



Alcaraz Sánchez, Adriana (2019) *Conscious states during dreamless sleep: a philosophical and psychological exploration*. MPhil(R) thesis.

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**Conscious states during dreamless sleep:
A philosophical and psychological
exploration**

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Submitted in fulfilment of the requirements for the
Degree of Master of Philosophy in Philosophy

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August 2019

Abstract

Deep sleep has traditionally been deemed as a period that lack consciousness. However, recent evidence challenges this assumption and highlights the possibility of experiencing awareness during deep sleep. By drawing from Indian philosophical traditions, this thesis defends a positive view of consciousness during dreamless sleep – the period of sleep where we are aware but not dreaming. Moreover, this thesis also challenges classic views on the nature of conscious states where consciousness is reduced to representational content. For that purpose, this thesis develops a taxonomy of dreamless sleep that, contrary to other research in the area, considers the existence of different sorts of awareness with different degrees of content. Thus, a full spectrum of mental states during conscious dreamless sleep are considered: from awareness of substantial content to awareness devoid of content altogether. The aim of the thesis is to show how such a taxonomy can encourage a shift from a two-dimensional view of consciousness to a multidimensional one — from a view that only considers brain activation and reportable content to one that assesses conscious states on different level of analysis. This shift will result in an adequate conceptualisation of dreamless sleep as a period where we could have conscious states with content, but also, conscious states without content. Moreover, this shift on a multidimensional approach will allow us to undertake a proper comparison compare between different sleep phenomena.

In order to develop this taxonomy of dreamless sleep, I explore definitions on awareness during dreamless sleep found in Indian philosophical traditions and Western analytical philosophy. From the definitions found in the literature, I argue that all the types of conscious states proposed in my taxonomy can be identified. Then, I test my taxonomy in a pilot study about awareness during deep sleep that I carried out. The results show that the different types of awareness can be recognised in the phenomenological descriptions gathered from the participants. Finally, I compare the phenomenon of dreamless sleep with other associated experiences, such as dreams and hypnagogia. My claim is that the differences among sleep phenomena are gradual and that in some cases there is not a strict cut-off line between them. Notwithstanding this assumption, I defend the development of future research were my proposed taxonomy can be improved by considering typical cases of dreamless sleep.

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Acknowledgements

The following is the result of two years of research and work in an area in which I was already knowledgeable, but in a topic that I found more or less by chance. Whilst my first proposal was going to be focused exclusively in dream experiences, I found myself immersed in the interesting notion of dreamless sleep. For this, I am grateful to my principal supervisor Fiona Macpherson, who encouraged me to find out what was behind this peculiar concept of ‘lucid dreamless sleep’. Surprisingly, a new interesting world was opened to me and the perfect intersection between two of my favourite topics, the study of consciousness and the study of dreams, was revealed.

I could not have chosen a better time to look into this topic. As a result of my research, I had the chance to start my friendship and collaboration with Thomas Metzinger, to whom I am really grateful for his support, encouragement and philosophical ideas. The minimal phenomenal experience’s project allowed me to focus on my research which led to very fruitful results. I expect this to be the beginning of a long-term project.

I would also like to thank my other supervisors, especially Maria Gardani for providing so much help with the empirical part of this project. I am also grateful for having had the opportunity to work in such a welcoming environment at the Philosophy Department at Glasgow University and to all the philosophy folks for their moral and academic support. Especially, I am very indebted to Dario M(a)rtini for his friendship and encouragement and to Eilidh Harrison for her undoubtable support.

I also appreciate all the feedback received from the audiences at Birmingham, Frankfurt, Milan, Witten and Glasgow where parts of this work was presented. Parts of this work should recognise the value of their feedback and the comments provided by Monima Chadha, Raphaële Millière and Jennifer Windt.

Finally, my special thanks to Victoria Lavoreiro for the intense proofreading and for loving me from the other part of the world. And last, but not least, to Calam, who truly believes in me and followed me to the North.

Author's declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Adriana Alcaraz Sánchez

28 August 2019

Introduction

Traditionally, sleep research has been focused in investigating a phenomenon well-known by all of us: dreams. In folk psychology terms, we understand dreams as a wakefulness-like experiences had during sleep; an experience in which we are completely immersed in what we think is reality but in fact is a simulated world. In dreams, we experience things that do not exist, and things that are not possible to experience in wakefulness; we can fly, we can be someone else and we can travel in time. However, the focus of research of this thesis are not dream experiences, but what is considered as their counterpart: dreamless sleep experiences. For now, it will suffice to conceptualise dreamless sleep experiences as experiences happening during sleep that cannot be considered as dreams. Before going in more detail on dreamless sleep, first we should consider some basic notions in sleep physiology.

The canonical taxonomy of sleep divides sleep in 2 major states: REM and NREM sleep (American Academy of Sleep Medicine, AASM, 2007). REM sleep is one of the most well-known sleep phases because it has traditionally been related with dreams. When awoken from REM, we usually report full-fledged and vivid dreams — an immersive experience during sleep that resembles wakefulness. REM sleep is also called *paradoxical sleep* because is a period of sleep that shows very similar electrophysiological features to wakefulness. This phase also receives the name of *Rapid Eye Movement* (REM) because our eyes start moving from left to right while the rest of the body remains paralysed. During REM sleep, the brain displays low-amplitude waves, which are related to high levels of arousal.

NREM sleep is the first kind of sleep state to appear when we are falling asleep and consists of three stages: N1, N2 and N3. Stages N1 and N2 also receive the name of *Light-sleep* because during them it is very easy to return to wakefulness. While N1 can be better described as a state of drowsiness where the brain is still functioning quite fast, in N2 brain waves start to slow down. N2 is characterised by two EEG features, *sleep spindles* (bursts of oscillatory brain activity) and *K-complexes* (high voltage waves). N3 is also referred to as *Deep Sleep* because it is very difficult to wake up from this stage. Deep sleep is characterised by low brain activation produced by Delta Waves, a type of cerebral activity of very high amplitude (0.5 to 2 Hz). During this stage, the brain is functioning very slowly and for this, it is also described as a state of very low arousal. Similarly, there is fewer recollection of mentation during this state, which is thought to be the consequence of a breakdown in cortical connectivity (Massimini et al. 2005; Tononi and Massimini, 2009).

These electrophysiological features of deep sleep have led theorists to conclude that during deep sleep we are not conscious. Therefore, dreamless sleep is considered as that period of sleep where we are not dreaming, typically associated, but not exclusive, to N3.

The two-dimension model of consciousness (Laureys, 2005; Mormann & Koch, 2007) supports claims about deep sleep as a period where consciousness is lost. According to this model, we should classify consciousness states according to two directly correlated parameters, level of brain activation (arousal), and the complexity of the reportable content (awareness). The higher the level of arousal, the higher the level of awareness, and thus, the more content reported. Similarly, the model predicts that, a state of low activation, such as N3 or deep sleep, would result in the absence of awareness. Therefore, this model implies a view of consciousness in terms of levels or degrees: an individual is in a state of consciousness or another depending on their level of consciousness (calculated by their amount of arousal and awareness). However, this conceptualisation of consciousness as something that comes in degrees has been recently challenged (see Bayne, 2007; Bayne, Howhwy and Owen, 2016). This thesis supports this challenge on the two-dimensional model by focusing on the evidence of conscious states during dreamless sleep. I take the evidence on the presence of consciousness during deep sleep as the starting point to argue for a multidimensional model of consciousness — a model that permits the comparison between states of consciousness based on different dimensions of analysis. Contrary to a two-dimensional model, a multidimensional model of consciousness would allow a better understanding of the phenomenology of dreamless sleep that is not merely based on the physiology of such state (neural activation), but also on other parameters (e.g. gating of the content, availability of the content). By developing a multidimensional model, we will be able to account to dreamless sleep as a period where we can have conscious mental states, and not as a period of ‘deep sleep’; a period with lack of activation. Moreover, a multidimensional model will allow the conceptualisation of several mental states during the same global state (i.e. multiple conscious states during a period of dreamless sleep). However, is the presence of awareness during deep sleep enough to challenge the two-dimensional model of consciousness? And what would this challenge imply for conceptions on the nature of consciousness?

First, if it is possible to be aware while in a state of very low brain activation such as deep sleep, should we still understand awareness as directly related with the level of arousal? The existence of periods of awareness during deep sleep calls into question a two-dimensional model. It also asks for a new taxonomy of sleep that considers the possibility

of awareness during states of relatively low brain activation (i.e. deep sleep). Recently, new studies on sleep research have addressed the issue whether consciousness remains during deep sleep by investigating in more detail the physiology of this period (Massimini et al. 2010; Nieminen et al. 2016; Siclari & Tononi, 2017, Siclari et al. 2017; Lee et al. 2019). These studies have resulted in different views on the neural organisation of deep sleep. Some of these views support the idea that sleep appears locally in the brain. For instance, there is evidence that deep sleep is not uniformly distributed along the cortical surface and thus it can appear in some regions at a different time (Siclari & Tononi, 2017). Recent studies have also evidenced the non-uniform appearance of NREM in different sleep conditions (Christensen et al. 2019; Gorgoni et al., 2019), which highlights the possibility of variation of sleep architecture in different subjects. Consequently, if sleep can be a localised state — does not happen in all the brain at the same time — different sleep phenomena can occur during that period.

Second, if conscious states during deep sleep can occur, how can we explain the phenomenology of those experiences? Changes in the sleep physiology of expert meditators shows the possibility of periods of awareness during deep sleep (Ferrarelli et al., 2013; Dentico et al., 2016; Maruthai et al., 2016). This evidence is accompanied by reports made by the same individuals reporting having been aware during sleep in the absence of dreams and, moreover, having had instances of contentless awareness (Alexander et al. 1990; Mason et al., 1997; Mason & Orme-Johnson, 2010). If such reports of consciousness allude to a conscious experience that is contentless, how would this affect current notions of consciousness? The presence of such states would call into question one of the main views on philosophy of mind about the nature of conscious states like representationalism, which identifies conscious states with representational states (Dretske, 1995; Tye, 1995). Representationalism is one of the dominant contemporary approaches on the nature of consciousness where the phenomenal character — the what is likeness of our experiences — is reduced to a representation. If it turns out that we can be conscious without being aware *of anything*, no intentional content whatsoever, representationalism will be deemed false.

Summing up, dreamless sleep offers an interesting case for the study of consciousness because it calls into question traditional views on the nature of conscious states. While it seems intuitive to assert that during REM sleep — a period of relatively high brain activation — we experience dreams, neuroscientific research shows that dreams can be experienced during other sleep stages (Foulkes & Fleisher, 1975; Foulkes & Scott, 1973; Foulkes & Vogel, 1965; Vogel, 1991). Moreover, there is also evidence that other sort of

dreamless sleep phenomena can also be present (Alexander et al. 1990; Mason et al., 1997; Mason & Orme-Johnson, 2010; Ferrarelli et al. 2013; Dentico et al., 2016; Maruthai et al., 2016). As such, the main argument for this thesis is that different states can be distinguished during dreamless sleep and thus, we need to develop an adequate taxonomy that allows us to identify and capture all of them. In the case of sleep, this would imply considering deep sleep as a state where different conscious states can appear. Therefore, we should develop a taxonomy of sleep phenomena that permits the existence of different conscious states in a same global state (i.e. deep sleep). Similarly, the construction of such a model will also question the use of ‘deep sleep’, as implying lack of awareness, to refer to dreamless sleep.

Although some work on conscious dreamless sleep has begun (see Windt, Nielsen and Thompson, 2016), previous research on this area has not considered the whole picture. The descriptions of conscious dreamless sleep, far from homogenous, provide an obscure account of this state that makes difficult its philosophical analysis. Is it actually conscious dreamless sleep a state different from dreams? Does this state take more than one form? How can we be sure that reports of awareness during sleep are reports of conscious dreamless sleep? With the aim to provide answers to these questions, I introduce a novel taxonomy that considers a priori all the kinds of dreamless sleep states that there could be. This taxonomy serves twofold. First, it situates previous research and clarifies the use of notions such as ‘bare awareness’ or ‘contentless states’ found in the literature. Second, it creates a framework in which to develop empirical work on dreamless sleep. For this purpose, this thesis is divided in two parts. On one side, I revisit previous definitions on awareness during dreamless sleep and provide an alternative account to their interpretation. I argue that the definitions presented in the literature allude to different sorts of conscious states, and not solely to a state of awareness devoid of content, as it is claimed. On the other side, I present a pilot study I performed to gather phenomenological reports of consciousness during dreamless sleep. These reports, after careful analysis, are compared to the categories laid out in my taxonomy. I claim that conscious dreamless sleep experiences can take various forms, ranging from an awareness of substantial content to an awareness with no content whatsoever.

Chapter 1 starts by presenting a taxonomy of dreamless sleep that distinguishes between non-conscious and conscious states and between awareness with content and no content. With this, I distinguish among the possibility to experience during dreamless sleep: (a) non-conscious periods, (b) awareness of substantial content (AoSC), (c) awareness of minimal content (AoMc), (d) awareness of awareness itself (AoAi), and (e) awareness

devoid of content. With the exemption of the first, non-conscious periods, the rest of states are described as conscious states insofar as they preserve their phenomenal character — individuals report there is something it is like to be in those states. I argue that the difference among those conscious states is solely in the available content of awareness, but that in all cases, individuals should be regarded as having been ‘conscious’ during dreamless sleep.

In **chapter 2**, I analyse the definitions of dreamless sleep found in Indian philosophical traditions and focus on the accounts offered by the Advaita Vedānta, Yoga and Tibetan Buddhist traditions. Advaita and Yoga schools consider instances of awareness during dreamless sleep as a sort of awareness devoid of content that can only be remembered at a time later than being in this state (Āraṇya, 1983; Arya, 1989; Bryant, 2009). Meanwhile, Tibetan Buddhism considers the possibility of a state with content where we can gain lucidity of dreamless sleep (Rinpoche, 1998; Ponlop, 2006). I then move to the explication of the Transcendental Meditation programme (TM) on conscious states during deep sleep, called by their supporters ‘witnessing-sleep’. Similar to the Tibetan Buddhist tradition, the TM programme talks of a state of consciousness during deep sleep that can be reached through meditative practice. Moreover, TM proponents talk of witnessing-sleep as a state that can provide us with information about consciousness as such. In this section, I revisit the taxonomy presented in the introduction and I distinguish between AoAi and AdC in deep sleep by providing an alternative reading of the descriptions by Indian philosophical traditions.

In **chapter 3**, I present one of the newest accounts of consciousness during deep sleep in analytical philosophy by Jennifer Windt (2015a). According to Windt, Nielsen and Thompson (2016), we can distinguish between three different types of conscious phenomena during deep sleep. One of these types is a contentless state that receives the name of ‘lucid dreamless sleep’ (LDS). These authors also claim that LDS is a good candidate to study consciousness *itself*. Windt defends the assertion that LDS should be understood as an experience where only a sense of ‘pure temporality’ remains (2015a: 22) — a sense of just present time or ‘nowness’. I argue that if one accepts Windt’s account of LDS then we need to consider, in a way that Windt does not, whether LDS really is an experience of minimal content and whether consciousness itself involves an experience of content. Therefore, I argue that we should understand Windt’s proposal on LDS as a case of awareness of minimal content (AoMC) during deep sleep and not as a case of awareness without content.

In **chapter 4**, I compare the conceptual analysis carried out in Chapters 2 and 3 to the results of a pilot study that I have conducted on phenomenology during dreamless sleep.

I interviewed various participants experiencing instances of awareness during dreamless sleep using a qualitative research technique. During the analysis, four recurring experiences are identified: 1) Perception of absence, 2) Perception of self, 3) Perception of emotions, and 4) Perception of awareness. In each of these experiences, I isolate different categories, among them, awareness devoid of content. I conclude this chapter by outlining again the taxonomy of conscious dreamless sleep states and claim that different kinds of states can be recognised during deep sleep namely: (a) awareness of content, (b) awareness of minimal content, (c) awareness of awareness itself, (d) awareness devoid of content.

Finally, in **chapter 5**, I present two goals that should be addressed in future research to adequately develop a full taxonomy of sleep phenomena. First, we should be able to compare properly dreamless sleep to other associated phenomena, such as dreams and hypnagogia. Future research should acknowledge dreamless sleep as a *sui generis* phenomenon different to other sleep phenomena. Second, we should take a neurophenomenological approach where we combine neuroscientific research with phenomenology, thus, considering sleep research and subjective reports to explore the experiences had during sleep. With the adoption of such approach we will be able to develop an adequate taxonomy of sleep states that considers a wider variability of sleep phenomena.

Chapter 1: Conscious states during dreamless sleep

The main argument of this thesis is that, contrary to what has been traditionally assumed, we can distinguish among different conscious states during dreamless sleep. I challenge mainstream views of consciousness research in which consciousness is seen as what is lost during dreamless sleep (Tononi, 2008; Tononi & Koch, 2008). In this first chapter, I outline this taxonomy of conscious dreamless sleep by contrasting each of these states to some views held in philosophy of mind. In the following chapters, I examine previous definitions on awareness during dreamless sleep and compare them to my proposed taxonomy.

This taxonomy lays out all states that should be considered as possible candidates to describe mental states during dreamless sleep (see Figure 2). In chapter 3, I will expose in more detail what makes dream experiences different from conscious dreamless sleep experiences, namely, their immersive and simulative character (Windt, 2010, 2015a; Windt et al., 2016). For now, it will suffice to say that conscious dreamless sleep experiences are experiences had during sleep that do not meet the criteria to be classified as dreams. I argue that during this period several mental states are possible. It could be that none of these states is had, or that an individual has more than one of them

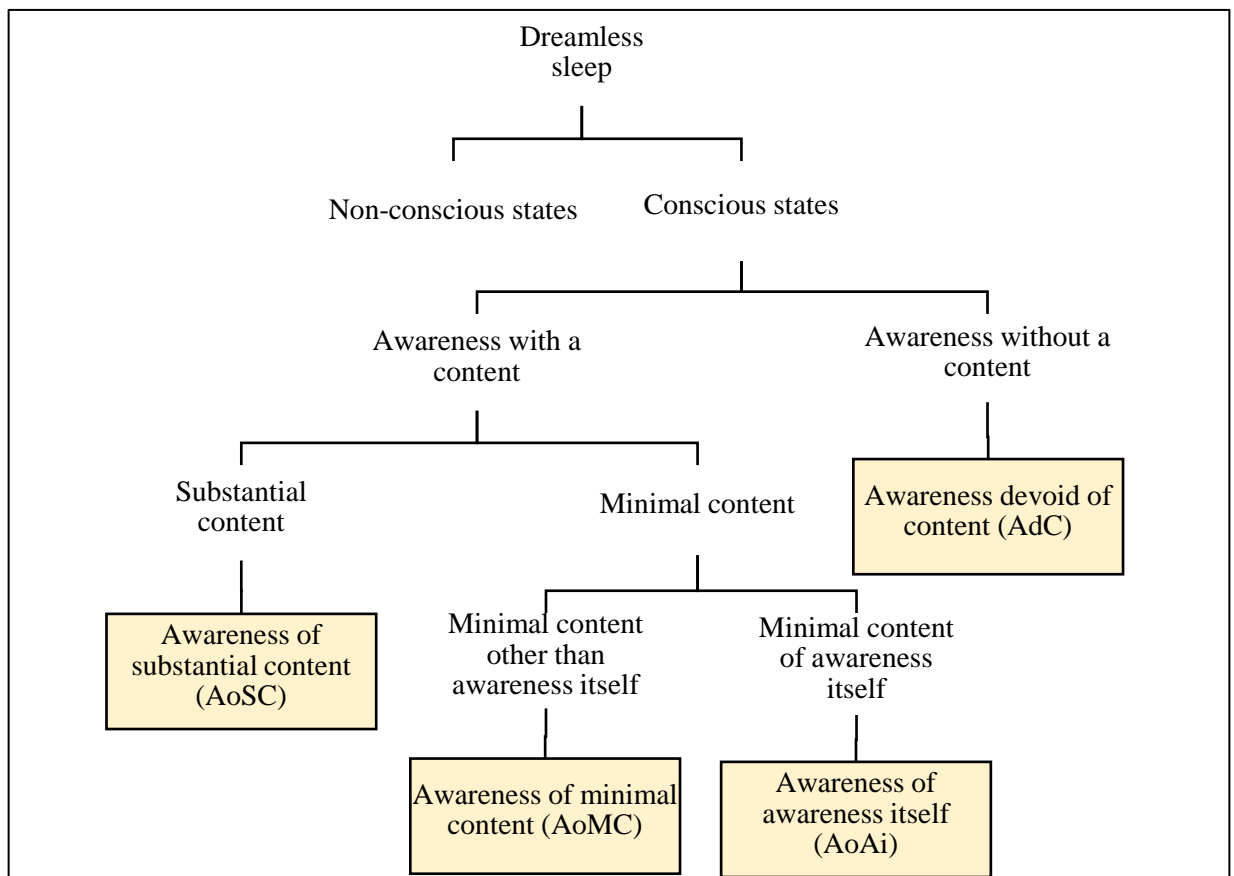


Figure 1 Taxonomy of states during dreamless sleep

1.1. Non-conscious states vs conscious states during dreamless sleep

First, we can distinguish between non-conscious and conscious states. On one hand, **non-conscious** states during dreamless sleep are those states that lack phenomenal character. By phenomenal character I understand the subjective experience of a mental state; the *what-it-is-likeness* of the experience (Nagel, 1974). During a period of non-consciousness during dreamless sleep, there was nothing it is for me to be in that state and thus, the state in question is not conscious. Here, I assume that if there was no phenomenal character of a mental state, there was no reportable experience. From that reason, although I acknowledge non-conscious periods of dreamless sleep — periods in which consciousness has been lost — I will not consider them in this thesis. These non-conscious states are the ones that have been majorly studied in sleep research and has led to the assumption that consciousness disappears in dreamless sleep. The argument has been that, if, upon awakening from dreamless sleep, we did not report anything, it is because there is nothing we can experience during dreamless sleep. On the other hand, **conscious** states during dreamless sleep are states in which I experience something it is like to be in them. I claim that there are instances during deep sleep in which consciousness remains and thus, I can have conscious mental states. We have good reasons to believe that there are conscious states during dreamless sleep from the large number of reports of conscious states during sleep. These reports are numerous and have been reported by contemporary subjects as well as by several Indian philosophical traditions over centuries (these will be presented in [chapters 2](#) and [3](#)). What I will do here is to set out all the forms of possible conscious experiences that there could be that are not dream experiences. From now on, I will refer to this period as *conscious dreamless sleep*.

