




Daydreaming as spontaneous immersive imagination

A phenomenological analysis

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Abstract

Research on the specific features of daydreaming compared with mind-wandering and night dreaming is a neglected topic in the philosophy of mind and the cognitive neuroscience of spontaneous thought. The extant research either conflates daydreaming with mind-wandering (whether understood as task-unrelated thought, unguided attention, or disunified thought), characterizes daydreaming as opposed to mind-wandering (Dorsch, 2015), or takes daydreaming to encompass any and all “imagined events” (Newby-Clark & Thavendran, 2018). These dueling definitions obstruct future research on spontaneous thought, and are insufficiently precise to guide empirical studies. They also fail to illuminate the phenomenal core of daydreaming, namely, its dreamlike qualities. Although daydreaming is related to both mind-wandering and narrative imagination, it is not reducible to either. We argue that daydreams are experiences of spontaneous, immersive imagination in the waking state. The main task of our investigation is to distinguish daydreaming, conceptually and phenomenologically, from mind-wandering, on the one hand, and night dreaming, on the other. Although daydream experiences can vary widely, we distinguish prototypical experiences of daydreaming from adjacent imaginative activity, including fleeting imagery and “focused daydreaming,” or crafted visualization. We consider our phenomenological analysis as preparatory work for conceptually distinguishing different spontaneous and imaginative states so that they can be investigated accordingly with questionnaires and qualitative methods. We argue that precision about the phenomenal character of daydreaming can guide neurophenomenological investigations, help delimit studies on individual variance in daydreaming features, and identify differences among daydreaming, mind-wandering, and night dreaming conceptually and phenomenologically, and possibly eventually in terms of neural correlates.

Keywords

Daydreaming · Dreaming · Imagination · Maladaptive daydreaming · Mind-wandering · Phenomenal presence · Spontaneous thought

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1 Introduction

Spontaneous thought, increasingly understood as a baseline mental process rather than as an aberrant distraction, is subject to an explosion of research in the cognitive sciences (Callard et al., 2013; Christoff & Fox, 2018). Because the neuroscience of spontaneous thought is rapidly emerging, taxonomies are still in flux, and key concepts, like “mind-wandering,” are far from settled. Meanwhile, imagination has become a “hot topic” in philosophy of mind (Kind, 2018). The imaginative activity of *daydreaming* is a promising interdisciplinary target for both emerging subfields, but has been subject to relatively little empirical study and virtually no philosophical analysis to date. In addition, the use of the very term “daydreaming” across the cognitive science literature is fraught. Mind-wandering and daydreaming are either conflated, or presented as opposing (Dorsch, 2015), or daydreaming is described as encompassing any and all “imagined events” (Newby-Clark & Thaven-drans, 2018). Conceptual clarification in this domain can help guide future empirical research on daydreaming, and open the way for philosophers of mind to investigate the phenomenon. This paper offers such a conceptual clarification in service of a technical taxonomy of imaginative activities for research purposes.

On our view, daydreaming is best understood as *spontaneous, immersive imagination in the waking state*. We take these core features—spontaneity, imagery, immersion, and wakefulness—as central criteria by which to distinguish daydreams from other mental states. We do not claim to have discovered necessary and sufficient conditions for daydreaming; nor do we mean to carve nature at the seams, given that inner life seldom admits of sharp distinctions. Instead, our definition of daydreaming should be understood as a cluster concept based on criteria that can be variously weighted. Daydreaming is situated on a multi-dimensional spectrum of imaginative experiences, and is closely related to other waking imaginative experiences. Among these, the presence of spontaneous dynamic flow and immersive imaginative structure distinguish prototypical daydream experiences in our sense. A central aim of this paper is to clarify and develop these key concepts with respect to daydreaming, but preliminarily: as we use the terms, daydreams are “spontaneous” in that they arise and develop relatively freely, without focused agential intervention, direction, or guidance. Daydreams have an “immersive” imaginative structure in that they involve at least a minimal sense of phenomenal presence in a world, and a minimal rolling temporality.¹ In this analysis, we use the combined presence of our core criteria to identify prototypical cases of daydreaming, showing how adjacent and outlying cases radiate out from the prototype in different ways. We take the core criteria, however, to be essential to daydreaming and to serve as the basis for a rigorous scientific definition of daydreaming rather than a family resemblance concept (see Christoff et al., 2018).

¹ As we will discuss, this world need not be *another* world. Daydreams often recruit perceptual environments and objects—for example, one might spontaneously imagine watching a horse gallop alongside their car.

Instead of providing a fully exhaustive analysis of daydreaming, which is outside the scope of this preliminary exploration, the main task of our investigation is to distinguish daydreaming, conceptually and phenomenologically, from mind-wandering, on the one hand, and night dreaming, on the other. Saulius Geniusas, who has recently called for phenomenologists in particular to attend to daydreaming, notes that answers to the question of how daydreaming relates to mind-wandering, lucid and non-lucid night dreaming, and “phantasizing” are “nowhere to be found” (2023, p. 46). Here, we aim at preliminary answers. Because mind-wandering and night dreaming are better-studied, we are able to draw on empirical research and philosophy in both of these domains in order to clarify our analysis: for instance, we recruit literature on mind-wandering to develop our account of daydreaming’s spontaneous dynamic patterning, and we recruit literature on night dreaming to develop our account of daydreaming’s immersive structure. Importantly, however, our main aim is to demonstrate that daydreaming can be conceptually distinguished from these phenomena, and should not be subsumed under either category.

In Section One, we review extant definitions of daydreaming in the empirical and philosophical literature. We argue that the standard definition of daydreaming as “task-independent thought,” as well as a dueling definition of daydreaming as “imagining events,” are problematic in several respects, and we suggest that our proposed definition does not share these problems. In Section Two, we discuss daydreaming, mind-wandering, and night dreaming as examples of spontaneous thought. After introducing the Dynamic Framework of Spontaneous Thought, we compare both the dynamic patterning and types of guidance prototypically involved in daydreaming against those involved in mind-wandering and night dreaming. In Section Three, we turn to imagination, introducing our account of “immersive” waking imagination. We discuss potential differences in degrees of immersion, as well as variant experiences of perceptual decoupling and types of meta-awareness, that tend to distinguish daydreams from the other two phenomena under discussion. In Section Four, we briefly discuss a potential application to an emerging debate regarding a phenomenon of recent interest in the psychological literature often termed “maladaptive daydreaming,” and conclude with suggestions for future study.

2 Background

Because the term “daydreaming” is used promiscuously and inconsistently in the extant literature, reconceptualization is called for. On the one hand, the standard “task-centric” approach redundantly conflates daydreaming with mind-wandering, creates confusion in the literature, and is both too permissive and peculiarly restrictive to reliably reflect everyday usage of the term. It also ignores the imaginative dimension of daydreaming. On the other hand, approaches that emphasize daydreaming’s imaginative dimension but cut ties to spontaneous thought, par-

ticularly a definition of daydreaming as simply “imagining events” (Newby-Clark & Thavendran, 2018), conflate daydreaming with a wide range of heterogeneous imaginative experiences. Extant definitions leave us without a way to clearly conceptualize and investigate imaginings that arise and proceed in an unguided way. We propose that characterizing daydreams as spontaneous immersive imagination in the waking state fills this gap without succumbing to the problems associated with current definitions.

2.1 The standard view: daydreams as distractions

Jerome L. Singer, who inaugurated experimental daydreaming research in the 1960s in cognitive psychology, defines daydreaming negatively (Singer, 1975; Singer, 1976). On his influential account, any mentation not directed at an immediate task is considered daydreaming. Defining daydreaming as “task-independent thought” is standard in psychological research. For instance, Singer and Antrobus’ widely used “daydreaming frequency scale”—to date the only broadly distributed daydreaming questionnaire (e.g. Stawarczyk et al., 2012)—asks respondents to distinguish “between *thinking* about an immediate task you’re performing...and *daydreaming* which involves thoughts unrelated to a task you are working on” (Singer & Antrobus, 1970, p. 2). Most researchers rely on this definition (Fox et al., 2013; Klinger, 2009; Kucyi & Davis, 2014; e.g. Singer, 1976; Smallwood & Schooler, 2006; Stawarczyk et al., 2012; Zedelius et al., 2021), or on related conceptions of daydreaming, such as “stimulus-unrelated thought” (Stawarczyk et al., 2012; Teasdale et al., 1995), “self-generated thought” (Andrews-Hanna et al., 2013) or “nonworking thought” (Klinger, 2009). In all of these cases, daydreaming is whatever mentally distracts us from the here-and-now.

Under this dominant task-centric paradigm, “mind-wandering” has also been defined as task-unrelated thought (Killingsworth & Gilbert, 2010; McVay et al., 2009; Smallwood & Schooler, 2006, 2015). Daydreaming, in turn, is also almost invariably used interchangeably with “mind-wandering” (Fox et al., 2013; Klinger, 2009; Kucyi & Davis, 2014; Stawarczyk et al., 2012). That is, all three terms have been broadly conflated with one another—and with other terms, like “spontaneous thought.” Recently, philosophers and cognitive neuroscientists have proposed more refined theories of mind-wandering (Christoff et al., 2016, 2018; Irving, 2016; Irving & Thompson, 2018), but even where mind-wandering has been conceptually distinguished from task-unrelated thought, it is seldom distinguished from daydreaming. This is grounds for confusion. Discussing a phenomenon often called “maladaptive daydreaming,” Bigelsen and Schupak explain that “consistent with much of the literature, the original case study unfortunately interchanged the terms ‘mind-wandering,’ ‘daydreaming,’ and ‘fantasizing’ when referencing this phenomenon; contributing to what we now recognize as considerable confusion” (2011, pp. 1635–1636).

