

Drifting and Directed Minds

*The Significance of Mind-Wandering for Mental Agency*¹

Zachary C. Irving

After a conference lunch, you shuffle into the afternoon talk. Although the speaker is lively and the topic excites you, your mind will not be still. The thought of sneaking away for coffee gives way to snippets of a conversation you had this morning. You picture a slide from your talk tomorrow then, smiling, remember that your annual camping trip is next weekend. Later that day, you retreat to a coffee shop, where you deliberately and methodically work through a counter-example to the speaker's paper. You shut out all distractions and construct a chain and objections and replies.

These vignettes illustrate the striking contrast between mind-wandering and directed thinking. While your mind wanders during a talk, you passively drift from coffee, to camping, and so on. In contrast, you meticulously direct your thoughts while working through a counter-example. We can learn much about mental action from this contrast between drifting and directed minds.

Perhaps the central question in philosophy of action is this: what ingredient of *bodily* action is missing in mere behaviour?² But what is an analogous question for *mental* action? I ask the following: what ingredient of active, goal-directed, thought is missing in mind-wandering? I answer that *guidance* is the missing ingredient that separates mind-wandering and directed thinking. I define mind-wandering as unguided attention. Roughly speaking, attention is guided when you would feel pulled back, were you distracted. In contrast, a wandering attention drifts from topic to topic unchecked. From my discussion of mind-wandering, I extract general lessons about the causal basis, experiential character, and limits of mental action. Mind-wandering is a case study that allows us to tease apart two causes of mental action—guidance and motivation—that often track together and are thus easy to conflate. The contrast between mind-wandering and active thinking also sheds light on how goals are experienced during mental action. Goals are rarely the objects of awareness; rather, goals are “phenomenological frames” that carve experience into felt distractions (which we are guided away from) and relevant information (which we are guided towards). Finally, I describe a limit-case of mental action that psychologists call “intentional mind-wandering”. It involves a unique form of “meta-control”, where one actively cultivates an unguided mode of attention that lacks the “framed” phenomenology of ordinary mental action.

This paper has five parts. § 1 rejects three intuitive accounts of what separates wandering and directed thought. Although I reject these answers, they contain insights that motivate my account in § 2: guidance is missing when the mind wanders. From my discussion of mind-wandering, I then extract general lessons about the causal basis (§ 3), experiential character (§ 4), and limits (§ 5.1) of active thinking.

¹Draft submitted for review Nov 24 2018.

²Ludwig Wittgenstein (1953). *Philosophical Investigations*. Ed. by G.E.M. Anscombe. McMillan, § 621.

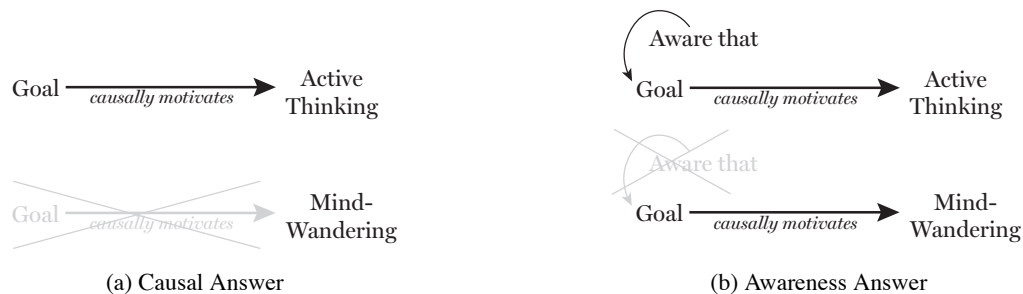


Figure 1: What ingredient of active, goal-directed, thinking missing during mind-wandering?

1 The Missing Ingredient

My central question is this: what ingredient of active, goal-directed, thinking is missing when the mind wanders? Mind-wandering seems paradigmatically passive. Frankfurt likely speaks of mind-wandering when he says that “we are mere passive bystanders” with respect to “thoughts that strike us unexpectedly out of the blue and...thoughts that run willy-nilly through our heads”³ Hobbes *defines* mind-wandering in contrast to forms of goal-directed thinking such as reasoning and planning.⁴ Likewise, contemporary philosophers widely accept that wandering and goal-directed thought are antithetical.⁵ Similar sentiments are implied by the term ‘mind-wandering’ itself: “to wander” means “[t]o move hither and thither without fixed course or certain aim” or “to be (in motion) without control or direction”⁶. To say that someone’s mind is wandering, then, suggests that her thoughts move without aim, control, or direction; in this sense, her thoughts are passive.

But what ingredient of agency is missing when the mind wanders? This question is particularly interesting because the obvious answers—which concern causes, awareness, and akrasia—don’t work. Let’s start with the Causal Answer. Davidson famously holds that intentional actions—in contrast to mere behaviours—are *causally motivated* by beliefs and desires/goals.⁷ When you work through a counter-example, for example, your goal causes you to think about how to develop the example, how your opponent might respond, and so on. According to the Causal Answer, mind-wandering is passive because it is unmotivated: that is, it lacks the *causal antecedents* of active, goal-directed, thought. When your mind wanders during an afternoon talk, for example, no goal causes your thoughts to meander from coffee, to slides, to camping (Figure 1a).

Yet empirical evidence suggests that mind-wandering is frequently motivated, in Davidson’s causal sense. Various

³Harry G Frankfurt (1988 [1977]). “Identification and externality”. In: *The Importance of What We Care About*. Cambridge University Press, p. 59.

⁴Thomas Hobbes (1651/1928). *Leviathan*. New Haven: Yale University Press, pp. 20-21

⁵Thomas Metzinger (2013). “The myth of cognitive agency”. In: *Frontiers in Psychology* 4, Article 931, Fabian Dorsch (2015). “Focused daydreaming and mind-wandering”. In: *Review of Philosophy and Psychology* 6.4, pp. 791–813, Meta Regis (2013). *Daydreams and the Function of Fantasy*. Palgrave Macmillan, and Chandra Sripada (2018). “An Exploration/Exploitation Tradeoff Between Mind Wandering and Task-Directed Thinking”. In: *Oxford Handbook of Spontaneous Thought and Creativity*. Ed. by Kieran CR Fox and Kalina Christoff. Oxford University Press.

⁶Oxford English Dictionary (2008). *Oxford English dictionary online*. Oxford, UK: Oxford University Press.