Second, we can make a distinction in the content of a conscious state. By content, I mean what the mental state represents, that is, what it is about. States that have content are often called intentional states. When the content of a state takes propositional form, then the content is called ‘propositional content’. During conscious dreamless sleep, we can distinguish between states that have content and states that do not have content.

1.1. Contentful dreamless sleep: substantial content and minimal content

On the contentful spectrum, we can classify instances of awareness according to the complexity of their content. These are distinguished in basis of: (i) substantial content, or (ii) minimal content. First, I call awareness of substantial content (**AoSC**) states in which there is a perception (veridical or non-veridical) of an object of awareness. Instances of AoSC

usually take the form of propositional content, but they do not need to. I will regard as AoSC instances of awareness during conscious dreamless sleep in which the content of awareness is complex and thus, it might be similar to other forms of consciousness during standard wakefulness.

I claim that most occurrent conscious thoughts (sleep thinking), perception of body, and perception of simple and static hallucinatory forms (hypnagogic experiences) are examples of AoSC. During those states, there is usually a mental representation associated (i.e. ruminative thoughts) or veridical and non-veridical perception (i.e. the feeling of the own body in bed; the experience of hallucinatory forms). These states often (although need not only) happen while we are falling asleep, and so these states have been studied empirically under the term ‘sleep-onset experiences’ in the empirical literature. Sleep-onset experiences vary in form, from linguistic intrusions (Noreika et al., 2015; Speth, Schloerschedit & Speth, 2016), kinaesthetic images (Hayashi et al., 1999; Nielsen, 2017) to visual and auditory hallucinations. These last ones have been called hypnagogic hallucinations (Mavromatis, 1987) and can take more complex or simpler forms. These hallucinatory experiences are called hypnagogic phenomena (if happens during wakefulness to sleeping transition) and hypnopompic phenomena (if happens during sleeping to wakefulness). Hypnagogic experiences are described as different from dreams because they are not experienced as immersive experiences. Individuals usually report experiencing them as if they were watching a movie or if they were seeing a picture (ibid). On the contrary, in dreams, we have a full sense of immersion, including the sense of being present in place in time in an environment (Windt, 2015b). In chapter 5, I will analyse this distinction in more detail, and I will support the view that the transition between dreamless sleep and dreamful sleep is a gradual one. From now, I just assume that sleep-onset experiences, including hypnagogic hallucinations, are dreamless sleep experiences and thus, are not dream experiences.

Second, I distinguish among experiences that have a minimal content. These instances of awareness of minimal content refer to special cases of content that have been discussed in the literature of dreamless sleep. They also consist of a subtler form of awareness and thus, contrary to AoSC, they lack conscious occurrent thoughts and visual/auditory/kinaesthetic perception. Despite this lack of perception, forms of awareness of minimal content still involve awareness of some sort of intentional content. They are usually forms of non-conceptual content which is also non-representational. I distinguish between two sorts of minimal content: (i) a minimal content other than awareness itself (AoMC), and (ii) minimal content of awareness itself (AoAi).

The first sort (**AoMC**) can be found in contemporary literature of dreamless sleep. One example is the case of Thompson (2015a, b) who interprets the descriptions found on dreamless sleep by the Indian philosophical school of the Advaita Vedānta as instances of 'feeling of sentience'. Thompson describes this feeling as the bare feeling of being or feeling alive (2015b:11). He takes awareness during dreamless sleep to involve a minimal sense of embodiment to explain the presence of consciousness during this period. On a different note, Windt (2015a) describes awareness during dreamless sleep as the most minimal form of consciousness. According to her, this awareness takes the form of a pure temporal experience described as a feeling of 'nowness'. In this state, there is no feeling of passing time or any other temporal dimension — there is a bare feeling of the present moment, of presence. In both cases, Thompson and Windt describe instances of awareness during dreamless sleep that seems not to involve an object of awareness. According to these authors, these are forms of pure phenomenal experiences (they lack propositional content). However, I claim that descriptions taking the form of 'feeling of sentience' or 'feeling of nowness' should be regarded as AoMC. The reason for this is that, although the content of awareness is very minimal, we can recognise some sort of intentionality, i.e. towards 'sentience', 'nowness'. Similarly, this is a conscious state different from that of awareness devoid of content, AdC (see §1.3). This condition on having an intentional content that can be identified will be key to discern between AdC and AoMC.

Finally, instances of AoMC also includes the experience of 'nothingness' during dreamless sleep, instances where the individual reports having experienced 'nothing'. I claim that these instances of awareness of nothing should be regarded as mental states with intentional content (i.e. towards 'nothingness'). Thus, these states should be differentiated from instances in which there is an absence of content. The mental state is still directed at something (it has intentionality). Conscious states during dreamless sleep with minimal content (AoMC), can include the experience of different sorts of minimal content as long as this content is not about awareness itself.

The second sort of minimal content is awareness of awareness itself (**AoAi**). Here, I understand by AoAi a mental state that represents itself. In AoAi, the object of awareness is not some external object, but the same awareness. Therefore, we should not confuse AoAi with the experience of 'meta-awareness' such as "I'm right now having an experience of awareness". In this case, we have a higher order state in which we reflect on our own experience (i.e. I am reflecting about the fact that I am aware). Contrary, AoAi should better

be understood as an experience that is the “act of awareness and the object at the same time” (Kriegel, 2005:29). This is, thus, a reflexive state.

AoAi has been described previously in the literature of philosophy of mind by self-representational theories of consciousness. These sorts of theories allow the existence of a sort of awareness in which we are aware of awareness as an ‘object’. Self-representational theories consider awareness as self-intimating state: I can have direct awareness of awareness itself without needing to be aware of my state as such. An example of this is Kriegel (2009) who claims that a conscious state C is conscious in virtue of representing itself (p.16). Self-representational theories such as Kriegel’s claim that we can distinguish between two components in the phenomenal character of a conscious state: (i) qualitative character, and (ii) subjective character. The (i) qualitative character is what makes a conscious state the phenomenally conscious state it is, while (ii) subjective character is what makes a conscious state a conscious state at all (Kriegel, 2009: 2). It is this second component what explains awareness of awareness, which in turn it is a self-representing state.

Following this, for a state to be considered an AoAi, what I experience is not an awareness of something distinct to my state (i.e. the object of my awareness), but I experience my very state of awareness. AoAi then does not represent something different to awareness itself:

“All phenomenally conscious states are phenomenally conscious in virtue of being represented (in the right way) by a mental state that is not numerically distinct from themselves—that is, in virtue of self-representing (in the right way) (Kriegel, 2005:15)

This similar idea of a self-representative state of consciousness is found in Brentano’s work who claims that a conscious state has an attitude towards an intentional content, but also towards itself (Brentano, 1973).¹ It is this second attitude that is self-intimating and allows the possibility to have awareness of awareness itself — we can have an immediate experience of awareness itself. This reading of AoAi supports the claim that we can be aware of the external properties of the objects of our awareness, but also of the awareness itself (Kriegel, 2009, Montague, 2017). Montague has supported this view and developed a thesis of awareness of awareness in which she defends that conscious states display a self-intimating feature that allow us to gain immediate awareness of itself.

¹ Note that one of the constraints in Brentano’s account is that all mental states are intentional, and thus, we cannot have non-intentional states. A mental state needs to be always *about* something. Therefore, Brentanian views assert that a minimal state of consciousness would be about the mind itself – a self-referential state with the mind as an object of awareness.

“In having a veridical visual experience of a red ball, for example, in addition to being aware of features of the ball, the subject is also aware of the experience itself. The awareness of the red ball and the awareness of the experience itself constitute a single conscious mental episode” (Montague, 2017:362)

Thus, when I have the visual experience of a red ball, I experience the redness of the red ball, but also the awareness of the red ball itself (which should not be confused with the experience of meta-awareness like, ‘I’m experiencing a red ball’).

Moreover, some authors defending Brentanian views claim that there exists a special phenomenology of this awareness of awareness, namely, *cognitive phenomenology* (Bayne & Montague, 2011).² Views on cognitive phenomenology support the idea that, although we do not directly perceive the state of ‘awareness of awareness’ as such — we do not perceive something that it is an ‘awareness’ — there is a phenomenology associated to a state of AoAi. When we introspect our awareness of awareness, there is something it is like to be in a state of awareness of awareness.³

I claim that in some moments during deep sleep, we can encounter experiences of AoAi. This can be explained by the fact that, during some moments of dreamless sleep, there is nothing to perceive, except, our own awareness. Thus, by taking again the distinction between the features of consciousness ((i) attitude towards intentional content, and (ii) attitude towards itself), instances of AoAi would only have the second feature — there is an attitude towards the conscious state itself. Then, reports of AoAi would take the form of a phenomenological report in which the individual reports having been aware of ‘their own awareness’, in which awareness, was not something external to their experience, but the experience of awareness itself. This proposal on AoAi will be exposed in further detail in [Chapter 2](#) when analysing Tibetan Buddhist descriptions of awareness during dreamless sleep.

² Cognitive phenomenology is the phenomenology that mental states display – there is something it is like for a subject to be in a mental state. Advocates of cognitive phenomenology assert that there exists a phenomenology of been in a mental state insofar there is a difference between ‘having a mental state C’ and ‘the experience of having a mental state C’. For a detail account on the different views regarding Cognitive phenomenology, see Bayne & Montague (2011).

³ Montague (2017) explains this with the example by comparing the ‘perception of a blackbird’ and the ‘perception of a black bird with the knowledge that this is a blackbird’ (p.374). According to Montague, my experience when seeing a blackbird without conceptualising this as a ‘blackbird’ is not the same as my experience of me seeing a blackbird with the understanding that this is a ‘blackbird’. Her argument is that, seeing a blackbird and recognising this as such, instantiates a cognitive-phenomenological property – that of the experience of ‘blackbird as a blackbird’. However, when we just see the blackbird without recognising this as such, this phenomenological property is not instantiated, and thus, both experiences are phenomenologically different.

1.2. Contentless dreamless sleep

Finally, a taxonomy of dreamless sleep should also contemplate the possibility of having states that lack content altogether. Contrary to minimal forms of awareness, during these instances there are no content of awareness whatsoever, including that of AoAi. Although there is no content of experience, there is still something it is like to be in those states. That means that, despite the absence of content of awareness, the individual is still conscious. I call these instances of **awareness devoid of content (AdC)**. The existence of these states might have not been widely supported in Western philosophy, but they have been largely discussed in Indo-Tibetan philosophical traditions. An example of their discussion are the descriptions made by the Advaita Vedānta School, one of the major schools of Hinduism. This school asserts the existence of a period of conscious dreamless sleep in which the individual is aware and nothing else. I will revisit these descriptions in the next chapter.

My claim is that instances of AdC during conscious dreamless sleep would be evidenced in the form of epistemic reports upon awakening such as: ‘I knew there was a period I was aware’. However, the subject does not necessarily need to report it in this way. In most cases, the phenomenology of AdC, after its experience, would be that of ‘knowing that one was in such a state’. In some other cases, this experience would be reported solely by descriptions such as: “I remember I was aware”. It is not after the experience of AdC that we realise that this experience took place in time and space, but while the experience unfolded, there was no sense of time or space. Similarly, we attribute this experience to ourselves after the experience is over, but during the experience, there was no sense of self. During the experience of AdC there was no content of awareness, including that of ‘nothing’, ‘absence’ or ‘awareness itself’. Therefore, conscious states during dreamless sleep should not be confused with the experience of ‘nothingness’ during deep sleep. I mentioned before that the experience of nothingness should be regarded as AoMC instead. While in a state of consciousness devoid of content, I am not aware while I am having that state that I have this state, neither am I aware of something during that state. If I was conscious of this state during the state, I would then have awareness of awareness itself (AoAi). Moreover, these states of AdC are not lucid because while in them, I do not acquire insight (I do not know I am having a state of AdC). It is only when I wake up that I can describe what it was like to be in that state of AdC by recalling the experience.

In the philosophical literature, the possibility of such kind of awareness like AdC has been controversial. There is a large debate over the question of whether all phenomenal character can be reduced to representational content (Tye, 1992, Drestke, 1995; Block, 1990;

1996). In philosophical terms, the distinction between the object of representation and the carrier is understood as the 'content' and the 'vehicle'. The 'content' is what is represented, and the 'vehicle' is the carrier. The carrier is the experiential state that carries the content. Because of this assertion, some representationalists claim that we can only be aware of the properties of the object being represented, but not the carrier of the representation (Harman, 1990). For other authors, like Kriegel, we can be aware of the object itself, which in turn, make us to be aware of our awareness itself (see AoAi). Similarly, mainstream models of consciousness also advocate for an explanation of minimal states instead of states with absence of content altogether. Thus, the general view is that consciousness, per definition, cannot be contentless and as such, even the so-called contentless experiences involve some sort of content (i.e. 'emptiness'; see Hohwy, 2009; Bachmann & Hudetz, 2014). Despite this controversy regarding instances of AdC, we do not have a priori reasons to reject its existence, and thus, I will consider them in my taxonomy.

Some previous views in philosophy have discussed the issue of pure consciousness, by referring to this as consciousness *itself*. Advocates of instances of pure phenomenality (episodes of AdC), reject the idea that conscious states need representational content. I can have a state of consciousness with nothing that represents that state (including that of awareness itself). Similarly, this state is different from a non-conscious state inasmuch as it preserves its phenomenal character. However, some of these views involve different metaphysical constraints. In some cases, these views still support a phenomenology of this state of pure consciousness that involves some content. An example of this is Moore (1903) who defends that phenomenal character has relational properties. Moore exemplifies this property with the 'sensation of blue'. When I have a sensation of blue, there is a particular property on my consciousness that instantiates on me the experience of 'sensation of blue' and makes my experience of 'sensation of blue' phenomenologically different from my experience of 'sensation of green'. Let us call the property of 'sensation of blue' the *B-property*. There is also another property that makes that 'sensation of blue' to be conscious. Let us call this the *C-property*. Moore argues that the C-property is what is common in both sensations (Moore, 1903:448). This property is usually 'diaphanous' and 'transparent' (ibid, p.450) — we cannot access it. However, says Moore, this property can at times be introspected. According to him, the C-property cannot be introspected as if was an object; I do not perceive the C-property as 'consciousness'. Thus, the introspection of the C-property would give place to a phenomenology of 'knowing'.

“The element that is common to them all, and which I have called 'consciousness,' really is consciousness. A sensation is, in reality, a case of 'knowing' or 'being

aware of' or 'experiencing 'something. When we know that the sensation of blue exists, the fact we know is that there exists an awareness of blue. And this awareness is not merely, as we have hitherto seen it must be, itself something distinct and unique, utterly different from blue: it also has a perfectly distinct and unique relation to blue, a relation which is not that of thing or substance to content, nor of one part of content to another part of content. To be aware of the sensation of blue is not to be aware of a mental image — of a 'thing,' of which 'blue' and some other element are constituent parts in the same sense in which blue and glass are constituents of a blue bead. It is to be aware of an awareness of blue” (Moore, 1903:449).

Although Moore claims that the introspection of the C-property leads to a state of pure awareness, if this property C instantiates a phenomenology of ‘knowing’, this should be regarded as a state of content — that of awareness of knowing that there is C-property.

In other cases, defenders of pure consciousness also defend the idea, like Moore, that there is some intrinsic property common to all common states that is *always* present. This is the case of mysticism and the account of pure consciousness event (PCE; Forman, 1986). PCE is described as a period in which "one is awake but devoid of objects for attention" (Forman, 1988: 257). The PCE can be reported after having its experience:

“Ultimately one may become utterly silent inside, as though in a gap between thoughts, where one becomes completely perception- and thought-free. One neither thinks nor perceives any mental or sensory content. Yet, despite this suspension of content, one emerges from such events confident that one had remained awake inside, fully conscious” (Forman, 1999)

PCE has been regarded as a kind of experience that explains consciousness itself (Shear & Jevning, 2011). This view supports the claim that there is an underlying property that is shared by all experiences, namely *pure consciousness*. PCEs then would involve instances in which we recognise consciousness as such. Because of this, advocates of PCEs have been trying to find the common neural substrate for these experiences (d’Aquili & Newberg, 1999) arguing that those can tell us which the basis of consciousness itself is. For instance, Travis (1994) developed the junction point model, which claims that there is an underlying field common to wakefulness, NREM and REM sleep (Maharishi, 1972). Following this, the junction point model also claims that studying the transition points between waking, NREM and REM sleep can reveal the moments in which consciousness itself appears. This idea of pure consciousness as the essence of consciousness and something that can go among and beyond standard consciousness is largely discussed in contemplative traditions. For instance, the Advaita Vedānta School uses the concept of

turiya to describe a state that underlines waking and dreaming (Gupta, 1998). In Western philosophy, O’Shaughnessy (1986) has defended this view on consciousness itself as something different to standard consciousness. He talks of ‘consciousness itself’ as different to ‘particular consciousness’ because this consciousness persists even when there is no object of awareness (p.51). Metzinger (2019) has recently addressed the issue of consciousness itself with the research on the *minimal phenomenal experience*. This research investigates whether there is a form of experience that is common to all sort of experiences and thus, there is something like the substrate of consciousness. I will return to the issue of PCE on [§2.3](#).

For the moment, I will argue that we can have forms of consciousness devoid of content during dreamless sleep (AdC), but I will not defend a view in which these instances of consciousness provide evidence of the essence or substrate of consciousness.⁴ Instead, I will argue that instances of AdC can be recognised during deep sleep — a form of awareness that is devoid of content whatsoever and that can only be reported afterwards. This AdC during dreamless sleep takes the form of a conscious mental state during deep sleep in which the subject is not aware of anything, including the awareness of having that state. Therefore, it is only upon awakening when the individual reports a period of consciousness during dreamless sleep, that was devoid of any sort of perception or cognition. Moreover, contrary to a state of AoAi, during AdC there is no representational content. We have a state of consciousness with nothing that represents that state (including that of awareness itself).

To sum up, we can lay out the following range of possible conscious states during dreamless sleep:

1) Non-conscious states	They do not have any phenomenology, and thus, they are not conscious.
2) Awareness of substantial content (AoSC)	They instantiate a mental representation. Are more similar to wakefulness perception (veridical and non-veridical).
3) Awareness of minimal content (AoMC)	These are usually described as non-conceptual, although they need not. Do not

⁴ For an exposition on the conceptual problems of pure consciousness, see Griffiths (1990) and Gennaro (2008)

	include (veridical or non-veridical) perception of an object of awareness.
4) Awareness of awareness itself (AoAi)	Same as above, but the intentional content refers exclusively to that of the mind.
5) Awareness devoid of content (AdC)	They are not directed at anything, neither instantiate any content. Nonetheless, this state still has phenomenal character.

Table 1. Possible states during dreamless sleep

I claim that these possible states are not mutually exclusive, and thus, we can experience several of them over a period of dreamless sleep. Thus, while a great number of authors in the literature claim that the conscious contentless awareness during dreamless sleep refers to the last kind, AdC, the descriptions offered do not always allude to a state that it is actually devoid of content. One of the aims of this thesis is to explain this apparent discrepancy by taking descriptions several authors have given of dreamless sleep and identifying which states in the taxonomy that I have just provided they are. All this will be done by bearing in mind that the descriptions found in the literature usually describe a period of time during which the people have successive different kinds of states of conscious dreamless sleep. I argue that most of the descriptions that we find on awareness during dreamless sleep actually refer to states with intentional content, either minimal content other than awareness itself or awareness itself (AoMC and AoAi respectively). The next chapter examines descriptions found in Indian philosophical traditions.

Chapter 2: The Indian contemplative literature on deep sleep and witnessing sleep

This chapter aims to analyse the literature on awareness during deep sleep found in the Indian philosophical traditions of the Advaita Vedānta, Yoga and Indo-Tibetan Buddhism. These ancient traditions offer very rich descriptions of the nature of consciousness that are crucial to Western philosophy of mind. While Advaitins, Yogic and Buddhists all agree that consciousness is present during dreamless sleep, the metaphysical accounts of the mind vary among the different schools. There is a great heterogeneity among their views on the phenomenology of awareness during deep sleep, a heterogeneity that is even present within authors of the same school. This variability makes the task of interpreting those texts more daunting and requires a formal analysis that can provide a standardised account of those views. For this reason, this chapter undertakes a careful analysis of some of the main texts in the Advaitin, Yogic and Tibetan Buddhist and provides a possible interpretation of their descriptions on deep sleep. Moreover, this chapter develops an analysis that correlates the aforementioned taxonomy with the descriptions in Indian texts.

