The Puzzle of Wandering Inquiry
Susanna Siegel * Draft of Fall 2023
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Abstract: Inquiry is guided, in the minimal sense that it is not haphazard. It is also often thought to have as a natural stopping point ceasing to inquire, once inquiry into a question yields knowledge of an answer. On this picture, inquiry is both *telic* and *guided*. By contrast, mind-wandering is *unguided* and *atelic*, according to the most extensively developed philosophical theory of it. This paper articulates a puzzle that arises from this combination of claims: there seem to be plenty of examples of inquiry progressing within mind-wandering, yet theories of inquiry and mind-wandering can make wandering inquiry seem impossible or incoherent. I offer several solutions to this puzzle and make the case that taken together, they illuminate a prevalent form of inquiry that the burgeoning literature on that topic overlooks: inquiry that progresses spontaneously.

Recent philosophical writings on inquiry focus predominantly on cases in which inquirers direct the flow of inquiry by making deliberate decisions about whether, when and how to inquire into a question, with concerted efforts that keep the subject focused on their inquiry. To the extent that they exert these forms of executive control in directing the flow of an inquiry, at its start, in the middle, or at the end, inquirers engage in what I'll call *high inquiry*.

High inquiry is central to discussions of the rational status of "double-checking", in which an inquirer continually answers and then reopens a question such as "Did I turn off the stove?".[1] In addition to double-checking, high inquiry can involve less neurotic pursuits of such ordinary questions as "Is the gum I bought in the green bag or the blue bag?" or "Who ate the last slice of pizza?".[2] Nothing mandates that inquiry into these questions has to be high. But when picturing the pursuit of such questions, the most natural scenarios to imagine are ones in which someone decides to look for their gum, thinks consciously about where it might be, and as a result focuses their attention primarily on trying to find it in those places. That's the typical scenario in the burgeoning literature on inquiry: the flow of inquiry occupies

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[1] Friedman 2019, Goldberg 2019, Woodard (forthcoming).

[2] These examples all come from Jane Friedman (gum: unpublished ms-1. pizza: 2013), who develops an approach to inquiry as constitutively directed toward questions, by being structured in part by a question-directed attitude she calls "interrogative attitudes". The idea that inquiry involves such attitudes is widely accepted in recent literature, and forms the background of other debates about its nature, such as Archer 2021, Falbo 2023, Kelp 2020.

the foreground of consciousness, and is directed by intentional, effortful, self-aware actions that determine how the inquiry proceeds.[3]

Although high inquiry has taken center stage in recent discussions, focusing exclusively on such examples runs a risk of mischaracterizing inquiry in general. It's reasonable to think that very often, inquiry advances in a mode that is not high, but *low*. A low flow of inquiry is spontaneous, and not directed by deliberate decisions, concerted efforts or intentional, self-aware actions.

Here are three scenarios that illustrate low inquiry.

First, questions often open spontaneously in a person's mind in response to unexpected perceptions. All sorts of perceptual stimuli can prompt questions or acts of wondering in subjects who never decided or made any effort to ask those questions, let alone to pursue them. What was that loud bang? In that large puddle, was the sudden ripple due to a creature from below or a drop from above? Some spontaneously prompted questions will pass quickly through consciousness, only to be dropped forever a moment later. But other spontaneously prompted questions matter to a person, leaving them disposed to look for answers, without their ever having decided to become so disposed. A puddle-seer who finds herself wondering later on whether there might be creatures in the puddle, and without any advance-planning checks for them the next time she walks by, may have acquired her readiness to inquire into the contents of the puddle unwittingly.

Second, there is little constraint on what can come to mind unbidden. In principle, anything could come to mind under the guise of something relevant to a question that lies open in the background of a subject's mind. Unbidden conscious episodes could be a gut feeling that such-and-such may be the answer to a question (or *an* answer to it); or that a given hypothesis is definitely not the answer; or that a piece of information may favor or disfavor a possible answer. The arrival of unbidden contributions to inquiries-in-progress has been called the "shower effect" – when sudden insights (or things that feel like insights) arrive spontaneously to consciousness, in the midst of doing something unrelated, such as bathing.[4] Such insights can get introduced by chains of association, or, seemingly, sui generis.

Notice that spontaneous advances in inquiry can occur at any point in a flow of inquiry. A subject S may have purposefully begun to inquire into a question, such as "Where did I leave the newspaper?", and then failed to find it in any of the obvious places. Later on, a key memory ("I left it on that empty chair in the cafe!") arrives unbidden when S is in the midst of doing something else. Her inquiry then advances by adding a new hypothesis to the space of possible answers. At this juncture, the inquiry's advance is low.

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[3] See, for instance, the examples in any of the articles mentioned so far, or Thorstad 2020 or 2022.

[4] Irving et al 2022

As the newspaper case illustrates, an inquiry that begins deliberately can later advance spontaneously. Conversely, as the puddle example suggests, an inquiry could begin spontaneously but later become deliberate. Since being high or low is a property of a juncture in inquiry, a flow of inquiry containing multiple junctures can be low at some junctures and high at others.