⁷Donald Davidson (1963). “Actions, reasons, and causes”. In: *The Journal of Philosophy* 60.23, pp. 685–700

studies have found that our minds frequently wander to personal goals.⁸ During a talk, for example, your mind might wander to goals such as getting coffee and preparing your slides. One explanation of these results is that goals causally influence where your mind wanders. Morsella et al.'s experiment speaks to this causal influence.⁹ Subjects in the experimental group (n=52) were led to believe that they would be tested on the names of U.S. States. Before this quiz, subjects were instructed to focus on their breath and record their wandering thoughts: "every time you catch yourself being distracted... jot that thought down in the space provided... and... then bring back your attention to the exercise"¹⁰. When subjects believed they were about to be quizzed, 70% of their wandering thoughts were about geography (especially state names). In contrast, subjects (n=97) in control conditions thought about geography less than 10% of the time.

The difference between experimental and control conditions suggests that having a goal—preparing for a quiz—*causes* one's mind to wander to goal-relevant thoughts. Furthermore, subjects (n=46) in one of the control conditions were led to believe that they would *count the letters* in US State Names. Both the quiz and the letter-counting task were about US State Names. So why did only the quiz lead to goal-relevant thoughts? One plausible explanation is that subjects (in some sense) believed that mental preparation would improve their performance on a quiz, but not a letter counting task. If this is correct, then having a *goal* and *believing* (in some sense) that thinking is a means to achieve that goal *causes* your mind to wander to goal-relevant information. Mind-wandering can therefore be motivated in precisely the way that the Causal Answer denies.

We're now faced with a harder version of our original question: what ingredient of active thinking is missing in *motivated* mind-wandering? Carruthers offers an error-theoretic answer to this question: mind-wandering is active; yet we (mistakenly) believe that it's passive because the goals that causally influence mind-wandering are *sub-personal and unconscious* (1b).¹¹ Specifically, Carruthers posits an unconscious and sub-personal mechanism that "decides" where our mind will wander by comparing the relevance of potential thoughts. Each wandering thought is therefore active in a Davidsonian sense: it is causally motivated by the goal of having relevant thoughts. Yet because this goal is unconscious and sub-personal, we mistakenly assume that our wandering "...thoughts change direction for no apparent reason" and conclude that "...we are passive receivers of our own thoughts, rather than agents who actively produce or control them"¹². What matters for present purposes is Carruthers' general strategy: argue that mind-wandering appears passive only because we are unaware of the goals that motivate it. Let's call this the "Awareness Answer".

The Awareness Answer is limited because our minds frequently wander to goals like taking a quiz, which we are

⁸E. Klinger, and W. M. Cox (1987). "Dimensions of thought flow in everyday life". In: *Imagination, Cognition and Personality* 7 (2), pp. 105–128; Jessica R Andrews-Hanna et al. (2010). "Evidence for the Default Network's Role in Spontaneous Cognition". In: *Journal of neurophysiology* 104.1, pp. 322–335; Benjamin Baird, Jonathan Smallwood, and Jonathan W Schooler (2011). "Back to the future: autobiographical planning and the functionality of mind-wandering". In: *Consciousness and Cognition* 20.4, pp. 1604–1611

⁹Ezequiel Morsella et al. (2010). "The spontaneous thoughts of the night: How future tasks breed intrusive cognitions". In: *Social Cognition* 28.5, pp. 641–650

¹⁰Ibid. 644

¹¹Peter Carruthers (2015). *The centered mind*. Oxford University Press, pp. 166–168.

¹²Ibid. 166.

aware of having. Suppose you ask a subject from Morsella et al.'s experiment, "why did your mind wander to the word 'Nebraska'?" She might reasonably respond, "because I'm about to take a quiz on US States." Here, the subject is aware of two things: a) her goal and b) how this goal motivates her mind-wandering. But even in this case, mind-wandering still seems passive. For example, the subject might continue, "I understand *why* my mind wandered to Nebraska. But this doesn't mean I had a hand on the reins. My thoughts weren't random, but I wasn't controlling them either." We're now left with a harder question yet: what ingredient of active thinking is missing in *knowingly motivated* mind-wandering?

Watzl considers a final answer, on which mind-wandering is passive because it is *akratic*: we want to think about one thing and our mind wanders elsewhere.¹³ Many cases of mind-wandering are akratic in this way. For example, you may find your mind wandering to coffee when you sincerely want to attend to a talk. Or your mind may wander to 'Nebraska' when you are sincerely trying to focus on your breath. In these cases, your thoughts are akratic and therefore passive. Yet this Akrasia Answer is incomplete, since non-akratic mind-wandering is pervasive. Specifically, reports of "intentional mind-wandering" – that is, of letting one's mind wander on purpose – are commonplace in the laboratory, classroom, and everyday life.¹⁴ Consider a student who is who is bored stiff in a lecture. She might intentionally let her mind wander rather than focusing on her soporific teacher. Yet even when we let our minds wander on purpose, our thoughts still seem passive. For instance, a bored student might say, "I let my mind wander on purpose, but I wasn't directing my thoughts. Rather, ideas were drifting passively before my mind." We can now pose our hardest question yet: what ingredient of active thinking is missing in *knowingly motivated, intentional* mind-wandering?

I will argue that the missing ingredient is *guidance*: on my view, mind-wandering is unguided attention. Although I ultimately reject the Causal, Awareness, and Akrasia Answers, my account will capture what is deeply right about these answers. The Causal Answer is right that mind-wandering is not caused in the right way to be goal-directed. For even causally motivated mind-wandering is not *causally guided*. The Awareness Answer is right that goals aren't experienced in the same way during mind-wandering and goal-directed thinking. And the Akrasia Answer is correct that we form fundamentally different kinds of intentions during mind-wandering and goal-directed thought.¹⁵

¹³Sebastian Watzl (2017). *Structuring mind*. Oxford University Press, p. 134.

¹⁴For a review, see Paul Seli et al. (2016). "Mind-wandering with and without intention". In: *Trends in Cognitive Sciences* 20.8, pp. 605–617.

¹⁵My previous work [redacted] objects to two other views of mind-wandering, which could provide alternative answers about the missing ingredient in mind-wandering. A full discussion of these views is outside the bounds of this paper, and I refer the reader to [redacted] for in-depth arguments. Here, I will briefly mention each view and my objections. Metzinger ("Myth of cognitive agency") argues that mind-wandering is passive because it lacks meta-awareness and thus veto control. Yet empirical evidence suggests that mind-wandering often proceeds with meta-awareness (for a review, see Jonathan W Schooler et al. (2011). "Meta-awareness, perceptual decoupling and the wandering mind". In: *Trends in Cognitive Science* 15.7, pp. 319–326). Furthermore, Metzinger's definition in this paper conflates mind-wandering with antithetical forms of thinking such as depressive rumination (e.g. fixating on one's distress) and absorption (e.g. getting lost in a math proof). O'Shaughnessy, Dorsch, and Carruthers independently develop an alternative view, on which *short stretches* of mind-wandering are active, while *extended stretches* of mind-wandering seem passive because they are not unified around a common goal (Dorsch "Focused daydreaming", Carruthers *Centered Mind*, and Brian O'Shaughnessy (2003). *Consciousness and the World*. Oxford University Press). I argue [redacted] that this view classifies many clear cases of goal-directed thinking as mind-wandering, and makes it arbitrary whether any stretch of thoughts counts as wandering or goal-directed.