The chapter starts with a review of the key definitions of dreamless sleep found in the Advaita Vedānta and Yoga schools. This state is described as the ‘sleep of ignorance’; a state where the individual, upon waking up, remembers that there was a period during deep sleep in which there was nothing to perceive or to cognise. For the Advaita Vedānta and Yoga, awareness during deep sleep is a state of consciousness that can be apprehended and reported after awakening. This state is also described as an instance of consciousness as such — a pure phenomenal experience without object of content. Then, I turn to the Indo-Tibetan Buddhism’s approach in which they talk of different meditative practices that aid the acquisition of lucidity in deep sleep. This view, slightly different from that of the Advaita and Yoga schools, claims that during awareness in deep sleep the practitioner can recognise ‘the clear light’, a state that is described in the Buddhist texts as the nature or essence of consciousness. Following these definitions, we should distinguish between three kinds of conscious dreamless sleep states: (a) one that does not have any content, (b) one with content, (c) one that has a referential content. The first one, (a), is a pure phenomenological state in which the individual cannot gain self-awareness while in it — the state, does not contain any object of awareness. In the second one, (b), the individual can reach a state of awareness of their own dreamless sleep state, which has a content of awareness. The third one, (c), the individual can also reach awareness of this state while in it, but what they discover is their own awareness — the content of awareness is awareness itself.

Thompson (2015) establishes a similar distinction when comparing the different readings of awareness during deep sleep made by the Advaitin and the Indo-Tibetan traditions. For this, he distinguishes between ‘ordinary deep sleep’ (i.e. sleep of ignorance), and ‘lucid deep sleep’, which he calls clear light sleep (ibid, p.4). I borrow this distinction from Thompson and argue that we can take three possible readings from the Advaita, Yoga and Tibetan approaches that can be correlated to my proposed framework. Thus, we can distinguish:

-Awareness of minimal content (AoMC): perceptual awareness of a ‘light’ or some object that appears as ‘clarity’ during deep sleep.

-Awareness of awareness itself (AoAi): The experience of our own consciousness during deep sleep. We can acknowledge AoAi as it happens if we are skilful in the practice of Sleep Yoga or Yoga Nidra, a meditative practice.

-Awareness devoid of content (AdC): The experience of consciousness as such — a pure phenomenal experience without content of any sort. This can only be acknowledged and reported upon waking up.

2.1. The Sleep of ignorance: Advaita and Yoga accounts

The Advaita Vedānta and Yoga are major schools of philosophy of mind in Hinduism. While these schools differ on various epistemological and metaphysical claims on the nature of the mind, here, I will exclusively focus on their similar ideas regarding the phenomenology of awareness during deep sleep. The main commonality between these two schools is the claim that consciousness is never lost during deep sleep; they claim that deep sleep is a special state of consciousness. Several mentions of dreamless sleep as a state where consciousness remains can be found in the *Mandukya Upanishad* and the *Yoga Sutras of Patañjali*, key texts for the development of the phenomenology of dreamless sleep in those schools.⁵ In these texts, the Advaita and Yoga schools consider dreamless sleep as a mode of consciousness; a state with a specific type of cognition (Arya, 1989: 178). The reason given by these schools is that, upon awakening, we recall having slept peacefully, and we can reflect on this previous state of dreamless sleep (ibid). According to these schools, reports about this awareness can only be explained by the fact that consciousness was active somehow during dreamless sleep. Otherwise, we could not have woken up with such a clear

⁵ For the *Mandukya Upanishad* see translations and commentary by Nikhilananda (1949), Gambhirananda (1937) and Olivelle (1998). For commentaries on the *Yoga Sutras of Patanjali* see Āraṇya (1983); Arya (1989); Bryant (2009)

experience of awareness of having slept peacefully, and especially, of having been sleeping (Nikhilananda, 1949:59; Arya, 1989: 178; Gupta, 1998:27). The Advaita Vedānta and Yoga stress the fact that reports of consciousness during deep sleep are memory reports — the subject reporting them is describing something that happened. Chatterjee and Datta talk of ‘direct experience’ of deep sleep:

‘Such memory of what took place during sleep supposes direct experience of the state of sleep. So, there must be in sleep some cognitive mental state or process which is concerned in the experience of the absence of knowledge (1950:301-302)

Thus, Advaitin and Yogis argument on consciousness during dreamless sleep goes in the lines of, ‘if, upon awakening, I have such a clear feeling that I have an episode of awareness during dreamless sleep, why should I doubt that I did have consciousness during dreamless sleep?’. Following Chatterje and Datta’s previous quote, this clear feeling of knowing that I was aware during dreamless sleep is caused by the awareness had during dreamless sleep. During dreamless sleep I had a ‘direct experience’. Therefore, Advaitin and Yogics claim that the memory of this episode of awareness after awakening from dreamless sleep is not an inferential thought, but a memory report. Advaitins and Yogics say that, what has been retrospectively generated afterwards is the fact that this thought pertains to the same self that wakes. Because during deep sleep I do not have an awareness of *myself* — I do not have self-awareness —, it is upon awakening when my wake ‘I’ associates the experience during dreamless sleep to itself.

Since for the Advaita and Yoga school’s consciousness does not fade during dreamless sleep, they talk of this state as ‘*sushupti*’ (Sanskrit: सुषुप्ति), one of the four states of consciousness.⁶ In the Advaitin tradition, sushupti is distinct from wakefulness and dreaming consciousness because in this state we lack perception or cognition and, thus, the necessary faculties for experiencing. Consequently, they claim that, during sushupti, there is no awareness of anything — not of oneself, not of a lack of an object, not of an absence. Sushupti appears in the Upanishads described as a state of absence, a state where “a sleeping man entertains no desires or sees no dreams” (Mandukya Upanishad, 5 in Olivelle, 1998: 475). However, during dreamless sleep, we are not aware of this absence — dreamless sleep is absence, a period of void.

⁶ The four state of consciousness according these traditions are wakefulness (jagrat), dreaming (svapna), deep sleep (Sushupti) and a higher state of consciousness (turiya).

To explain the kind of consciousness present during dreamless sleep, the Advaita Vedānta alludes to the ‘sākṣīn’ (Sanskrit: साक्षिन) which etymologically means “direct and immediate perception” or “that who undertakes the direct and immediate perception” (Gupta, 1998:3). Yet the sākṣīn should not be confused with *something*, like a cartesian ego or a material thing inside our head that perceives. Because of this, in her book, Gupta (1998) translates ‘sākṣīn’ as ‘witness-consciousness’ a concept that other authors have used to refer to the kind of consciousness that the Advaitins and Yogics say remains during deep sleep (Chatterjee, 1982; Fort, 1984; Albahari, 2009; Fasching, 2010). Gupta refers to witness-consciousness as a kind consciousness “that simply witnesses, without getting involved in the ongoing process of experience” (Gupta, 1998:6). To explain this, Gupta presents the distinction between the two modes of seeing described by the Advaitin texts: the ‘sight’ and the ‘seen’. The first is the usual ‘sight’, the kind of perception that we undertake with our eyes when we see something. The second, is described as an ‘eternal seeing’, an attribute that is essential to the sākṣīn (Gupta, 1998:25). Although during sushupti the usual sight cannot take place — there is nothing to perceive and our senses are occluded – the sākṣīn and its ‘eternal seeing’ remains.

“The self does not perceive any object in deep sleep, because although it is (really) seeing in that state, it does not see in the usual manner through the eyes. Consciousness is imperishable; there is no cessation of the seeing of the seer. In the state of deep sleep, there is nothing else but pure consciousness. As fire never loses its property of burning or the sun of shining, similarly the seer, the self, never loses its power of seeing [...] Thus, the seeing of the seer, being its own intrinsic nature, never ceases; even in deep sleep, where there is nothing to be seen, it sees” (Gupta, 1998: 25)

Different authors have argued that the concept of the sākṣīn in the Advaita Vedānta is deeply rooted in that of consciousness *as such*. By this, they mean that witness-consciousness alludes to the essence of consciousness. However, the views that support this assumption vary in the descriptions of what consciousness as such is. It is important to lay out these distinctions in the several descriptions of the sākṣīn and consciousness as such because of their implications. Some authors might assert that consciousness itself is the all-prevailing feature of consciousness found in every conscious state, but this need not to be. I defend a view in which instances of consciousness itself should be considered in conscious dreamless sleep, but these instances should not necessarily be considered as the essence of consciousness. Some other authors assert the existence of consciousness as such, but they attribute to this a content of awareness that can be assessed, such as the experience of awareness of awareness itself, or the experience of ‘knowing’ that we are in state of pure

consciousness. I claim that these assumptions are not always compatible with a view of awareness devoid of content.

For instance, Gupta claims that although consciousness as such is always present in every conscious state, consciousness as such cannot become the object of awareness:⁷

“The witness-consciousness, although the basis of all knowing, is different from the object known. It is implied in every act of knowing. It is the ultimate subject; it can never become an object of knowledge” (Gupta, 1998:18)

Other authors like Chatterje, asserts that consciousness as such, the *sākṣīn*, can become aware qua awareness itself. This bring us again to the distinction established in the first chapter between the two features of awareness: the object of our experience — the content —and the awareness itself — the vehicle, the carrier of the content. According to Chatterje, we are not only aware of the content, but also of the vehicle. This view resembles that of awareness of awareness itself defended by Kriegel (2003, 2009) and Montague (2017).

“When we have an awareness of an object, the object is indeed manifested, but it is not the only thing revealed; here we have an automatic awareness of the awareness too. The two awarenesses are simultaneous, but they are not of a similar structure, in fact they are the two aspects of the same awareness. Or in other words when an object is known, through a mental occurrent, the occurrent is also known by the knower without the mediation of any other mental state” (Chatterje, 1982:342)

Finally, Albahari (2010) reads the notion of the *sākṣīn* in a similar way that Moore (1903) and argues that witness consciousness can be equalled to the diaphanousness of consciousness (Moore, 1903: 450). Consciousness as such, or witness consciousness, is the common feature present in all conscious states which cannot become our object of awareness. However, according to Albahari, and following Moore, this witness consciousness has intrinsic phenomenal character — a phenomenal character that cannot be attended.

While mode-neutral awareness is not to be identified with the ability to reflectively tell that one is hearing, seeing and so forth, the ability to do so does serve as evidence for what would seem to be an aspect of mode-neutral awareness. If asked, we can consciously tell in a flash, from the first-person perspective, that a particular sense-modality. We don’t think that we think; we know that we think. This apparent epistemic vantage-point from which one can consciously survey the activity of various sense modalities seems mode-neutral. (Albahari, 2012:71-2)

⁷ This assumption is found in the *Bṛhadaranyaka Upanishad*: “[You] cannot see the seer of seeing, [you] cannot hear the hearer of hearing, [you cannot] think the thinker of thinking, [you cannot] know the knower of knowing” (Bṛhadaranyaka Upanishad. III, 4.2 in Gupta, 1998: 19)

Its phenomenal character, we can recall, will be pre-attentional, in that being intrinsic to the very act of attending or inattending, it will never become an object of either attention or inattention. (ibid, p.74)

I understand the intrinsic phenomenal character of the witness-consciousness described by Albahari as that which makes the experience of sushupti a conscious experience. The fact that witness-consciousness cannot become an object of awareness does not imply that it lacks phenomenal character — there is something it is like to be in a state of consciousness as such. However, the characterisation of the phenomenal character of witness-consciousness as ‘knowing’ should not be attribute to witness-consciousness per se, but to the phenomenology of the act of remembering this episode of witness-consciousness afterwards.⁸ If we talk of the phenomenology of witness-consciousness as that of the act of ‘knowing’ (see Metzinger, 2019), then, we are talking of the awareness of witness-consciousness as a reflexive state (‘I know that I am aware’). Instead, what occurs in sushupti is that, upon waking up, I know that I had some sort of awareness during dreamless sleep, but that this period of awareness was absent of any other object of awareness. The only thing I will be able to say is that I *knew* that I was aware during deep sleep.

The notion of the *sākṣīn* and the fact that cannot become the object of awareness, has been described in Indian texts with the concept of ‘self-luminosity’. In various descriptions we find mentions of the *sākṣīn* as a ‘self-luminous’ state (Albahari, 2009) or a state that ‘sees itself’ (Prasad, 2000:65). These descriptions, however, need to be handed with caution. We should think neither that the *sākṣīn* can become aware of itself (self-consciousness) or that we can become aware of the *sākṣīn* (object of awareness). Instead, we should take these descriptions of ‘self-luminosity’ as mere metaphors to explain the phenomenology of these states.

Sushupti, or dreamless sleep, is also referred to in the Advaitin tradition as the ‘sleep of ignorance’. Remember that sushupti was described as a state of absence, including the awareness of absence itself. Sushupti then, is a period of void. However, because consciousness is still present during dreamless sleep, consciousness as such, we retain this absence in the form of ignorance — we retain knowledge of our ignorance.

“[during deep sleep] 'there was consciousness of nothing' or 'I knew nothing', is actually an instance of knowledge on the part of the person who recalls that

⁸ Moore (1903) argued that consciousness as such can become object of our awareness via its relational property (see Hellie 2007). We know that we are aware.

experience, and not of lack of knowledge of anything. This knowledge during sleep is, as already noticed, the knowledge of 'absence of knowledge' or, what is the same, of ignorance” (Sharma, 2011:217)

This knowledge of ignorance in this state is retained during deep sleep and, upon awakening, we experience a felt absence (Āraṇya, 1983:30; Gupta, 1998:27). Advaita and Yoga traditions conceive of the felt absence of dreamless sleep as a “recollection of an experience” (Nikhilananda, 1949:54). Indich (1980) explains Samkara’s claim that “the absence of knowledge in deep sleep is a consequence of the absence of anything experienced separate from consciousness, rather than the absence of consciousness itself” (p.98). Because of this, upon awakening, I remember this ignorance — there is something it was for me to be in a state of ignorance.

After having reviewed descriptions from the Advaita Vedānta and Yoga traditions of awareness during deep sleep, we can identify two features of these episodes of awareness: (i) a content of awareness, and (ii) a mode of awareness. First, as I explained above, both Advaita and Yoga schools claim that during deep sleep consciousness is preserved. However, since there is nothing to perceive or cognise during deep sleep, they say, there is nothing to be aware of. Therefore, the content of awareness is absent — there is no content whatsoever. Second, Advaitins and Yogics claim that what is present during dreamless sleep is a mode of consciousness. Dreamless sleep should not be understood as a period of lack of consciousness, but as instances of experiences of consciousness as such. To explain this mode of awareness, Advaitins and Yogics refer to the *sākṣīn*, a term that has been translated by Gupta as ‘witness-consciousness’ — an underlying awareness that cannot ever become the object of awareness. Therefore, dreamless sleep can also be understood as a state where the mode of awareness present is consciousness as such.

I argue that the description offered by the Advaita Vedānta and Yoga schools of the awareness during dreamless sleep, or *sushupti*, is similar to that of awareness devoid of content, AdC, presented earlier. Thus, we can understand *sushupti* as a state where we have AdC; a state in which we are aware, but there is no content of awareness, we are just aware. It is not until awakening that we can report having been aware – we report knowing that we were aware.

In the next section, I move on to the analysis of definitions offered by Indo-Tibetan Buddhism, which take a slightly different perspective on awareness during dreamless sleep. I will argue that Tibetan Buddhism talks of/describes a different experience: a conscious

experience during dreamless sleep that in this case, is aware of itself – awareness of awareness itself (AoAi).

2.2. Dream of light. Lucid Dreamless Sleep

The descriptions of awareness during dreamless sleep offered by Indo-Tibetan Buddhism are drawn from the teachings in two key texts, the *Liberation Through Hearing During the Intermediate State* (better known as the Tibetan Book of the Dead) and *The Profound Dharma of the Natural Liberation through Contemplating the Peaceful and Wrathful*.⁹ In these texts from the 8th Century, Padmasambhava talks of the ‘bardos’, which are translated as ‘transitional processes’ (Padmasambhava, Rinpoche, & Wallace, 2008). Each bardo corresponds to a different state of consciousness which are: waking, dreaming, profound meditation, death, experiencing reality, and rebirth (Evans-Wentz, 1960). In the teachings of Padmasambhava, we find instructions of different meditative practices that can be exercised in each of the bardos. In this section, I will only focus on the bardo of dream, which makes direct allusion to the period of dreamless sleep, and the meditative practices associated to this period: Dream Yoga and Sleep Yoga.

The teachings on the bardo of dream consist on three parts: (1) the illusory body (natural liberation of appearances), (2) dreaming body (natural liberation of confusion), and (3) luminosity (clear light and the natural liberation) (Fremantle, 2001; Rinpoche, 2008). The first two are related with Dream Yoga, a meditative practice that aims at recognising the dream state and thus, to understand that we are experiencing a delusion (Wallace, 2012). Following those premises, Dream Yoga would resemble the practice of lucid dreaming (Green, 1968; LaBerge, 1985). The third stage, the state of luminosity or clear light, talks of a period of dreamless sleep that can be accessed through the practice of Sleep Yoga. Sleep Yoga, or *Yoga Nidra*, is a meditative practice that aims at acquiring lucidity during deep sleep (Norbu, 1983; Rinpoche, 1998; Rinpoche, 2002). The goal of Sleep Yoga is to retain awareness whilst falling asleep and thus, be able to stay awake in the threshold of dreaming.¹⁰ Once skilful in Sleep Yoga, the practitioner can become aware of the period in between falling sleep and dreaming — the transition between both states. Meditators are trained to keep their awareness while falling asleep to be able to observe the transition from wakefulness to sleep and from sleep to dreaming. The practice of Sleep Yoga guides us to

⁹ For translations and commentaries of the original texts see *Evans-Wentz (1960)*, Padmasambhava, Rinpoche, & Wallace (2008) and Dorje (2005)

¹⁰ I take this idea of a state in the threshold of dreaming by the description offered by Magallón (1987) who refers to it as a ‘pre-dream state’ (p.4)

recognise our state of awareness while we fall into deep sleep. This practice is also called *Luminosity Yoga* because it is believed that with the recognition of the state of deep sleep, we reach a state of “natural light” (Norbu, 1992) or ‘clarity light’ (Rinpoche, 2008).

“The clear light of sleep occurs, I believe, as you’re falling asleep. It manifests during the interval after all of the daytime appearances have vanished and just before any dream appearances arise. Similarly, the clear light momentarily manifests when you’re on the verge of waking up after the appearances of the dream-state have passed and just before the appearances of the waking state arise” (Padmasambhava, Rinpoche, & Wallace, 2008:205).

Once the practitioner has recognised the clear light in deep sleep, it is said that the practitioner has also recognised the nature of the mind — a state of ‘pure awareness’ (Ponlop, 2006:86; Rinpoche, 2008:209). This is a state of void, emptiness, and clarity.

“[luminosity sleep] which is realized through sleep yoga, is clear light sleep, the sleep of clarity. It occurs when the body is sleeping but the practitioner is neither lost in darkness nor in dreams but instead abides in pure awareness. Clear light is defined in most texts as the unity of emptiness and clarity. It is the pure, empty awareness that is the base of the individual” (Rinpoche, 1998:115).

“Falling fast asleep corresponds to air dissolving into consciousness, and at that time, too, clearly and vividly focus on your heart, without losing the earlier sense of clarity and emptiness. Then the state of dreamless lucidity corresponds to the consciousness dissolving into the clear light, and at that time your sleep will lucidly remain in the clarity and emptiness that is unborn and devoid of recollection. If you recognize the clarity and emptiness of that occasion, which is free of the intellect, this is called “recognizing the clear light” (Padmasambhava, Rinpoche, & Wallace, 2008:209)

This description of the clear light sleep requires a better analysis than the one we can find in the commentaries of these texts. My task is to consider its different possible interpretations and argue for the ones we should take. The Indo-Tibetan descriptions can be read in three different ways. First, we could interpret the state of ‘clear light’ in the literal sense of ‘perceptual experience’, that of light or lightness. As I will note in chapter 4, some individuals might experience this state as the perception of light. However, as for the teachings found in the Tibetan texts, we should not interpret the experience of luminosity in this way – as the visual experience of a light. For Tibetan Buddhism, the term ‘clear light’ or ‘luminosity’ is used to describe the essence or true nature of the mind (Ponlop, 2006:86). For the Tibetan Buddhists, the only thing that remains during deep sleep is this ‘luminosity’ or ‘pure awareness’. This is explained as “a light that sees itself, illumination that illuminates itself, awareness that is aware of itself” (Holecek, 2016: 177), which can be recognised while

we are in that state. Therefore, the descriptions involving light should be taken as a metaphor. This brings us to the second reading that we can make of the ‘clear light sleep’.

The second possible reading that we can make is that the awareness of the ‘clear light’ is an awareness of our awareness itself, AoAi. This interpretation is possible if we follow the meaning of the concept of ‘clear light’ found in the Tibetan teachings of the Dzogchen. In those teachings, clear light is also referred to as *rigpa*, which is described as “awareness of the truth, innate awareness, the true nature of the individual” (Rinpoche, 1998: 166) and “awareness or pure presence of natural self-perfected mind” (Norbu, 1992: 21). Rigpa is also described as ‘bare awareness’ (Ponlop, 2006: 13), the essence of our mind, the grounds of all other experiences. Gaining access to the state of deep sleep can reveal “the fundamental nature of the mind itself” (Dalai Lama, 1996: 127-120). Therefore, my claim is that what Tibetan Buddhism asserts we experience in the dreamless sleep is *awareness as such* — we encounter the pure appearance of consciousness (Ponlop, 2006:65). Therefore, we should ignore the first possible reading and take this second option as the most plausible one. Holecek also warns us of the previous reading on luminosity and claims that this should not be interpreted literally.

“Sleep yoga works mostly with the deeper levels of the substrate and the clear-light mind. This is why in the Tibetan tradition; sleep yoga is referred to as “luminosity yoga”: it’s dealing with the luminous nature of the awakened mind [...] It’s not a light that is seen in the usual sense (which would be dualistic), but it’s a light that sees itself, illumination that illuminates itself, awareness that is aware of itself (which is nondualistic)” (Holecek, 2016: 177).