Third, consider a state of mind that by standard estimates occupies between 30 and 50 percent of waking life: mind-wandering.[5] The contents of mind-wandering are typically about ongoing activities, concerns, tasks, situations.[6] With respect to any of these things, a person often has lingering uncertainties or open questions that rise to the surface of consciousness in cognitively undemanding moments, because the person is preoccupied with them. It thus seems natural to suspect that waking life contains a great deal of *wandering inquiry* – inquiry that progresses within the state of mind-wandering.

These three routes to low junctures in inquiry suggest that it is prevalent. But in discussions of the nature of inquiry, low inquiry is understandably easy to overlook. Like other mental occurrences often classified as "spontaneous" or "implicit", it occupies a middle space between deliberate, controlled undertakings such as explicit reasoning, and haphazard happenings or other brute forces in the mind.[7] But since we live much of our mental lives in this intermediate space, we should not overlook the strands of it that are both low and zetetic ("zetetic": pertaining to inquiry).

In this paper, I aim to illuminate a particular kind of low inquiry, illustrated by the second and third scenarios: inquiry in mind-wandering. My strategy is to focus on how wandering inquiry can be guided in some ways while at the same time being unguided in others. The more closely we examine mind-wandering, the more clearly we will see the need to reconcile its attentional freedom with the rational discipline of inquiry.

1. What is mind-wandering?
What exactly is mind-wandering? Go back to our newspaper-seeker. When S's key memory arrived ("I left it in the café!"), she wanted to know what happened to her newspaper, but wasn't actively looking for it. She was doing something else instead, and relative to that task, the newspaper-memory was irrelevant. The early cognitive science of mind-wandering defined it simply as task-unrelated thought.[8] Defined in this way, examples like the newspaper-seeker or the shower effect make it plain

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[5] Kane et al., 2007, Killingsworth & Gilbert, 2010, Mills et al., 2018.
[6] Klinger 1971, Klinger and Cox 1987, Baird et al 2011, Baird et al 2012, Sripada 2016, Irving and Glasser 2019.
[7] Brownstein 2018, chapter 8.
[8] Smallwood and Schooler 200, 2015.

that there's such a thing as wandering inquiry. Inquiry can clearly advance via the occurrence of "off-task" thoughts.

But the definition of mind-wandering as "task-unrelated thought" has its limits. For one thing, it cannot classify as mind-wandering any patterns of attention in which a subject at rest has no task, and therefore no task-irrelevant thoughts.[9]

For another, as Murray et al point out, there is more than one way for a thought to be 'off-task'. A thought or action can be irrelevant to one current task but relevant to another, when a subject is working on both tasks at the same time. Defining mind-wandering as 'task-unrelated thought' would leave it unclear whether there is any mind-wandering in this scenario. In addition, a line of thought could be deliberately undertaken in order to avoid a task. Listing all one's friends in Texas might seem more interesting than one's official task of listening to a lecture. Notice that making this list could be a purely high inquiry. Given the many ways to be task-unrelated, defining mind-wandering in as task-unrelated thought would at best yield a plurality of kinds of mind-wandering.

Recognizing these limitations, more recent research takes a different approach to defining mind-wandering. Instead of looking for its defining features in the relationship between a subject's current tasks and the content of thoughts at a time, a highly developed and extensively defended philosophical analysis of mind-wandering, offered by Irving and colleagues, defines it as a mode of attention characterized by a distinctive set of dynamics.[10] Recent science concurs.[11] On Irving's influential philosophical analysis, mind-wandering is a mental activity in which attention wanders: it moves freely from one thing to another, without any structure that would make it the case that a shift of attention counted as a distraction from a task or an activity, and without any structure that exerts pressure felt by the subject on how attention should be directed, going forward. As Irving puts it, mind wandering is "unguided attention."

What is attention like when it has such a dynamic "wandering" structure? It shifts and lingers without felt effort (it is not fatiguing), and it is undirected by voluntary, intentional decisions about what to think about, or how thought should proceed. The analysis of mind-wandering as unguided attention can thus classify as mind-wandering bouts of conscious mental life that are not distractions from any ongoing task, and it excludes those unambiguously "off task" cases of thought (such as listing all one's friends in Texas) that are directed by the same forms of executive control at work in high inquiry.[12]

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[9] For this criticism and others, see Murray et al forthcoming, Irving and Thompson 2018.
[10] Irving 2016, 2018, 2019, 2021, ms
[11] Christoff et al 2016, Seli/Kane 2018, Murray et al (forthcoming).
[12] On executive function, see Buehler 2018.

I'll be taking for granted Irving's central idea that mind-wandering is unguided attention. Defined in this way, mind-wandering lacks all the forms of executive control that direct high inquiry. These features make it a good context in which to examine low inquiry.

When we think of mind-wandering in Irving's way as a distinctive unguided mode of attention, wandering inquiry needs some explanation. That's because when we juxtapose this model of mind-wandering with inquiry, it creates the appearance of a puzzle as to how inquiry could happen in mind-wandering at all.