2 Mind-Wandering as Unguided Attention

I define mind-wandering as unguided attention.¹⁶ In general, guidance concerns how behaviour or thought is monitored and causally regulated *as it unfolds over time*.¹⁷ In my specific sense, guidance is a counter-factual notion that concerns how you *would* feel, were your behaviour to deviate from some normative standard. Specifically, a guided agent would experience deviant behaviour as “calling for correction”.¹⁸ When standing face-to-face with a close talker, for example, you’re drawn to correct the situation by stepping back.¹⁹ Reliably following a norm is therefore insufficient for guidance (this will be crucial when we turn to mind-wandering). For example, Railton contrasts guidance with his reliable disposition to leave the kitchen cupboards ajar: “...if I find myself in a kitchen with self-closing cabinets, I make no effort to prevail against them”²⁰ Railton is not *guided* to leave the cupboards ajar because he would not experience closed cabinets as calling for correction.

Guidance is the central ingredient in active, goal-directed, attention.²¹ Roughly speaking, someone’s attention is directed (i.e. guided) by a goal only when she would feel pulled back from distractions. More precisely, an agent \mathcal{A} ’s attention is directed by one of her goals, τ , if and only if \mathcal{A} is guided to focus her attention on information that she takes to be relevant to τ ; that is, \mathcal{A} has two dispositions:

1. \mathcal{A} reliably focuses her attention on information that she takes to be relevant to τ and

¹⁶ [REDACTED] When I say that mind-wandering is a form of attention, I mean that consciousness is focused on thoughts that wander before the mind. This is consonant with a widely accepted view amongst philosophers: attention is a focused mode of consciousness, where focus can be characterized in terms of Titchner’s enhanced vivacity, Nanay’s increased determinacy, Smithies’ rational accessibility, Watzl’s primitive structuring relation, or something else (Edward Bradford Titchener (1910). “Attention as sensory clearness”. In: *The Journal of Philosophy, Psychology and Scientific Methods* 7.7, pp. 180–182, Bence Nanay (2010). “Attention and perceptual content”. In: *Analysis* 70.2, pp. 263–270, Declan Smithies (2011). “Attention is rational-access consciousness”. In: *Attention: Philosophical and Psychological Essays*, pp. 247–273, and Watzl *Structuring Mind*). Unlike many of these philosophers, I am not committed to the *identity* of attention and focused consciousness. Rather, I hold only that focused consciousness is *constitutively sufficient* for attention: that is, every state of focused consciousness is token identical to a state of attention. My view therefore leaves open the possibility that attention can exist in the absence of focused consciousness. Thus, I remain neutral on whether there can be unconscious attention (Christopher Mole (2014). “Attention to Unseen Objects”. In: *Journal of Consciousness Studies* 21.11-12, pp. 41–56). Furthermore, my view carries no commitments on the question of whether there can be (unfocused) consciousness in the absence of attention, such as in cases of gist perception where you are conscious without focusing on any part of the conscious field. Admittedly, not all philosophers define attention in terms of consciousness. Some define attention in terms of action (for example Christopher Mole (2011). *Attention Is Cognitive Unison: An Essay in Philosophical Psychology*. Oxford: Oxford University Press; Wayne Wu (2014). *Attention*. London: Routledge; Philipp Koralus (2014). “The Erotetic Theory of Attention: Questions, Focus and Distraction”. In: *Mind & Language* 29.1, pp. 26–50). Others define attention in terms of the sub-personal mechanisms that *cause* consciousness to focus on information (e.g. Carruthers, *Centered Mind*). These philosophers may have reason to deny that mind-wandering is a form of attention. Readers committed to an incompatible theory of attention may translate my view into more acceptable terms. Such readers can (awkwardly) translate “mind-wandering is unguided attention” into “the mind wanders when and only when the focus of consciousness unfolds without guidance”.

¹⁷ Harry Frankfurt (1978). “The problem of action”. In: *American Philosophical Quarterly* 15.2, pp. 157–162

¹⁸ Peter Railton (2009). “Practical competence and fluent agency”. In: *Reasons for Action*. Ed. by D. Sobel and S. Wall. New York: Oxford University Press, pp. 81–115

¹⁹ Michael Brownstein and Alex Madva (2012). “The normativity of automaticity”. In: *Mind & Language* 27.4, pp. 410–434. Brownstein and Madva’s case of the close talker is based on Merleau-Ponty’s analysis of how we are guided to stand the appropriate distance from a painting (Maurice Merleau-Ponty and Colin Smith (1996). *Phenomenology of perception*. Motilal Banarsidass Publishes. For a contemporary discussion of this case, see Sean D Kelly (2010). “The normative nature of perceptual experience”. In: *Perceiving the World*. Oxford University Press, pp. 146–159.

²⁰ Railton “Practical competence”, 9

²¹ Watzl and I have independently argued that guidance is required for goal-directed attention (see Watzl *Structuring Mind*, Chapter 7 and [REDACTED]). Furthermore, we agree that a minimal form of guidance is present in cases of salience-driven attention such as obsessive thinking. However, our accounts diverge on (at least) two core points. First, Watzl is skeptical of whether one can provide an informative, reductive, analysis of guidance (ibid., 67). I claim to provide such an analysis, which reveals deep features of the causal basis and experiential character of mental action. Second, Watzl argues that all attention is guided; indeed, this is a central thesis of his book. If I am correct, mind-wandering is therefore a counter-example to Watzl’s theory. Watzl (ibid., 134) briefly attempts to explain away the passivity of mind-wandering while maintaining that it is guided. I address his “Akrasia Explanation” in § 1

2. If \mathcal{A} 's attention weren't focused on information that she takes to be relevant to τ , \mathcal{A} would notice, feel discomfited, and thereby be disposed to correct this fact

Consider the case where you methodically work through a counter-example in a crowded coffee shop. Here, your attentiveness manifests in two ways. First, you reliably focus on information that is relevant to your counter-example, such as details of the target view, obvious responses, and so on. Second, if you were momentarily distracted by clinking plates or a stranger's conversation, you would feel distracted and—after a moment of frustration—likely return to the counter-example. That is, you would feel pulled back.

Mind-wandering is *unguided attention*: for any agent \mathcal{A} whose attention is focused on some information, \mathcal{A} 's attention is unguided if and only if there is no particular information towards which \mathcal{A} 's attention is guided. In particular, she does not satisfy the counter-factual condition for attentional guidance:

- There is no information ι such that, if \mathcal{A} 's attention weren't focused on ι , she would notice, feel discomfited by, and thereby be disposed to correct this fact.