This interpretation of Holecek can be related to the case of the *sākṣīn* in the Advaita Vedānta where the only thing that remained during deep sleep is the *sākṣīn*, which is self-luminous but cannot be ‘perceived’ as an object of awareness. Should we then interpret the ‘clear light’ in a similar way as the *Sākṣīn* — that of consciousness *as such*? That of awareness devoid of content? This is the third reading that we could do of the ‘clarity’ described in Tibetan Buddhism during dreamless sleep. The difference here would be that, while in AoAi we find a referential state, we are aware of an object, in this case, awareness itself, in AdC there is no object of awareness. As for this third interpretation, I do not hold a stand on it. While there is some evidence that shows the possibility of this third reading, most of the descriptions available refer AoAi. A version of the third reading could be found in Rinpoche:

“There is a subtle difference that may occur here based on apprehending the clear light in light sleep or a deep sleep. If when you fall asleep your sleep is light [...], you enter into your experience of clear light; but, because your sleep is very light, there is still a subtle grasping that occurs. If you fall into a deeper sleep with the

clear light awareness, there will be no grasping or conceptualization at all, and it will be the experience of deep meditative equipoise on the nature of emptiness which is the nature of clear light” (2002:65)

My claim is that from Rinpoche’s description we can distinguish two different states of dreamless sleep: light sleep and deep sleep. The first one, light sleep, is a state that can be recognised — we can introspect this state while it is happening. The second one, deep sleep, cannot be recognised and can only be reported afterwards. If this was the case, we would then have a similar description to that of the Advaita and Yoga tradition — a state of awareness devoid of content that can only be apprehended upon waking up. Thompson (2015b) also provides a distinction between what he calls the ‘sleep of ignorance’ and the ‘clear light sleep’. He says that “Ordinary deep sleep is called the 'sleep of ignorance'; awareness is void or blank and in total darkness. Lucid deep sleep is called 'clear light sleep” (p.265). From this distinction by Thompson, I take it that we can identify two forms of dreamless sleep: one with content and one without.

One of the views on consciousness held by Buddhism comes from the Vajrayana system, which differentiates between three levels of consciousness, including gross, subtle and very subtle. It is the very subtle level, which is said to be present during deep sleep:

“And the very subtle level is the clear light mind, which manifests at the end of this dissolving. 'The experience of the clear light, which is said to be like a 'clear, cloudless autumn sky just before dawn', represents the mind at its subtle and awareness of it is called the natural clear light. When the practitioner maintains awareness of it, she has realised the fundamental nature of the mind itself, in that the clear light is the subtle basis of all other mental content” (Dalai Lama, 1996:29)

I take that the Buddhist stand to deep sleep is that a very subtle level of awareness remains — an awareness that is seen as the ‘fundamental nature of the mind itself’. Henceforth, I argue that the descriptions of awareness during dreamless sleep provided by this tradition should be considered as cases of AoAi.

In respect to the Tibetan Buddhist descriptions of awareness during deep sleep, I claim that we should identify two features of this state: (i) a content of awareness, and (ii) a mode of awareness. However, I claim that those should be understood differently to that of the Advaitin and Yogic descriptions. As for the content of awareness during deep sleep, following the Buddhist descriptions, we should identify a minimal content — the object of awareness is not an external object, but awareness itself. Then, the mode of awareness would be AoAi, awareness of awareness itself. Thus, contrary to the Advaita and Yoga assumptions,

Buddhists refer to a state where I can have immediate awareness of awareness itself. As in the case of the self-representational theory of consciousness defended by Kriegel (2009), I claim that the definitions of deep sleep in Tibetan Buddhism talk of a state that is aware of itself. I accept, however, as I presented in the previous chapter, that this is a state that does not involve a usual content of awareness — object that is numerically different to my awareness — but instead, it is a self-referential state — the mental state represents itself.

Summing up, I claim that we can distinguish between two different sorts of experiences of awareness during dreamless sleep in the Indian philosophical descriptions: awareness devoid of content (AdC) and awareness of awareness itself (AoAi). The first, AdC, corresponds to those descriptions of ‘sleep of ignorance’ or ‘deep sleep’ offered by the Advaitin and Yogic school presented in the previous section. The second, AoAi, are mentions of a state of ‘clear light sleep’ or ‘light sleep’ found in the Tibetan Buddhist traditions. Following this distinction, Tibetan Buddhism talks about a sort of meditation that can be practiced for recognising the state of clear light. I argue that Sleep Yoga should be understood as a practice in which we recognise awareness of awareness itself and not awareness devoid of content. The reason of this is that in AdC we cannot have any object of awareness. Therefore, when Tibetan Buddhist texts talk about awareness during deep sleep, they are usually referring to a state of AoAi. Although I agree that the view on AdC is compatible with the doctrines of Buddhism, in the case of deep sleep the descriptions refer to a contentful awareness — that with the content ‘the mind itself’.

The next section will present the concept of ‘witnessing-sleep’, which was coined by the Transcendental Meditation programme and still used as a term to refer to the periods of awareness during dreamless sleep. I will argue that this term should not be confused with ‘witness-consciousness’ and that it implies an assumption about what consciousness is different from the Advaita tradition.

2.3. Witnessing-sleep and transcendental meditation

In the last section of this chapter, I will present the concept of ‘witnessing-sleep’ introduced by Maharishi Mahesh Yogi to refer to a state of consciousness during deep sleep. This term has recently been used as a synonym of ‘witness-consciousness’, which refers to the *sākṣīn* and the experience of awareness devoid of content during deep sleep for the Advaita Vedānta. Moreover, the term of ‘witnessing-sleep’ has recently also been used to develop the concept of ‘lucid dreamless sleep’ which I will review in detail in the next chapter. Because of this, it is important to consider what ‘witnessing-sleep’ is, what the ideas behind this term are and whether this term refers to a similar experience to that described in the

Indian traditions. From this, we can conclude whether ‘witnessing sleep’ can be equated to ‘witness-consciousness’ or to the state of ‘sushupti’.

Maharishi Mahesh Yogi is the main founder of the Transcendental Meditation (TM) programme, a type of non-focused meditation that seeks to reach higher states of consciousness through its practice. TM bases its teachings on the Maharishi Vedic Science, the interpretation of the Vedas made by Maharishi Mahesh Yogi to explain specific psychological phenomena.¹¹ The teaching of the TM programme aims at fostering this kind of meditation to achieve altered states of consciousness, including what they call ‘transcendental consciousness’ and ‘cosmic consciousness’. It is this later, ‘cosmic consciousness’, which is said to be the most heightened form of consciousness; a form of consciousness that transcends wakefulness, dreaming and sleeping. Cosmic consciousness can be experienced during profound transcendental meditation, but also, during deep sleep, thus giving place to ‘witnessing-sleep’ (Maharishi, 1969)

“This experience of TC [transcendental consciousness] along with waking, dreaming and sleeping activity in CC is referred to as "witnessing" because the Self functions as a silent, uninvolved observer to all activity. The most stringent test for CC [conscious consciousness] is witnessing in sleep, the maintenance of Self-awareness during deep sleep” (Mason, Alexander, Travis and Gackenbach, 1990: 3)

Cosmic consciousness is also referred to as the ‘fourth state of consciousness’ following the Vedic tradition. Remember from §2.1 that, according to the Advaita Vedānta, there are four states of consciousness: wakefulness (jagrat), dreaming (svapna), deep sleep (sushupti), and the fourth (turiya). According to Maharishi, cosmic consciousness is equated to the state of turiya mentioned in the Vedas (Mason & Orne-Johnson, 2010:29). Turiya is also described as the underlying state of all the other conscious states:

“Turiya is the effulgent and all-pervasive source of objects. It is beyond ignorance. [...] It exists in all being during the waking and the dreaming states and is called the seer of everything. There is nothing besides turiya” (Gupta, 1998:29)

While I will not delve in more detail on the concept of turiya itself, I will compare this notion with that of sushupti. In §2.1, I described the state of sushupti as consciousness as such, a state where the individual is conscious during deep sleep. After my analysis, I

¹¹ Although the Upanishads, key texts for the evolution of the ideas of the Advaita Vedanta and Yoga school are part of the Vedas, the Vedas themselves should not be confused with the school of Advaita Vedanta. These are the texts from which this school of thought arise.

concluded that we should understand the state of sushupti as that of AdC — a pure phenomenal experience of consciousness as such without intentional content. The concept of turiya is also described as a state of pure consciousness in the Advaita Vedanta texts, yet it is differentiated from sushupti.

“Turiya is free from Svapna (dream) because it is free from Nidra (sleep) which is the cause of mis-aprehension of Reality (dream). It is because the Self is free from sleep and dream therefore the Jiva, then realises himself as the Turiya Atman, birthless and non-dual” (Nikhilananda, 1949:68)

“Turiya then, cannot be found during dreamless sleep because it is a state that does not happen during sleep or during wakefulness – it is a state that transcend those states. While sushupti might resemble turiya, it should be considered as “almost turiya” (Raveh, 2008: 324).

My claim is that sushupti should not be equalled with turiya because sushupti refers to a particular state of consciousness — deep sleep — whereas turiya refers to the underlying basis of all conscious states. Defenders of the concept of ‘witnessing-sleep’ describe this phenomenon as an instance of an underlying form of consciousness that can be observed during the practice of transcendental meditation, and in the transition between wakefulness, sleep and dreaming (Travis, 1994). My question here is, what does it make this state different from the experience of sushupti described by the Advaita and Yoga school? If sushupti should not be equalled with turiya, why should ‘witnessing-sleep’ be compared to this state? I claim that ‘witnessing sleep’ would be best equated to ‘pure consciousness experiences’ (PCE). Mysticism (Forman, 1999) maintains that PCE are the underlying form of consciousness common to all experiences.

One of the main problems with the TM programme and the definition of ‘witnessing-sleep’ is the lack of available phenomenological reports. Several studies developed by the TM programme and its followers attempted to study the experiences of ‘witnessing-sleep’. However, their results do not offer a clarificatory definition of how we should understand the phenomenology of this state. For instance, the study by Mason et al. (1990) compared the experience had during the practice of TM with that of awareness during dreamless sleep. After awakened from deep sleep, participants reported an experience of ‘heightened self-awareness’ similar to that had during their TM practice. These reports are explained by Mason et al. vis-à-vis to what Maharishi describes in his texts as cosmic consciousness:

“Maharishi Mahesh Yogi's Vedic Psychology describes the existence of "higher states of consciousness" with values of self-awareness qualitatively distinct

from those experienced during the ordinary states 'of waking, sleeping, and dreaming" (Mason & Orne-Johnson, 2010:29).

It is, however, unclear what advocates of the TM programme mean by "heightened self-awareness" and how this is supposedly related to the experience of turiya and pure awareness. Should we understand awareness during deep sleep as heightened self-awareness? And, is this experience of self-awareness different to consciousness itself or is it the same? In other articles, the experience of 'witnessing-sleep' is described by the participants as "comfortable, transcendental awareness throughout the night, even as the body rests deeply" (Travis, 1994:99). None of these studies, though, provide further descriptions on what this transcendental awareness and its phenomenology were. Therefore, it is unclear what subjects reporting the so-called 'witnessing-sleep' did in fact experience.

To sum up, while *prima facie* it seems that the descriptions of witnessing-sleep allude to 'sushupti' as described by the Advaita Vedanta, the proponents of the TM and the Maharishi Mahesh Yogi's teachings refer to an underlying state of consciousness that is beyond waking, dreaming and sleeping. These differences between sushupti and turiya, and, thus, between sushupti and witnessing-sleep, should be taken into account when describing the phenomenology of awareness during deep sleep. Do we want to refer to awareness during deep sleep as a sort of consciousness that occurs during this state or as a sort of consciousness that underlies any other conscious experience?

Thus far, I have argued that during dreamless sleep we can find different sorts of conscious mental states, namely awareness of minimal content (AoMC), awareness of awareness itself, (AoAi) and awareness devoid of content (AdC). Up to this point, I have argued that the Indian literature mention the last two, AoAi and AdC, in their definitions of awareness during deep sleep. However, at all moments, these different conscious states have been described as possible states had during dreamless sleep and not as the 'essence' or nature of consciousness – the underlying basis of all conscious experiences. Nor have these states been described as an all-prevailing feature of consciousness that is always present. While this thesis will not delve further on whether we should conceptualise consciousness as such as the basis of consciousness, I should note some implications of such conceptualisation. One implication is that, if we accept that consciousness as such is an underlying form of all conscious experiences, we should also establish what the common ground for all sort of experiences is. By advocating for an underlying property, we would also be committing to *the fundamentality constraint* (Metzinger, 2019) — the assumption that there is a mark of conscious experiences. Thus, this assumption assumes that there is a

fundamental basis of consciousness, which in turn, can be found by in the neural correlates of consciousness. If this is the case, then finding the neural correlates of consciousness would solve the problem of consciousness — we would have found the mark of conscious experience. Although I do not think that such assumption is plausible, in this thesis I will not engage with this issue. Instead, my goal is to argue that different sorts of conscious states can be had during dreamless sleep.¹² Because of this, the proponents of the concept of ‘witnessing-sleep’ should also consider whether it is the case that awareness during dreamless sleep is an instance of an underlying form of consciousness or, instead, it is just a state of minimal consciousness.

¹² The advocates of Transcendental Meditation (TM) assume the fundamentality constraint. As I mentioned above, they assert that there is an independent entity that can be ascribed as consciousness as such, in this case, something similar to the term of ‘turiya’ found in the Advaita Vedanta – a state that goes above and beyond to normal consciousness.

Chapter 3: Contemporary accounts on lucid dreamless sleep

In this chapter, I investigate a contemporary taxonomy of dreamless sleep experiences developed by Windt, Nielsen and Thompson (2016). First, I start by explicating the simulation theory of dreams by drawing from Windt's Immersive Spatiotemporal Hallucination (ISTH) model, one of the most recent conceptual frameworks on dreams currently available. The ISTH model serves Windt and colleagues as the departure point to develop their taxonomy of dreamless sleep experiences. Following this model, these authors establish the criterion to differentiate between sleep dreamful and dreamless sleep phenomena—namely, their immersive and simulational character. Moreover, Windt and colleagues defend a new classification of dreamless sleep experiences that identifies three different kinds of phenomena: (1) Non-Immersive Imagery and Sleep Thinking, (2) Perceptual Experiences and Body Sensations, and (3) Selfless States and Contentless Sleep Experiences (Windt et al., 2016:873). While the first two kinds involve the experience of perceptual phenomena, such as visuospatial, auditory and kinaesthetic imagery or movement sensations, the third kind integrates a set of experiences devoid of any sort of perceptual experience and substantive cognition. This last kind, *Selfless States and Contentless Sleep Experiences*, will be examined in more detail, and will be the focus of investigation, in the second half the chapter.

The reason of delving further into Selfless States and Contentless Sleep Experiences is Windt and colleague's claim that the experiences that integrate this cluster match to the descriptions presented in Indian philosophical traditions on awareness during deep sleep. Windt et al. refer to these phenomena as Lucid Dreamless Sleep experiences (LDS for short), that of a dreamless sleep experience characterised by being selfless and, *prima facie*, contentless. LDS is a state that lacks any intentional object, including a sense of self (Thompson, 2015a; Windt, 2015a). Moreover, they claim that LDS is an instance of the simplest form of consciousness, the *minimal phenomenal experience* (MPE; Windt, 2015a:18). Because of this, Windt et al. defend that a careful investigation of LDS, as well as the descriptions found in Indian traditions, is key for providing a proper account of Selfless States and Contentless Sleep. This investigation on LDS is also said to have the potential to shed light on what the most basic form of consciousness is.

In the second part of the chapter, I will examine Windt's argument on the 'pure temporal experience' (PTE). According to her, the only thing that remains during LDS is pure temporality; an experience of just 'nowness'. Windt defends that pure temporality is

the mark of LDS and, consequently, what characterises the minimal phenomenal experience (MPE). I will close the chapter by considering the implications of this view. I will argue that following Windt's definition supposes the rejection of LDS as a 'contentless state'. Similarly, her definition also entails the rejection of the MPE as a state of 'pure consciousness', a state where there is no awareness of any intentional content. Thus, I argue that we should instead acknowledge LDS as an episode of awareness of minimal content during dreamless sleep, AoMC. In regards of the MPE, we should consider instances of awareness devoid of content (AdC) instead.

3.1. Simulation Theories of Dreaming. The Immersive Spatiotemporal Hallucination Model by Windt.

When we think about sleep phenomenology, we tend to think about dreams. If I ask you whether you remember anything from your last night's sleep, you will likely try to remember your dream experiences. If the answer is affirmative, you will typically recall an experience in which you felt immersed in space and time somewhere; an experience that was very similar to your wakefulness reality but that was happening during sleep. If the answer is negative, you will likely tell me that you do not remember last night's dream and thus, you do not remember anything from last night's sleep. That being the case, you might conclude that you were not aware while sleeping. However, are conscious sleep experiences limited to dreams? Is there other sort of conscious mental phenomena that takes places during sleep? And if there are, how shall we properly account for them? And, what can we learn from these forms of dreamless sleep? Windt and colleagues provide an account of dreamless sleep in which they explore what makes those experiences different from dream experiences. For this, before I delve into their account on dreamless sleep, I will first investigate the counterpart of dreamless sleep: dream experiences.

Currently, there is no clear consensus on how to conceptualise dreams. While it is clear that dreams happen during sleep, the definition of these phenomena changes from author to author. Windt and colleagues (2016) support a definition of dreaming situated within the framework of simulation theories. Simulation theories of dreaming describe dreams as a world simulation of our wakefulness world (see Revonsuo, 1995, 2006; Revonsuo et al. 2015). According to these theories, dreams are (i) multimodal, (ii) complex, and (iii) dynamic experiences (Nielsen, 2010). Contrary to other mental phenomena during sleep and sleep-onset, in dreams, we can perceive not only a wide range of sensorial experiences, such as sight, hear, smell, taste, but also experience multisensorial perceptions similar to our waking life, such as emotions, body experiences or movements (idem). These perceptual experiences are

not random, but have a complex organisation, usually related to the dream setting in which the dream is unfolding. Finally, dreams present a temporal continuity and are experienced as dynamic experiences rather than static ones — there is a dream narrative and the experience evolves in time. Dreams are characterised by similar elements to the wake-world. In dreams, we can distinguish an experience that is happening around a central agent; the self. Theories that endorse this framework of dreams as simulation are the Protoconsciousness Theory (Hobson, 2009), the Continuity Theory (Foulkes, 1985), the Virtual Reality Model (Revonsuo, 2006), and the Immersive Spatiotemporal Hallucination Theory or ISTH (Windt, 2010). Although each of these theories aim at a different level of analysis about dreams, they all aim at providing a theory of consciousness through the knowledge gained from dream research. Windt and colleague's account of dreamless sleep is based on the ISTH model proposed by Windt.

Windt (2010, 2015a, b) defends a simulation model of dreaming based on the differences between dreams and wakeful experiences. According to Windt, although dreams resemble wakefulness experiences inasmuch as they recreate an immersive environment, dreams can neither be considered the same as experiences had during wakefulness, nor replicate wakefulness in the same way (Windt, 2015a). Thus, Windt's model aims at investigating what makes dreams different. For instance, Windt claims that even our experience of self in dreams is different from that of wakefulness:

“Dreaming is interesting precisely because of the ways in which it fails to replicate standard waking experience; dreams typically involve a self, but this self isn't phenomenally embodied in a strong sense, nor is it consistently a cogitative self, or a thinker of thoughts” (Windt, 2015b:551).

Windt draws from dream research to argue that our sense of self is distorted in dreams, and thus, dreams fail to replicate wakefulness. For instance, in the literature, there is evidence of selfless dreams (LaBerge & DeGracia, 2000; Occhionero et al., 2005); dreams that lack a sense of bodily self or self altogether.¹³ From this evidence, Windt claims that the sense of self varies so much among dreams and thus, this cannot be common feature. There must be something else that characterises all sorts of dreams. Windt stresses the importance of studying the phenomenology of dream experiences — their phenomenological character of those. Windt's perspective marks a shift in dream research by advocating the investigation of *what is it like* to be in a dream for a subject, something that had not been stressed enough in

¹³ Windt calls this first phenomenal disembodied dreams (Windt, 2015a), dreams in which subjects report feel themselves as a disembodied entity, but still situate themselves in the dream.

any previous dream theory.¹⁴ With this aim, she builds her ISTH model around three main tenets, claiming that dreams are (1) immersive spatiotemporal hallucinations, that (2) occur during sleep or sleep-onset transition, and (3) are reportable.

First, Windt takes inspiration from the Virtual Model of Revonsuo (2006) to build her model and attributes immersion in a virtual world as one of the defining characteristics of dreams.¹⁵ According to Windt, immersion is to be understood as the ‘feeling of presence’ (Windt, 2015b), or what she calls ‘spatiotemporal situatedness’; the feeling of being immersed in a place *here* (space) and *now* (time) (Windt, 2015b: 520). In her view, dreams are subjective phenomena that are experienced from a first-person perspective; a virtual reality is created around the main character, the dreaming self, which perceives this as real. Windt claims that dreams, contrary to wakefulness experience, occur in a “hallucinatory reference frame” (ibid, p.551). According to Windt, it is this shift in the reference frame, from a veridical to a non-veridical one, which differentiates between dreaming and wakefulness:

“the transition from wakefulness to dreaming involves a shift in spatiotemporal self-location. [...] dreams occur when the phenomenal *here* and *now* is located no longer relative to a largely veridical, perceptual environment but rather relative to an alternative, largely internally generated environment, the so-called dream world, that is at best weakly constrained by external stimuli and hence hallucinatory” (Windt, 2015b:522).

Second, although it seems indispensable to claim that dreams occur during sleep, it is important to stress this point. If we only assert that dreams are ‘spatiotemporal immersive hallucinations’ without stressing that such experiences need to happen during sleep, the same description could apply to other phenomena happening during wakefulness. An example of this are Out-of-Body Experiences (OBEs) and other autoscopic phenomena.¹⁶ According to Windt, dreams resemble OBEs inasmuch they involve an illusory bodily experience and an illusory self-location (Windt, 2010:310). Thus, setting the condition that dreams should occur during sleep and sleep onset distinguish them from other phenomena such as OBEs.