Inquiring can seem to be by nature both guided, in the minimal sense that it is not haphazard; and telic, by virtue of being directed toward questions. I'll be taking on board as a working assumption the idea that at least one central form of inquiry is directed toward questions, as Friedman and Carruthers have proposed.[13] Thought of this way, inquiry has a natural stopping point: if inquiring yields knowledge of an answer to its defining question, it is natural for the inquiry to stop. On this picture, inquiry is susceptible to normative pressures, once it begins, to continue in certain ways and not in others. These pressures include reasons to stop inquiring into a question once one knows the answer. If there is such reason to stop, it can make continual double-checking seem irrational.

Being telic and susceptible to guidance would be aspects of both the psychological and the normative structure of inquiry. By contrast, mind-wandering, on Irving's analysis, is not only unguided, but also atelic - it has no natural stopping point internal to the activity. And here lies the puzzle. If a single sequence of thought could be both an instance of mind-wandering and a bout of inquiring, then it can seem as if we'd have to say that that single thing both is and is not telic, and that it is both is and is not guided. I'll call this the puzzle of wandering inquiry.

The puzzle of wandering inquiry is not the kind of puzzle that deeply challenges the existence of wandering inquiry. It is plain that wandering inquiry happens. The value of the puzzle lies in its power of its solutions to illuminate the nature of wandering inquiry.

From here, I'll argue that the puzzle has multiple solutions, and when taken together, they help us understand how a person's course of inquiry could be subject to pressures to continue on in specific ways and not continue in others, even when it takes place in a wandering mind. Once we see how to reconcile the nature of inquiry with the nature of mind-wandering, we will understand better not only how wandering inquiry is possible, but also, I'll argue, why wandering inquiry enjoys some advantages over the high, directed kind.

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[13] Friedman (2013, 2017), Carruthers 2018.

Since the puzzle presents two axes along which mind-wandering and inquiry per se seem prima-facie to differ - telicity and guidance – we can consider each in turn. I begin with the simpler axis: telicity.

2. Telicity

Running a mile is a paradigmatic telic activity. It has a natural point at which the activity reaches an end, even if the runner keeps on going, unaware of having passed the mile mark. The mile mark is the built-in stopping point of running a mile. This is an example of a stopping point internal to the activity.[14]

On Irving's analysis, mind-wandering is an atelic activity, due to the fact that nothing internal to an episode of mind-wandering marks a natural endpoint or stopping point. Mind-wandering subjects have not planned or committed themselves to paying attention to one thing rather than another. As a result, the fact that attention is occupied in one way at moment t1 places no constraint for the subject on how attention should be occupied at the very next moment, t2, or at any subsequent moment. It is an activity without any overarching temporal orientation to a goal or task.[15] These features suggest that an episode of mind-wandering has no intrinsic, natural stopping point. In Irving's vocabulary, this lack of constraint is expressed by the term "unguided attention".

We will consider more closely the notion of unguidedness in Irving's theory in the next section. For now let's focus on telicitiy. If mind-wandering is atelic, but inquiring is telic, how can inquiring happen in mind-wandering?

A first reaction to this axis of the puzzle is to deny that inquiry is telic. Maybe inquiry has a direction, without any natural telos. For example, some philosophers have argued that while inquiries into questions have goals, the goal of inquiry is not to answer that question, but simply to improve one's epistemic situation with respect to it.[16] Other philosophers consider inquiry that is directed toward a subject-matter rather than a question, and argue that its goal is to further one's communion with a topic - something that can in principle last a lifetime without being exhausted.[17] In these visions of inquiry, inquiry is atelic.

If inquiry and mind-wandering are both atelic, then there is no need to reconcile any difference in status when it comes to telicity. And if some inquiries are telic while

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[14] For much more on telicity, see Mourelatos 1978 or Friedman (unpublished ms-2)
[15] If someone intentionally decides to let their mind wander for a specific amount of time, would their mind-wandering then have both a telos and an orientation around a goal? Not if a telos would have to be internal to the type of activity, and if meta-control over a mode of attention is distinct from control over specific directions of attention. On these responses, see Irving 2021, p. 636, and Irving (ms). For further discussion, see Seli et al 2016, Murray and Krasich 2020 and 2022.
[16] Archer 2021, Falbo 2023.
[17] Dover 2023.

others are not, then on that picture, too, telicity poses no conceptual obstacle to wandering inquiry.

A different reaction to the telicity strand of the puzzle holds on to the idea that inquiry into a question is telic, but aims to reconcile this status with the atelicity of mind-wandering. A single stretch of life can belong to two kinds of activity, one of which is telic, and the other of which is atelic. For example, raising a child is an activity that has no natural stopping point. But part of this long-lasting activity can include playing a game of chess, or falling asleep after a bedtime story, or making breakfast -- all things with natural stopping points. When a child wins a game of chess played against their parent, a telic activity (playing a game of chess) is part of an atelic activity (raising a child). The parent's activity of playing chess belongs to two kinds of activities: telic game-playing, and atelic child-rearing.