Early, capacious definitions of daydreaming reflect enthusiasm for the subject matter, but obscure the target phenomenon through sheer diffusion. An extraordinary range of heterogeneous mental experiences may be task-unrelated. Eric Klinger, another pioneer of daydreaming research, notes the conflation between daydreaming, task-independent thought, nonworking thought, and “fanciful”² thought, and also opts for an overly inclusive solution. He writes:

Let us first count as daydreams all thoughts that are more spontaneous and involuntary than they are intentional. Then let us add to those any further thoughts that are at least slightly fanciful or disorganized, as well as all intentional daydreams. *Using this formula, daydreaming includes up to about half of the average person’s daily mental activity!* (Klinger, 1990, p. 21, emphasis in original).³

Indeed, the oft-cited statistic that we spend over 50% of our waking lives daydreaming is usually sourced to a study in which Klinger et al. ask participants to count as daydreams any thoughts that are either spontaneous or fanciful.⁴ Precisely because it does capture most of waking thought, this description of daydreaming has limited research applications. Even those who endorse versions of the standard definition rely on more specific descriptions. Zedelius et al., for instance, who define daydreaming as “engaging in an internal stream of thought unrelated to the here and now” (2021), also take care to identify “types” of daydreams for research purposes. They distinguish “personally meaningful” daydreaming from “fanciful” daydreaming. Singer, too, develops daydream typologies, including “positive constructive” to “guilty dysphoric” daydreaming styles (Zhiyan & Singer, 1997). Focusing the definition of daydreaming in the first place can help clarify distinctions, and perhaps enable the development of a shared typology.

Capturing all non-task-oriented thought under the heading of daydreaming also invites examples that deviate significantly from the term’s everyday usage. On the one hand, the requirement that daydreams be “task-independent” or “stimulus-independent” can be unexpectedly restrictive. Consider the example of a pianist who, as he practices a sonata in his living room, daydreams that he is playing that very same sonata in a concert hall before an adoring audience. His fantasy is closely coupled to the task and stimulus he is engaged with. On our view, we can daydream

² Klinger understands “fanciful” thought as “mental activity that departs from reality, either as imagining fulfillment of wishes that may not ever be fulfilled or as imagining oneself or others acting in ways that unrealistically violate social norms or physical laws of nature” (2009, p. 225).

³ Klinger repeats this definition throughout recent work: e.g., “as indicated there are two overlapping classes of thought that are popularly accepted as daydreaming: thought that is predominantly undirected (i.e., spontaneous, respondent thought such as mind wandering) and thought that is at least partially fanciful. Thoughts that fall into these two classes, taken together, account for about half of all thought samples. It is therefore reasonable to assert that about half of human thought qualifies as daydreaming by one or the other of these definitions” (Klinger, 2009, p. 228).

⁴ Meanwhile, according to Fox and his co-authors, “Foulkes and Scott (1973) found that 24% of thoughts could be categorized as visual, dramatic, and dreamlike” (2013, p. 3).

in response to our surroundings, and daydreams can involve imaginings that are perceptually integrated with our surroundings. On the other hand, the standard definition also admits too much. Singer and McCraven suggest that if;

while working on the circuit [an electrician] finds himself meditating on whether he will be able to collect the fee he charged for yesterday's job, he has drifted away from the immediate task into a daydream" (1961, p. 153).

It is unclear, however, why such deliberations implicate "drifting away," given that we often think and strategize with busy hands. Similarly, Singer and McCraven's widely-used Daydreaming Questionnaire includes "I plan how to increase my income in the next year" and "I think about the specific steps to be taken in connection with my job during the next three to four weeks" as daydreaming examples (quoted in Regis, 2013, p. 4). But to equate all future planning with daydreaming is to stretch the term uncomfortably past its conventional meaning.

One reason we resist counting these calculations as daydreams is that they lack the *dreamlike* qualities the term is meant to convey. Daydreams are paradigmatically imaginative. It is not clear that the strategic deliberation in the above examples involves sensory imagination: the plumber might be thinking in abstract or conceptual terms. But despite their definitions failing to capture a connection between daydreaming and imagination, Singer and Klinger both at least tacitly understand daydreaming as imaginative. Klinger, for instance, acknowledges that "mental imagery is the most important building block of daydreaming. Along with emotional feelings, it is the material of which daydreams are made" (1990, p. 23). While we understand daydreams as paradigm examples of imagination, most empirical studies in experimental psychology and cognitive science are based on standard definitions of daydreaming that obscure this core feature.

2.2 Opposing views: focused daydreams and imagined events

Several theorists have recently questioned the conflation of mind-wandering and daydreaming, and identified the need for a new model.⁵ Fabian Dorsch (2015), one of the only contemporary philosophers of mind to analyze daydreaming, argues that those who lump spontaneous and imaginative thought together under the heading of daydreaming do so "wrongly" (2015, p. 812), because mind-wandering has little in common with "focused daydreaming." Focused daydreaming, for Dorsch, is engaging in a deliberate imaginative "mental project" which is "agential," "purposive," and "unified," in contrast to non-agential, associative, disunified mind-wanderings. He writes:

⁵ Meta Regis, for instance, rejects the standard conflation of daydreaming with task-independent thought and defines daydreams as "moody fictions," reflecting her view that "a daydream is a fiction in which an objectless, un-integrated or diffuse feeling state becomes linked to specific objects, persons and situations" (2013, p. 14). While we agree that there is an intimate link between daydreaming and affect, we do not take it to be constitutive of the phenomenon.

...our engagement in mental projects is not only purposive, but also voluntary. When we are creating a story in our mind, or try to relax ourselves by means of visualising something pleasant, we do this at will, that is, because we want to do it (2015, p. 797).

Dorsch links imagination closely with agency. He offers the following example of focused daydreaming:

In preparation of their ride down the track, the drivers of bobsleighs tend to close their eyes and imagine racing the whole run from start to finish, thereby visualizing the alternating curves and straight passages (2015, p. 792).

This example diverges significantly from the standard picture: this bobsled driver “daydreams” in a highly focused, intentionally guided, goal-directed manner. Jonathan Ichikawa also references “deliberate daydreaming” (2009, p. 113), and we have seen that Klinger sometimes includes “intentional daydreams” in his definition. On our view, these concepts pick out real and interesting imaginative activity, more usually referred to as “mental rehearsal,” “visualization,” “conjuring fantasies,” “imaginative crafting,” “envisioning,” and so on. We agree that such deliberate, focused imagining is not mind-wandering—but it is also not what we ordinarily mean by the term “daydreaming,” and on our view is not a prototypical example of daydreaming.

Two researchers in psychology have drawn on Dorsch’s conceptual analysis to propose defining daydreams as “imagined events” (Newby-Clark & Thavendran, 2018). This alternate definition distinguishes daydreaming from mind-wandering, avoids treating daydreaming as distracting by definition, and connects daydreaming to imagination. It fails, however, to distinguish daydreaming from a range of other distinct mental experiences. A reader whose book guides her imaginings,⁶ a speaker mentally rehearsing his talk, and dancers picturing their positions on-stage while listening to a choreographer might all be imagining events, but we would not naturally call them daydreamers. Consider a novelist plotting out her book. In doing so, she imagines all kinds of events. What’s more, these events are speculative and highly fanciful. But if asked what the novelist is doing, we would be unlikely to respond that she is daydreaming, though Dorsch, and Newby-Clark and Thavendran, should agree that she is. The novelist is engaged in just the kind of imaginative mental project Dorsch has in mind. She is on-task, and she deliberately directs her thoughts to explore certain themes. While a novelist may also sometimes find herself idly but productively daydreaming about her characters, we intuit a difference between eventful imagining in the context of *deliberation* and imagining in the context of daydreaming. Cutting the tie between daydreaming and mind-wandering, then, is premature.

⁶ (Currie & Ravenscroft, 2002; See, e.g., Scarry, 1995)

Construing daydreams as “imagined events,” as Newby-Clark and Thavendran do, casts too wide a net—yet this definition is also too restrictive. Though our daydreams usually have narrative structure, they need not. We may sometimes daydream about states, situations, or scenes, rather than stories. For example, an exhausted night-shift nurse making her rounds might daydream about resting in her bed. The pleasure of imagining this situation—besides the somatic imagery of being nestled in plush bedding—is related to its *stasis*. Narrative, in this daydream, is not the point.⁷ Consider also a daydream about what one’s ideal house would look like. Here, the daydreamer is imagining a scene. Perhaps the scene shifts to reflect different wall colors or furniture arrangements—but no event takes place. If we find it plausible that we can daydream about situations and scenes, not just stories, then “imagined events” might be off the mark.⁸ As we will show, the concept of “immersion,” which implicates a sense of phenomenal presence in the here-and-now and a minimal rolling temporality, better captures the structure of daydreaming imagination.

