we just do not care and forget them, and there may be no inconvenience in our lives.

Why do we think Norman is irrational? The answer is because we think he *should have obtained* the evidence against the clairvoyant power under his circumstances. He is an undergraduate student in our contemporary society, so we expect him to have a curiosity about his unidentified beliefs. Thus, he should have shown some interests in how these beliefs are formed. Here, we should recall that most fragmentationists including Borgoni equated evidence with a doxastic state of the subject. Indeed, epistemic luck sets Norman free from forming the doxastic state about the impossibility of clairvoyance. But the available

evidence does not have to be a doxastic state. In Section 4, I will explain this idea in more detail and argue how we should modify Borgoni's proposal.

Next, I argue that Borgoni's proposal is *too strong* in the sense that it excludes a subject to whom we want to attribute rationality as an irrational subject. As we saw above, by appealing to evidence responsiveness, Borgoni succeeds in excluding some counter-intuitive examples about rationality such as the case of a self-deceiving person. But her strategy may exclude too many subjects. To see this point, consider the case of Lewis cited in Section 1. Lewis, the subject in this case, had possessed three beliefs without noticing their incoherence. Borgoni diagnoses Lewis is irrational because he violates the standard of evidence responsiveness (Borgoni (2021), 151-153). Isn't this too demanding? Indeed, once Lewis realizes that the three beliefs are incoherent with each other, he must revise his belief system in order to make it coherent; otherwise, he is irrational. However, this revision need not be done from the viewpoint of evidence responsiveness, but from that of intra-fragment coherence. Indeed, we have an intuition that the anything goes problem is unacceptable. But we also have an intuition that, until Lewis unifies the three belief fragments, he can be regarded as rational. In fact, Yalcin maintains that Lewis is rational because he had three belief fragments to which each of the three beliefs belongs respectively (Yalcin (2021)). To accommodate this intuition, we need some restrictions to evidence responsiveness; otherwise, this standard makes fragmentationism unmotivated.

IV The Virtue Epistemologist Viewpoint of Rationality

I have argued that Borgoni's proposal needs some modifications because it is both too weak and too strong. In this section, I will write prescriptions for these defects. These prescriptions will finally take us to a version of virtue epistemology about rationality.

4.1. The Defeasible Nature of Evidence and Defeaters

Before writing the prescriptions for Borgoni's proposal, I want to make sure that evidence has a *prima facie* justificatory power. A piece of evidence can lose its strength when it is opposed to a contrary piece of evidence. In general, the current epistemic status of evidence is defeasible, and it is changeable relative to one's environment. This point is widely accepted in contemporary epistemology. The fallibilist or neo-dogmatist holds that a belief is *prima facie* justified only if there is no serious challenge to its truth (e.g., Pryor (2001)). The positive epistemic status of justified belief is deprived if it encounters an appropriate doubt and the subject fails to eliminate it.

The defeasible nature of evidence is associated with the conception of *defeaters*. A defeater is what removes the positive epistemic status of belief. Evidence may work as a defeater. There are two kinds of defeaters (Grundmann (2011), 158-160). One is a *doxastic defeater*. This is a mental state of the subject that removes the positive epistemic status of another belief. A doxastic defeater corresponds to the notion of evidence as a mental state that most fragmentationists including Borgoni embrace. Another is a *normative defeater*. A normative defeater is

not the actual mental state of the subject. Rather, it is the information that *should be believed* by the subject. The ontological status of such information is either a proposition (on the atlas model, it is conceived as a set of possible worlds) or an external fact. Recall Tom, a self-deceiving person who sticks to a belief that the medicine is effective. Suppose he simply ignores the information he found in the scientific journal that that medicine has no effect. In this case, he *should have accepted* the belief that the medicine has no effect. This information works as the normative defeater for Tom's belief that the medicine is effective.