By analogy, some philosophers have suggested that mind-wandering episodes have no overarching goal, but are composed of telic activities, such as making plans.[18] On this picture, fragments of lines of inquiry could be telic ingredients of an atelic mind-wandering.

These two reactions address the telicity part of the puzzle in different ways. The first reaction tries to defuse the idea that when it comes to telicity, inquiry and mind-wandering are in tension, by denying that they differ enough along this dimension to be in tension at all. The second reaction can acknowledge a difference, but tries to defuse the same tension by showing why even a stark difference would not matter.

But neither of these reactions does much to illuminate what wandering inquiry is actually like - what makes it wandering, what makes it inquiry, and what makes it low. On these topics, the guidance part of the puzzle does more to illuminate the nature of wandering inquiry.

3. The guidance missing from mind-wandering: anti-interruptive pressure

Mind-wandering and inquiring are both in part mental activities.[19] The guidance strand of the puzzle arises from an assumption that Irving explicates and defends in detail: that mind-wandering is unguided attention.

My solution to the guidance strand of the puzzle is that the type of guidance missing from mind-wandering differs from any type of guidance that may be essential to inquiring. This result will open the way for a single activity to be at once both an instance of "unguided" mind-wandering and an instance of "guided" inquiring.

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[18] Dorsch 2015, Carruthers 2015.
[19] At the end of section 4, I give reasons to think that mind-wandering can include bodily actions as well.

Let's begin with the kind of guidance missing from mind-wandering. On Irving's view, this kind of guidance is the same regulative kind that helps characterize competence with practical tasks. Irving draws on Peter Railton's idea (which was in turn a development of Frankfurt 1978) that practical competence involves corrective mechanisms to characterize guidance in general:

> When you are guided, you experience deviant behavior as 'calling for correction' (Railton 2009, p. 9) and are therefore disposed to bring yourself back on track. Suppose you begin to stumble while running. Rather than fall, you notice that your gait is off and adjust it to stay upright. You thus guide your actions in accordance with normative standards of running.[20]

And here is how Irving characterizes guidance of attention, using as an example the atelic attentive task of staring at a mountain:

> Attentional guidance manifests in how you respond to distractions. You notice that your focus has drifted from the mountain, and after a moment of frustration, bring your attention back on track. Your attention is guided in accordance with a normative standard: what you consider relevant to- and a distraction from - your goal. (ibid.)

Irving proposes that in mind-wandering, nothing plays the role that mountain-staring plays in the example above in defining a task from which one could be distracted. Irving sometimes describes this role using "information" instead of "task," but the main point is the same:

> There is no information I such that, if A's attention were not focused on I, she would notice, feel discomfited by, and thereby be disposed to correct this fact. (2021, p. 623).

On Irving's view, when one's mind is directed, instead of wandering, there's a regulative mechanism devoted to correcting interruptions of attentional focus. The regulative ideal served by this mechanism is continuous, uninterruptedly focused attention oriented toward a single thing. (We won't need more precision at this stage on what the single 'things' can be. As we saw, Irving describes them alternately as 'information' or 'tasks').[21] So the kind of regulative pressure missing from mind-wandering is a type of pressure to stay focused continuously on a single

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[20] Irving ms, p. 4. Other models of guidance in this sense are found in cognitive dissonance theory (Cooper 2007), the theory of implicit attitudes (Brownstein and Madva 2012, Brownstein 2018), and analyses of perceptual normativity (Kelly 2010) and intuition (Railton 2016).

[21] Information and tasks can be combined into the notion of a task set: that is, a representation of what information is relevant to a task. On task sets, see Monsell 2017 and Irving (ms).

thing toward which attention has already been directed. Since it is a kind of pressure to resume an activity after interruption, I'll call this kind of pressure *anti-interruptive*.

In Irving's example of staring at a mountain, continuity in the activity (staring at the mountain) coincides with continuity in point of focal attention (the mountain). Because the activity is staring at a mountain, as soon as focal attention shifts away from the mountain, the activity gets interrupted.

In other examples, continuity of activity can tolerate shifts in focal attention. For instance, if the activity is planning which snacks to bring on the train, focal attention might shift around in the fridge and the cupboards. In many activities, focal attention has to shift around to do the activity well. Riding a bicycle safely through traffic requires monitoring surrounding spaces, shifting attention to maintain awareness of what's behind, what's ahead, where pedestrians and obstacles are in relation to oneself, and so on. Here, as in many modes of navigation, continuous attention to the task involves shifting focal attention around.

These observations suggest that anti-interruptive pressure to continue an activity once it has begun comes in at least two varieties: the pressure to maintain a single point of focus, defined by either a region, or by an object to keep track of as the perceiving agent or the object moves; and the pressure to maintain focus on a single activity. Whether these two pressures coincide depends on whether the activity can continue without interruption, only by the agent monitoring a single object or space (such as watching the doorway so as to see the awaited person the moment they arrive).