2.3 Advantages of a novel approach to conceptualizing daydreaming

As Dorsch points out, it is strange that “daydreaming” is often used to encompass both mind-wandering and purposive imagination in empirical literature. Why have these experiences been grouped together? We suspect it is because each exemplifies one of two key features of daydreaming. Connecting daydreaming and mind-wandering suggests the *spontaneous* nature of daydreaming. Daydreaming is typically unplanned and unguided. Connecting daydreaming and imagination suggests the *imagistic* and *dreamlike* nature of daydreaming. Daydreaming involves sensory, immersive imagination. Rather than construing daydreams broadly as thoughts which are either “spontaneous or fanciful,” as Klinger has, we come closer to understanding daydreams as both spontaneous *and* fanciful—or rather, imaginative. In our view, daydreams are best understood as experiences of spontaneous, immersive imagination in the waking state. We suspect that the dueling definitions in the daydreaming literature arose because researchers have tended to select and extrapolate from one central criterion or another in what should be better understood as a cluster concept.

Understanding daydreams as waking experiences of spontaneous, immersive imagination has a number of advantages over current approaches. Doing so captures the dreamlike phenomenology of daydreaming, and helps to clarify distinctions between different types of spontaneous thought and imaginative activity. Equating mind-wandering and daydreaming makes the category of “daydreaming”

⁷ We might also intelligibly say we have had “a dream” in which virtually nothing happens. Though this dream holds together as a unified and temporally extended mental experience, it need not be held together by a series of narrative events.

⁸ We might also question Regis’s “moody fictions” definition for this reason.

redundant; our conception eliminates this redundancy. Though we are proposing a technical definition for research purposes, our conceptualization also accords more faithfully with everyday conceptions of what does and does not count as a daydream. Our demarcation excludes the electrician's calculation and the novelist's focused composition, for instance. It also includes the pianist's task-dependent daydream and the night nurse's non-eventful daydream. Our proposal is also compatible with past research: despite unclarity about definitions, many daydreaming researchers, in practice, tacitly presuppose the very features we are pointing to.⁹ Other researchers are more explicit. For instance, Jennifer Windt's tentative description of daydreams as "the most immersive types of mind-wandering" (2021, p. 11) approaches ours. Our conception of daydreaming is also neutral with respect to theoretical commitments: while in the following analysis we discuss mind-wandering in reference to the Dynamic Framework of Spontaneous Thought and night dreaming in reference to the simulation view, adopting our minimal definition of daydreaming does not require allegiance to these other theories. At the same time, our concept of daydreaming aligns with the most current and promising research programmes in the cognitive neuroscience of spontaneous thought. For instance, while we are neutral with respect to the question of whether or not there is a continuous spectrum between mind-wandering and night dreaming, as some have proposed, our account of daydreaming might potentially be recruited by researchers to fill a vacant region in that proposed spectrum.

In what follows, a more comprehensive analysis of daydreaming as spontaneous immersive imagination will emerge from a systematic comparison of daydreaming with mind-wandering, on the one hand, and night dreaming, on the other. In addition to demonstrating how the core features of spontaneity and imagination circumscribe the concept of daydreaming, this discussion will bring out a number of other characteristic features of prototypical daydreams.

3 Daydreaming vs. mind-wandering and night dreaming as examples of spontaneous thought

It will be important to spell out what it means to say that daydreaming experiences of waking immersive imagination arise and unfold in a "spontaneous" way, since this term is used variably. In this section, we introduce the Dynamic Framework

⁹ Some philosophers and cognitive scientists who discuss daydreaming in passing, without reference to Singer, identify similar features. For instance, in an insightful blog post on ethical norms of "pure fantasy," philosopher Miriam McCormick writes, "The wakeful state that most resembles nighttime dreams is the 'daydream.' What is a daydream? You let your mind wander without a clear purpose or intention. But it is not daydreaming if you end up anxiously obsessing about your 'to do' list or Donald Trump's latest tweet. One requirement of daydreaming is that it involves mental imaging, and the second is that it has a kind of narrative structure. A third feature that distinguishes fantasies (or daydreams) from other exercises of the imagination is that they have an overall positive valence" (2019).

of Spontaneous Thought (Christoff et al., 2016) to contextualize the approach we take in the present study. We then propose that distinctive dynamic patterning is associated with daydreaming: we flow or drift in and out of daydreams, which metaphorically form “eddies” in the stream of mind-wandering. Daydreams may exhibit dynamic stability as they hold together in the unstable mind-wandering flow; like their nocturnal counterparts, discrete daydreams seem to endure and cohere. Daydreams, on our view, are also spontaneous in that they arise in the relative absence of deliberate guidance—a feature they share with mind-wandering and non-lucid night dreaming. We discuss how daydreams are more sensitive to grades of deliberate shaping than non-lucid night dreams, and how different types of internal salience shape daydreams in the absence of explicit tinkering.

3.1 The dynamic framework of spontaneous thought

The term “spontaneous thought” has long been conflated with mind-wandering (and hence with daydreaming) under the task-centric paradigm. The conceptual landscape has recently shifted, however, in response to an influential proposal that spontaneous thought be treated as a larger category encompassing a variety of mental processes (Christoff et al., 2016). This picture emerges when we foreground the movements between thoughts. On this framework, spontaneous thought can be understood as “a mental state, or series of mental states, that arise relatively freely due to an absence of strong constraints on the contents of each state and on the transitions from one mental state to another” (Christoff et al., 2016, p. 719). To say that thoughts “arise relatively freely” is to observe a dynamic flow within and between mental episodes. As William James suggests in *Principles of Psychology*, spontaneous thought processes flow like water in the “wonderful stream of consciousness” or flit like a bird’s “alternation of flights and perchings” (1980).

This dynamic patterning arises in the relative absence of strong constraints. Constraints can be understood variously. As Windt specifies, “thoughts are spontaneous when their contents and/or the transition between different thoughts are weakly constrained by affective or sensory salience on the one hand and deliberate cognitive control on the other hand” (Windt, 2021, p. 5). According to Christoff and colleagues’ model, affective and sensory salience are examples of *automatic* constraints, whereas cognitive control is a *deliberate* constraint. An external task or stimulus may operate as a constraining factor, but this definition is neutral with respect to whether thoughts are task or stimulus-dependent. To show this, Christoff and her colleagues also reference a bobsleigh driver, but as an example of a thinker deliberately constraining their thoughts: “While in the shower, a bobsledder deliberately and systematically visualizes each turn they will take on an upcoming run” (2016, p. 723). While disengaged from their present activity, their visualization exercise is highly constrained: it does not arise spontaneously, nor does it flow spontaneously. On the other hand, spontaneous thoughts may nonetheless be responsive to and directed at our perceived external environment. For instance,

“While hiking on a forest trail, a woman’s thoughts move from the gravel on the path in front of her to a slug crawling up a stump, and then to a leaf floating in a puddle” (2016, p. 723). Daydreams can also be perceptually integrated with or related to immediate external tasks.

Moving from a content-based to a process-based account of spontaneous thought helps to differentiate between subtypes. Christoff and her colleagues have identified night dreaming, mind-wandering, and creative thinking as varieties of spontaneous thought that lie on a continuous spectrum. G. William Domhoff argues that dreaming is “an intensified form of mind-wandering that makes use of embodied simulation” (2018, p. 355), and others have proposed that there is a continuous spectrum between mind-wandering and night dreaming, but more research is required to confirm whether or not such a spectrum exists. With respect to this proposal, Jennifer Windt (2021) has also recently raised a “state-dependence” question, asking whether and to what extent global consciousness states like sleeping and waking determine mental experiences. As she suggests, research into immersive daydreaming is a missing link in the literature, and may help answer the state-dependence question. Whether or not sleep or waking-state neurophysiology turns out to mark a sharp divide between types of conscious states, we can conceptually situate daydreaming as a type of spontaneous thought.

3.2 Dynamic flight patterns 1: mind-wandering vs. daydreaming

Distinct dynamic patterning is associated with mind-wandering. When our minds wander, our thoughts link and form ongoing chains of thought through associative processing, where one mental experience cues the activation of another in virtue of experience-based, contextually determined connections established between concepts, memories, images, and emotional states (Aminoff et al., 2013; See Bar et al., 2007). For instance, in an episode of mind-wandering, one might shift from noticing the moon, to remembering eating mooncakes, to wondering how such delicacies are made, to composing a mental grocery list, to noticing signs of fall, to choosing a Halloween costume, and so on, and on, and on. Thoughts flit here and there, rather than fixating on one object for long periods. Dylan Stan and Kalina Christoff have also argued that the dynamic flow of mind-wandering is characterized by Low Motivational Intensity, understood as “a phenomenal quality of ease” (2018, p. 47). We do not jaggedly jerk between thoughts during mind-wandering, but flow and drift between them. They suggest that “if one’s attention to a dry lecture was *pierced suddenly* by the memory of an important and overdue point of business, we may be hesitant to refer to it as the mind having ‘wandered.’ On the other hand, if we *drift off* to some casual daydream, the term might come more readily” (2018, p. 49).