When your mind wanders during a lecture, for example, you might think about coffee one moment and your slides the next. Yet whenever your attention shifts from one topic to another, you feel no discomfort drawing you back. You simply drift on unchecked.

What ingredient of active, goal-directed, thinking is missing when the mind wanders? We now have an answer: guidance. Unlike previous answers, this is consistent with the empirical evidence (§ 1). Contra the Causal Answer, we saw that goals cause the mind to reliably wander to goal-relevant information. Contra the Awareness Answer, we saw that people are often aware of those goals. This is no problem for my view, since reliability and awareness are insufficient for guidance. Goal-relevant mind-wandering is not guided, since we would not feel pulled back if our thoughts drifted elsewhere. Contra the Akrasia Answer, we saw that people often intentionally mind-wandering. We will see in § 5.1 that this is also consistent with my view, since people can intentionally initiate and maintain an unguided mode of attention.

From my theory of mind-wandering, I will now extract general lessons for the philosophy of mental action. Those lessons capture what was deeply right about the Causal, Awareness, and Akrasia accounts of mind-wandering. First, mind-wandering is not caused in the right way to be goal-directed. Once we distinguish between motivating and guiding causes of mental action, we will see that mind-wandering is causally motivated, but not causally guided (§ 3). Second, the Awareness Answer is correct that goals aren't experienced in the same way during wandering and goal-directed thinking. For our experience of goals is partly constituted by how our attention is guided. Specifically, goals are experienced as what I call "phenomenological frames," which carve experience into distractions (which we are guided away from) and relevant information (which we are guided towards) (§ 4). Third, the Akrasia Answer is correct that intentional mind-wandering is fundamentally distinct from intentional goal-directed thought (§ 5.1).

I should address a dialectical point before I turn to mental action. I have thus far assumed that mind-wandering has necessary and sufficient conditions. But this is contentious, given the family resemblance theory of mind-wandering.²² On this theory, mind-wandering has multiple characteristic features—including unguidedness—but none that are necessary or sufficient. I need not take a stand on the family resemblance theory here for two reasons. First, this paper’s contribution is to trace the action theoretic implications of a central feature of mind-wandering: unguidedness. Family resemblance theorists can accept these implications, since they agree that paradigm cases of mind-wandering are unguided. Second, these theorists encourage researchers to focus on a single feature of mind-wandering, such as unguidedness. They argue that “perhaps [the] most important” implication of the family resemblance framework is to “allow researchers the freedom to study whatever features of mind-wandering they wish”.²³ For “conceptual clarity will simply require” that researchers explicitly state how they “conceptualize mind-wandering”.²⁴ I have met this requirement by explicitly stating that I conceptualize mind-wandering as unguided attention.

3 Causal Basis of Mental Action

From our discussion of mind-wandering, we can extract a general point about the causal basis of action. Actions have (at least) two types of causes: motivating causes and guiding causes.²⁵ Our wandering thoughts are frequently motivated, but never guided. Mind-wandering is therefore a case study that allows us to tease apart two causal bases of mental action—motivation and guidance—that often track together and are thus easy to conflate.

Roughly speaking, whether behaviour is motivated depends on its causal antecedents: motivated behaviour is caused by the agent’s beliefs and desires.²⁶ What matters for our purposes is how goals motivate *attention*. Motivating

²²Thomas Metzinger (2018). “Why is mind wandering interesting for philosophers”. In: *The Oxford handbook of spontaneous thought* and Paul Seli et al. (2018). “Mind-wandering as a natural kind: A family-resemblances view.” In: *Trends in Cognitive Science*.

²³Seli et al. “Mind-wandering as a natural kind”, 488.

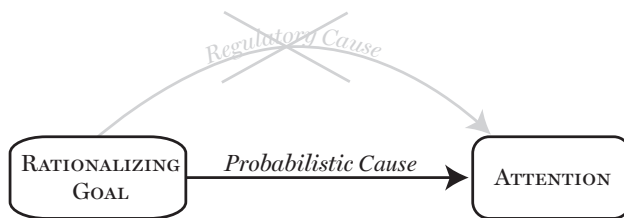
²⁴Ibid.

²⁵In “The Problem of Action”, Frankfurt framed his work on guidance as an objection to causal theories of action. However, Frankfurt’s objection undermines only certain versions of the causal theory: those that focus exclusively on the *causal antecedents* of action, rather than how action is *causally guided* as it unfolds over time. Frankfurt’s deeper lesson is therefore that guidance is essential for a complete causal theory of action (see J David Velleman (2008). “The way of the wanton”. In: *Practical Identity and Narrative Agency*. Ed. by Kim Atkins and Catriona MacKenzie. New York: Routledge, p. 189, Kieran Setiya (2007). *Reasons without rationalism*. Princeton University Press, pp. 31–32, and Elisabeth Pacherie (2008). “The phenomenology of action: A conceptual framework”. In: *Cognition* 107.1, pp. 179–217).

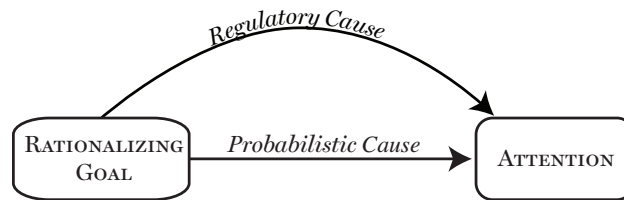
Mind-wandering can advance philosophical discussions of guidance in three ways. First, mind-wandering will help us better characterize the causal role of motivation and guidance in (mental) action. Second, motivated mind-wandering is a case study that shows us how a minimal form of agency can be present without guidance. In contrast, philosophers who discuss guidance seem to assume that its absence removes agency altogether. For example, Setiya emphasizes that classic cases of deviant causal chains involve motivation without guidance (*Reasons without Rationalism*, 31–32). Yet whereas deviant causal chains give rise to no agency whatsoever, motivated mind-wandering occupies a middle ground between full-blooded mental action and fully passive thought.

Third, mind-wandering contrasts with previous cases that occupy a middle ground between action and passivity. Philosophers have discussed other cases that are “neither actions nor mere happenings” (Frankfurt, “Identification and Externality”, 58), such as drumming one’s fingers on a table (Ibid. 58), fluidly driving a car (Railton, “Practical Competence”), or expertly swinging a baseball bat (Michael Brownstein (2014). “Rationalizing flow: agency in skilled unreflective action”. In: *Philosophical Studies* 168.2, pp. 545–568, pp. 545–546). Philosophers have argued that these cases are not full-fledged action because they are *mindless*—the agent can’t tell you *what* she is doing or *why* she is doing it—yet not fully passive because they are *guided*. Motivated mind-wandering is situated between action and passivity for the opposite reason. Motivated mind-wandering is *not mindless* (§ 1): the agent can tell you *what* she is doing (e.g. thinking about a quiz) and *why* (e.g. because it will help her prepare for the quiz). Yet mind-wandering is *unguided* (§ 2).