¹⁴ Windt (2015, 2016) has called this the research on the ‘depth’ of the dream experiences. Previous dream research was based on a framework that investigated the ‘breadth; how dream experiences vary from person to person (Solomonova, Fox & Nielsen, 2014). Contrary, Windt advocates for the study of the ‘depth’ of dreams; how dreams can be experienced by a person.

¹⁵ Revonsuo’s model defends an account of dreams where they are described as experiences in an immersive and interactive virtual environment – an environment created internally. This virtually created world, the dream-world, is built around the main character, the virtual self (dream-self). Thus, dreams are a simulation of a world that is experienced as real (with the exception of lucid dreaming).

¹⁶ Autoscopic Phenomena are full-body illusions that affect our perception of body ownership. For a detailed account of the different sort of Autoscopic Phenomena, including OBEs, see Blanke & Mohr (2005) and Blanke & Metzinger (2008)

The third tenet of the ISTH model is reportability. Reportability is crucial when considering dreamless sleep phenomena since we need to discriminate between experiences of absence and absence of experiences. This criterion will become clearer in chapter 4 where I present phenomenological reports of awareness of ‘absence’ during dreamless sleep. In these reports, individuals describe having had experiences of nothingness’, ‘void’ or a ‘spaceless’ environment. Reports of absence need to be distinguished from ‘absence’ of reports. In the second case, individuals do not report any dreams either because they do not remember their dreams or because they did not experience anything. In this latter case, we find *white dreams*; dreams that were actually experienced but forgotten in the morning. They are usually reported as the experience of having dreamt but not knowing what the dream was about (Siclari et al, 2013). Windt et al. (2016) suggested that white dreams could partially involve contentless dreams, a view that has been disputed (Fazekas, Nemeth & Overgaard (2019). In chapter 5, I will retake this debate and compare white dreams with dreamless sleep experiences.

Summing up, Windt’s ISTH model describes dreams are immersive spatiotemporal hallucinations because, unless lucid, the dreamer experiences herself as being in a veridical space and time in what it is, in fact, a dream-world. Therefore, **immersion** and **simulation** are key elements for classifying mental phenomena during sleep as dreams. Immersion, as for Windt’s model, is understood as the feeling of presence — being here and now — in a particular environment, whereas simulation is the capacity of that environment to recreate a veridical world. However, an important question strikes here: what about other forms of experiences occurring during sleep or sleep-onset transition? Do all of them fit into this description of immersion and simulation? Is it possible to have a simpler form of dream experience that does not involve an immersive experience in a virtual world? In the next section, I examine how dreamless sleep experiences are conceived as per the perspective of the ISTH model.

3.2. Dreamless sleep experiences. Windt, Nielsen and Thompson’s classification.

In their 2016’s paper, Windt, Nielsen and Thompson defined dreamless sleep experiences as phenomena occurring during sleep that lack the immersive and simulational character of dreams (p.873). By following the simulation model of dreams, these authors characterise dreams as a ‘self-centred’ phenomenon; an experience where one has a sense of presence in what is actually a simulated world (Windt, 2015b; Windt et al. 2016). Thus, they distinguish between two kinds of phenomena during sleep and sleep-onset. On one side, we have dreams

— we experience ourselves as being present in a hallucinatory world (dream-world) which at that moment we recognise as real. On the other side, we find sleep phenomena that cannot be classified as dreams since they lack their immersive character— we do not have a sense of presence in a different world. They also fail to be simulative – they do not recreate the perception of world (in Chapter 5 I will discuss whether these two features do in fact describe dreamless sleep). Following this distinction, Windt et al. provide a classification of dreamless sleep experiences that differ in their imagistic and propositional content (see table 2). While all dreamless sleep experiences, according to Windt and colleagues, lack the immersive and simulational character of dreams, each subtype varies regarding the imagistic and propositional content that they exhibit.

	Immersion	Simulation	Imagistic content	Propositional Content
Dreams	Yes	Yes	Yes	Yes
A) Non-Immersive Imagery and Sleep Thinking	No	No	Yes	Yes
B) Perceptual Experiences and Bodily Sensations	No	No	Some	Some
C) Selfless States and Contentless Experiences	No	No	No	No

Table 2. Comparison of the different features of dreams and dreamless sleep according to Windt. et al. (2016)’s classification.

3.2.1. Non-Immersive Imagery and Sleep Thinking

Under this first cluster fall dreamless sleep experiences that, although quite hallucinatory, lack immersive character. To describe this cluster, Windt et al. talk of static experiences in which the subject does not feel immersed in a virtual world. As examples of those phenomena, they include “static visuospatial, auditory, or kinaesthetic imagery lacking a clear hallucinatory context, movement sensations, and propositional thought (sleep thinking)” (p.873). Although these authors do not mention it explicitly, I take it that *Non-Immersive Imagery* during

dreamless sleep refers to hypnagogic experiences, at least to those that are described as ‘static’. Hypnagogic experiences display a wide variability and they can appear in different forms, from linguistic intrusions, kinaesthetic images to visual and auditory hallucinations. In the first chapter, I distinguished hypnagogic experiences from dreams, and I categorised them as cases of awareness of substantial content (AoSC) during dreamless sleep. The reason for this is the lack of immersive character that those experiences present. While hypnagogic experiences do also present a hallucinatory character — they are non-veridical forms of perception — they are not immersive nor complex enough to be considered dreams. I will examine them in more detail in section 5, but for the moment, I include them as a case for Windt and colleague’s *Non-immersive imagery*.

Regarding *Sleep Thinking*, we find forms of propositional thought during dreamless sleep that can be better described as mind wandering. This form of thought refers to the subject’s wakefulness experience, not to their dream experience. Gillespie (2002) includes ‘sleep thinking’ in his seven-cluster classification of dreamless sleep and claims that this sort of thinking is not based on the dream reference frame, but the wakefulness one (p.202). To explain this, Gillespie quotes Foulkes: “[...] subjects report “thinking” about something. They’re not simulating life, they’re just thinking about some aspect of it” (Foulkes, 1985:58, in Gillespie, 2002:202). Thus, in both cases, ‘Non-immersive imagery’ and ‘Sleep thinking’, the reference frame is not that of the dream world, but that of the real and wake-world (or actually, the sleeping-world). The subject, while experiencing these phenomena is sleeping, but has not crossed over to the dream world yet.

3.2.2. Perceptual Experiences and Body Sensations

In this second cluster, Windt et al. (2016) classify dreamless experiences that are more dynamic than the previous ones. In dreams, sensory perceptions and body sensations appear regardless of our senses being shut down; they are independent of any sensory modality (Windt, 2010). Windt explains how, despite not being aware of external stimuli during dreaming, we are fully capable of experiencing a dream reality with plenty of sensorial qualities. In our dreams, we can hear, see, and smell, but our senses are not processing veridical stimuli – these experiences are ‘amodal hallucinations’ (Windt, 2010) because they do not depend on our senses. What we experience in dreams is a wide range of different sensorial experiences that are internally generated. However, in dreamless sleep, the situation is different. According to Windt and colleagues, since we are not fully immersed in the virtual reality of the dream world, our perception of this second kind of experiences still relies on external stimuli and is, hence, modality dependent. Thus, we hear, see and smell through our

sensory system. Examples of this cluster include hearing a noise in our room or feeling our body in the bed, which are described as *Perceptual Experiences* and *Bodily sensations*.

A similar proposal on perceptual experiences during dreamless sleep is made by Gillespie (2002) who also considers different sorts of ‘True perceptions’ during dreamless sleep (p.202). According to him, this sort of perceptual phenomena is experienced by the *real-self*, not the *dreaming-self* and thus, should be considered veridical perceptions. Some examples of this sort of perception offered by Gillespie are the perception of darkness and the perception of light during dreamless sleep. He asserts that these are actual experiences of ‘absence of light’ and ‘intense light that appears on the periphery of the visual field’ (p.202).

3.2.3. ‘Selfless’ States and Contentless Sleep Experiences

Finally, Windt and colleagues propose a third cluster of dreamless sleep phenomena which includes “any mention of sleep experience lacking subjective immersion, imagistic and propositional content” (Windt et al., 2016: 873). During the experience of these phenomena, even the simplest form of phenomenal selfhood—the experience of being someone (Blanke & Metzinger, 2008) — has disappeared, leaving a selfless and contentless experience (Windt et al., 2016:878) — an experience with a lack of sense of self and a lack of intentional content.

Windt et al. proposed this cluster to accommodate the anecdotal descriptions found in Indo-Tibetan philosophical traditions about a special sort of awareness during deep sleep. In this cluster, they refer to the different descriptions found in the Advaita Vedānta, Yoga, and Indo-Tibetan Buddhist traditions (which I presented in the previous chapter) as ‘witnessing sleep’ (Windt et al., 2016).¹⁷ According to these authors, investigation of ‘witnessing-sleep’ can shed light on the possibility of selfless and contentless forms of experiences. Therefore, it should be studied regardless of whether these experiences exist or not. Yet, in the absence of any more research in this area, Windt and colleagues develop their own definition of that *Selfless states and Contentless sleep*. According to them, phenomena under this cluster involve a sort of “minimal form of phenomenal consciousness” (p.873) — there is something it is like to be in this state of selfless and contentless sleep. Windt (2015b) has claimed that the experience during selfless and contentless sleep takes the form of a ‘phenomenal now’; the experience of just ‘nowness’ or present. Thompson

¹⁷ At the end of the previous chapter, I already mentioned the implications of referring to awareness during deep sleep as ‘witnessing sleep’. Remember that this terminology was used by the Transcendental Meditation programme to refer to an underlying experience common to all sorts of conscious experiences – the essence of consciousness. I take that Windt and colleagues (2016) do not take this reading and instead, they refer to ‘witness consciousness’, following the definitions made by the Advaita Vedānta about the *sākṣīn*. Therefore, I urge these authors to clarify their use of ‘witnessing sleep’ and to distinguish among the different readings that can be made of the descriptions found in Indian philosophical traditions.

(2015b) has defended a view in which selfless and contentless states during sleep involve a “minimal mode of sentience” (Thompson, 2015b); the experience of being.

Although Windt and colleague’s classification provides the groundwork for a taxonomy of dreamless sleep, I argue that their third subtype presents some problems that should be addressed. Similarly, I argue that their classification does not capture all the possible candidates for explaining conscious dreamless sleep as my taxonomy does. Given the lack of research in this field, I claim that, Windt and colleague’s account can misrepresent the definitions of awareness during dreamless sleep documented in the Indian philosophical texts. In the rest of the chapter, I will focus on analysing Windt’s proposal of ‘lucid dreamless sleep’ (LDS) and the problems that follow from this account. For this, I will start by examining her argument on the phenomenal now or pure temporal experience as the mark of LDS.

3.3. Lucid Dreamless sleep. Pure temporality

Windt and colleagues use the phrase ‘lucid dreamless sleep’ (LDS) to refer to a very minimal form of conscious dreamless sleep. Later I will argue that, although these researchers describe LDS as a contentless state, their account entails the existence of some content. To find this minimal form of conscious dreamless sleep, Windt (2010, 2015a, b) takes her ISTH model as a starting point. According to her model, spatiotemporal situatedness — the experience of being immersed in an environment here and now — is the phenomenological core of dreams. Moreover, Windt claims that spatiotemporal situatedness is also the necessary and sufficient condition for the minimal phenomenal selfhood (MPS; Blanke & Metzinger, 2008), which is the most minimal form of self-consciousness. Therefore, spatiotemporal situatedness is identified as the most basic feature for both dream experiences and the experience of MPS. If this is the case, what happens when even this basic form of self-consciousness, the MPS, is lost, as it is in the case of LDS? Would spatiotemporal situatedness still be the mark of these experiences? According to Windt, in the case of LDS, we should break down spatiotemporal situatedness and examine which of its dimensions remains.

Spatiotemporal situatedness, explains Windt, involves two dimensions, (i) the experience of space (‘here’), and (ii) the experience of time (‘now’).¹⁸ Windt claims that only the second, the experience of time, can be had alone. Her explanation is that to experience ‘*hereness*’, we also need to experience ‘*thereness*’. To experience ‘hereness’ I

¹⁸ The two dimensions of Spatiotemporal location are explained by Blanke & Metzinger (2008:7) as well as by Metzinger (2003).

need to be able to have an MPS so I can have a minimal awareness of myself and I can distinguish myself from other things. Thus, to experience ‘hereness’, a subject-object distinction needs to be established where myself starts and where it finishes. According to Windt, an experience of space will involve some experience of self. In contrast to this, the dichotomy of subject-object is not found in the case of time, says Windt. For Windt, to experience ‘nowness’, I do not need a subject-object dichotomy — I can have a selfless experience with no sense of space and only sense of time. Her reasoning is that time, as a reference frame, does not require the experience of another thing – I do not need an MPS and then, I do not need to distinguish myself from the other. Moreover, for Windt, the existence of time as an experiential dimension cannot be eliminated. According to her, and following her ISTH model, when investigating dreamless sleep experiences, we examine reportable experiences — subjective descriptions made by a subject who says they experienced something. Windt claims that the time dimension is a necessary condition for reporting an experience. She argues that some sort of continuity needs to remain for me to report that I had an experience — there needs to be a before and after for me to report that I experienced something (Windt, personal correspondence). Therefore, Windt claims that pure temporality experience (PTE) is the mark of LDS. In the next section, I will analyse further this assumption and I will argue otherwise. I will also claim that time is not a necessary condition to report an experience and that more minimal forms of states can be found.

Following the above, Windt identifies pure temporality as the most basic form of conscious experience, or what she calls, the MPE (Windt, 2015a:18). According to her, if there is a minimal form of awareness during LDS, it would have a time dimension – the experience of ‘nowness’

[LDS]it is a condition for but still more basic than minimal phenomenal selfhood. It can be described as subjective only because it involves phenomenal experience; yet, it does not involve the additional experience of being a self, or a separate entity having the experience” (Windt, 2015a:18)”.

For Windt, LDS is a state where we lose the MPS. While LDS is still a phenomenal experience — there is some sort of phenomenal consciousness, something it is like to have that experience — we do not experience an MPS associated with it. Therefore, LDS is an objectless experience that lacks not only the immersive structure of wakefulness and dreams but also a first-person perspective (Windt, 2015b:18; Windt et al., 2016:878). LDS experiences are selfless and, according to Windt et al. contentless experiences. Consequently, according to Windt, if LDS is an experience that is more minimal than the most basic form of self-awareness (the MPS), LDS should be the target of research for the MPE. However,

is the investigation of bare consciousness vindicated by the examination of LDS? And should we describe LDS as an experience of pure temporality? In the next sub-section, I analyse the different shortcomings in Windt's description of LDS and her claim on the MPE.

3.4. Lucid dreamless sleep as awareness of minimal content

According to Windt and colleagues, LDS is an example of a subtype of dreamless sleep, *Selfless and Contentless experience*, which is described as “any mention of sleep experience lacking subjective immersion, imagistic and propositional content” (Windt et al., 2016: 873). Moreover, as presented above, Windt claims that LDS can be described as an instance of pure temporal experience (PTE), which at the same time is the barest form of consciousness (MPE). However, their description of LDS, although is compared to some Indian traditions such as the Advaita Vedanta and Yoga schools, is not about a state completely devoid of content. Windt et al stress that LDS lacks content, but they still defend a definition of LDS as that a state with content. For this reason, I argue that their account of LDS has the following shortcomings that should be addressed.

(i) *Their characterisation of 'lucidity' is not clear*

The use of the term 'lucidity' by Windt and colleagues to account for conscious, and contentless, dreamless sleep is not clear. In their 2016 article, these authors talk of LDS as a phenomenon that could be compared to lucid dreaming (p.878). But, what do they mean by 'lucid' when they talk about dreamless sleep? According to Wind et al., 'lucidity' is used to refer to the “awareness of one's current state of consciousness” (p.872). This is in fact a similar use of the term 'lucid' to refer to 'lucid dreaming', that of a dream where the dreamer is aware of the fact of being dreaming while dreaming (Van Eeden, 1913; Green, 1968; LaBerge, 1985). However, taking the same meaning of the term 'lucid' in lucid dreaming and applying it to dreamless sleep can have unwanted implications.

Usually, a lucid state entails the awareness of that mental state (i.e. “I am aware that I am in a state M’). In a lucid dream, I am aware of what I am being aware, and thus, I can recognise the dream as such. Moreover, I can reflect on that mental state – I am aware that I am dreaming, and this means that what I am experiencing is not real. Therefore, lucidity entails the acquisition of 'insight' — the awareness of being in a particular state (Voss et al, 2013; Kühle, 2015). Gaining insight has been characterised in the literature as an indispensable feature of lucid dreams, and thus, as a necessary feature to be aware that you are dreaming. Can we say the same of dreamless sleep? Do we need lucidity in order to have a conscious experience of dreamless sleep? My claim is that we do not. As I have shown in

my taxonomy in [Chapter 1](#), we can experience different types of awareness during dreamless sleep. This awareness can be propositional or not propositional, and in some cases, it has content but in other it lacks. However, even when it lacks content (AdC), we are still conscious. Then, what does involve attributing ‘lucid’ to a dreamless sleep state?

If we apply the same reasoning of ‘lucidity to the case of LDS, we would then define this phenomenon as the ‘awareness of one being in a state of dreamless sleep’. However, this acquisition of insight into our state of dreamless sleep would make of this a mental state with content, that of ‘awareness of being in a state of dreamless sleep’. Thus, by attributing ‘lucidity’ to a period of dreamless sleep, we will be attributing to that state content, something that Windt and colleagues say is missing in conscious dreamless sleep. For this reason, talking of ‘lucid’ dreamless sleep to refer to the experiences reported by Indian philosophical traditions can be misleading. If what we are describing is a contentless, selfless and imageless experiences that is not immersive enough to be considered a dream, the term ‘lucid’ is not warranted; this would entail a content of awareness. Therefore, I argue that we should instead (i) find a different term to describe these experiences (ii) consider whether some types of conscious dreamless that lack sense of self, imagery and immersion have propositional content. In both cases, my proposed taxonomy would solve this problem. By referring to ‘conscious dreamless sleep’ we would be referring to different sorts of awareness. Then, we would assign a type of awareness depending on the content.

(ii) *Describing LDS as PTE, does not match with the fact that this is a ‘lucid’ state, neither with the lack of content as the signature of LDS*

Following the previous point, there is the fact that LDS is described by Windt as the ‘pure temporal experience’ (2015b). Remember that Windt claims that the most minimal form of conscious dreaming, should be described as an experience of ‘nowness’. LDS is an instantiation of this state (ibid). However, how can a state be just pure phenomenal experience, but in addition, be lucid? Again, following the meaning of ‘lucidity’, this state should be described as ‘the awareness of knowing that one is having an experience of pure temporality’. Thus, the ascription of ‘lucidity’ seems to involve a higher order state than the one Windt and colleagues want to account for. Moreover, Windt’s account of LDS as pure temporality contradicts the claim that LDS is a contentless state. Referring to LDS as an experience of ‘just present time’ where the individual preserves a feeling of ‘nowness’ or ‘presence’ still involve an awareness *of* something; in this case, of ‘nowness’ or ‘presence’. If we describe LDS as the experience of nowness, it means that some sort of content was experienced during dreamless sleep, and thus, this is not a form of state lacking content. For

this reason, I argue that this should be understood as an instance of awareness of minimal content (AoMC) instead. Thus, we would refer to non-propositional, imageless and selfless dreams that had some content as AoMC.

(iii) *MPE is wrongly characterised as the PTE.*

Finally, the description of LDS by Windt does not only present problems for a taxonomy of dreamless sleep, but also for an account of consciousness. One of the main claims in Windt's view is that LDS is an instance of the minimal phenomenal experience (MPE). Moreover, she describes LDS as the pure temporal experience (PTE), a state where only a pure phenomenology of 'now' remains. Moreover, Windt et al. (2016) defend the investigation of LDS as a means to find the MPE, an experience that is described as pure temporal experience. However, does it follow from the above that the MPE should also be understood as PTE? It does not.

First of all, we do not have enough evidence to conclude that LDS (as described by Windt and colleagues) is a case of MPE, or in any case, that LDS is *the* MPE. Thus far, the argumentation provided by Windt (2015b) and Windt et al (2016) is that LDS could be characterised by the phenomenology of nowness or PTE. In any case, this does not make LDS be the MPE, but just a possible instance of PTE. Therefore, an instance of conscious dreamless sleep could be described as non-propositional content, imageless and selfless experience, which I have argued we should refer to as awareness of minimal content (AoMC). However, this instance of AoMC would not be per se, an instantiation of the MPE.

Second, I argue that Windt's assumption that the PTE is the simplest form of phenomenal experience is wrong. Data from other altered states of consciousness, such as self-dissolution and non-dual meditation, shows experiences where even the time component, as the experience of present time, has been lost. This 'timelessness' experience without even the 'present time' component is quite difficult to achieve and not all practitioners are successful in reaching this state. Berkovich-Ohana et al. (2013) reported this difficulty in their study which expert meditators were trained to have 'timelessness' and 'spacelessness' experiences. However, some participants reported losing the feeling of 'nowness':

“The mechanism that senses time was absent. There was a sense of immediateness, without a centre aware of temporality” (Berkovich-Ohana et al., 2013:4)

Similarly, in the literature of mysticism, the disappearance of the time dimension has been defined as the mark of mystical experiences (Stace, 1960: 109), the same for the

so-called cases of transcendental consciousness, which are said to be unbounded by space and time (Alexander et al., 1990). Supporters of mysticism have shown evidence of phenomenal states exempt from the phenomenal experience of ‘nowness’. Therefore, the experience of time is not the most minimal form of phenomenal experience and that ‘pure temporal experience’ should not be regarded as the MPE.