What grounds the normativity of normative defeaters? To this question, Thomas Grundmann answers that "the presence of normative defeaters is understood as a malfunctioning of our cognitive capacities" (Grundmann (2011), 160). Tom does not revise his belief even if he reads the scientific journal that opposes it. In this case, his testimonial belief from that journal is a normative defeater because his belief-forming capacity is malfunctioning; he *should have revised* his belief by taking his cognition of the testimony seriously. According to Grundmann, the proper function of our cognitive capacities can be explained by its evolutionary or leaning history (*Ibid.*). This account indicates that the normativity of normative defeaters is determined relative to the etymology of the subject's capacities.

Although I think Grundmann is on the right track, I do not think his proper functionalist explanation is fully convincing. Proper functionalism is a version of reliabilism; reliabilism relativized to the subject's environment, according to which the normativity of evidence is determined independently of the subject's viewpoint.[5] Reliabilism uses the *truth-conducive* notion of justification. According to this notion, to give an epistemic justification to a belief is to enhance the likeliness of that belief's being true. In what follows, I will argue that the normativity of evidence also has a *non-truth-conducive*, *deontologist* element that goes beyond the mere proper function of one's capacities.

4.2. Normative Defeaters Enhance Borgoni's Proposal

Let us modify Borgoni's proposal. First, we consider how we can amend the weakness of her proposal. The conception of normative defeaters enhances its explanatory power straightforwardly. Recall Norman again. We have an intuition that he *should have obtained* a belief about the impossibility of the clairvoyant power, even if he grew up in an environment where he did not encounter that information by accident or he was just uninterested in the impossibility of such a power. But this intuition cannot be captured by Borgoni's characterization of evidence that equates it with a mental state, a doxastic defeater. The normative defeater accommodates our intuition squarely. The piece of information that clairvoyance is a fiction is a normative defeater for Norman's belief of the President's whereabout. Since his belief of the President's whereabout is defeated, it is irrational for him to accept this belief. Hence, here is the prescription: *Let the notion of the available evidence include the normative defeater*.

5) For other proponents of proper functionalism, see Goldman (1986), Plantinga (1993) and Bergmann (2006).

4.3. Ecological Rationality Mitigates Borgoni's Proposal

Next, we give another modification to Borgoni's proposal because it is too strong. To this end, we have to lower the hurdle of rationality. Here is my prescription: *Introduce the conception of ecological rationality, a version of bounded rationality, to fragmentationism in a more explicit way*. The real-world subject is limited both by her abilities and by her environment. This fact leads us to an idea that our rationality should be measured relative to its boundedness. This idea is not new. The conception of *bounded rationality*, originally proposed by Hubert A. Simon (Simon (1955, 1956)), was a countermovement to traditional microeconomics. In microeconomics, it is assumed that a subject always acts in an egoistic way in order to maximize their utility. According to Simon, however, we should abandon such an idealized notion of rational subject because it does not reflect the boundedness of real-world subjects. The conception of bounded rationality starts with two ideas. First, human beings are finite, and their cognition is limited regarding computational and reasoning capacity, time, memory storage, and so on. Secondly, the world is uncertain and complex, so not only does the information available to a subject vary depending on where they live, but also it is almost impossible to predict what happens next precisely. Despite these two restrictions, we somehow manage to solve various problems. If a subject succeeds in achieving their end with these inadequate devices, they are entitled to be rational at least in a practical sense. Hence, bounded rationality is a real-world practical rationality.

The reasoning the bounded subject executes is cashed out by *heuristics* (Simon (1957, 1959)). The bounded subject does not have enough time to calculate the answer to the question. Instead of strict and all-considered logical inferences that are time-consuming, she utilizes heuristics. Heuristics are intuitive judgments based on one's past experiences. Heuristics have the following features. First, they are coarse-grained because they are built on the restricted information. Because they are coarse-grained, they are applicable to various cases and quite rapidly used. Second, a belief used in heuristics may be incoherent with other beliefs of the subject. A substantial number of psychological experiments revealed that the quick and dirty reasoning derives a false judgement that the participant would not make if they had enough time for thinking (Nisbet and Ross (1980)). For these reasons, heuristics have been evaluated as an unreliable way of reasonings that leads to wrong decisions and prejudices. As Lisa Bortolotti points out, however, this evaluation changed in recent years (Bortolotti (2015)). Human beings have acquired heuristics by natural selection and used it for survival in their environments. Although it is true that heuristics may work as prejudices or biases, its adaptiveness ensures that it works *reliably* to some extent when the subject is in the environment. This environment-relative version of bounded rationality is called "ecological rationality" (Gigerenzer et al. (1999)). The reliability in the environment shows that ecological rationality is not just practical; it also has an epistemic dimension.