²⁶Davidson “Actions, reasons, causes”



(a) Motivated mind-wandering: one’s goal is a probabilistic, rationalizing, cause of attention. That is, one’s goal increases the likelihood that one will attend to goal-relevant information (probabilistic) in a way that’s sensitive to the goal’s rational profile (rationalizing).



(b) Goal-directed (guided) attention: one’s goal is a probabilistic, regulatory, and rationalizing cause of attention. That is, one’s goal increases the likelihood that one will attend to goal-relevant information (probabilistic), ensures that attention is pulled back when distracted (regulatory), and does so in a way that’s sensitive to the goal’s rational profile (rationalizing).

Figure 2: Motivation (a) Versus Guidance (b)

goals are probabilistic and rationalizing causes of attention. Goals are probabilistic causes of attention, insofar as pursuing a goal *increases the likelihood* that you will attend to goal-relevant information. Goals are rationalizing causes of attention, insofar as a goal’s causal impact on attention is sensitive to its *rational profile* (e.g. a subject’s belief that thinking is a means to achieve the goal).

To make this more concrete, consider a case of motivated mind-wandering (Figure 2a). Suppose you’re trying to ace a geography quiz (call this goal “ G_m ”). Empirical evidence suggests that G_m would increase the likelihood that your mind wanders to geography (cf. § 1) and therefore be a probabilistic cause of attention. Empirical evidence also suggests that G_m ’s causal impact would be sensitive to your belief that thinking helps to prepare for a quiz. This is why people’s minds frequently wander to upcoming quizzes, but not to letter-counting tasks. G_m ’s causal impact on attention would therefore be sensitive to a core part of G_m ’s rational profile: how it integrates with your beliefs to produce behaviour and thought. Your wandering attention is therefore motivated.

Guidance requires more than motivation. Guiding goals are not only probabilistic and rationalizing causes of attention, but also *regulatory causes* (Figure 2b).²⁷ Goals are regulatory causes of attention insofar as they satisfy the

²⁷Guidance by a goal requires the sufficient conditions for motivation: probabilistic, regulatory, causation. Goal-directed attention is therefore *both* guided and motivated. One might therefore ask if motivation is necessary for guidance. This question is beyond the scope of this paper, since it rests not on what we say about mind-wandering or goal-directed thinking, but rather cases such as obsessive thought. Elsewhere, I argue that attention is guided, but not motivated, during certain cases of obsessive thought—particularly depressive rumination [redacted]. If I am correct

counter-factual condition for attentional guidance: you would feel pulled back, were you distracted. Suppose you're trying to construct a counter-example in a busy coffee shop (call this goal G_g). Just like G_m , G_g would increase the likelihood that you'll attend to goal-relevant information: objections, responses, and so on. Furthermore, G_g 's causal impact on attention would be sensitive to G_g 's rational profile, including your beliefs about which objections and responses are germane to your counter-example. Like G_m , G_g is therefore a probabilistic, rationalizing, cause of attention. But unlike G_m , G_g also regulates your attention, insofar as you would feel pulled back, were you momentarily distracted by sights and sounds of the coffee shop. Such causal regulation is what's distinctive about guidance, and it's an essential part of the causal basis of goal-directed attention.

One way to draw out the causal contribution of guidance is to consider how it eliminates *luck*. Let's say you're trying to pop a balloon floating far above your head. You can either pop it with a bullet or a guided missile. In both cases, you will hit your target in a straight shot 70% of the time. Yet 30% of the time, you initially miss, perhaps because the balloon floats aside or your hand trembles. Here, a bullet would rush pass, whereas a guided missile would detect the error, corrects itself, and destroy its target. The crucial point is this: if you hit the balloon with a bullet, it's (somewhat) lucky you didn't miss. In contrast, you're not lucky if hit your target with a guided missile. For even if you initially missed, your missile would have destroyed the balloon regardless.

Similarly, attentional guidance eliminates luck that is present in mind-wandering. When your mind wanders to a quiz, for example, it's lucky when your thoughts stay on topic rather than drift onwards. In contrast, it's not lucky when goal-directed attention remains on task. For if you were distracted, you'd be drawn back. Such luck-reducing regulation is essential to the causal profile of goal-directed attention. Probabilistic motivation and regulatory guidance are woven together in standard cases of goal-directed attention. Yet with the aid of mind-wandering, we can pull these strands of agentive causation apart.

4 Guidance and the Experience of Mental Agency

Empirical evidence speaks against the Awareness Answer: mind-wandering seems passive because we are unaware of the goals that motivate our thoughts (§ 1). Yet there is something true in the vicinity: goals aren't *experienced* in the same way during mind-wandering and goal-directed thinking. By exploring this point, we can gain traction on a deep question in the philosophy action: what does it mean to experience a goal? During goal-directed attention, I argue that goals are experienced as *phenomenological frames*, which carve experience into felt distractions and relevant information (§ 4.1). This framing occurs through guidance. My account has the surprising, but well-motivated, implication that felt distraction is central to the experience of goal-directed attention (§ 4.2). In contrast, our experiences are unframed during mind-wandering: we do not feel distracted when our minds wander to a new topic; rather, we simply move on.

there, motivation is not necessary for guidance.

4.1 Phenomenological Frames

How are goals experienced during goal-directed attention as compared to mind-wandering? We cannot answer this question until we ask one that is more fundamental: what does it mean to *experience* a goal? I reject one potential answer: goals are the *objects of awareness*. This is true for some cases of goal-directed attention, but not all. I will argue that in all cases of goal-directed attention—and no cases of mind-wandering—goals are experienced as *phenomenological frames*.

Agents sometimes consciously represent their goals, making them the objects of awareness. For example, a novice driver might periodically call her goals to mind, “Check your mirrors! Stay in the lane! Check your blindspot before turning!” Or someone might focus on the goal *make dinner plans with Suzie* when he schedules his upcoming week. Similarly, cognitive psychology experiments often encourage subjects to consciously represent their goals. Consider the Sustained Attention to Response Task (SART).²⁸ Subjects in the classic SART are presented with a series of digits between 1 and 9. Subjects’ task (i.e. goal) is to press space whenever any digit is presented except ‘3’. When ‘3’ is presented, subjects must withhold their response. The SART is difficult because ‘3’s are infrequent, so it’s easy to forget your goal and habitually press space after every digit. The SART therefore encourages subjects to consciously represent their goal—*respond to everything but ‘3’!*—so that they remember to avoid habitual responses.