Daydreams are closely related to mind-wandering in terms of their dynamic movements—and also because daydreams often occur in the context of mind-wandering. Verbs like “drift,” “wander,” “flow,” and “alight” are indeed appropriate

to the phenomenal feel of daydreaming. As our minds wander, we flow in and out of daydreams, and one daydream may also associatively flow into another. We endorse Dorsch's observation that imagination "is constitutive of some of [the] episodic elements" of mind-wandering (2015, p. 811). For example, consider the chain of thought above, which landed on a question about Halloween costumes. From here, one might wander into a full-blown imaginative episode about an anticipated Halloween party, imagining what it would be like to mingle with masked friends and strangers, before wandering on. There is, however, no reason to think daydreams *must* arise in an ongoing process of mind-wandering: we may simply imagine spontaneously. Not all daydreaming is mind-wandering, and not all mind-wandering is daydreaming. Nevertheless, the connection is close. Daydreams often arrive as uninvited—but welcome—guests. Stan and Christoff suggest that "daydreaming" is mind-wandering's "most easeful waking-state relative" (2018, p. 49). While daydreams can feel uneasy, daydreaming is often associated with idle, playful, positively-valenced mental activity.

Daydreams differ from other mind-wandering contents with respect to their patterns of movement, however, in that their contents are often tightly linked: daydreams generally seem to form cohesive, enduring units. While we freely wander in and out of daydreams, we often linger in them. For that reason, daydreams may differ from mind-wandering with respect to dynamic patterning, given that daydreams seem to exhibit dynamic stability as they hold together in the unstable mind-wandering flow, though whether and to what extent this is the case is an open question. Daydreams can be understood as eddies in the stream of mind-wandering. To reflect on the cohesive nature of daydreams, we can relate them to their nocturnal counterparts.

3.3 Dynamic flight patterns 2: night dreaming vs. daydreaming

Night dreams, on the simulation view of dreaming, are characterized by a sense of immersive presence in a world-simulation (Windt et al., 2016). Night dreams arise spontaneously and unfold associatively. While dream sequences can be strange or disjointed, a night of dreaming usually gives rise to seemingly discrete dreams. One review of dream studies shows that the typical night-dream "includes a vivid sensory environment and intense interpersonal interactions, and sometimes unfolds over a period of 15-30 minutes" (Domhoff, 2018, p. 357). From a phenomenological perspective, however, measuring periods of dreaming using outside clock-time does not capture the sense of duration experienced within dreams. Because dreaming involves a minimal sense of "here-and-now," dreams are experienced as durational. Built into the experience of immersion is a sense of spatio-temporal presence with a minimal retentional memory end, and a minimal protentional opening to the future. As suggested above, dreams and daydreams need not be eventful: some can be simulations with a feeling of immersion but with no narrative. How-

ever, typical night dreams are often narrative, and in them, we go along with the rolling unfolding of one event into the next. Even confusing dreams often have the phenomenal feel of being held together. These twin features of “going along” and “holding together” may accompany the sense of seamlessly navigating or observing a given environment, even when it shifts. As Jorge Luis Borges observes in his essay “Nightmares,” we might “continue to spin tales” as we recount memories of dreams. Narrative coherence may be retrospectively constructed or confabulated, because like all memories, our memories of dreams change over time (Thompson, 2015, p. 132). It is not always obvious what unifying features prompt us to say “I had a dream about x , and then a dream about y ,” but we do make such distinctions. For instance, a dream with many peculiar successive components may feel held together by an intention—sometimes dim, and sometimes fervent—to catch a flight.

Like night dreams, typical daydreams also exhibit a sense of “holding together” and “going along.” They exhibit coherence and duration. Daydreams, like night dreams, are often about continuous situations or scenes. A study systemically comparing first-person experiential reports of experiences during night dreaming and mind-wandering (understood as undirected, task-unrelated thought) found consistent similarities: “in both states, content is largely audiovisual and emotional, follows loose narratives tinged with fantasy, is strongly related to current concerns, draws on long-term memory, and simulates social interactions” (Fox et al., 2013, p. 1).¹⁰ We suspect that much of this mind-wandering content constitutes “daydreaming” in our sense: an emotional, audiovisual narrative tinged with fantasy simulating a social interaction, would be a paradigm example of waking, spontaneous, immersive imagination. A rapid-fire blink of random, dissociated mental images, however, would not constitute a narrative, nor would it be immersive. In daydreams, constituent episodes tend to follow one from the other, and we tend to go along. Even a loose narrative tends to exhibit continuity and salience between narrative elements. As with night dreaming, we are generally able to distinguish a daydream about x from a daydream about y , even when both episodes arise during the same period of mind-wandering, or one daydream transitions into the other. And while the extent to which we accurately recollect and recount our daydreams is an open question, we can likely identify a cohesive structure in an eventful daydream more confidently than in an eventful night-dream. A daydream is a process within the stream of mind-wandering that is temporarily stable, and this stability is perhaps due to salience in guiding daydreaming contents—a topic we will address shortly.

3.4 Degrees of guidance 1: mind-wandering vs. daydreaming

Our minds wander and flow dynamically in the relative absence of strong guidance or constraint, whether that constraint is understood as a task, a stimulus, a unify-

¹⁰ These results suggest that mind-wandering is largely daydreaming, as we conceive it.

ing project (Carruthers, 2002; Dorsch, 2015), or meta-awareness (Metzinger, 2013). Irving and Thompson (2016; 2018) have argued that mind-wandering is “unguided thought,” where guidance is understood as regulating the maintenance of an activity by bringing attention back to that activity whenever it diverges. We can deliberately guide our thoughts. (Think of building dams in the stream-bed in hopes of channeling the flow down a particular course.) But guidance may not be deliberate. For instance, unwilling mental compulsions,¹¹ ruminations, and obsessions might keep our thoughts fixed on one theme. (Think of a powerful whirlpool sucking the current into its vortex.) External circumstances can also be guiding. When physical dangers demand our full attention, for instance, we are highly guided by sensory salience. (Think of a landslide temporarily smothering the stream.) Affective salience—like grief—can also inhibit mind-wandering. Christoff and her colleagues offer a conceptual framework compatible with this view. They compare types of spontaneous thought—night dreaming, mind-wandering, and creative thought, on continua of “automatic” and “deliberate” constraint, finding that “mind-wandering tends to be more-deliberately constrained than dreaming, but less deliberately constrained than creative thinking and goal-directed thought” (2016, p. 719). We may intend to let our minds wander (Seli et al., 2016)—but planning to think about *x*, then *y*, then *z*, and then executing this plan, is not mind-wandering. It may be the case that different levels of constraint facilitate different types of thought—for instance, Irving et al. found that “mind wandering—as measured by freely moving thought—facilitates idea generation, but only during a moderately engaging activity that places some constraints on thought” (Irving et al., 2022).

Like other mind-wandering contents, daydreams are not purposeful or deliberately guided. To see this, consider that we can have daydreams we would prefer not to have. For example, we might have romantic daydreams about someone who is unavailable, though we wish to be free of our inconvenient fixation. While we might successfully clamp down on romantic daydreams when they arise, doing so might feel like a game of “whack-a-mole.” Prototypical daydreams are unplanned: we simply *find ourselves* daydreaming. Magdalena Balcerak Jackson puts it nicely: “When we daydream, certain images of desired circumstances sometimes simply pop into our heads without us deciding to form them” (2018, p. 212). This is why we do not understand “focused daydreaming” as a prototypical example of daydreaming. Just as lucid dreams are dreams of an exceptional kind, with exceptional features, we take “focused” or “deliberate” daydreams to be exceptional.¹² If I sit down to craft an imaginary vacation, planning each move in advance, and then execute the simulation in detail with a high level of executive control, I am deliberately fantasizing, visualizing, or crafting a “focused” daydream.¹³ Unlike the

¹¹ “Maladaptive Daydreaming,” which we confront below, is a potential example.

¹² To say that they are exceptional with respect to daydreaming is emphatically *not* to say that such uses of the imagination are at all peripheral, unusual, or uninteresting—they are ubiquitous and fascinating elements of inner life that remain understudied.

¹³ This is another example Dorsch (2015) uses to illustrate focused daydreaming.

novelist or the visualizer, the daydreamer is less likely to pause to assess and revise her creation. Instead, she allows it to unspool and drift away.

As indicated above, we see a spectrum of deliberate guidance, not a binary. Imagination, like all thought, is seldom fully controlled or fully free. While we take daydreams to be markedly less agentially guided and effortfully focused than some other mental states, they remain mental activities that we enact and attend to. We often pay rapt attention to our daydreams, though we are seldom explicitly, propositionally meta-aware of doing so. We have no objection to calling highly controlled and purposeful waking imagination “focused daydreaming,” but we will here use terms like “crafted visualization” for the sake of clarity.

There is a close relationship between spontaneous imagining (i.e., daydreaming) and deliberate imagining in that these mental behaviors can co-determine one another through looping effects. Take the case of sexual fantasy.¹⁴ Daydreamers might discover what they find arousing by noticing recurring themes in spontaneous erotic daydreams. They might later deliberately incorporate that imagery into sensory imaginative sequences crafted to heighten arousal. The more time they invest in these crafted visualizations, the more likely their contents are to arise spontaneously. To take another example, those of us who had vivid imaginative lives as children—spending time conjuring and crafting imaginary friends, worlds, and adventures—often drifted into those imaginative contexts unintentionally. The novelist above might be subject to the same looping effect, which may, in turn, play a role in her creative process. This makes sense: our minds often wander to our goals and projects (Irving, 2016). If crafted visualizations or “focused daydreams” are agential projects, as Dorsch claims, then we would expect to spontaneously enter the virtual worlds we have been invested in building.