Are all activities susceptible to anti-interruption pressures? So far we have considered only activities that occupy attention continuously. Other kinds of activities can continue, without continuously occupying attention. Many long-term activities are like this, including writing a book, raising a child, running a government, or building a movement. These activities are ones we can do continually, without doing them continuously, thanks to the fact that their continuation conditions can be (and sometimes must be) attentively patchy instead of attentively smooth.[22] We do not necessarily interrupt our book-writing when we pay attention to things totally unrelated to it.

But even activities with attentively patchy continuation conditions can be subject to anti-interruption guidance. The attentive patchiness of the continuation conditions creates a distinct kind of anti-interruptive pressure: pressure to avoid things that could interfere with the ability to complete a long-term project, such as losing one's

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[22] A.R. Ammons helpfully captures this distinction in a couplet: "Continually is continuously from time to time/and continuously is continually all the time". The poem is "Over and done with", in *Really Short Poems of A.R. Ammons*, 1990. In different vocabulary, the distinction is also discussed by Tenenbaum and Raffman (2012), and Murray et al (forthcoming).

capabilities, or being subject to an unending stream of obstacles, or being locked away with none of the resources or people needed to raise the child, run the government, build the movement, or write the book.

The fact that long-term activities with attentively patchy continuation conditions are plainly compatible with mind-wandering shows us something important about the specific kind of anti-interruption pressure that mind-wandering lacks. Mind-wandering is devoid of the specific kind anti-interruption pressure that regulates according to an ideal of continuous attention. By contrast, when an activity's continuation conditions are attentively patchy, the anti-interruption pressures to continue it regulate according to an ideal of *continuing* activity, not *continuous,* unbroken activity. The key difference is that even the ideal form of continuing activity tolerates all sorts of breaks.

To be sure, when an activity's continuation conditions are attentively patchy, it can become un-obvious (even to the agent) which stretches of focusing on irrelevant things reflect an abandonment of the activity, and which ones are mere pauses that happen during its uninterrupted continuation. I won't try to specify the grounds of this distinction, but it seems clear that there is one, even if some cases will be hard to classify, and may even be indeterminate.

Our upshots so far about guidance are as follows. A person can subject a wide range of activities to anti-interruptive guidance. What anti-interruption amounts to depends on the patterns of attention that figure in the activity's continuation conditions. It is possible to be guided in an activity by anti-interruptive pressures, whether the activity's continuation conditions are attentively patchy or attentively smooth, and whether attentively smooth continuation conditions call for singularity of focus or for multiple shifts of focus within the activity. The kind of guidance missing in mind-wandering is anti-interruptive pressure that regulates in accordance with an ideal of continuous, unbroken attention.

When Irving characterizes mind-wandering as unguided attention, he assumes that anti-interruptive guidance is manifest in consciousness at moments of distraction.[23] "The regulative mechanism," he writes, "broadcasts its error signal to consciousness."[24] On this picture, guidance operates through a feeling of distraction. There are things the agent would experience as discomfiting interruptions that threaten the continuation of the activity, and such discomfort motivates resuming the activity (even if there are other psychological forces that pull the opposite direction, such as inner conflicts, or competing external demands on attention). In this way, discomfiting feelings of distraction operate as regulative pressure toward resuming an activity once it has been interrupted.

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[23] This assumption is shared by Railton 2009, 2016, Brownstein 2018, Brownstein and Madva 2014, Kelly 2010. It is less clear whether cognitive dissonance has this status, or whether that kind of discomfort can be unconscious.
[24] Irving 2021, p. 631.

Given that on Irving's picture of phenomenally-mediated guidance, what gets corrected is interruption of an activity, the kind of guidance he proposes is missing from mind-wandering is specifically anti-interruptive. Irving uses much more general vocabulary to characterize it, when he calls such discomfiting, motivating feelings "corrective mechanisms," and when he says that mind-wandering is simply "unguided attention", as opposed to saying (less elegantly) that mind-wandering is attention unguided specifically by anti-interruptive regulation in accordance with an ideal of continuous attention. The analysis is not vulnerable to charges of ambiguity, though, as the discussion makes clear that the deviations targeted by such guidance are distractions from unbroken attention.

Anti-interruptive guidance as Irving construes it is phenomenally mediated through feelings of distraction. But I'm going to assume for the sake of argument that a corrective mechanism with this same basic structure could also operate without being phenomenally mediated. Motivating discomfort could be unconscious and inaccessible to introspection, for example.[25] Making this assumption helps us see the key differences between anti-interruptive guidance, on the one hand, and the kinds of guidance that may be essential to inquiry, on the other, without getting distracted by whether the motivating state that operates in anti-interruptive guidance is or isn't phenomenally conscious, or introspectively accessible.

We're now in a good position to see that the puzzle of wandering attention would be resolved, if the kind of guidance missing from mind-wandering is distinct from any kind of guidance that has to operate in inquiry. If wandering *attention* is not susceptible to anti-interruptive guidance, then wandering *inquiry*, as a special case of wandering attention, must not need to be guided by anti-interruption pressure, either.