Ecological rationality is in line with the idea of normative defeaters. Recall that the normativity of these defeaters is (at least partly)

explained by the proper function of the subject's capacities, and the properness of function is determined by how these capacities have been acquired. Since this acquisition is conditioned by the subject's environment, the reliability of their cognitive capacities is relativized to that environment. Ecological rationality tells the same story concerning heuristics. Since heuristics are a kind of our reasoning capacities, ecological rationality can be regarded as a variant of the environment-relative understanding of the normativity of evidence.

By introducing ecological rationality, we can lower the hurdle of rationality for Borgoni's proposal. One may put priority to a belief in one fragment over the evidential belief stored in another fragment to fix the problem quickly by using heuristics. What evidence she should refer to is determined relative to her environment. Hence, she does not always have to respond to evidence; even if she does not respond to it, she can be still rational in the bounded sense.[6)]

4.4. The Virtue Epistemological Viewpoint of Rationality

So far, we have modified Borgoni's two standards view. But this is not the end of the story. In Section 4.1, I hinted at the insufficiency of the purely reliabilist characterization of the normativity of evidence by proper functionalism. In this section, I will explain why it is insufficient and provide the further modification of Borgoni's proposal by appealing to a version of virtue epistemology.

I start by explaining why proper functionalism is insufficient. To see this point, consider Norman again, whose clairvoyant-based belief has a normative defeater. A careful consideration shows that the normativity of this defeater cannot be adequately captured by the malfunction of his cognitive capacities. Consider the scenario that Norman happened to grow up in an environment where the impossibility of clairvoyance was not mentioned. This is the case of epistemic luck. In this scenario, nothing is wrong with his cognitive capacities; all his capacities including perception, memory, belief-forming capacities and so on function properly. But we still evaluate he should have made effort to acquire the evidence against his power because we think that he could have got that evidence quite easily. The following counterfactual sentence seems true: if Norman had met a person who told him about the impossibility of clairvoyance, he would have had a doxastic defeater for his belief of the President's whereabouts. This indicates that something more than the malfunctioning of cognitive capacities is required in order to fully explain the normativity of normative defeaters.

What is this additional requirement? The reason why we attribute the normative defeater to Norman is that, judging from his cognitive capacities and his social status, i.e., his being an undergraduate student, we expect him to make an inquiry into the evidence against his beliefs formed by the clairvoyant power, but he failed to meet that expectation. In other words, he failed to be qualified as an *epistemically responsible agent*. Here, an epistemic responsible agent is the one who acts in the way to achieve truth and avoid falsehood. If this diagnosis is persuasive, the source for the normativity of normative defeaters can be partly explained by virtue responsibilism.

Virtue responsibilism is a version of virtue epistemology. Virtue epistemology is the theo-

6) Some fragmentationists accommodate the notion of bounded rationality in their theories. For example, following Simon, Christopher Cherniak develops the theory of "minimal rationality" which is akin to that of bounded rationality (Cherniak (1986)).

ry of epistemic evaluation according to which a belief is justified if and only if it is formed as the result of the act of the subject's intellectual virtues (Zagzebski (1996), 241). Depending on how to characterize the intellectual virtue, virtue epistemology can be divided into two camps: virtue reliabilism and virtue responsibilism. The former equates the intellectual virtue with the reliable belief forming capacities of the subject while the latter equates it with the character traits of the subject such as open-mindedness, epistemic curiosity, epistemic thoroughness, and so on. According to Linda Zagzebski, intellectual virtues have two features (*Ibid*., 137). First, they are motivated to produce a desired end. Second, they succeed in bringing about that end reliably. It is controversial whether the character traits counted as intellectual virtues really have the second feature because they are not necessarily truth-conducive. Rather, they should be understood as what an intellectually virtuous subject is supposed to possess in order to get knowledge. Zagzebski criticizes virtue reliabilism by insisting that merely having reliable belief-forming capacities does not amount to having intellectual virtues because the former is irrelevant to the epistemic responsibility of the subject. This indicates that those character traits are not truth-conducive but deontological notions.