3.5 Degrees of guidance 2: night dreaming vs. daydreaming

Non-lucid night dreaming, on the dynamic framework, is the subtype of spontaneous thought governed by the lowest levels of automatic and deliberate constraint. Christoff and colleagues predict that non-lucid night dreams are guided by “very low or absent levels of deliberate constraint” but “low to medium influence from automatic constraints” (2016, p. 720). When we dream, we are often “along for the ride,” accepting whatever arises in the dream environment. When we dream while asleep, we are generally unaware that we are dreaming, and unable to control what we dream about. Even awareness that one is dreaming does not always result in being able to control dream contents. Lucidity may arise spontaneously in sleep, and lucid dreams themselves contain many spontaneous elements (Windt & Voss, 2018). It is also difficult to manipulate dream contents reliably from the outside in clinical settings (Domhoff, 2018, p. 356), though external stimuli can mark dream

¹⁴ On fantasy, Butler writes that “the development of fantasy may be an elected pastime. It is more elaborate and continuous, composed of more pure imagination and directed at self-amusement, pleasure, distraction and escape (2006, p. 48).

contents. Interestingly, however, being instructed to suppress waking thoughts about a particular person has been shown to increase night dreaming about that person (Wegner et al., 2004). Even if a daydreamer succeeds in squashing unwanted romantic daydreams as they arise, then, they may be unable to exile their inconvenient crush from their night dreams.

Daydreaming differs from night dreaming with respect to levels of deliberate constraint. Despite daydreams arising and unfolding in an unplanned way, rather than through our tinkering, daydreamers generally have access to implicit meta-awareness even when they are not currently attending to that fact—in contrast to non-lucid night-dreamers, who usually entirely lack both implicit and explicit meta-awareness (see Dunne et al., 2019). For that reason, deliberate intervention in daydreams is available to us. When we explicitly realize we are daydreaming, we can redirect our attention or suppress the daydream. We may also transition into a crafted visualization.

Non-deliberate forms of guidance tend to attenuate daydreams and night dreams differently. For example, we expect daydreams to be largely governed by “affective salience,” in that our emotions and moods loosely direct what we daydream about, and in that the contents of our daydreams in turn produce affective states which are appropriately matched to daydreaming contents. We expect negative affect to accompany a daydream about bombing an interview, and positive affect to accompany a daydream about idling in a Parisian café.¹⁵ When recalling dreams during sleep, on the other hand, our emotions might be mismatched to contents. In a dream, something innocuous can feel sinister. We might also witness horrors in dreams while remaining emotionally flat.

In addition to affective salience, the movements of daydreams are also largely constrained by *narrative salience* and *content salience*, meaning respectively that one imagined event follows coherently from the former in a narrative sequence, even in the absence of rational deliberation, and that the contents of the daydream are appropriately close to one another. That is, a typical daydream would look more like “my spouse takes my hand, and we walk together, looking for a picnic spot...” and less like “my spouse takes my hand, then becomes a giant snail that is also somehow my mother, then I realize I am unclothed in a school that is also a mall, surrounded by giant ants...” But night dreaming narratives can be strange indeed, and even realistic dreams often have surreal elements.¹⁶ For instance, in a mundane dream about moving into a new apartment, I might ignore the window’s view shifting from ocean to forest.

Questions about affective salience and narrative salience in daydreaming and night dreaming are related to a larger, open question about the frequency

¹⁵ We often think of daydreams as being positively valenced. However, we do not take positive valence as a defining feature of daydreaming.

¹⁶ This is not to suggest that we cannot experience highly realistic night dreams. Consider, for example, “false awakening” dreams (see Thompson, 2015, p. 192). It is unlikely, on our view, that normal waking imagination could generate an experience like this.

and intensity of bizarre experiences across these states (see Kirberg, 2022). We would tentatively expect to see less bizarre daydreams than night dreams. Some studies on dreams and waking fantasy bear this out. In a meta-analysis of mind-wandering and daydreaming studies, Fox and his co-authors find that “Dreams are more bizarre than thoughts, even among those whose thoughts are more bizarre than average” (Fox et al., 2013, p. 4), with bizarre elements nearly twice as common in dreams. However, Antrobus et al. found that, according to their measures, daydreams—understood as Spontaneous Thoughts and Images (STIs)—are more bizarre than night dreams (Antrobus, 2018, p. 127). And a number of studies suggest that very bizarre dreams, though memorable, are less common than we might suppose. Domhoff argues that “several laboratory studies showed that [dreams] are far more coherent and faithful to waking life than is usually recognized by psychologists and neuroscientists not familiar with the literature on dreams” and that “so-called ‘typical dreams,’ such as flying, losing teeth, or appearing inappropriately dressed in public, which many people report they have experienced, are actually extremely rare, less than 1% of dreams” (Domhoff, 2018, p. 357). Conceptual clarification around daydreaming might help to answer questions about bizarreness in guided as opposed to unguided waking imagination in future studies. But to discuss bizarre contents ushers us into the territory of imagination, which we explore below.

4 Daydreaming vs. mind-wandering and night dreaming as imaginative experiences

We now turn to imagination, giving an account of what it means on our view for an experience to be imaginative, and for sensory imaginings to have an “immersive” experiential structure. We explore and draw tentative distinctions among the kinds of imaginative activity we tend to encounter in the context of the three target domains under investigation with respect to degrees of immersion. We suggest that while “visual thought” is a common mind-wandering format, visual thought differs from the more immersive experiences that distinguish prototypical daydreams on our view. We argue that immersion is a graded construct, and acknowledge that daydreaming immersion typically falls short of night dreaming immersion. We then turn to the role that perceptual coupling and decoupling and meta-awareness play in shaping experiences across these states. Like mind-wandering, daydreaming often involves dynamic shifting of attention between thought and perception, and these shifts are generally unmarked by explicit meta-awareness. We speculate that in daydreaming, however, we tend to be more “rapt,” with attention inflected more to inner worlds. However, relative to night dreams, the virtual worlds of daydreams are “translucent” to the external environment; and unlike night dreams, daydreams likely cannot be hallucinatory.

4.1 Sensory imagination and immersion

Here, we understand “imagination” as speculative, imagery-involving mental experience. To imagine x is to represent x as given to experience without any commitment to x actually occurring (Martin, 2002, p. 404; see Thompson, 2007, pp. 291–297). Imagination is speculative in the sense that imaginings are untethered to beliefs: we can imagine things we do not believe (though we can also imagine things we do believe). In imagination, we “dwell in possibility,” as Emily Dickinson writes; we improvise and invent. In the contemporary analytic tradition, imagination is often understood in propositional terms: to imagine x is to entertain a belief that x is the case, regardless of any actual belief that x is the case (Caruthers, 2002; Goldman, 1992; Harris, 2000; Moran, 1980; Nichols, 2004). There is also “perception-like” or sensory imagining (imagining experiencing x). You can propositionally imagine that you ride a mastodon across a tundra. In doing so, you might also imagine cold wind buffeting your parka, your fingers entwined in wiry reddish hair, your seat shifting with each lolloping gait, giant tusks swaying rhythmically, and so on. Amy Kind (2001, 2022) has argued that imagery is a necessary component of imagination, because, for one thing, imagination without imagery reduces to bare supposition. Here, we assume that imagination is imagistic.¹⁷ Imagery includes all sensory modalities, not just vision: we might have somatic, kinetic, auditory, affective, or olfactory imagery. To imagine sensorially is to mentally simulate perceptual experience. (Thompson, 2007, pp. 291–297; 2015, pp. 178–184). Importantly, we experience the contents of imagination *as* imagined: they are given to us as imagined perceptual experiences, not as actual perceptual experiences.

Here, we emphasize “immersive imagination,” understood as sensory imagination characterized by a sense of phenomenal presence in an environment. Immersive imagination tends to be more rich, complex, and vivid, but Windt (2021) clarifies that primarily, “immersion is a structural feature of the organization of experience.” She suggests that “the difference between watching a film on a cinema-screen and having an immersive and interactive virtual reality experience” can help illuminate the concept of external as opposed to immersive imagery experience (2021, p. 6). Sensory imagination may appear across all three target subtypes of spontaneous thought, but these imaginings can vary in terms of their immersiveness, partly in virtue of variable levels of perceptual engagement with the external environment.

¹⁷ How might thinkers with aphantasia—an absence of visual mental imagery, and sometimes other modalities of mental imagery—daydream? Though imagery need not be visual, it is hard to support a picture of daydreaming on our view without at least minimal mental imagery in at least one sensory modality. It may be that aphantasic daydreaming is a border case, or that those with aphantasia daydream less, or possibly that hypothetical thinkers without any imagery whatsoever across any sense modality do not daydream in our more narrow sense. We believe this is an open question meriting further study.

4.2 Degrees of immersion 1: mind-wandering vs. daydreaming

On our view, all daydreaming is imaginative, but not all waking spontaneous thoughts involve imagination. For one thing, mind-wandering need not be speculative or improvisational. We spontaneously make observations, recall facts, or calculate sums, for instance. And thought need not involve imagery: we may think abstractly or verbally. The mind-wandering content “choosing a Halloween costume” suggested above may simply take the form of a sentence: “What if I dress as Robin Hood?”