If anti-interruptive guidance is not essential for activity of inquiring to proceed, in what ways, if any, is inquiry guided? Now that we have in view the specific kind of guidance missing from mind-wandering, the path is clear for all sorts of other kinds of guidance to operate in inquiry, even if the flow of inquiry is partly or entirely wandering.

I'll argue next that inquiry is susceptible to quality-control, by virtue of the fact that it can be better or worse in a specifically zetetic way.[26] Wandering inquiry, as a special case of inquiry, would be susceptible to zetetic quality-control just as much

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[25] Cognitive dissonance may sometimes be like this: it is not always easy to identify introspectively, but it motivates all sorts of psychological adjustments, "correcting" combinations of mental states in order to maintain the beliefs threatened by discomfiting counter-evidence. See Quilty-Dunn and Mandelbaum 2018.

[26] Zetetic quality is also epistemic and practical quality, though I won't try to disentangle these axes. On whether and when they can be disentangled, see Thorstad 2021 and 2022, Flores and Woodard (forthcoming).

as any other kind of inquiry, whether the inquiry is primarily "high" or primarily "low". And one way to exert zetetic quality-control is through a kind of guidance structured like the kind Irving describes, except that instead of targeting deviations from continuity, it targets zetetic shortcomings.

Putting these points together, we have a first approach to solving the guidance strand of the puzzle: wandering inquiry can be at once susceptible to quality-control, without being susceptible to anti-interruptive pressure. To see how this approach can work, what's needed is a closer look at zetetic quality-control, so that we can see how it could operate independently of any pressure exerted by the kind of anti-interruptive guidance Irving's discussion brings into focus.

4. Zetetic quality-control as qualitative pressure

In general, an inquirer exerts quality-control over inquiry, when she endorses some course of her inquiry as better than an alternative course, using a standard to which she holds herself.

Irving's example of the stumbling runner combines both anti-interruptive and quality-control pressures. When the runner stumbles, she deviates from a standard of quality (running well, properly, or with good form), and her deviation from this standard also interrupts the activity. The stumble both disrupts good running form, and momentarily prevents her from running at all.

But not all deviations from qualitative standards are interruptions. As a result, correcting deviations from a normative standard does not always involve returning focus to that activity, or resuming it after it has been interrupted. Deviations from qualitative standards can be corrected without there having been any interruption, and therefore without any specifically anti-interruptive corrective process.

For instance, consider someone wondering if the president should run for re-election. As part of considering this question - let's call it Q1 - our subject S begins to wonder if the president is too old to complete another term of the presidency. After thinking it through, S lands on the answer "No" - he's not too old. But then she comes to think that the question "Is he too old?" - let's call it Q2 - is actually not as relevant to Q1 as a different cluster of questions - let's call it Q3: "What can the president accomplish politically in a second term? What needs to happen politically? Is any other candidate better positioned than the president to accomplish those things?"

By her own standards, our inquirer S corrects her inquiry, without interrupting it, when she shifts questions from Q2 to Q3.

In this scenario, our inquirer is sensitive to something she considers a deviation from a normative standard. In this example, the standard concerns which questions are most relevant to addressing a prior question one has been begun to address.

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One way for the standard to operate is through a regulative mechanism in which feelings of discomfiture are error signals that motivate a correction. This way for the standard to operate would be structurally similar to the kind of guidance Irving's analysis says has to be missing from mind-wandering. (In the next section, I'll consider standards of zetetic quality detached from any such regulative structure).

But even if they shared this structural similarity, quality-control guidance and the anti-interruptive kind would not target the same thing. Anti-interruptive guidance manifests when the agent experiences deviations from activity's continuation. Qualitative guidance manifests when the agent experiences (or unconsciously registers) deviations from an activity continuing well, by a standard she applies to herself.

We have seen that these two kinds of guidance can coincide, as they do in Irving's examples of the runner who recovers from her stumble. Similarly, the quality-control guidance has no separate application from the anti-interruptive kind in Irving's mountain-staring example.

But, crucially for solving the puzzle of wandering inquiry, the targets of two kinds of guidance need not coincide. In a bout of inquiry, an inquirer could exert quality-control without being disposed to resume the inquiry if it is interrupted. The shift from wondering about Q2 to wondering about Q3 may correct a deviation that the inquirer feels calls for correction.[27] But the deviation that gets corrected is not a shift of focus away from Q1. S is focused on addressing Q1 all along. What gets corrected is the quality of answering Q1. That shift in focus is part of a continuing pursuit of a question.

S's path from Q1 to Q2 and Q3 involves shifts of focal conscious attention, but none of those shifts generate a feeling of distraction that motivates S to refocus attention back to the inquiry. The inquiry was never interrupted. And if it had been interrupted, S would not have brought her attention back to it.

Recall the counterfactual condition in Irving's definition of the unguidedness specific to mind-wandering:

> There is no information I such that, if A's attention were not focused on I, she would notice, feel discomfited by, and thereby be disposed to correct this fact. (2021, p. 623).