However, agents also frequently pursue goals without explicitly representing them in consciousness. Alan White’s analysis of attentive fishing nicely illustrates this point.²⁹ White argues that an attentive, skillful, fisherman doesn’t explicitly call his goals to mind. He doesn’t think, “Keep fishing! Check for bites on the line! Reel the bait in slowly!”. A novice might explicitly represent these goals, as might someone who’s writing an instruction manual on how to fish. Yet the skillful fisher ceases to do so.

Whether or not a man is giving attention to his fishing depends on whether he looks at the water, listens to the rustling of the reeds, and thinks about the habits of fish or whether he looks at his watch, listens to the aeroplane in the sky and worries about his children’s education and his stocks and shares. The attentive is distinguished from the inattentive fisherman by the relevance or irrelevance to his fishing of what he gives his attention to. He is not to be distinguished by whether he watches himself fishing in the way that he could watch another fishing—as he might if he were a novice or a writer on the art of fishing.³⁰

White’s insight is that someone who skillfully pursues a goal (e.g. fishing) directs her attention onto objects that are relevant to that goal (e.g. the reeds, water, and fish), not onto the fact that she is pursuing that goal. I agree, although I add that goal-directed attention remains on task because of attentional guidance. Indeed, guidance is central to the experience of goal-directed attention.

²⁸Ian H Robertson et al. (1997). “Oops!”: performance correlates of everyday attentional failures in traumatic brain injured and normal subjects”. In: *Neuropsychologia* 35.6, pp. 747–758

²⁹For an excellent discussion of White’s fishing case and its significance for attentional guidance: Aaron Henry (Manuscript). “The Interface Between Attention and Agency”. PhD thesis. University of Toronto

³⁰Alan R. White (1964). *Attention*. Oxford: Basil Blackwell, p. 16

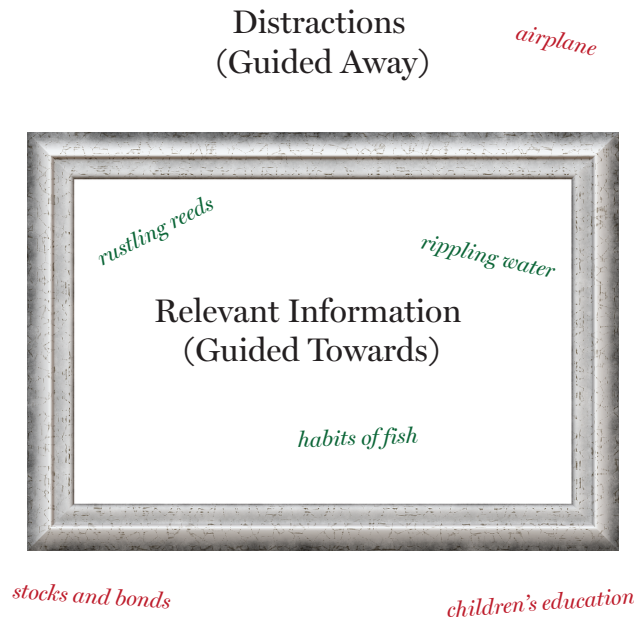


Figure 3: Goals as phenomenological frames. Goal-directed attention is guided away from distractions (pictured in red) and guided towards relevant information (pictured in green). In this way, experience is carved into felt distractions and relevant information.

Goals are not always the objects of awareness during goal-directed attention. Yet there is a common phenomenal core to all cases of goal-directed attention: goals are experienced (at least in part) as “phenomenological frames”. When you look at a painting, you don’t focus on the frame. Rather, the frame serves to separate the painting from its surroundings. Similarly, when your attention is goal-directed, you seldom focus on your goal. Rather, your goal serves as a frame, carving experience into distractions and relevant information. You experience this framing through attentional guidance. While fishing, for example, the sound of an airplane *feels like a distraction* because your attention is guided away from the plane. In contrast, rustling reeds *feel relevant* because your attention is drawn to the reeds and because you are guided back to them when distracted (Figure 3). The novice driver’s experience is framed in a similar way. The novice driver maintains an appropriate frame by calling her goals to mind, “Check your mirrors! Check your blindspot before turning!” As a result, her attention is guided towards relevant information—for example, what’s in her mirrors and blindspot—and away from distractions—for example, her errant thoughts and buzzing smartphone. Through guidance, goals carve the novice’s experience into felt distractions and relevant information, just as they did for the expert. Phenomenological frames are thus a common factor between disparate experiences of goal-directed attention.

In contrast, phenomenological frames are absent during mind-wandering. Your attention may wander to various goals, such as an upcoming quiz or camping trip. Yet goals do not frame the wandering mind, carving experience into felt relevancies and distractions. For if you were to focus on a new topic (e.g. a passing airplane), you would not feel distracted; rather, you would drift on.

4.2 Goal-Directed Attention and Felt Distraction

I am committed to a claim that might seem strange: felt distraction is compatible with goal-directed attention. On my view, goals are phenomenological frames because they carve experience into relevant information *and felt distractions*. I therefore deny the natural view that goal-directed attention is the absence of distraction. Chris Mole argues for this view: he claims that someone performs a task attentively (in my vocabulary, his attention is goal-directed) only if none of the cognitive processes that he could use to perform that task are occupied with something else.³¹ Consider a fisherwoman whose attention falls upon a passing airplane. During this period of distraction, Mole would say that the fisher's attention is not goal-directed; for the cognitive resources that she could have used for fishing are occupied with the airplane. I explicate another notion of distraction, on which felt distraction is compatible with goal-directed attention. So long as the fisher feels drawn back from the airplane, for instance, her attention still counts as goal-directed. In general, I hold that goal-directed attention manifests in two kinds of situations: (a) when one is currently focused on information that seems goal-relevant and (b) when one feels distracted and pulled back to the goal at hand.

My analysis of distraction flows from a general feature of mental agency. Guided action is not always successful. What matters is how agents *experience and respond* to errors.³² Consider someone who is guided to stand an appropriate distance from his conversational partner (§ 2). His guidance manifests in moments where he's standing too close, and feels drawn to step back. Guidance does not require that the speaker always stands the perfect distance; this is too much to ask. Rather, what matters for guidance is whether the speaker experiences lapses *as errors*. When he's standing too close, is he drawn to step back or, like Seinfeld's close talker, does he persist unchecked?

Guidance generally depends on how you experience and respond to errors. Attentional guidance depends on how you experience and respond to errors of attention: namely, distractions. The attentive fisher experiences a passing airplane as a distraction: this is part of what makes her goal-directed. For attentional guidance, it isn't required that the fisher always maintain perfect concentration; this is too much to ask, given the vicissitudes of how experience unfolds over time. Rather, attentional guidance requires that the fisher experiences lapses *as distractions*. When she focuses on a passing airplane, is she drawn back to fishing, or does her mind wander on unchecked? (Attentional guidance can manifest in two kinds of experiences. I've focused on the *negative* phenomenology of feeling *pulled back* from distractions in order to defend a contentious claim: attentiveness involves *felt distraction*. But attentional guidance can also manifest in the *positive* phenomenology of feeling *drawn towards* relevant information. This positive phenomenology is associated with my first condition for attentional guidance: that the agent should reliably attend to goal-relevant information.)