The idea of epistemic responsibility clarifies why Norman has a normative defeater. He does not possess intellectual virtues such as epistemic thoroughness we expect him to possess in a satisfactory way. He has been a bit lazy and not behaved as an epistemically responsible agent. Hence, we judge that a normative defeater is present to him. Notice that the virtue responsibilist account of normativity does not make the proper functionalist account useless. The malfunctioning of cognitive capacities explains the normativity of normative defeaters when the subject does not take the counter-evidence seriously. In this case, the belief-forming capacities of the subject that do not revise her belief system are malfunctioning. What proper functionalism cannot explain is the cases where a subject has no evidence due to epistemic luck. Virtue responsibilism deals with these cases. However, this theory does not have the real truth-conducive justifiers in it. Proper functionalism provides the basis of those truth-conducive justifiers. After all, once a normative defeater is internalized by the subject and turns into a doxastic defeater, the normativity of this doxastic defeater will be underwritten by proper functionalism (the failure of evidence responsiveness can be reduced to the malfunctioning of belief-forming capacities). In this way, virtue responsibilism and proper functionalism are associated with each other.[7)]

4.5. Should We Really Blame Norman?

Up to this point, I have developed the virtue responsibilist account of the normativity of evidence. In this final section, I will consider one anticipated objection to my argument and reply to it.

This objection concerns the epistemic responsibility of Norman. In the previous section, I argued that Norman does not fulfill his responsibility as an epistemic agent. To this claim, one might object that we should not epistemically blame Norman because he *could not* find out the evidence against his belief of the President's whereabouts under his circumstances. In ethics, the so-called "*ought* implies

7) For an attempts to solve the clairvoyance problem from the virtue reliabilist perspective, see Greco (2003). Bernecker (2008) argues that Greco's solution is unsuccessful. I do not discuss Greco's solution in this paper.

can" principle is widely accepted as a plausible principle. It is true that if Norman had met a person who told him about the impossibility of clairvoyance, he would have had a doxastic defeater for his belief of the President's whereabouts. But by supposition, he did not meet such a person (and any other sources of the information about the impossibility of clairvoyance) due to epistemic luck. This suggests that Norman *could not* be motivated to find the evidence against that belief. If so, we *ought not to* ask him to find it. Therefore, he has no epistemic responsibility for his ignorance.

We have to distinguish this objection from a more fundamental one. The more fundamental objection is that we should not epistemically blame Norman because he has no control over the formation of all of his beliefs. As William. P. Alston argued (Alston (1988)), we cannot choose what to believe. We cannot help believing what we see, hear, taste, and so on. But if we have no doxastic control, we are not responsible for the formation of beliefs. Since Norman cannot help forming beliefs by his clairvoyant power, it is illegitimate for us to epistemically blame him for having these beliefs. The persuasiveness of this fundamental objection has been vigorously discussed. I do not discuss this issue here. For the sake of argument, assume that we can epistemically blame a person who has no doxastic control. Even if we assume this, the above objection to the epistemic responsibility of Norman still remains.

Now, how can we reply to this objection? We can find a clue in Matthew Chrisman's argument in Chrisman (2018). In this article, Chrisman develops an argument against the fundamental objection stated above. Although we should not confuse this objection with the one we are discussing here, Chrisman's idea is helpful for clarifying the point we must focus on. Chrisman's strategy for rebutting the fundamental objection is to find a cognitively active element in the vicinity of belief-forming process and to argue that this element makes the subject epistemically responsible. According to him, although belief formation is involuntary and in this respect the subject is wholly passive at the personal level, they can be active in *maintaining a system of beliefs*. Maintaining a system of beliefs involves revising that system in light of newly acquired beliefs. It also involves "seeking out new beliefs beliefs—e.g., by investigation or deliberation—when one's system of beliefs leaves some important question open or some strongly held belief apparently unsupported by other beliefs." (*Ibid*., 520) Maintaining a belief system is an action an epistemic agent is expected to take. Hence, they are responsible for this action. If they fail to maintain it, they will be blamed.