I've described a scenario in which S's mind stays focused on addressing Q1. What determines whether her mind was wandering, on Irving's theory, is whether the counterfactual condition is met. In our example, what matters is whether at any

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[27] It may, or as I'll argue in section 4, we can also picture inquiry into Q1 that wanders into Q2 and Q3 in a way that does not involve any motivating felt need for correction.

point in the path S's attention takes once she starts wondering about Q1, she would "feel discomfited by and thereby be disposed to correct" any deviation from focusing on Q1. The nearby worlds that help define the counterfactual must include ones in which she would easily and without feelings of discomfort or distraction stop focusing on Q1 and instead of focus on something else. For instance, there must be a nearby world in which, in the midst of wondering, S's gaze falls on the top pantry shelf and she begins to wonder instead what's behind the jars, maybe even climb up there to see, and does not feel "discomfited" by the fact that she is no longer wondering if the president should run for re-election.[28] Since the absence of such discomfort is a paradigm of someone easily distracted, it seems plain that an inquiry could lack the disposition Irving describes in his counterfactual condition.

5. Inquiry without guiding corrective mechanisms

We have seen that Irving thinks of guidance in general, including the guidance missing from mind-wandering, in terms of a phenomenally-mediated corrective mechanism. So far, I've argued that we can accept this approach to guidance in general, and resolve the puzzle of wandering attention by distinguishing two kinds of corrective mechanisms: anti-interruptive guidance versus qualitative guidance.

This response to the puzzle accepts the initial terms in which it posed. Those terms posit guidance in inquiry but unguidedness in mind-wandering, and the puzzle arises in part from this apparent discrepancy. On the guidance strand, the solution we've considered so far develops that idea that inquiry is guided, by finding a kind of guidance in inquiry, distinct from the same style of guidance missing from mind-wandering.

A different response to the guidance strand of the puzzle allows that inquiry need not involve guidance in the form of corrective mechanisms at all. A phenomenological fact favors this possibility: mind-wandering can have a lackadaisical quality involving no felt effort, no feeling of discipline, and no disposition to refocus the mind or to 'try harder' if attempts to make progress on answering a question fail. If S's mind was like this, and Q2 had begun to seem like a poor response to Q1, even before Q3 occurred to her, she might shift topic entirely, leaving all attempts to address Q1 behind.

We saw this lackadaisical quality at work in the previous section with respect to anti-interruptive pressure, in which an activity could proceed uninterrupted,

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[28] This example may go some way toward supporting a broader conclusion about the wide range of things that can happen within mind-wandering, such as climbing up to the top shelf of the pantry to see what's up there, and sponging off the things one finds. In general, any activity can happen in mind-wandering so long as there is no disposition to resume it in the face of interruptions, and as a result of feeling discomfort (conscious or unconscious). This result fits well with the pre-theoretical understanding of mind-wandering as a phenomenon that places few if any constraints on the specific ways that wandering consciousness can be occupied.

without any disposition to resume the activity if interrupted. It is easy to picture the same relaxed quality attached to zetetic quality-control as well. There may be no disposition waiting in the wings to correct qualitative shortcomings. Wandering inquiry may be entirely undisciplined, progressing and even improving without any felt effort, just as insights can come to mind unbidden while bathing.

And here lies a beautiful thing about mind-wandering. Even a relaxed, undisciplined mind can still apply zetetic normative standards to a line of thought. If so, then "guidance" broadly construed, at least when it comes to zetetic quality, need not take the form of a corrective mechanism. S's inquiry could proceed spontaneously to a sub-question Q3 that makes the previous sub-question Q2 seem like a much poorer route to addressing Q1, only after Q3 has come on line. "Hey, that's a much better question!", she might say to oneself, after Q3 spontaneously came to mind as relevant to Q1. All S did was sit back and let her zetetic motors roll. Both Q3 and the comparative assessment of Q3 and Q2 could come to S unbidden - not as the result of any motivation to improve after dwelling on Q2 for a bit and finding it inadequate as a path to addressing Q1. Here, inquiry would be 'guided' only in the sense that S is attuned to zetetic relevance. Because she is disposed to assess the zetetic relevance of Q2 and Q3 to Q1, her line of thought is not a haphazard parade of three questions that simply occur to her in succession.[29]

In a scenario like this, we find a mode of normative assessment that does not operate through a felt need to correct anything. Instead the normative sensitivity manifests in post-facto evaluation, instead of in motivation to detect and correct a deviation.

For inquiry to proceed in a way that is sensitive to zetetic quality, then, it may not need any corrective mechanism (phenomenally mediated or otherwise). On this picture, inquiring can feel just as lackadaisical as mind-wandering is in general. We should expect some inquiring to feel like this, when a person has it in them to think through a question, only so long as they don't experience it as taking any special effort.