Still, separating imaginative from non-imaginative thought poses some difficulties. After all, many thoughts manifest as, or are accompanied by, mental images in varying degrees of vividness. “Choosing a Halloween costume” might involve manipulating images of oneself in a series of potential clothing combinations. Some studies suggest that visual thought is more prevalent than verbal thought (see e.g. [Amit et al., 2017](#)). Consider a thought like “I should water my garden.” Instead of a verbal proposition, this thought might instantiate in a series of mental images, such as a red heatwave depicted on a weather map, the texture of dry crumbly soil, and an impulse towards the door. Like all mental images, these experiences are minimally sensory and embodied: the map is seen visually as if by one’s own eyes, the soil felt tangibly as if by one’s own hand, the impulse felt kinetically as though in one’s own body. But mere “visual thinking” is imaginative only in a thin sense. Imaging is not necessarily imagining. A more robust sense of “immersive imagination” implicates presence in a fictive, unfolding, simulated scenario. There may be moments in which fleeting mental images can instantly possess and transport us in this way. But we expect several features of mind-wandering to inhibit a sense of immersion in fleeting thoughts outside of the daydreaming context. The “fleeting” pattern itself should be inhibiting, as should the dynamic shifting of attention between internal and external stimuli, discussed below. Rich, immersive imagination feeds on duration and absorption.

We predict that, partly because they often form eddies in the stream of spontaneous thought, full-blown daydreams are *more* immersive than other mind-wandering contents, even when those other contents involve speculation or fleeting mental imagery. For instance, when restraints on thought loosen, I may spontaneously fantasize about gardening: I might feel the satisfaction of yanking weeds up by the root and of lettuce bouncing under a shower of cold water from the hose—I may even shift my sense of phenomenal presence, pretending to “feel” from the fictional perspective of the hot wilting lettuce leaves as they soak up water, cooling and stiffening. I may linger on feeling the sun baking the top of my head, choosing cucumbers for a salad, nibbling on cilantro, and so on. But I do not just imagine one detail at a time: I attend to details in the context of a cohesive sense of *being in the garden*, with a sky above me and a yard around me. This daydream differs from the image-laden thought “I should water the garden” in

several respects, some of which we have discussed. It holds together seamlessly as a unit, and it is idle and purposeless. In it, I also engage my sensory imagination in a robust way: I speculate about a situation that is not currently instantiated, and I imagine perceiving across sense modalities. Importantly, it is also more immersive than the brief thought “I should water the garden.” Though merely visual thought may be experiential to some degree, this alone does not implicate immersion. As Windt specifies, “an immersive experience depicts not just an object or even an integrated scene, but a world, and it places you at its centre” (2021, p. 6). Geniusas also suggests that daydreaming, unlike mind-wandering “forms a specific world,” which is actually “dream world” (2023, p. 50).¹⁸ On our view, daydreams often place us at the center of a world to at least a minimal degree, and are more immersive than most other spontaneous mental experiences.

When I spontaneously recall a past experience and feel I am “really there” again, am I daydreaming? Memories can certainly have a feel of immersive phenomenal presence. On the one hand, we do not store perfectly faithful, photographic mental representations of our perceptions and then reference them: the process of remembering involves imaginative reconstruction and confabulation. We usually remember partially even when we remember well, and many features of memories are indeterminate. In addition, when we speculatively imagine, the scenes we construct are often at least partially constructed from past memories. Distinctive of memory, however, is its positing of what is imagined as being in the past, or having a sense of pastness. Memories of the past are tagged as such, and this sense of pastness separates memories from other imaginings. Our view is that whenever remembering moves explicitly into the speculative—that is, when one replays the past in fantasy, immersing oneself in it, but also altering it to live it differently—then this is imaginative activity. When we *spontaneously* begin to imagine how things might have gone otherwise in this way, then, we are daydreaming. We can daydream about the past, and imaginatively manipulate memories through daydreams. This is to say that some daydreams recruit memories, but not all memories are experienced as daydreams.

4.3 Degrees of immersion 2: dreaming vs. daydreaming

Though “dreaming” in the sleeping state also lacks a settled definition, theorists are converging on the simulation theory of dreaming introduced above. Whereas earlier theories equated dreaming with any kind of experienced cognition in sleep, according to the current simulation view not all mental experiences in the sleeping

¹⁸ We agree with Geniusas that when we daydream, we inhabit worlds, and that we can navigate two worlds simultaneously in daydreaming. His analysis of this layered mental experience using the resources of phenomenology is an important contribution to the philosophy of daydreaming, and we are sympathetic to his approach. We think it remains to be seen, however, whether daydreaming is in fact “a mode of sleep,” or “a sleeping wakefulness” (Geniusas, 2023, pp. 49–50), and are skeptical that “inhabiting two worlds simultaneously” in fact “distinguishes DD from all other experiences” (Geniusas, 2023, p. 50).

state count as dreams (Windt et al., 2016). Sleeping consciousness may include hypnagogic experiences during sleep onset, propositional thoughts, sub-vocalization, kinesthetic imagery, and isolated static images (Nielsen, 2000), as well as minimal phenomenal awareness during dreamless sleep (Windt et al., 2016). In contrast, dreaming, on the simulation view, is distinguished from these other sleep experiences by a sense of presence or immersion in a simulated fictive environment (Revonsuo et al., 2015, 2015; Windt et al., 2016; Windt, 2018). Dreams on this view can be understood as embodied simulations which draw on sensory input across modalities. Numerous dream studies revealing increased activity in secondary sensorimotor and visual areas in the brain during sleep, suggesting that imagery is experienced somatically and kinetically by a dream-body in motion, support this definition (Domhoff, 2018). The simulation view of dreams, while still subject to debate, offers a helpful framework for conceptualizing daydreams.

Windt (2010) analyzes night dreams as instances of sleeping-state ISTH: Immersive Spatio-Temporal Hallucination. Whether the sense of immersively inhabiting a fictional world in night dreams is best understood as a kind of hallucination is debated. Dreams are also sometimes understood as spontaneous imagination in the sleeping state (Ichikawa, 2008, 2009; McGinn, 2006; Thompson, 2015). Explaining the immersive character of night dreams in terms of spontaneous imagination dovetails nicely with the view of daydreaming we set out here, and invites comparisons between waking and sleeping imagination. For instance, Jonathan Ichikawa writes:

On the imagination model, dreams are very much like vivid daydreams, entered into deliberately and voluntarily. Lose yourself enough in your daydream, and you will feel, in some sense, as if you are really there. That's not to say you falsely believe the contents of the daydream to be true. Our dreams in sleep are, on the imagination model, like that (2009, p. 119).

But whether we endorse the spontaneous imagination model, the hallucination model of dreaming (Rosen, 2021; Rosen, 2018), or another model (e.g. Windt, 2020), these explanations are directed at the same observation: when we dream, we feel a sense of “phenomenal presence,” often located in or focused upon an “alter-ego” with which we identify, and in relation to which we perceive a dream environment.

We predict that just as full-blown dreams are distinguishable from hypnagogia and static images in the sleeping state on the simulation theory, so full-blown daydreams are distinguishable from fleeting mental imagery in the waking state: daydreams involve sensory imagination that is immersive—to some degree. We do not take it that daydreams are immersive to the same extent or in just the way that night dreams are, but we find that phenomenological reflection confirms what Windt articulates as the “possibility that immersion is a complex, graded construct and that daydreams fall short of dream immersion in some but not all respects” (2021, p. 11).

Setting spontaneity aside for now, there is good reason to think immersion is a graded construct with respect to imaginative activity. Consider that merely summoning a scene to mind may not immediately bring it about that I am highly immersed, engaged, and absorbed in a rich simulated environment. Imaginative supposition in this thinner sense is unlikely to be highly immersive unless I elaborate details of the fictional environment. Given the right imaginative capacities, we are able to fill in a sketchy and highly indeterminate mental image of a particular environment such that we experience it as increasingly dense, rich, and determinate. Consider, too, the way novels can pull us into a story-world built from our own compelling, embodied imaginings based on the text. Elaine Scarry has pointed out that imagining under authorial instruction is often more vivid than imagining while daydreaming (1995). Deliberate creative visualizations—in which authorial instruction is self-generated—can rival absorbing reading experiences. Think of children’s games of make-believe, or a meditator’s visualization exercises.¹⁹ Of course, these imaginative activities are highly guided. Are they immersive only in virtue of their guidance?