Third, if we want to develop a theoretical account of MPE, an account of consciousness as such, it cannot include any form of awareness that contains any content – the barest form of consciousness should be consciousness as such. The same theoretical assumptions are made by Metzinger in his framework to investigate the MPE. According to Metzinger, possible phenomenological reports of MPE would be better described as instances that lack a sense of self, and content altogether. These would be better described as “contentless process of knowing *as such*, an isolated phenomenology of pure observation” (Metzinger, 2019:34). This idea would fit with my proposal on awareness devoid of content (AdC), an instantiation of a non-intentional state with only phenomenal character. Thus, characterisations of MPE cannot contain descriptions from a first-person perspective, the experience of self or any other content of awareness, including a *time* dimension. For this, if we want to target LDS as an instance of MPE, LDS cannot be described as an experience of bare time because this will not consider the ‘emptiness’ signature of the MPE experience (ibid, p.20).

Summing up, if we want to follow Windt’s definition of LDS, LDS should not be regarded as the MPE, but in any case, as an instance of minimal experience – a state that involves the experience of PTE. For this, I defend my argument that LDS should be better understood as a case of awareness of minimal content, or AoMC. Similarly, if we want to question whether LDS can be understood as an immersive and contentful experience, we should consider an alternative classification of awareness during dreamless sleep. Following my analysis on Windt et al. and the definitions of awareness during dreamless sleep examined in the previous chapter, I advocate for the following categorisation of conscious states during dreamless sleep:

- (1) **Awareness of content, AoC:** During these states, there are clear contents of experience. These can take the form of visual, auditory or kinaesthetic hallucinations such as hypnagogic experiences, but they also can include the perception of thoughts like sleep-thinking.
- (2) **Awareness of minimal content, AoMC:** These states lack the perception of sensorial forms such as visual, auditory or kinaesthetic perception. However, there

still remains a minimal form of perceptual experience, that of ‘just time’, as described by Windt (2015b).

- (3) **Awareness of awareness itself, AoAi:** Following Indo-Tibetan Buddhist traditions, we can find instances of awareness during dreamless sleep in which the subject is conscious of her very own state of awareness – the subject is aware of the phenomenology of awareness of awareness.
- (4) **Awareness of devoid of content, AdC:** Finally, by taking the interpretation provided by the Advaita Vedanta and Yoga schools we find other instances of awareness in which the subject is not aware of anything, not of content, not of consciousness itself, not of anything. Reports of this kind of awareness would take the form of an epistemic report upon awakening such as ‘I knew there was a period I was aware’. Reports of AdC cannot include any object of awareness or any time or space dimension.

In chapter 5, I will retake again this classification. For now, I outline the different types of awareness as possible states that can be had during dreamless sleep. These states are not mutually exclusive, and more than one state can be found in an episode of dreamless sleep. In the next chapter, I present a pilot study that I carried out where I gathered subjective reports of experiences of awareness during dreamless sleep. The goal of this study was to investigate whether these different types of conscious state during dreamless sleep could be identified.

Chapter 4: Qualitative study on awareness during dreamless sleep

4.1. Methodology and procedure

4.1.1. Research question

The main aim of the present study was to investigate the experience of awareness during dreamless sleep. In particular, the study aimed at collecting more findings on how this experience of awareness unfolds and which are its different components. Specifically, the goal of the study was to find reports of experiences similar to those reported in Indian philosophy — experiences of bare awareness during dreamless sleep and nothing else (see [Chapter 2](#)). Given the descriptions of LDS in the literature as the ‘absence of an object of awareness’, the hypothesis was that this phenomenon would be described by the participants as a period during sleep in which there was nothing to be perceived. The expected reports would, in turn, involve descriptions mentioning the perception of lack of imagery, absence of a content of awareness or the experiences of a void.

4.1.2. Methodology

The micro-phenomenological interview (MPI) is a technique initially developed by Pierre Vermersch (1994/2010) and adapted by Claire Petitmengin in the realm of Cognitive Science (Petitmengin, 1999, 2006; Bitbol & Petitmengin, 2017), which aims at gathering fine-grained descriptions of the subject’s lived experience.¹⁹ The purpose of the MPI is to help the interviewee to redirect their attention from the content of the experience to its dynamics (Bitbol & Petitmengin, 2017:10). To start this process, the interviewer encourages the interviewee to evoke an experience by asking questions that can elucidate it. The goal is to bring the interviewee back to their past experience. Once the interviewee has evoked an experience situated in place and time, the interviewer can start delving into its different dimensions. The approach of the micro-phenomenological interview is drawn from the phenomenological tradition initiated by Husserl, since it uses the ‘phenomenological conversion’ for the study of the subjective experience (Petitmengin, 2006: 240). The phenomenological conversion consists in helping the interviewee to move their attention from the perceived object to the act of perceiving (ibid). In this way, during the micro-phenomenological interview, participants will be guided in shifting their attention from the content of a particular experience to the processes that yielded that experience.

¹⁹ In phenomenological research, the term ‘lived experience’ is used to refer to the subjective aspect of how a particular event was experienced, in a similar way as the expression of ‘what-is-likeness’ (Nagel, 1974) in analytical philosophy.

In recent years, different studies have applied this method for studying the dynamics of specific experiences, such as the genesis of intuition (Petitmengin-Peugeot, 1999), epileptic seizures (Le Van Quyen & Petitmengin, 2002; Petitmengin, 2005; Petitmengin, Baulac & Navarro, 2006), the Rubber-Hand Illusion (Valenzuela et al. 2013), the dissolution of self-boundaries (Ataria, Dor-Ziderman and Berkovich-Ohana, 2015), and the practice of meditation (Petitmengin et al., 2017). To the best of my knowledge, no study to date has used the MPI approach to explore the phenomenology of dream and sleep. However, some studies have used other forms of phenomenological research to investigate sleep experiences, such as Nielsen (2017) (for more details of the study see [§5.1.2.](#)).

The MPI offers many advantages over other methodologies and, as such, it was the chosen method for the present study. First, the MPI technique facilitates the evocation of a lived experience, allowing the participant to recall more details of their experience. Second, the central tenet of the MPI technique is that the reported experience needs to be situated in space and time. Thus, the interviewer guides the interviewee to situate the lived experience in a particular place and moment (Petitmengin, 2006). Therefore, with the MPI the researcher avoids reports of generalisations, such as ‘this is something that I usually experience when...’; ‘sometimes I experience this’. Instead, through the MPI, the interviewer focuses in specific experiences that took place in a well-defined moment. Third, the MPI method permits the examination of different dimensions of the same experience and facilitates the isolation of dimensions not identified a priori. Finally, contrary to quantitative methods, the MPI technique is characterised by ‘content-free’ questions. The role of the interviewer is to facilitate the recollection of the experience by guiding the interviewee in the evocation process. Because of this, the interviewer asks questions that do not prompt any particular answer in the participant. Instead, the role of the interviewer is to guide the participant during their recollection. While guidelines are in place on how to perform the MPI (Petitmengin, 2006), the specific questions differ from participant to participant and the interview varies according to the descriptions granted by the subject (see Appendix I for a guideline of a micro-phenomenological interview. Consequently, the MPI technique is the perfect method to study elusive and brief experiences such as lucid dreamless sleep because it facilitates the evocation, facilitates the recollection, and guides the examination of the different dimensions of the experience. The application of this method results in fine-grained subjective reports that allow a consequent qualitative analysis.

4.1.3. Participants

Participants were recruited via social media (Twitter) and word-of-mouth. The principal inclusion criterion was having had a recent experience (no more than 6 months) of awareness during dreamless sleep. Prospective participants were excluded if they experience a mental or physical illness, were taking medication that could affect the central neuro-system or reported poor sleep quality. Prospective participants contacted me via email and received the information sheet, consent form, and the study specific Screening Questionnaire. The Screening Questionnaire had different questions about demographics, medical information, lifestyle, sleep routine and sleep experiences that participants needed to answer to ensure that they met the inclusion criteria of the study (see [Appendix II](#)).

Six participants (n=6, mean age= 46 years old; 2 females and 4 males) who meet the inclusion criteria were recruited to take part in the study after completion of the screening questionnaire. Two of them said to practice meditation very rarely, whereas the other four, one was an occasional (<5 times a week) meditator and the other three practiced daily. The ones who practice meditation occasionally and regularly, practice a sort of open-awareness meditation; a meditation practice where there is no specific focus of attention, but the practitioner is instructed to observe the passing thoughts and perceive the body. The rest of participants mentioned to have practice some breathing techniques very sporadically.

4.1.4. Ethics

The pilot study was approved by the Ethics Committee from the University of Glasgow (reference 300170275) and followed the guidelines of the British Psychological Association (BPA).

4.1.5. Interview procedure

Due to geographical location, all participants were interviewed online using the free platform Zoom (<https://zoom.us/>). With consent of the participants, all the interviews were recorded for transcription purposes (verbatim, audio only). The interviews averaged 2h and consisted of three sections: 1) Pre-Interview, 2) Micro-phenomenological interview (MPI), 3) Post-Interview. The format of the interview was developed following the MPI method that advises to carry out a small exercise (pre-interview) before undertaking the interview. Similarly, the MPI method also advises to take some time after the interview to ask the participant about

their experience during the interview and raise any concerns or questions that they might have.²⁰

- 1) Pre-Interview (30min): This first stage of the interview process served the aim to train the interviewee on the MPI method. Following Petitmengin's suggestion to replicate the experience to be recalled before the interview (2006:243), participants were asked to memorise a short list of words.²¹ Participants were asked questions about a recent experience, in this case, the experience of '*memorising the list of words*' and show them what the MPI method consist of and which kind of questions are going to be asked in the next stage.
- 2) Micro-phenomenological interview (1h): This second stage involved the main aim of the study: investigating the phenomenology of experiences of awareness during dreamless sleep. Here, participants were asked to recall a specific experience they had during sleep that could be described, in their words, as an awareness during sleep in the absence of dreams. The interview followed the MPI method developed by Petitmengin (2006), consisting of five steps: (a) stabilisation of attention, (b) phenomenological conversion, (c) evocation and identification of a singular experience, (d) attention to the different dimensions of the experience, and (e) deepening of the experience. For an example of a micro-phenomenological interview, see [Appendix III](#).
 - a) Stabilisation of attention: The interview started by situating the interviewee in a context and establishing clear boundaries about the reported experience. This process consisted of making clear to the interviewee that the interview is about a specific experience that happened in time and space. Following this, the interviewer brings the subject back to the singular experience, moving them away from generalisations, preconceptions and other thoughts related to their experience. The MPI method aims at helping the interviewee to redirect their attention from the content of the experience to its dynamics (Bitbol & Petitmengin, 2017:10). To start this process, I encouraged the subject to evoke the lived experience by asking questions that elucidate this process, such as '*Try to come back to the moment you were having this experience*', '*When does the experiences start?*' '*What happens in the moment that...?*', '*What happens next?*' (see 'Evocation' questions in [Appendix I](#)).

²⁰ Most of the advice and other recommendations of the MPI technique are taken from my attendance to the MPI training facilitated by Claire Petitmengin in Paris, May, 2017.

²¹ The list of words is presented in the screen and they consisted of (actual order): lion, daffodil, tyrolean, academic, distraction, teardrop, triumph, shade, validation and welcome.

- b) Phenomenological conversion: Once the subject has evoked an experience situated in place and time, I delved into the different dimensions of the experience. For this, I made several questions that aimed at redirecting the interviewee's attention to the way they experienced the event, not what the event itself was. Petitmengin describes this as the 'phenomenological conversion' proposed by Husserl (1982) which consists of "diverting attention from the objects which appear to the consciousness towards the subjective modes of appearance of these objects" (Petitmengin, 2016:240). Thus, the interviewer needs to guide the interview by asking questions that return the participant to 'how' they experienced the event. In this way, the interviewer prevents the interviewees from judging the event or extensively describing their features. The purpose is to encourage the interviewee to describe how they experienced the event. In the study, I followed this step by asking the participants more questions about their experience and encouraging them to describe them to me.
- c) Evocation and Identification of a singular experience: By following the same practice of the first step, I kept redirecting the attention of the participants to report a specific experience in time and place each time the report moves to a general description. One way to do this is by asking questions about the context each time the participant drifts away, similarly to the first step. Another way is to reformulate the report of the participant, recovering the focus of the interview.
- d) Attention to the different dimensions of the experience: As the interview unfolds, different questions were made to cover the different dimensions of the experience, the diachronic dimension— the evolution of the experience in time—and the synchronic dimension – the experience of the different elements. These questions start by content-empty questions like 'What do you see?', 'Where are you?', and they become more specific as the participant reports the different elements.
- e) Deepening of the experience: Once the participant has explained the experience and how it unfolded, different questions were asked to gather more specific descriptions of each of the elements that appear. These questions vary from participant to participant, and I elaborate them as the participant describes the experience. While these questions intend to be as content-empty as possible, they become more specific to trigger more detailed descriptions from the interviewee. For instance, when one of the participants in the study reported that, among others, the experience he had was that of '*awareness having itself*', I asked him to describe this with: '*when you describe that this is 'awareness having itself', could you describe me that a bit more?*'

3) Post-Interview (30min):

After the main interview, participants were asked questions that were related to the specific experience reported during the MPI. For instance, participants were asked extra questions to clarify the context of the experience, the frequency of this type of experiences and to investigate other dimensions that are not mentioned during the MPI. The post-interview also aimed at letting the interviewees express themselves more informally and freely and ask questions about the interview and the study.

4.1.4. Analysis procedure

For the analysis phase, only five out of the six interviews were selected. One of them was not included as the experience reported by the participant did not match with the targeted phenomenon.²² The analysis was based on the methodology described by Petitmengin, Remillieux & Valenzuela-Moguillansky (2018), and Valenzuela-Moguillansky & Vásquez-Rosati (2019) and consists of five major steps: 1) Data preparation, 2) Specific Diachronic Analysis, 3) Specific Synchronic Analysis and 4) General Analysis.

1) Data preparation:

a. Transcription

Interviews were transcribed verbatim with non-verbal components and repetitions excluded. Then, exclusively the second part of the transcription, the micro-phenomenological interview, was numbered chronically, including the questions by the interviewer (see [Appendix III](#) for some excerpts of a real interview). For the answers, the numbering was done by identifying the ‘descriptemes’ which are defined by Petitmengin et al. (2018) as “minimal units of meaning”. Here, the task is to identify in the answers the different descriptive components of the reported experience and to separate them from each other. For instance, in an answer, we can identify different descriptemes (e.g. a participant is talking about where they are, what they are wearing and what they are feeling. Each part of the answer will be identified as one descripteme).

b. Refining the text

Then, I prepared the text that is going to be used for analysing the results. For this, I only wanted to keep the procedural descriptions and eliminate the rest. ‘Procedural descriptions’ refer to those descriptions made by the participant where there is a clear

²² P#05 described different experiences in their report. One of them was a non-lucid dream and the other two were short descriptions of other dreamless sleep phenomena more related to sleep thinking than to an experience of a scenery lacking imagery or a void.

description of the subjective experience of a particular event. The rest of the descriptemes that refer to general descriptions, judgements or commentaries were deleted and were not used in the analysis²³

2) Specific Diachronic Analysis

For the diachronic analysis the aim is to identify each phase of the experience. In this study, two different diachronic lines were distinguished. First, a more general one, analysing the whole report, from start to end. Second, a more specific diachronic line that only considered the diachronic structure of the experience of dreamless sleep, omitting the structure of the reported dreams.

In both cases, the task is to examine each of the descriptemes and to identify different moments of the experience. First, I grouped similar moments and attribute them to a moment in time (the chronological order of the experience does not always match the order of the report). Second, I assigned to each group a phase name. This assignment is done following an 'iterative interrogation' process (Valenzuela-Moguillansky & Vásquez-Rosati, 2019) in which we describe the criterion followed for the grouping process. What is the reason or criteria for grouping those descriptemes? What do they have in common? What are they referring to? The iterative interrogation can be carried out several times to discover sub-phases in each of the phases identified, as well as to redefine phases previously identified. Each individual diachronic analysis is later illustrated in the form of a diagram.

3) Specific Synchronic Analysis:

For the synchronic analysis, the aim is to identify different themes within the reported experience. I examined the descriptemes in each of the diachronic units previously identified and I repeated a similar iterative interrogation process. The difference with the diachronic analysis is that in the synchronic analysis the descriptemes are grouped according to what they are referring to. This time, the iterative interrogation is repeated several times to create themes that can define each group of descriptemes; from lower to higher levels of abstraction (Valenzuela-Moguillansky & Vásquez-Rosati, 2019). As in the previous stage, I designed a diagram to illustrate the synchronic analysis of each participant. These different themes are different experiences reported by the participants that refer to the same period (same diachronic dimension).

²³ The descriptemes that cannot be considered as procedural descriptions are considered by Petitmengin as 'satellites' of the experience (2016). This can be understood as the descriptions that do not refer to 'how' the experience was lived, but instead, to 'what' the experience was. For a more detailed description see Petitmengin (2006) and Petitmengin et al (2018).

4) General Analysis:

The goal of this study was to investigate the structure of the experience of awareness during dreamless sleep and compare it with the descriptions found in the literature. The aim of the general analysis was to (i) compare the phenomenological reports with the descriptions of awareness during dreamless sleep found in the literature and, (ii) describe the experience of awareness during dreamless sleep. This general analysis was carried out in both Diachronic and Synchronic analysis.

- i) **General Diachronic Analysis:** To carry out this comparison, first I identified a generic structure in the experience of awareness during dreamless sleep. Then, I identified which categories describe better this phenomenon.
- ii) **General Synchronic Analysis:** The generic analysis identifies the common synchronic categories in all the participant's reports. This results in the identification of different 'experiential dimensions' within each of the diachronic dimensions.

4.2. Results

In this section, I present the results of the analysis for the general diachronic and synchronic analysis to show which phases and categories were common to all participants.

4.2.1. General Diachronic Analysis

The diachronic analysis revealed two different types of diachronic structure: *Type 1* and *Type 2*. Participants #01, #03 and #06, displayed *Type 1* ([Figure 2](#)).

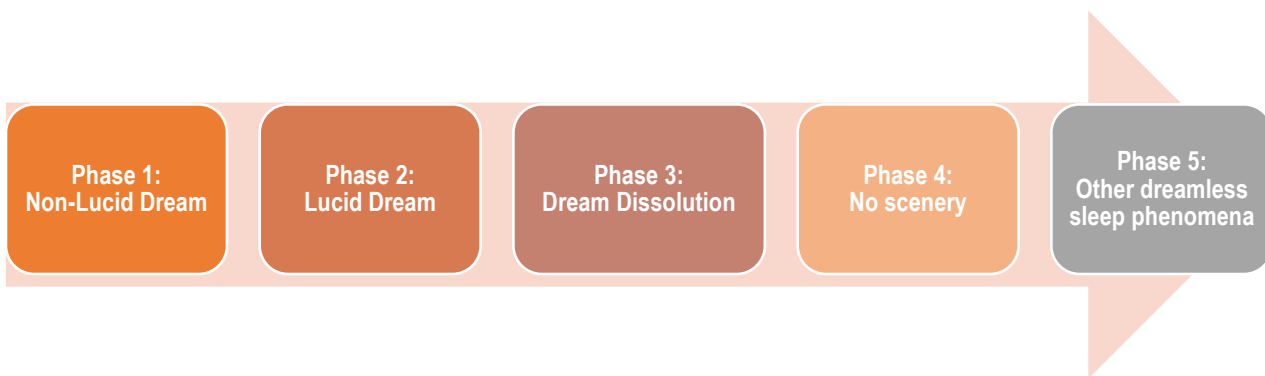


Figure 2. General diachronic structure for participants #01, #03 and #06. The diagram results from analysing the reports given by the mentioned participants and identifying different phases within them. For the three participants, the resulting diachronic structure was the same. The report started with the description of a **non-lucid dream (Phase 1)**, which eventually turns into a **lucid-dream (Phase 2)** – the participants realise that they were dreaming. This lucid-dream then starts to **dissolve (Phase 3)** and participants describe how the scenery around them fades and turns into a period of **no scenery or void (Phase 4)**. Finally, participants mentioned that this phase ends with the appearance of some images and/or thoughts (**Phase 5**). Given the goal

of the study, only phases 3, 4 and 5 undertook a further diachronic analysis since were the phases of ‘dreamless sleep’.

The diachronic structure of these participants consisted of five phases. However, for the analysis I only considered Phases 3, 4 and 5 because were the ones classified as conscious dreamless sleep phenomena. **Phase 3, ‘Dream Dissolution’** marks the precedent of the experience of dreamless sleep. This phase starts with the dissolution of the lucid dream (see [figure 2](#)). P#01 described the dissolution as the imagery in front of her “fading away”. P#03 mentioned that the dissolution starts while they were falling down from the sky (they had a lucid dream in which they were flying).

“And after I said that to all the people in the mirror, the scene started to fade and all of it faded away”. P#01

“As soon as the sensation of falling began to happen... the dream world around me [the dream construct with the café and the sky I was around] it folded it as quickly as I was falling”. P#02

P#06 described this dissolution as a more sudden process that starts after him shouting out “*dissolve this dream in the ultimate state*” in the dream. This was something that they had been practicing before without any success.

“So, I shouted out the same phrase [‘dissolve this dream in the ultimate state’] and the room started to spin, it started to move but it never got that far [...] The whole dream was dissolving”. P#06

The dissolution of the dream is followed by **Phase 4, ‘No Scenery’**. The transition between one phase and the other is marked by a ‘transitional event’ (Petitmengin et al., 2018). The transitional event marks the switch between phases and allows the differentiation between one phase and another (see [figure 3](#) for all the transitional events). In P#01, P#03 and P#06 the transitional event is the noticing of the absence of dream-scenery.