In addition, inquiring, like building a movement or raising a child, is one of those activities whose continuation conditions can be attentively patchy. If you put the problem away for a while when progress seems to be stalled, it may become more tractable later. Sometimes "later" is in the shower, when a way forward comes to mind unbidden, and other times "later" occurs during a planned, concerted effort to make progress by focusing attention. Either way, both scenarios show that inquiry does not need to be guided by anti-interruptive pressure to proceed.

And so we are left with two main solutions to the guidance strand of the puzzle of wandering inquiry. The first solution keeps the puzzle's starting assumption that

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[29] For more on the psychological structure of treating questions as relevant to other questions, see Siegel (forthcoming).

inquiry is guided, and proposes that it is guided specifically by a corrective mechanism sensitive to quality-control, without being guided by anti-interruptive pressure. The second solution rejects the initial terms in which the puzzle is posed, by rejecting the idea that inquiry has to be guided by a corrective mechanism. In the vocabulary that ties guidance to corrective mechanisms, the second solution says inquiry is unguided; in the vocabulary that allows guidance to take other forms, the second solution says that inquiry is guided a way that is entirely compatible with lack of anti-interruptive pressure. A line of inquiry that advances by wandering can even take on the same pleasant, lackadaisical quality that often attaches to mind-wandering itself.

6. Some advantages of wandering inquiry

In some ways, mind-wandering is especially good for inquiry. Multiple researchers have argued convincingly that mind-wandering facilitates exploration.[30] We're now in a good position to see specifically how it may benefit inquiry by facilitating its exploratory aspects. I'll focus on the exploratory aspect that does the most to direct the flow of inquiry: selecting which questions an inquiry will pursue. Such selection takes place both once an inquiry is underway, and or at the outset of inquiry, or even earlier, in proto-inquiry.

Let's begin with inquiries that are already underway. Wandering inquiry is devoid of any factors that could suppress the exploratory moves that help determine the course an inquiry takes once it has begun. We've focused on a juncture in S's inquiry at which S selects subsidiary questions to pursue, given that she is already pursuing Q1 (Should the president run for re-election?). For S, the shift from Q2 to Q3 is a better way to address Q1. If anti-interruptive guidance mechanisms were in place *for Q2*, they might prevent S from shifting to Q3. The moment S's mind strayed from Q2, directed attention might lead her back to that question.[31] In this way, directed attention in inquiry might suppress an important aspect of meta-inquiry: sensitivity toward which sub-questions pursued best address an initial question.

Wandering inquiry also facilitates good conditions for selecting which questions to pursue initially. Questions roll into the mind in clusters when an inquiry begins spontaneously, in response to an unexpected stimulus. When a swimmer sees a ripple in the pond, and wonders whether it came from below or from above, she may all once wonder about a number of questions: if it comes below, is it a beaver, a turtle, a fish, or something else? If it comes from above, is it rain or condensation? These questions are prompted directly by seeing the ripple. But other questions naturally arise in part by processes of association and inference. Some fish bite (association), so if there are fish in the pond, those fish might bite (inference), and

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[30] Baird et al 2012, Gable et al 2019, Shepard 2019, Sripada 2018.
[31] Here we see an example of inquiry that would be guided by both qualitative and anti-interruptive pressure. The anti-interruptive pressure keeps S focused on Q2, while the qualitative pressure brought her to Q2 in the first place.

that possibility could easily raise the question for the swimmer of whether the fish will bite *her* if she swims in the pond. And how bad would that be? What is it like to be bitten by a fish?

In examples like these, a subject might begin with a field full of questions. In mind-wandering, nothing stops the questions from accumulating, and nothing stops them from remaining open. By contrast, in "task-directed" modes of attention, a flow of questions will either determine a task (address the question), or be experienced as a distraction from a task that is already determined. Sometimes, generating a lot of questions in the same 'vicinity' - questions related to the same subject-matter, prompted by the same situation, linked by association or background knowledge - can help the subject identify which questions in that same vicinity are the most important ones to answer - most important given her interests, or most important by a more general measure.[32] This epistemic role is similar to brainstorming at the start of a creative process, except it may be prompted by perception and continue spontaneously from there - a kind of 'low' non-deliberate brainstorm, unlike the kind that might happen at the start of a lab meeting devoted to coming up new experimental designs to help probe an overarching research question.

In these ways, wandering inquiry has potential zetetic advantages over thoroughly directed inquiry.

Wandering inquiry is a good case study of low inquiry. It lacks three markers of executive control: effort, deliberation-based decision, and self-control via corrective regulation. Wandering inquiry (a) feels effortless, (b) is devoid of deliberation-based decisions to start inquiry or continue in a specific way, and (c) is not embedded in any self-disciplinary structure in which it becomes a task subject to anti-interruptive guidance. Removing these features from a stream of thought does not preclude it from producing a line of inquiry, subject to a person's own assessments of what would make the inquiry better or worse. Those aspects of zetetic quality can operate through its own corrective mechanism or not - such structure is an optional extra.

In these ways, standards of zetetic quality can operate without executive control over the course of attention. As a result, they can operate in wandering inquiry. Wandering inquiry favors the exploratory aspects of inquiring, and give us a central example of what low inquiry is like.

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