I think we can apply this idea to our problem because it identifies the conditions of evidence-seeking activity. But to this end, one modification is in order. Chrisman seems to think that seeking out new beliefs is motivated when the subject encounters evidence for or against her existing belief (*Ibid*.). At least, he does not say anything explicit about what a subject should do when she has no evidence for or against her belief. This is not sufficient for replying to the objection we are focusing on here because the subject we want to regard as epistemically irresponsible, i.e., Norman, has no evidence in his mind. Fortunately, we can extend Chrisman's idea to include normative defeaters as well. Since Norman has no evi-

dence for or against his clairvoyant power, his belief by clairvoyance has no internalist support and how he got it is an important open question for him. Arguably, his environment gave him a lot of *indirect* hints for doubting the clairvoyant power. For example, the account of our basic cognitive capacities he met in the science textbook at school was useless for understanding how he got the beliefs that were formed by the clairvoyant power. This suggests that he *could have been motivated* to find the cause of those beliefs if he had reasonable epistemic curiosity or epistemic thoroughness. Indeed, he may not have the full-blooded obligation to seek out the evidence. But he still has such an obligation to some lower degree.[8)] We have a reason to expect him to maintain his belief system. Therefore, Norman is responsible for this action at least in a weak sense.

Here, one might object that it is paradoxical to encourage Norman to seek the normative defeater that there is no clairvoyance power. By supposition, in this thought experiment, clairvoyance power exists in the world. Thus, the belief that there is no clairvoyance power is false. If our epistemic end is to achieve truth, Norman should not form this false belief. We can reply to this objection by appealing to ecological rationality. According to this notion, one's environment sets up what beliefs she should obtain as heuristics. Indeed, these beliefs may be false. But still, to be ecologically rational, a subject should obtain these beliefs not only from the practical viewpoint but also from the epistemic viewpoint because heuristics have a limited reliability in that environment. The notion of the environment used here covers both natural and social environments. In his environment, Norman should have a belief that there is no clairvoyance power because this is a scientifically common-sense belief in our contemporary society. Hence, even if this belief is false, it still works as a normative defeater.

The idea that the attribution of epistemic responsibility to a subject partly depends on the expectations from other social members can be supported by the following case study. Riccardo Viale argues that there is a case in which a paranoid patient meets the standards of ecological rationality (Viale (2021), 366-367). Suppose a paranoid patient who is working at the office uses heuristics such as "If you see two colleagues who are talking and looking at you, then they are plotting something against you," and reaches at the belief that his colleagues are plotting something against him. Suppose further that he has an intention to confirm his hypothesis about his colleagues' gestures, and his colleagues really start to plot something against him by observing his strange behaviors. In this case, the paranoid patient can be ecologically rational because his belief about the colleagues' gestures becomes true by working as a self-fulfilling prophet, and this satisfies his intention. Indeed, in the beginning, he failed to respond to the evidence against the belief that his colleagues are plotting something against him. But after this belief fulfilled itself, the evidence against it disappeared.