We suspect that guidance is not the whole story. Because guided imaginative episodes and deliberate fantasies involve intentionally bringing the attention back to the theme of the episode whenever it wanders, they also encourage duration and absorption. As we have seen, however, spontaneous imaginings in the context of daydreaming also exhibit duration and absorption. It may be that these features alone, in the context of spontaneous thought, encourage increasingly immersive imaginings. On our framework, the conditions for immersion can emerge without deliberate authorial guidance. This prediction is borne out by phenomenological reflection on our own experiences of daydreaming. We expect that further research will bear out Ichikawa’s observation above: “Lose yourself enough in your day-dream, and you will feel, in some sense, as if you are really there.” We often find ourselves “lost” in daydreams, and this experience can lend itself to increasing immersion in the absence of deliberate guidance or explicit meta-awareness. Recall, too, that daydreams are *minimally* immersive, in that they feature a rolling sense of phenomenal presence in a here-and-now: our experience seems to be centred

¹⁹ Also potentially interesting are reported cases of so-called “reality shifting” (Somer et al., 2021). Practitioners report entering perfectly lifelike and fully immersive virtual worlds in the waking state. Many of these imaginers take themselves to be literally “shifting” into alternate realities, much like other vivid imaginers and lucid dreamers have taken themselves to be astral projecting. While their explanations are suspect, the phenomenon itself may merit investigation. Because shifting techniques are similar to lucid dreaming techniques, it is possible that shifters have unknowingly fallen asleep, and that theirs are simply sleeping experiences of lucid dreams. Determining whether this is the case may help clarify whether, as Domhoff predicts, “dreaming depends on an adequate level of brain activation in the absence of external distractions, not on the neurophysiology of a particular sleep stage” (2018, p. 355). One reason to suspect that there may be a “bright line” between sleeping and waking states with respect to imaginative immersion is that many people with aphantasia—weak or non-existent visual mental imagery—have fully visual, vivid, immersive night dreams. On the other hand, it is also possible that people with aphantasia can have some mental imagery in sensory deprivation conditions.

on a felt perspective within some environment. On our view, daydreaming imagination involves *at least* minimally immersive imagination, but can also *become* more vivid and more immersive under certain conditions. We are neutral on what these conditions might be. While increased absorption, duration, or elaboration are likely to facilitate increased vividness and immersiveness, these conditions are by no means required. For instance, a skilled imaginer (Kind, 2020), a vivid mental imager (Cui et al., 2007), or a child (Gulyás et al., 2022) might simply produce more immersive imaginings than an unskilled imaginer, someone with low levels of mental imagery, and an older adult, respectively.

Though vividness, intensity, and immersion in waking spontaneous imagination are understudied, based on evidence from first person reports of night dreaming and mind-wandering, Fox and his co-authors conclude that “the sensory aspects of dreams are far more immersive and intense than during waking spontaneous thought” which though often “tinged with audiovisual aspects” falls short of the 3-dimensional virtual reality afforded by night dreams (2013, p. 7). Because Fox and his co-authors define mind-wandering as “undirected thoughts during wakefulness (whether deviating from, or in the complete absence of, a task)” (2013, p. 2), it is difficult to draw conclusions about daydreams as we understand them—but if we take daydreams as the subset of spontaneous thoughts “tinged with audiovisual aspects,” this study suggests that daydreams are less vividly immersive than night dreams. This is unsurprising. More surprising are findings that daydreams can be more sensorily vivid than NREM nap dreams (Carr & Nielsen, 2015). In addition, outlying cases of daydreamers with “hyperphantasia,” who report imagery “as vivid and real as seeing” (Milton et al., 2021), might be exceptions to this rule. However, we expect that daydreams, while more immersive than other forms of waking spontaneous thought, almost always fall short of night dreaming immersion, given that night dreams are usually *fully* immersive. They are fully immersive in the sense that they seem just as real and engrossing as real experiences, and in some way occlude or replace real environments, rather like a virtual reality headset might. In contrast, a less than fully immersive imaginative experience is “translucent” to the perceived environment, as discussed below. Indeed, some night dreams can be not only fully immersive, but incredibly lifelike and realistic. Lucid dreams often have these features (see Thompson, 2015, p. 192). The fact that night dreams tend to exhibit more perceptual decoupling with respect to the external environment and an absence of meta-awareness of the fact that contents are imaginary could partially account for this full immersion. Below, we analyze these features in relation to imaginative experiences across our target subtypes of spontaneous thought.

4.4 Perceptual decoupling and meta-awareness 1: mind-wandering vs. daydreaming

Mind-wandering is generally associated with what Schooler and his co-authors (2011) call the “cyclic activity of two core processes,” namely, perceptual decoupling and meta-awareness. During mind-wandering, attention fluctuates between thoughts and perceptions, intermittently coupling and decoupling from the environment (Schooler et al., 2011). We often negotiate the world and perform tasks even as our minds wander. Attention does not implicate explicit meta-awareness: generally, our attention shifts without our notice. Inflecting attention towards one aspect of awareness does not eliminate other aspects: for example, the calculating electrician and the fantasizing pianist above distribute attentional resources to different tasks when they think with busy hands. In mind-wandering, we experience our thoughts and our percepts as dynamically integrated, in that percepts may cue chains of thought, and topics that arise in the stream of mind-wandering may, in turn, guide our attention to certain aspects of our environment. At the same time, a number of studies show that mind-wandering inhibits sensory “processing and encoding” (Blondé et al., 2022; e. g. Smallwood et al., 2003).²⁰ Mind-wandering thoughts, however, accompany or connect to an actual environment, the contents of which are given to us as perceived. In mind-wandering, we do not navigate worlds within worlds: we experience streams of thought contiguous with our presence in a perceived external world.

In daydreaming, too, attention shifts dynamically between inner and outer experience, and these shifts are seldom marked in explicit, propositional meta-awareness. Real percepts can act as associative cues for daydreams, and daydreams can also attenuate and influence outward attention. In daydreaming, however, we *do* navigate worlds within worlds. Perhaps because they often immerse us in imaginatively perceived environments, daydreams can be captivating. We might expect absorption in immersive daydreams to more reliably inflect attention towards their contents. When we daydream, we are often rapt. (Think of a friend waving their hand in front of a daydreamer’s glassy, distant stare to bring them back to reality.) Generally, however, even rapt attention to imagined contents does not preclude navigating external environments or even multitasking—for instance, we might easily drive while daydreaming (if not as safely). Daydreaming does not compromise our ability to perceive the highway, because imaginatively perceived contents are transparent, or at least translucent, to perceived contents.²¹

Perceptual integration can also play a unique role in shaping daydreams. Unlike mind-wandering, daydreaming can take an augmented reality format. We often recruit real perceptual objects and environments into our daydreams. For ex-

²⁰ However, because task unrelated thought, mind-wandering, and daydreaming are entirely conflated within and across these studies, it remains unclear whether or not spontaneous immersive imagination suppresses memory formation more successfully than other types of spontaneous thought. We suspect that it may.

²¹ Again, daydreamers with hyperphantasia might theoretically prove exceptional here.

ample, say I have left a small gift on my colleague's desk: one I am sure she will love. While at work, I spontaneously imagine the sight of my colleague walking through the very door before me, approaching her desk, and noticing the gift (though I do not necessarily imagine that I am physically present to see this). I also imagine this sequence of events from her perspective, dislocating the center of this imaginative experience to an alternate vantage point. These daydreams have a sense of immersive presence in the here-and-now—but the “here” is the actual perceived environment, rather than a virtual environment, despite my projection of virtual contents. We might also project a physically present object into an imagined environment—say, wandering through Ikea and idly imagining different furniture items as they would appear in our own homes. Such perceptually integrated daydreams, we suspect, are very common. Consider a child playing with their imaginary friend, or a single person at a bar daydreaming about approaching an attractive stranger sitting nearby.

4.5 Perceptual decoupling and meta-awareness 2: night dreaming vs. daydreaming

In sleep, contents of experience are relatively decoupled from the external environment. We are not entirely closed off to external stimuli when we dream; some studies show that stimuli presented during sleep-onset appear more frequently in hypnagogic imagery (Horowitz et al., 2020), and others have shown that some bodily sensations, external sounds, and smells can mark dreams (Windt, 2018, p. 387).²² While we are dreaming, however, awareness of our embodied presence in the physical world is dampened (see e.g. Metzinger, 2004; Revonsuo, 2006; Windt, 2018). Attention tends to be coupled to fully immersive dream contents. Windt suggests that in the waking state, “the persistent flow of own-body experience could counteract the feeling of presence in an imaginary environment” and may prevent full immersion. While proprioceptive and external sensory experience can disturb or influence our night dreams, awareness of this sensory experience does not interfere with our sense of immersion in a virtual environment in night dreams (unless, of course, it disturbs our dreams to the point of waking us up).

In night dreams, of course, we *also* experience an environment, though that environment is virtual. This perceptual experience has peculiar features. For example, in dreams, the distinction between inner and outer life tends to break down in various ways. Though we can have internal thoughts in dreams, we can experience a strange commingling of thought and environment. While dreaming, one might have a subjective experience of “writing a paper” through a sensory experience of building cairns from stones. The dream environment itself is also permeable and responsive to our thoughts: for instance, one of us, in a recent night-dream about talking to an acquaintance, realized that the dream character did not resem-

²² Worryingly, many corporations, including Xbox, Coors, and Burger King, are investing in efforts to “engineer” advertisements into potential consumers’ dreams (Moutinho, 2021).

ble the actual acquaintance. Upon this realization, the face morphed to resemble its real-life target. This cued explicit meta-awareness of being in a dream—but instead of subvocalizing this thought, the dream-ego spoke it aloud, and the dream interlocutor concurred aloud. The propositional thought “this is a dream” was vocalized in the external dream environment, rather than subvocalized. Interestingly, in this case, explicit meta-awareness did not change the experiential structure of the dream: its features were still presented as real percepts, not as imagined percepts. In dream perception, the inner-outer distinction can break down, and unreal contents tend to be presented as real.