“it feels like there’s nothing around it. It was just image and it’s fading and there’s nothing”. P#01

“I dropped into nothing. A space of nowhere”. P#03

“The next thing that happened is that there’s empty space”. P#06

For all three participants, the end of the ‘No Scenery/Void’ occurred with another transitional event that marks the beginning of **Phase 5**. In this event, they described losing attention towards the ‘Void (see [figure 3](#)). For P#01 and P#06, this occurred with the appearance of some visuals:

“it seems to lose a bit the lucidity or something [...] when the colours appear, I was also less present...”. P#01

“Then smoothly this image appeared of two hands”. P#06.

P#03 reported that they started feeling that they were lowering and that they started thinking whether they were still in bed:

“I felt myself moving into a different...how do I describe it? Lowering in some way. Then I started to think, ‘I wonder if I’m still in bed’”.

Following the categorisation by Windt et al. (2016), the phenomena happening during this phase cannot be classified as ‘dreams’ because of their lack of immersion. On the contrary, the phenomena appearing in this period fit well with the description of another type of dreamless sleep classified by these authors as ‘Non-Immersive Imagery and Sleep Thinking (ibid. p.873). Thus, phase 5 receives the name of **‘Other dreamless sleep phenomena’**.

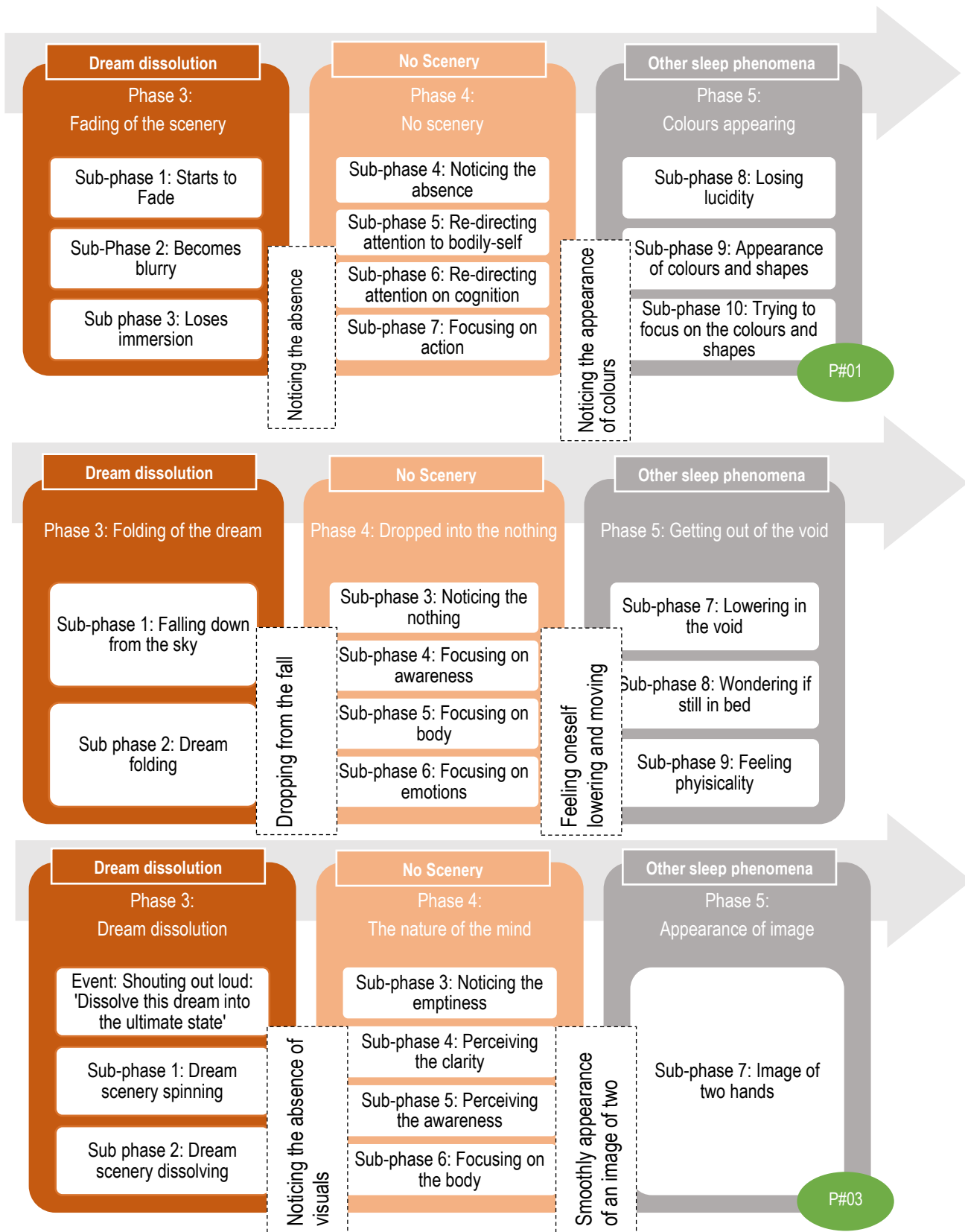


Figure 3. Specific diachronic structure for each P#01, P#03 and P#06 during phases 3, 4 and 5. The diagrams show in detail the diachronic structure for each participant and the sub-phases in each of the phases 3, 4 and 5. In between the phases, the dotted boxes show the transitional event that mark the change of phase for each participant.

Participants #02 and #04 displayed a different diachronic structure that was classified as *Type 2*. This structure shows an evolution of the experience in 3 phases: (1) Other dreamless sleep phenomena, (2) Void/Dream Matrix and, (3) other sleep phenomena. Yet, P#04

explained that before phase, the participant experienced a Non-Lucid dream. In this dream, P#04 wanted to become a tree, but for this, they realised that they need to die:

“So, at this point I’d die and re-form. I don’t want to be a human, I don’t want a human experience. I chose death to have this experience”.

From this point, P#04 described a phase where they absorbed a lot of energy through their spine:

“At this point of the dream, I absorb a lot of energy. Something that might count as light, something that might count as vibrating ‘meta’” [...] “Isn’t a Lucid Dream... [...] It’s very abstract in nature”.

After this episode of transition to death, P#04 identified what they call the ‘Void’, **Phase 2**, a state where they have arrived after the transition (see [figure 4](#)):

“You go in the transition into this space.”

In the case of P#02, they did not report any dream right before the experience of dreamless sleep (although they commented that they had various dreams that night). What they described instead is a period of moving into ‘lucidity’ (see [figure 4](#)):

“there’s a sensation of an opening up into the lucid space. It’s like the regular dominating mind and out of a sudden, there’s a shift and there’s an opening up into the lucidity”.

From that point, P#02 moved to another space that they call the ‘dream matrix’ (**Phase 2**):

“In the dream matrix I can’t see any visuals”.

For both participants, this experience in the ‘Void/Dream matrix’ finishes suddenly, with the experience of some brief thoughts, **Phase 3**, and then waking up (see [figure 4](#)). P#02 described this as:

“It seems rather than staying in the dream matrix were the lucidity would continue, it pops out more to the ruminating mind”. P#02

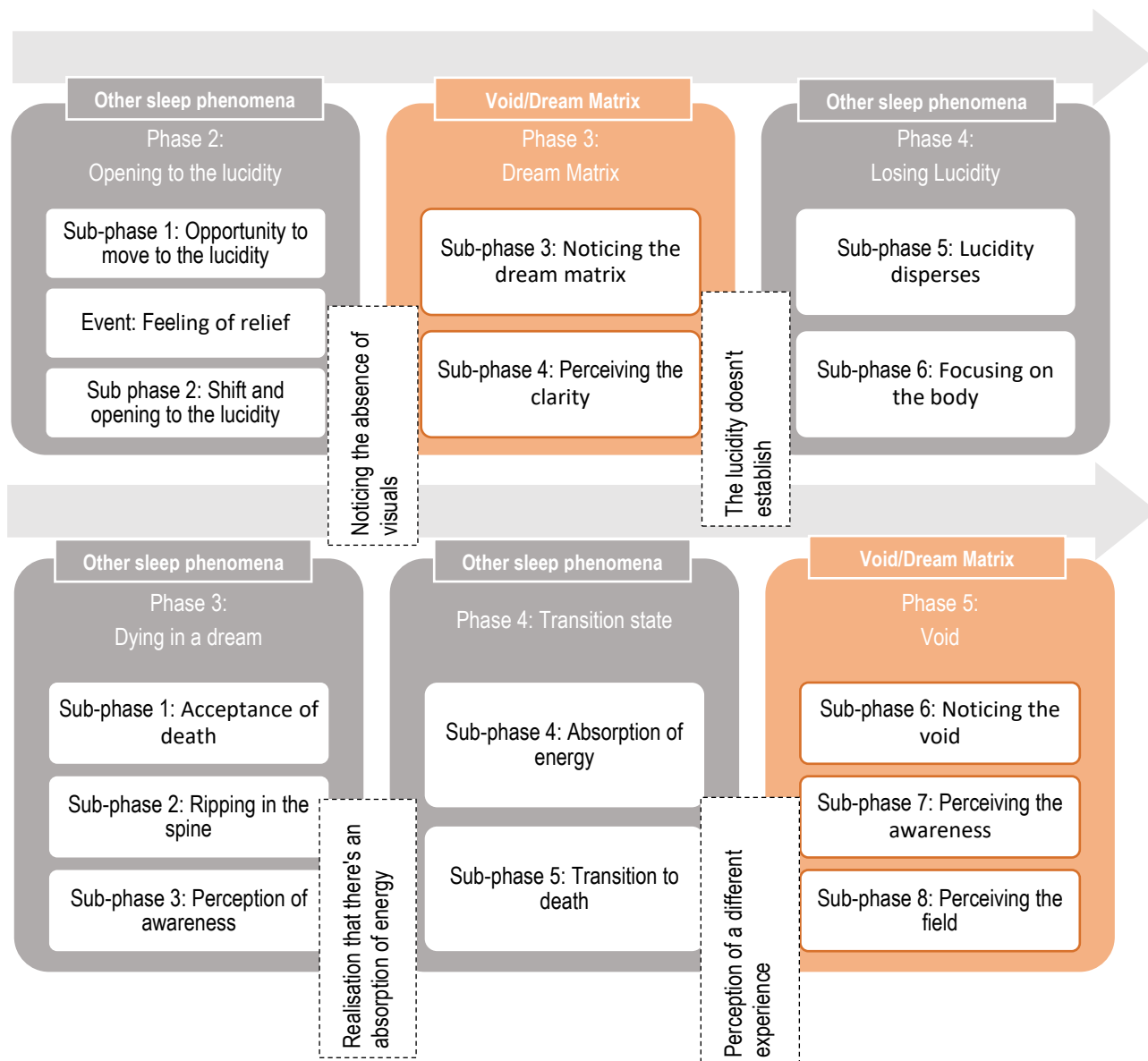


Figure 4. Specific diachronic analysis for P#02 and P#04. The diagrams show in detail the diachronic structure for each participant and the sub-phases in each of the phases 2, 3, 4 and 3, 4 and 5, respectively. In between the phases, the dotted boxes show the transitional event that mark the change of phase for each participant.

Summing up, the diachronic analysis revealed three states common to participants P#01, #03, and #06

- 1. Dream Dissolution
- 2. No scenery
- 3. Other dreamless sleep phenomena.

and two in P#02 and #04:

- 1. Other dreamless sleep phenomena
- 2. Void/Dream Matrix.

Of all those states, ‘No scenery’ and ‘Void/Dream Matrix’, respectively, were the only states that unfolded similarly to all the participants in the study. Consequently, this became the focus of further analysis. This period was generally described as a period of absence. Participants mentioned the perception of a lack of environment (absence) and their presence in a void (nothingness). This experience was usually accompanied by a sense of self and body dissolution, but it adopted different forms in each of the participants. The experience was felt as a positive experience and it was pleasant. Awareness during this episode took different forms, ranging from a total lack of content (‘Just awareness’) to higher forms of cognition, including lucidity. From the descriptions provided by the participants, this state seemed to be more related to the phenomenon of lucid dreamless sleep described in the literature — an awareness during deep sleep devoid of intentional content. The following synchronic analysis aimed at investigating in detail the structure of this state of ‘No Scenery/Void’ to find similarities between the reports of this state and the descriptions found in the literature.

4.2.2. Generic Synchronic analysis

As described in the analysis procedure, the synchronic analysis started by grouping the descriptemes for each phase and sub-phase for each participant in categories following an iterative interrogation — I asked myself what the criteria was for grouping the descriptemes. Once I identified the different categories, I ask myself again if I could find new themes to classify the categories found. This process of iterative interrogation keeps repeating until we cannot find new grouping categories or themes. As a result, I identified four themes, within the period of ‘No Scenery/Void’, common to all participants: 1) Perception of absence, 2) Self-perception, 3) Perception of emotions, and 4) Perception of awareness (see diagram 6). For each theme, I identified different subthemes. The themes and subthemes are not presented in order of importance or influence, but instead, following the order that appeared in the transcriptions.

1) Perception of absence

This first theme was identified from grouping descriptemes that referred specifically to how participants experienced the ‘No Scenery/Void’ itself. Participants described the features of the ‘No Scenery/Void’ as the perception of absence. In these descriptions, we can identify three subthemes:

a. Object of absence

One of the main features of the ‘No Scenery/Void’ is that of ‘Absence’:

“there wasn’t any scenery, there are no images”, P#01; “The space around me was very... was not like the sky or the stars, it was like a void”, P#03; “There was nothing to see”, P#06

And ‘Emptiness’:

“no physical infinite holding space”, P#3; “here’s empty space”, P#04.

b. Perception of visuals

Although there was nothing to see, participants described this vacuum or void state as ‘Dark’:

“there’s a visual sense but it’s like vibrant blackness”, P#02; “it was very dark”, P#03, “this black space”, P#04.

At the same time, they also described it as being ‘Light’:

“there’s a clarity that this light”, P#02; “it wasn’t the absence of light, but it was very light”, P#03; “there was a light and it was white in colour”, P#06

Finally, P#04 also described the void as a *“multicolour lining but it’s everywhere around. A massive grid”*.

c. Quality

Participants also described this phase by referring to its qualities. Two of the most frequent categories were the terms ‘Familiar’ and ‘Non-conceptual’. Three participants described the ‘No Scenery/Void’ as something that was familiar to them:

“there are familiar spaces”, P#02, “I’ve experienced it before”, P#04.

Both P#02 and P#04 explained that they experienced this before, but in the case of P#04, this was the first time that the experience lasted so long and was fully lived. Although P#03 mentioned that they never experienced this before, once in this state they recognised it as something familiar:

“It felt very...not familiar as in terms of me having been in there, but in terms of having known”, P#03

Both P#03 and P#04 described this state as ‘Non-conceptual’:

“It was like it was beyond any... there wasn’t no need of any constructs of the mind to have anything to do with that”, P#03; “Isn’t constructed in any way”, P#04

Other categories of Void’s quality include ‘Vibrance’ (*“It has like a vibrant quality”, p#02*) ‘Electrical’ (*“It’s like is electrical or live”, P#02*) and ‘Expansive and limitless’ (*“I found it incredibly expansive. Very limitless”, P#03*)

2) Self-perception

This theme includes descriptemes that made reference to oneself while in the ‘No Scenery/Void’. In this theme, the descriptemes are not about describing the features of the environment (such as the absence of imagery or the perception of darkness or clarity), but about describing the self-experience while in the ‘No Scenery/Void’. Three different subthemes were identified:

a. Self-Location

Only P#01 mentioned that they could feel themselves located while they was in the ‘No Scenery/Void’. They made several remarks about their body and their location in space:

“I’m just left like in the centre of nothing” P#01

b. Bodily-sensations

Again, P#01 was the only participant that mentioned awareness of a body while in the ‘No scenery/Void’. They made several descriptions referring to their body- parts, including the perception of ‘Movement’:

“It’s all very like fluid movements, like being in water or something”. P#01

However, P#01 also described how they felt a sort of ‘Resistance’ that prevents them from moving their head:

“I couldn’t move my head around” P#01

P#03 and P#06 mentioned being aware of the absence of their body, ‘Lack of physicality’:

“I didn’t feel any physicality”, P#03; “I didn’t have my physical body”; P#06

P#02 and P#04 did not mentioned any awareness of their bodies.

c. Absence

Not only P#02 and P#04 did not mention any bodily feelings while in the No Scenery/Void (including any mention of them lacking bodily feelings), but they also explained that their ‘selves’ were absent during this period. During the interview, both participants commented several times that they did not know how to describe this experience without using the indexical ‘I’ (e.g. ‘I was there’), because during the experience itself, they experienced a complete lack of self. For this reason, they make the following remarks about the experience:

“It’s like my experience is able to kind of sustain it. I don’t know if there’s an agency sustaining it”, P#02;

“There’s no scenes of self, no scenes of human, no scenes of being”, P#04.

P#06 mentioned lack of physicality during the ‘No Scenery/Void’, but they also stressed the fact that they did not have any sort of self perception while in it:

“There was no intellectual content of awareness like ‘I’m X, I’m here’”, P#06

1) Perception of emotions

This theme was isolated to differentiate instances where participants described their emotions while in the ‘No Scenery/Void’. In general, they experienced this period as something positive.

“Now, I’m not nervous anymore”, P#01; “but not frightening in any way”, P#03;

“I loved it. I really loved being in there”, P#03; “It was very peaceful”, P#06;

Participants #02 and #04 did not specifically mention any emotional features during this stage.

3) Perception of awareness

This last theme was isolated from the others because it does not refer to either how participants experienced the ‘No Scenery/Void’ or how they experienced themselves. Here, the descriptemes refer to how participants experienced their own perception of awareness instead.

a. Cognition

This first category refers to those descriptions in which participants describe the presence of thoughts during the 'No Scenery/Void'. I mentioned before that the presence of thoughts marked the end of the 'No Scenery/Void' and the start of 'Other Dreamless Sleep Phenomena' period. However, in the case of P#01, the presence of cognition did not seem to disrupt her experience. While they described her thoughts, they still mentioned to be in the 'No Scenery/Void'. They mentioned several times that, while in this period, they were wondering what they were going to do.

"I'm just wondering to myself: 'I wonder if I should do something'". P#01

It is not until they noticed the appearance of some colours and shapes that they noticed that they were getting out of the 'No Scenery/Void'.

b. Lucidity

Two participants described being aware that they were in this state of 'No Scenery/Void' while in it. These descriptions are categorised as 'Lucidity' because the participants have insight of their own state: they know that they are in a period of 'No Scenery/Void'.

"The experience of being aware of my consciousness inside this void was very... it felt like a more advanced and deeper understanding of that freedom of being lucid could offer", P#03;

"I realised I was awake inside the dream was still very present but in a much more profound way", P#03;

"That wasn't something that I could mistake for a dream. Nor could I mistake a dream for that. They are experientially very distinctive", P#06.

"When I had this experience of emptiness, I still know I was dreaming, I was aware I was asleep". P#06.

c. Content of awareness

This subtheme involves descriptions of awareness that were distinguished on the basis of what the awareness refers to. P#02, P#03, P#06 described this awareness as just experience – an awareness that did not have any content of awareness:

"it's emptiness. It's emptiness but awareness of emptiness. But well, when I say awareness you can say, 'oh, there's awareness of emptiness', but sometimes, it's like emptiness and awareness it's the same, there's no 'being' being aware of emptiness, it's emptiness is awareness", P#02

“[...] and start to have an awareness...isn't you, it's just an awareness. [...] It's like if we were going to drop a mind in a computer and whatever we drop into the computer is what it's left. It can experience but isn't saying, isn't feeling, isn't tasting...it can't describe the experience”, P#04

“I was aware [...] It wasn't that I was thinking consciously I'm in sleep or I'm in a dream. It was more that it was an awareness”, P#06

However, at some points, this awareness does seem to have a content. The more abstract one is that of an awareness of awareness itself:

“awareness of awareness being aware”, P#04

This is also described in the terms of awareness of clarity:

“Just clarity”, P#02; “And then I realised that this was the nature of mind”, P#06

Other mentions of awareness with some content included the awareness of energy (*“It's like energy of your mind”, p#02; “I was aware of my energy” P#03*), the awareness of just being: (*“absence of physicality, and just moving into an essence of pure beingness”, P#03; “being aware. Being present”, P#06*) and awareness of an observer (*“There's an awareness of the observer, which I guess I identify with, but there's not a typical sense of the self”, P#02*).

d. Quality

Finally, the category of 'Quality of awareness' was identified to classify those descriptemes that mentioned how this awareness was. P#02 described this as 'No constructs':

‘very non-conceptual stuff going on’, “It's just awareness without an agenda, without movements,” P#02

Thus, similar to the descriptions made by other participants referring to the 'No Scenery/Void', but in this case, P#02 was referring to the sort of awareness experienced. The perception of awareness is also described as 'Luminous and open' by P#06:

“is luminous and open awareness”, “It was open, without being focus on anything

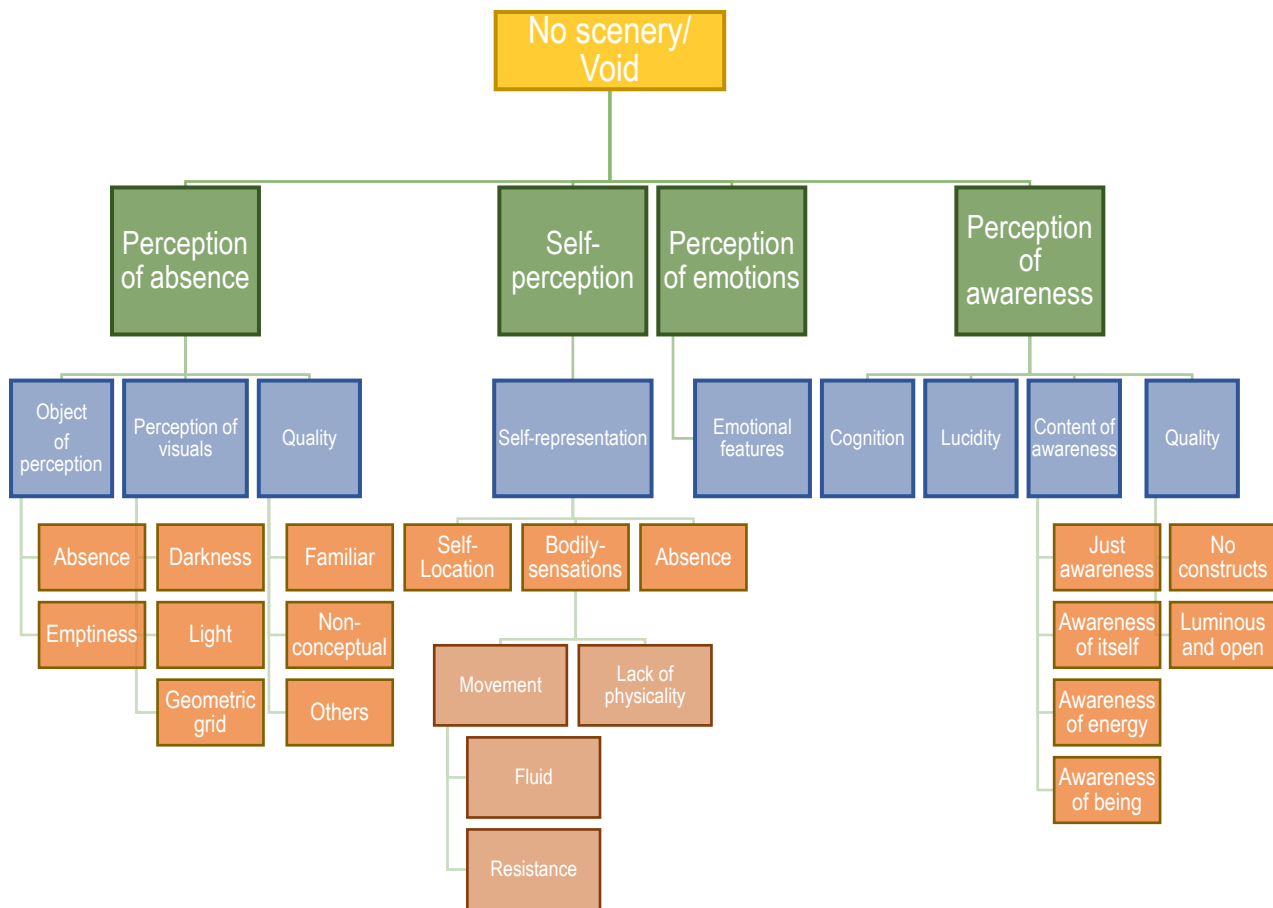


Figure 5. General synchronic structure for all the participants while in the phase of ‘No Scenery/Void’. The diagram includes all the themes and subthemes discussed in the results section.