³¹Christopher Mole (2011). *Attention Is Cognitive Unison: An Essay in Philosophical Psychology*. Oxford: Oxford University Press, p. 51

³²Railton "Practical competence" 9.

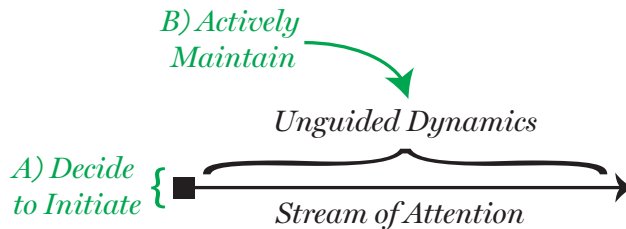


Figure 4: Two ways that mind-wandering can be intentional. A) One can intentionally decide to initiate an unguided stream of attention. B) One can actively maintain an unguided stream of attention, where one’s focus is not guided towards anything in particular.

5 Between Mental Action and Passivity

We can now return to our most difficult question from § 1: what ingredient of active, goal-directed, thought is missing during intentional mind-wandering? My answer is guidance. In this sense, intentional mind-wandering is passive. Yet intentional mind-wandering is subject to what I call “meta-control”: one actively initiates or maintains an unguided mode of thought, while exerting no control over *where* your attention is directed. Intentional mind-wandering therefore occupies an under-explored middle-ground between agency and passivity (§ 5.1). I then extend similar machinery to cases such as brainstorming, which also seem to blur the line between active and passive thought (§ 5.2).

5.1 Intentional Mind-Wandering and Meta-Control

Intentional mind-wandering is a puzzling phenomenon. On the one hand, people frequently report “allowing [their] thoughts to wander on purpose”³³ in the the lab, the classroom, and everyday life.³⁴ Such reports have led to a lively psychological research program on “intentional mind-wandering”. On the other hand, *intentional mind-wandering* seems almost paradoxical: how can mind-wandering, a paradigmatically passive experience, be done on purpose?

My theory allows for two kinds of cases of intentional mind-wandering (Figure 4). One kind of case occurs when one intentionally initiates mind-wandering. For example, suppose that you are exhausted during a boring talk, and decide to let your mind wander. You don’t choose *what* to think about, however, and after this initial moment of initiation, you exert no guidance over where your mind wanders. Your attention likewise drifts from your slides, to an upcoming camping trip, to coffee, and so on. Here, your decision to *initiate* a stream of wandering thoughts is intentional. Yet after this moment, your attention is unguided. We therefore have an account of what separates goal-directed thought from intentional mind-wandering: guidance. After you actively initiate your stream of thoughts, you cede control and let your mind wander unguided.

³³Michael J. Kane et al. (2007). “For whom the mind wanders, and when: An experience-sampling study of working memory and executive control in daily life”. In: *Psychological Science* 18.7, pp. 614–621

³⁴For a review, see Seli et al. “Mind-wandering with and without intention”

A second kind of case occurs when one actively maintains a stream of wandering thoughts. Consider Walter, who ambles through a park to decompress. Walter lets his thoughts drift where they will—from a creature rustling, to a student’s question during lecture, to an awful pun. So far, this is a standard case of mind-wandering. What complicates matters is that Walter *actively maintains* his wandering state of mind, allowing no thoughts to seize his attention. For example, Walter’s attention is briefly gripped by an uncomfortable memory: a student, crushed after he was caught plagiarizing. Walter immediately notices that the memory has disrupted his relaxation and, after a moment of frustration, lets his thoughts drift once more.

What separates this sort of case from goal-directed thought? My answer to this is less straightforward. Here’s the problem: to maintain his wandering state of mind, Walter monitors and regulates an aspect of his thoughts in precisely the way required for guidance. Walter *guides his mind to wander*. We therefore have an apparent counter-example to my definition of mind-wandering as unguided attention.

Despite appearances, my definition correctly classifies this case as mind-wandering. On my definition, Walter’s mind is wandering because he is not guided to *focus his attention* on any information. By actively maintaining his wandering state of mind, Walter ensures that there is no information ι such that, if his attention weren’t focused on ι , he would notice, feel discomfited by, and thereby be disposed to bring his focus back to ι . Admittedly, Walter monitors and regulates a higher-order feature of his stream of thoughts: whether his attention is guided. But this does not amount to attentional guidance, since this places no first-order constraints on *where* Walter’s attentional focus is directed.

Walter’s case can teach us a general lesson. Mind-wandering in my sense is incompatible with *first-order* attentional guidance: that is, guidance that operates on the focus of attention. Yet mind-wandering is compatible with forms of *meta-control* that operate on the mechanisms that guide attention. Specifically, the wanderer can actively suppress the guidance of attentional focus. By doing so, he actively cultivates a mode of wandering attention, even though his focus on any given object is unguided. So what ingredient of active, goal-directed, thought is missing in Walter’s case? First-order guidance. This is reflected in Walter’s phenomenology. During goal-directed thought, goals are experienced as *phenomenological frames* that carve experiences into relevant information and felt distractions. By design, such frames are absent during Walter’s intentional mind-wandering. Instead, Walter cultivates an unframed mode of attention, where no first-order information feels like a distraction. Walter cultivates a wandering mind.

5.2 Hierarchical Structure

Strictly speaking, intentional mind-wandering may be a *sui generis* phenomena. Few, if any, other cases of mental action place *no* frame on attention. But certain cases of goal-directed thought are more similar to intentional mind-wandering than others.³⁵ To motivate this idea, consider the following cases:

³⁵John Sutton (2010). “Carelessness and inattention: Mind-wandering and the physiology of fantasy from Locke to Hume”. In: *The Body as Object and Instrument of Knowledge*. Ed. by Charles T. Wolfe and Ofer Gal. New York: Springer, pp. 243–263, p. 5. Kalina Christoff et al. (2016).

(Algebra Homework) Paolo understands exactly where to direct his attention when he solves algebra problems: perform operations inside brackets first, then turn to exponents, etc. Paolo therefore guides his attention to exactly that part of the problem he must currently solve.

(Cryptic Crossword) Jonathan doesn't solve cryptic crosswords in a linear fashion. Rather, he lets his attention bounce between clues somewhat randomly. He might think about 2 down for a few seconds, turn to 13 across for over a minute, then shift his attention 6 across, etc. Jonathan always guides his attention to the crossword; but which clue he focuses on is usually up for grabs.