This case has some similarity to Norman's case; in both cases, the subject satisfies the standards of rationality. But there is a difference; although it is almost impossible for the paranoid patient to change his belief in the light of newly acquired beliefs, it is not so for Norman. Now the question is whether this paranoid pa-

8) This epistemic obligation is not as weak as the so-called "epistemic supererogation." Epistemically supererogatory actions are the ones whose subject is not blamed even if she does not do them (Hedberg (2014)). By contrast, Norman is epistemically blamed to some lower degree if he fails to seek for evidence.

tient is really rational or not. Our intuition splits here. It might be thought that we should not call him irrational because he cannot maintain his belief system appropriately due to his mental disorder. But an opposite diagnosis is also available. Viale argues that he is irrational because "we would be forced to judge ecological rationality, not only based on the individual's success in achieving internal, endogenous objectives, but also in relation to external, exogenous, conventional norms regarding social well-being or individual wellness" (*Ibid*., 367). Indeed, we should not blame him because he *cannot* change his belief system. But there is a substitution for blame; we will help him instead. We will give him advice to go to counseling, adjust the work environment for him, and so on. Viale insists that we should take "a paternalistic evaluation approach" to him (*Ibid*.).[9)]

I do not decide whether the paranoid patient is rational or not here. After all, this is a paradoxical case. What I want to emphasize here is that the paternalistic evaluation can be taken to be a substitution for, or a weaker variant of, epistemic blame. In general, paternalism assumes that the subject we want to interfere with is autonomous. The same is true of epistemic paternalism (Pritchard (2013)). In taking this policy, we implicitly assume that the patient is potentially autonomous and responsible for his cognitive actions. When we help the patient, we expect him to join the community as an epistemically responsible agent in future. This consideration supports the idea that epistemic responsibility is partly constituted by social elements such as an expectation from other social members.

9) Of course, we may not take a paternalistic attitude towards him. Sebastian Schmidt argues that we "distrust" the person who violates the standard of rationality, and distrust is tantamount to epistemic blame (Schmidt (2020)).

V Conclusion

To recapitulate, we modified Borgoni's two standards view of fragmented mind's rationality into an environment-relative one. The result can be formulated as follows.

The environment-relative view of fragmented mind's rationality

A subject S with a fragmented mind is rational if and only if the following conditions are met.

(1) S meets two standards of bounded rationality: intra-fragment coherence and evidence responsiveness.
(2) S has no normative defeaters for her beliefs.
(3) S has a set of intellectual virtues that qualify her as an epistemically responsible agent.

Fragmentationism is an attempt to explain our rationality in a more realistic way. (1) and (2) are conditions that avoid the anything goes problem by accommodating the boundedness of real-world agents more adequately. (3) is a virtue epistemological condition that ultimately grounds the normativity of normative defeaters that appear in (2). The environment that bounds the subject is constituted by natural and social environments. The rationality of the subject is partly determined by social elements such as what she is expected to do as an epistemic agent. Hence, the virtue epistemological viewpoint is requested to adequately capture the fragmented mind's rationality.

Acknowledgement

This work was supported by JSPS KAKENHI Grant Number 22K00030. I would like to thank David Hilbert, Marya Schechtman, Rachel Goodman and Aidan Gray for comments on the earlier draft of this paper. I would also like to thank the participants of the February 28th, 2024 Work in Progress seminar of Philosophy Department at University of Illinois of Chicago.

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Belief Fragments and the Virtue Epistemological Viewpoint of Rationality

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The atlas model of belief is the view according to which one's belief system is fragmented and each fragment consists of a set of particular beliefs with unstructured contents. Traditionally, a subject is regarded as rational if and only if her belief system is coherent and logically closed. One problem of the atlas model is that it allows even an irrational subject such as a self-deceiving person to be rational if her belief system is intra-coherent. Christina Borgoni attempts to avoid this problem by proposing that, in order to be rational, a subject must meet another requirement as well: *responsiveness to the available evidence*. Although her dual standard theory succeeds in identifying the above type of irrational subjects as irrational, it is still both too weak and too strong. It is too weak because it cannot explain why a subject who forms a true belief by means of a reliable clairvoyant power without having any evidence for and against it is irrational. It is too strong because it makes any subject who has an inter-*in*coherent belief system irrational if one of its fragments involves an evidential belief. My aim in this paper is to modify Borgoni's theory. To this end, I will do two things. First, I will mitigate her theory by appealing to the idea of bounded rationality. Secondly, I will strengthen her theory by introducing the idea of epistemic responsibility, a virtue epistemological idea, into it, which enables us to blame a subject who does not seek a new piece of evidence in her environment.