Some ways daydreams differ from night dreams with respect to perceptual decoupling are obvious: night dreams are relatively perceptually decoupled from the external environment, and daydreams are not. Potentially trickier is the question of whether spontaneous immersive imagination in the waking state can share the “hallucinatory” quality that dreams often have. Because the interesting and difficult question of to what extent night dreams are hallucinations is beyond the scope of this paper, we can instead ask: might waking hallucinations ever count as spontaneous immersive imagination in the waking state? Can daydreams be hallucinations? Strong hallucinations are subjectively indistinguishable from perceptions. They are in a sense mental images (auditory or visual, for instance) experienced *as* perceptions of real objects.²³ We suggested above that one can spontaneously entertain a perception-like, immersive imagining of a fictional object projected into a real environment. Might that imagined perception ever appear real? Though we have also suggested that imaginatively perceived objects are transparent to actually perceived contents and are generally less vivid and realistic than night dreams, we want to leave open the possibility that hyperphantasic daydreamers might be exceptional, given that some describe their imaginings as extremely life-like. We do not want to assume that waking imaginings are always diaphanous, or that imaginings and hallucinations differ only in degree.

However, because imagination typically structures experience in the waking state in a particular way, daydreams are not hallucinatory. These experiences are differently assessable through introspection. Here, it will again be important to recall the difference between explicit and implicit meta-awareness. While we tend not to reflect on the fact that we are imagining during daydreaming, we do have *implicit* meta-awareness that we are imagining, which becomes explicit the moment we turn reflective (Sartre, [1940] 2004).²⁴ That we are imagining is simply a feature of the structure of our experience, immediately available to introspection. That is, in the waking state, imaginatively perceived objects are given to us *as imagined*.

²³ Some have argued that hallucinations are best understood as aberrant types of imagination, and others have described them as aberrant types of perceptions (Allen, 2015). We are neutral with respect to this issue, but note that if we understand hallucinations as aberrant imaginings, the issue becomes more pressing.

²⁴ See Geniusas (2023), which presents a more detailed phenomenological account of the distinction between implicit and explicit awareness with respect to daydreaming.

A hallucination, on the other hand, is given to us in the structure of experience *as perceived*. This is the case even when it is tagged with explicit, propositional meta-awareness of the sort “that is a hallucination.” We can deduce that we are hallucinating through external verification (for instance, by exploring the image through other senses or confirming that another person does not perceive a suspicious object) but this deduction does not alter the structure of our experience: we still experience the hallucination as given to perception. And while daydreaming imaginings are usually unwilled, they are, like all imaginings, *subject* to the will. Hallucinations, even when recognized as such, do not generally present themselves as being completely subject to willful intervention or manipulation, though they can be modulated by suggestion.²⁵ Still, the relationship between daydreaming and hallucination may merit empirical study, especially in relation to the state-dependence question.

5 Applications to “Maladaptive Daydreaming”

We can now turn from our phenomenological and conceptual analysis to consider potential applications. The analysis of daydreaming we have offered may be relevant to ongoing debates about a phenomenon of recent interest in the psychological literature: so-called “maladaptive daydreaming.” Above, we noted that an author of a seminal study on maladaptive daydreaming had come to acknowledge that terminological confusion around mind-wandering, daydreaming, and fantasy in the literature had created “considerable confusion” (Bigelsen & Schupak, 2011, pp. 1635–1636). Our understanding of daydreaming could possibly help to conceptually clarify matters.

“Maladaptive daydreaming” or “excessive daydreaming” is an increasingly recognized psychological phenomenon (Marcusson-Clavertz et al., 2019; Pietkiewicz et al., n.d.; Sharma & Mahapatra, 2021; Soffer-Dudek & Theodor-Katz, 2022; Somer et al., 2016 Oct-Dec). The term was first defined as “extensive fantasy activity that replaces human interaction and/or interferes with academic, interpersonal, or vocational functioning” (Somer, 2002). Though earlier research on those with “fantasy-prone personalities” found them largely happy and highly functioning, subsequent research revealed imaginers whose enjoyable fantasies “concurrently imposed a bewildering and intensely private psychological burden which sufferers experienced as comparable to an addiction,” as Bigelsen and Schupak put it (2011, p. 1635). These imaginers also typically report extremely vivid and compelling imaginings.

While more research is needed, “maladaptive daydreaming” is a potentially problematic and, according to our view, possibly inaccurate designation. Bigelsen

²⁵ A recent study has shown that some voice hearers can attenuate or suppress auditory hallucinations (Swyer & Powers, 2020), but it is not clear that they do this through experiencing and manipulating the voices *as imaginings*. They still experience this auditory imagery as given to perception.

and Schupak prefer “compulsive fantasy” because this term better captures the specific problem their participants struggle with, and because “daydreaming” has historically been defined too broadly and contradictorily (2011, pp. 1635–1636). Our more specific designation of daydreaming, however, might support their conclusion. As we have seen, not all fantasies are daydreams on our view. Given a context of behavioral addiction, the compulsive imaginings that these “maladaptive daydreamers” report do not arise freely and easily. As Irving (2016) explains, rumination and obsessive thought are highly guided, even if they are not deliberately guided, and so should not be considered spontaneous. Compulsive fantasy is also often, in fact, deliberate, in that fantasizers intentionally and consciously enter and craft their imagined worlds, despite conflicting desires to do otherwise. In their study, Bigelsen and Schupak find that:

inability to control the fantasizing does not mean that the fantasies always appear effortlessly or unwillingly. Instead, even though the fantasies are often consciously brought forth, participants reported being unable to control their desire to create the fantasies (2011, p. 1644).

In contrast, daydreams *do* characteristically arise effortlessly and unwillingly on our account. Our model, then, distinguishes daydreaming from both compulsive fantasy and deliberate fantasy.

Though extant research on “maladaptive daydreaming” focuses on interpreting this imaginative activity as pathological, these studies also bring into view a population of unusually vivid imaginers. The intensely immersive imagery that compulsive fantasizers report may partly account for the attraction of these fantasies. To the extent that imagination is a cultivable skill (Kind, 2020), it might be that compulsive fantasizers imagine more immersively than the merely fantasy prone.²⁶

6 Conclusion

We can apply the concept of daydreaming to mental phenomena given the presence of a cluster of variously weighted features of experience: spontaneity, imagination, immersion, and wakefulness. This method can identify daydreams along various continua without imposing artificial boundaries. If an experience of immersive imagination occurs spontaneously in the waking state, then that mental experience should be considered a daydream. Because we only identify salient features which can be variously weighted, this demarcation admits of border cases, including, for example, daydreams with low mental imagery, extremely vivid and lifelike daydreams, habitual daydreams, or daydreams occurring in the liminal space between

²⁶ At the same time, Bigelsen and Schupak found that even for these extremely vivid daydreamers, “98% of participants responded that they had no difficulty distinguishing their fantasies from the real world and that they were aware that their fantasies were completely imaginary” (2011, p. 1645).

sleep and wakefulness. It does, however, distinguish daydreaming from more radically divergent mental activity, such as image-less thought, hallucinations, compulsive fantasies, or nap dreams, because these cases radiate too far from the core concept.

This phenomenological analysis of dreaming as opposed to mind-wandering and night dreaming has also illuminated a number of other features which are typical of, though not necessarily central to, daydreams. To review: waking-state episodes of spontaneous, immersive imagination, or daydreams, are typically characterized by a phenomenal sense of ease and often positive valence. Daydreams often form “eddies” in the stream of mind-wandering, held together by affective and narrative salience. Daydreaming contents often co-determine crafted visualization or fantasy contents. We expect to find daydreams more bizarre than other spontaneous thoughts and less bizarre than night dreams, partly because of their imaginative nature: when we daydream, we speculate about what might have happened, what could happen, or about all kinds of possible and impossible scenarios. The kind of imagination characterizing daydreams is also sensory and experiential, rather than merely propositional. Daydreams are more immersive than other waking thoughts, and less immersive than night dreaming. Percepts can be integrated and recruited into daydreams, though attention is often inflected towards virtual contents, and is only rarely punctuated by explicit, propositional meta-awareness. At the same time, daydreams are generally transparent to external percepts. We take it as encouraging that these phenomenal features, which we expect to be relatively uncontroversial, cohere with our definition of daydreaming.

We have here offered a conceptual and phenomenological clarification of daydreaming in general terms, but it will be important to complement this preliminary effort with specific phenomenological investigations using qualitative interview methods that work to elicit the more fine-grained texture of experience, for instance within the neurophenomenological research programme (Thompson & Lutz, 2003), or through the micro-phenomenological interview method (see e.g. Heimann et al., 2022). Further qualitative research can differentiate more precisely between mind-wandering, daydreaming, and deliberate imaginative crafting in terms of how subjects understand implicitly the experiential differences, for example in relation to their sense of agency as opposed to spontaneity.

Several additional questions for further research have emerged from this investigation. Is there actually a state-dependent mechanism determining the differences between daydreams and night dreams, or do they fall on a fluid continuum, against which waking and dreaming states only provide a backdrop? To what extent might daydreaming episodes differ from other spontaneous thought with respect to dynamic patterning? How well do we recall and recount our daydreams? To what extent do daydreams and deliberately crafted imaginings influence one another? Are daydreams more bizarre than non-imaginative mind-wandering thoughts, and can they be as bizarre as night dreams? What is the relationship between daydreams and mental play, or pretense? Do prototypical daydreams

have a positive valance? To what extent might daydreaming be ruminative? How do practiced, vivid imaginers—especially compulsive fantasizers—daydream differently? Is it possible for daydreams to be fully immersive? Is there a sense in which aphantasic thinkers daydream? Is it possible for extremely vivid daydreaming contents to be hallucinatory in the sense of being given as if to perceptual experience? Can we identify neural correlates of daydreaming? Our preliminary scouting of the territory can, we hope, help to answer these and other questions.

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