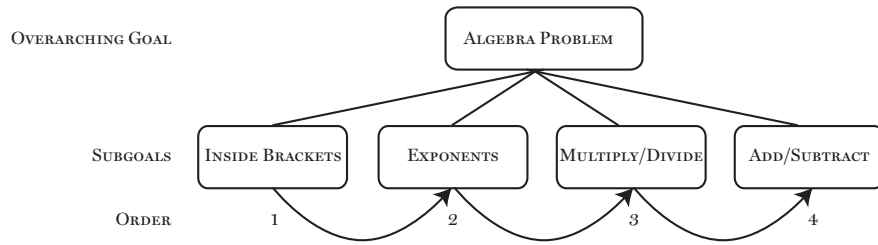
(Brainstorming) Kalina is brainstorming ideas for her term paper on Dennett. Her attention is guided, but only to the following extent: the topic must pertain to Dennett's Multiple Drafts Model and issues covered in the course. Aside from those restrictions, Kalina lets her attention drift freely.

Suppose that all three agents are goal-directed, in that they would feel pulled back when distracted. Even so, each case seems progressively less guided, progressively more like mind-wandering. We can put the point in terms of phenomenological frames. Paolo, Jonathan, and Kalina all experience their goals as phenomenological frames, in that complete irrelevancies (e.g. buzzing smartphones) feel like distractions. Yet these phenomenological frames vary in how much they allow the agent's attention to drift. Paolo's attention doesn't drift at all—he focuses on whatever part of the problem he must currently solve. Jonathan's attention drifts between specific clues, albeit in no apparent order. Kalina's attention drifts freely to any idea that pertains to Multiple Drafts and her course.

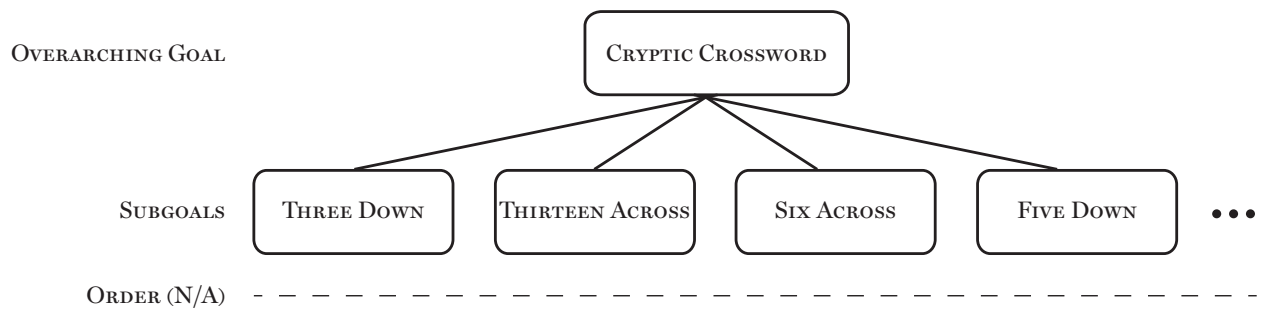
To explain gradations in attentional guidance and phenomenological frames, we need some new machinery: hierarchically structured goals. Certain goals have more hierarchical structure than others. Paolo's goal specifies various sub-goals (e.g. sum numbers inside brackets, multiply these sums together) and an order in which to perform them (i.e. PEDMAS or BEDMAS; Figure 5a). Jonathan's goal of solving his cryptic crossword specifies sub-goals (solve 1 across, solve 12 down, etc.), but no order in which to perform them (Figure 5b). Kalina has a broad overarching goal—generate a topic relevant to Dennett and the course—with no sub-goals (Figure 5c). Indeed, Kalina is brainstorming precisely because her paper does not yet have this much structure.

Attentional guidance—and by extension phenomenal frames—inherits this hierarchical structure (or lack thereof). Paolo is guided to attend to information that seems relevant to his *current* sub-goal. Paolo's experience is framed accordingly: when he is focused on what's inside the brackets, for example, other parts of the algebra problem feel like distractions. Jonathan is guided to attend to information that seems relevant to *some sub-goal*, to one of his clues, but he can drift from to clue to clue unchecked. Kalina's attention is free to drift to anything that is relevant to her overarching goal. She would feel distracted only if her attention were to fall on something completely unrelated (e.g. a fly buzzing on the wall). Each case of attention is therefore guided in a less structured way than the last. As such, each case is more similar to intentional mind-wandering, where one cultivates a mode of attention that lacks first-order guidance. Mental action lies on a gradient between structured, goal-directed, thought and intentional mind-wandering.

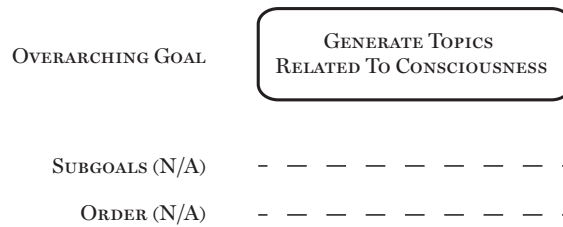
"Mind-wandering as spontaneous thought: a dynamic framework". In: *Nature Reviews Neuroscience* 17.11, pp. 718–731



(a) Paolo’s hierarchically structured goal. Paolo’s attention is guided to information that is relevant to his *current* sub-goal.



(b) Jonathan’s less structured goal. Jonathan’s attention is guided to information that is relevant to *some* sub-goal, but in no particular order.



(c) Kalina’s unstructured goal. Kalina’s attention is free to drift to anything related to her overarching goal, so long as she does not attend to complete distractions (e.g. a buzzing fly)

Figure 5: Goals—and by extension attentional guidance—have varying degrees of hierarchical structure

6 Conclusion

Philosophers' questions can be just as important as our answers. What ingredient of bodily action is missing in mere behaviour? This question has animated much of the great philosophy of action. An analogous question has the potential to animate the philosophy of mental action: what ingredient of active thinking is missing when the mind wanders? My answer to this question—guidance is missing from mind-wandering—has led to insights about the causal basis, experiential character, and limits of mental action. Mind-wandering is a unique case study that allows us to tease apart two causes of mental action: guidance and motivation. Mind-wandering also helps to reveal how we experience our goals: not as objects of attention, but rather as phenomenological frames that carve experience into felt distractions and relevant information. Intentional mind-wandering is a limit-case for the study of mental action. It involves a *sui generis* form of “meta-control”, where one actively cultivates an unguided mode of attention that lacks the “framed” phenomenology of ordinary mental action. The philosophy of mind wandering is still embryonic. Yet as this field develops, it promises to breathe fresh life into old philosophical questions—about the nature of action, for example, and experience. We can learn much about the mind from its strange tendency to wander. After all, we are creatures with drifting and directed minds.