4.3. Discussion of the study

The present study is a unique exploration of consciousness during dreamless sleep with the use of the micro-phenomenological interview (MPI). The study investigated the dynamics of the experiences of awareness during dreamless sleep described by five participants. The aim of this investigation was to conduct an exploratory comparison of the experiences described by the participants to those found in the current literature (presented in [chapters 2 and 3](#)) and the taxonomy presented at the beginning of the thesis ([chapter 1](#)). From the results of this study, I conclude that during dreamless sleep there exists a significant variability of conscious states.

As noted in the results section, the episodes of dreamless sleep gathered from the interviews were labelled as ‘No Scenery/Void’ and ‘Other sleep phenomena’. I will start with the first one, ‘No Scenery/Void’. Participants described a period during sleep in which they were aware of what they said it was a period that lacked imagery whatsoever. This period was described with the words of ‘no scenery’, ‘the void’, ‘dream matrix’, or ‘the nothing’. Similarly, this period seemed to entail the lack of object of awareness and conceptual content. Although participants described the ‘No Scenery/Void’ in terms of

‘absence’ or ‘emptiness’, I argue that these descriptions should not be understood as the actual perception of ‘absence’ or ‘emptiness’. Instead, ‘absence’ or ‘emptiness’ should be understood as placeholders used by the participants to describe adequately their experience. Similar case applies to the descriptions made by the participants referring to the period of ‘No Scenery/Void’ as that of ‘dark’ or ‘light’. These should be understood as metaphors and not as the perceptual experience of ‘darkness’ or ‘light’. Remember from chapter 2 that the Advaita Vedānta and Yoga schools described awareness during deep sleep as sushupti, a mode of consciousness that is equalled to a state of absence, including the awareness of awareness itself. Sushupti is said to be a state in which the subject is aware of having known nothing during dreamless sleep, yet there was nothing to perceive:

Bhattacharyya’s intriguing explanation is that in sushupti, the consciousness still functions in a ‘knowing of objects mode’, but the ‘object’ perceived by it is merely a blank; or as they further puts it, sushupti is ‘the consciousness of a positive nothing. Furthermore, they explains that upon waking up from sushupti, the self remembers that it was in a ‘knowing of objects mode’ even though the object was a blank" (Bhattacharyya, 1983: 27 in Raveh, 2008:327),

In chapter 2, I gave my interpretation of the descriptions made of sushupti by the Advaita Vedānta and argued that these should be understood as the experience of awareness devoid of content; an experience of bare awareness. From the reports gathered, I make a similar reading and conclude that this is a special kind of conscious dreamless sleep experience inasmuch as participants experience instances of awareness devoid of content. The period of ‘No Scenery/Void’ is then a sleep phenomenon different from dreams because, at some points, it lacks awareness of any content – during this period, we can have an awareness that lacks any representational content. Moreover, participants themselves experience this period of ‘No Scenery/Void’ as something completely different to any dream experience they ever had.

Notwithstanding this assumption, I argue that this period of ‘No Scenery/Void’ should not be understood solely as an instance of awareness devoid of content. While we should conceive the descriptions of ‘no scenery’, or ‘nothing’ as metaphors and not actually as the perceptual experience of absence, in some cases, the descriptemes seems to entail something different:

“I dropped into nothing. A space of nowhere”. P#03

“The next thing that happened is that there’s empty space”. P#06

These two descriptemes were labelled as transitional events that established the shift between the dream to the ‘No Scenery/Void’. From them, we understand that something changed in the experience of the participants; the dream experience has ceased to exist, and they are left in a void environment. Shall we conclude then that the participants did perceive (in visual terms) an environment of absence? Or shall we understand that the dream terminated and then there was nothing else to experience? These are questions that should be explored further in future research, but for now, I conclude that participants experience both. In some moments, they do experience awareness with some minimal content: there is an experience of absence, albeit not perceptual. I will explore this further in [chapter 5](#). In other moments, this period is experienced as bare awareness, but upon waking up participants try to explain this period as something ‘absent’, ‘empty’ or ‘dark’.

Similarly, I argue that the period of ‘No Scenery/Void’ is not always experience as awareness devoid of content, but as awareness of awareness itself instead. In chapter 2, I introduced the notions of ‘Dream of Light’ by Tibetan Buddhism. This tradition described the instances of awareness during dreamless sleep as a period where we reach the “natural light” (Norbu, 1992) or ‘clarity light’ (Padmasambhava, Rinpoche, & Wallace, 2008). The practice of Sleep Yoga aims at maintaining awareness in the transition between sleeping and dreaming with the goal of recognising the nature of the mind, or a state of ‘pure awareness’ (Ponlop, 2006:86; Padmasambhava, Rinpoche, & Wallace, 2008:209):

Clear light is defined in most texts as the unity of emptiness and clarity.
(Rinpoche, 1998:115).

If you recognize the clarity and emptiness of that occasion, which is free of the intellect, this is called “recognizing the clear light” (Padmasambhava, Rinpoche, & Wallace, 2008:209)

In chapter 2, I discussed the different interpretations that we could make of this perception of the ‘clear light’. I concluded that the best interpretation was to read this awareness of the light as the experience of awareness as such. Thus, the experience of the ‘light’ should not be understood as a perceptual experience of ‘lightness’ but again, as a metaphor to describe the experience of awareness itself. In the study, some participants (#02, #03 and #06) described the period of ‘No Scenery/Void’ in terms of light (see [§4.2.2](#)). Following this interpretation, it is important to note that the participants who described the period of ‘No Scenery/Void’ using the concept of ‘light’ they were either expert meditators or had

knowledge of meditative traditions.²⁴ Consequently, I conclude that the participants did not actually perceive light, but instead, used ‘light’ as a descriptive term to talk about their experience of awareness during dreamless sleep.

These periods of ‘No Scenery/Void’ were distinguished from another period that followed this experience called ‘Other dreamless sleep phenomena’. Contrary to the descriptions of ‘No Scenery/Void’ as a non-perceptual, and non-conceptual experience, the descriptions regarding ‘Other sleep phenomena’ should be categorised as awareness of substantial content. For instance, during this period, some participants (P#01, #03 and #06) described the awareness of some object, such as colours or images appearing, or the perception of thoughts (see §4.2.1). There is the special case of P#01 whose instances of awareness with content also appeared in their descriptions during ‘No Scenery/Void’. They were aware of themselves during the dissolution of the dream, and could even situate themselves and their body:

“I’m just left like in the center of nothing”

“It’s all very like fluid movements, like being in water or something”.

“I couldn’t move my head around”

“I’m just wondering to myself: ‘I wonder if I should do something’”

These intrusions of ‘Other dreamless sleep phenomena’ during the episode of ‘No Scenery/Void’ show that both phenomena do not have a straight cut-off line that separate them, but instead, display gradual differences. Thus, future research should also investigate further whether the descriptions provided by P#01 was a weak experience of ‘No Scenery/Void’, if it should be regarded as a case of ‘Other dreamless sleep phenomena’, or if it was something else.

Finally, we should consider whether the reports made by the participants match the descriptions made by contemporary traditions about conscious dreamless sleep. Remember that, according to Windt et al. (2016), some cases of conscious dreamless sleep are instances of selfless experiences. Some authors, like Thompson (2015a,c), understand the notion of ‘selfless’ as a period in which there is not a sense of self during the experience itself – during

²⁴ Both participants #02 and #06 declared to be expert meditators; #02 had extensive experience as Yoga practitioner and #06 was trained in the Tibetan Buddhist tradition. Although participant #03 admitted to not following a regular meditative practice, they had knowledge of some meditative traditions, including the teachings on sleep yoga.

the period of conscious dreamless sleep there was no self-awareness. However, Thompson claims that during this period, we have a ‘pre-reflective’ sense of self – we do not have self-awareness, but there is a minimal sense of self that prevails. For Thompson, this minimal sense of self translates to a feeling of being alive (2015b:11). On the contrary, Windt (2015a) talks of a selfless experience that lacks sense of self altogether, including any minimal sense of self. She describes this experience as the experience of pure temporality — we have an experience of present time, of ‘nowness’.

In the study, except for P#01, the rest of participants described lack of physicality and lack of sense of self altogether. Regarding the former, lack of physicality, I understand that there was still a self-perception; participants felt themselves in the period of ‘No Scenery/Void’, but they experienced their body as missing (see [§4.2.2](#)). As for the later, there was no sense of self, including a minimal sense of self. One of the participants also reported their experience during the ‘No Scenery/Void’ as both, lack of physicality and pure being and presence.

“absence of physicality, and just moving into an essence of pure beingness”;
“being aware. Being present” P#03.

I argue that this description could accommodate both Thompson’s and Windt description. In this case, the participant described an experience in which they identify that lack a body, but that is experienced as a bare experience of present time. Thus, conscious dreamless sleep experiences can present a range of variability on the feeling of self. In some cases, this would be experience as selfless experience — our sense of self disappears, and it is only afterwards (upon waking up) that we attribute the experience as something had by ourselves. In other cases, a minimal sense of embodiment would still remain. Sometimes this minimal sense would be related to the body (i.e. they feel the whole body, body parts, or the lack of it), or minimal sense of self (i.e. they know they were there, but there is no allusion to a body, or spatiotemporal location). Some other times this would be experienced as the feeling of nowness.

From the discussions of the results of the present study, I conclude that we should distinguish among the different types of awareness during dreamless sleep. These types were proposed in the taxonomy I laid out in chapter 1, namely: (1) awareness of substantial content AoSC, (2) awareness of minimal content AoMC, (3) awareness of awareness itself (AoAi), and (4) awareness devoid of content (AdC) in the reports of awareness during dreamless sleep.

Regardless of its novelty, the present study has its own limitations that should be taken into account. First, while originally six participants were recruited, the analysis was effectuated in basis of only five interviews. Although the interviews presented fine-grained descriptions, with the current sample we cannot make generalisations about the experience of ‘No Scenery/Void’ during dreamless sleep. Second, because of the evasive nature of the phenomenon of research, the microphenomenological interviews were extremely difficult to carry out. The full interview could not be focused on just the experience of ‘No Scenery/void’ but needed to also explore the experiences that preceded this period. For this reason, during the analysis of the reports, it was difficult to distinguish between descriptemes referred to the experience while in the ‘No Scenery/Void’ and to experience in the other phases. Finally, since the interviews were not carried out in a sleep lab, we do not have any way to check whether the reported experiences do actually describe episodes had during sleep.

In the next and last chapter, I will lay out the goals for future investigations on dreamless sleep. I will also examine the results gathered in the present study and I contrast dreamless sleep with other associated phenomena. Finally, I will review current research on the area that can serve of guide for future research.

Chapter 5: How to differentiate between dreamless sleep and other associated phenomena

The research presented in this thesis aimed to provide an account of conscious states during dreamless sleep — states of awareness during deep sleep that cannot be considered dreams. However, from the onset, it has also been shown the difficulties of providing an account of dreamless sleep phenomena without comparing them to their counterpart: dreams. Could things other than dreams during sleep be dreams? Shall we refer to dreamless sleep as a ‘type of dream’ instead? Are other associated phenomena, like hypnagogic states, a kind of dreamless sleep phenomenon, a kind of dreams or *sui generis* phenomena? I have briefly addressed these questions throughout this thesis. Regarding the distinction between dreamless and dreamful sleep, I introduced the Immersive Spatiotemporal Hallucination (ISTH) model by Windt (2010, 2015 a, b). I stated that I would adopt this model and would follow Windt and colleagues in their definition of dreamless sleep. Remember that, according to these authors, dreamless sleep experiences differ from dreams insofar the former lack the immersive and simulational character of the latter. However, is that the case? Are dreamless sleep phenomena characterised by lack of immersion and simulation? I have also presented other associated phenomena, such as hypnagogic experiences and other sleep-onset experiences. Their existence asks for a better criterion that could distinguish between dreamless sleep and other sleep phenomena. I have presented hypnagogia as an example of awareness of substantial content (AoSC) during conscious dreamless sleep. Again, a similar question arises here. What does make hypnagogia different from dreamless sleep? How can we properly distinguish hypnagogic experiences from period such as the ‘No Scenery/Void’ described by my participants? And should they be regarded as a no-dream experience solely because their lack of immersion? I shall address these questions here.

In this last chapter, I consider the relationship between dreams, dreamless sleep and other associated phenomena. By taking again Windt’s ISTH model, I claim that there is no clear cut-off line between sleep-onset and dream experiences and that, instead, the differences among them are gradual. However, I advocate for the development of a future taxonomy of sleep phenomena in which we can determine the sufficient and necessary conditions for having conscious dreamless sleep. This taxonomy should be able to discriminate prototypical cases of conscious dreamless sleep from dreamful sleep. The aim of such taxonomy should be properly accounting for the different conscious states during dreamless sleep highlighted in this thesis. To develop this future account, we shall consider the following goals:

1. The development of a taxonomy of conscious of dreamless sleep that can distinguish this phenomenon from other sleep experiences, such as dreams, hypnagogic and sleep-onset experiences.
2. The development of a neurophenomenological approach to study the correlation of the dreamless sleep reports with their sleep stages

Throughout this thesis, I have defended a taxonomy of minimal conscious states during dreamless sleep that does not only considers lucid dreamless sleep (LDS), as defined by Windt et al. (2016). Instead, I have advocated for a classification of four different kinds of awareness that we possibly have during conscious dreamless sleep: (a) awareness of substantial content (AoSC), (b) awareness of minimal content (AoMC), (c) awareness of awareness itself (AoAi), and (d) awareness devoid of content (AdC). To accomplish a final and operational taxonomy, the first step is to establish the differences between dreamless sleep and other associated phenomena. An operational taxonomy of dreamless sleep should be able to answer questions such as, what does it make conscious dreamless sleep different from dreamful sleep? Where does the difference between awareness of substantial content and awareness of minimal content during dreamless sleep hinges? Which sort of phenomena is included in each kind of conscious mental states? While these questions cannot be completely solved with the currently research available, in this chapter, I address them by taking the results of my pilot study ([chapter 4](#)).

5.1. Dreamless sleep and other sleep phenomena

5.1.1. Dreams and dreamless sleep

To compare dreamless sleep with dream phenomena, I borrow the Immersive Spatiotemporal Hallucination (ISTH) model from Windt (2010, 2015a). Remember that, according to this model, dreams are (1) spatiotemporal hallucinations that (2) occur during sleep or sleep-onset and that (3) are reportable. First, dreams are conceived of as a sort of immersive experience where individuals feel located in space and time in a simulated world. Second, dreams are considered to happen during sleep or sleep-onset, and they need to be reported. In the pilot study I performed, participants reported immersive experiences — they themselves appeared to be located somewhere different from the real world. These experiences, apparently, happened during sleep. However, why should we consider those reported experiences as conscious dreamless sleep phenomena and not as dreams? Do we have enough reasons to think that dreamless sleep experiences are not dreams?

If we accept Windt and colleague's (2016) proposal, conscious dreamless sleep experiences, including LDS, should not be considered dreams because they do not have immersive and simulational character. The main reason provided by these authors is that, in conscious dreamless sleep, individuals lack a sense of presence — they do not perceive themselves as being immersed in a place (ibid). Moreover, the same authors also claim that conscious dreamless sleep experiences are not simulational — they do not simulate a real world. However, if we examine in detail the reports gathered in my study, we get a different impression of what dreamless sleep is. For instance, in some cases, the study participants reported a sense of presence. In addition, they offered descriptions of the 'No Scenery/Void' that referred directly to its features. These descriptions exemplify the feeling of being situated in a world during their episode of 'No Scenery/Void' by the participants — they said to be situated in a 'void' or an 'emptiness'. Could we then say that, in some moments, participants were describing a dream experience?

To answer the previous questions, we should look again at the analysis carried out in Chapter 4. Remember that participants did not solely report an episode of 'No Scenery/Void' in their experiences, but also other phenomena, including non-lucid dreams and lucid dreams. Moreover, from the analysis, I concluded that there seemed to be a qualitative difference between the descriptions of dreams (non-lucid and lucid) and the descriptions about the period of 'No Scenery/Void'. Participants described an event that marks the transition between the dream and the dreamless sleep episode 'No Scenery/Void'. Each of these transitional events had as a common feature the noticing of the new phase, 'No Scenery/Void'. Participants reported noticing a different scenery, which they described as 'absence of imagery', 'void' or 'dream matrix' (see [§4.2.2](#) for all the categories identified in the description of the 'No scenery/void' episode). Which are the criteria to categorise this episode of 'No scenery/Void' as a dreamless sleep phenomenon? Could we instead classify this episode of 'No scenery/void' instead a sort of 'dream'? My claim is that we cannot. I argue that the period of 'No scenery/void' experienced by the participants should be understood as an instance of conscious dreamless sleep; thus, it is something different from a dream experience. To argue this, I will first explore whether the descriptions of 'No scenery/Void' could fit into the descriptions of dream phenomena.

If we follow Windt's definition of dreams (2010, 2015b), the descriptions during 'No scenery/void' seem to fit with her criteria for dreams. First, the reported experiences do seem to involve a sort of spatiotemporal location. Subjects reported that 'they fell' or 'went' into this 'nothingness' (e.g. "*I dropped into nothing*"). At least, in the transition from the lucid

dream to the ‘No Scenery/Void’, there is a clear mention to an ‘I’ that has the experience and can situate themselves; at least in space (“*I dropped into nothing*”). One of the participants who reported having this experience quite frequently, said that there is a feeling of presence associated with it, although this feeling is different from any other experience:

“There’s a sense of presence. But there’s not like typical waking life that there’s a lot of distractions. In that space that doesn’t happen. It’s almost like attention and awareness are together”

“This awareness isn’t dependent on me, it just is” P#04

Second, the experiences also seem to be immersive enough for the subjects to feel that they were in that environment (e.g. “*The space around me was very... was not like the sky or the stars, it was like a void*”; “*You’re in a massive dark space, but it’s like the vacuum space*”). They also noticed the difference between being in the environment and getting out of there.

“And coming out of it sometimes is slower sometimes is quicker and it’s like coming out of it. The typical sense of self is like putting its clothes back. It’s like coming to the playing mind, the ruminating mind. It’s definitely shifted from a very simple state of being consciousness, very powerful, to one that it’s distracting, disperse and over the place” P#04

And finally, apparently, those experiences happen during sleep or sleep-onset transition and can be reported. However, classifying these experiences as ‘dreams’ could pose a problem. I claim that we should not categorise the experiences had during ‘No scenery/void’ as dream experiences. The reason of this is that the term ‘dream’ does not seem to make justice to the experience reported by the participants during the ‘No scenery/void’.

Although participants still say to be located in a spatiotemporal frame and feel immersed, their reports do not seem to match the typical descriptions of either non-lucid dreams or lucid dreams. First, some participants talk of this state as something qualitatively different from any other experience they might have had:

“It’s called the void state, isn’t unfamiliar. There’s a high probability in any dream I’m lucid that I’d go into the void state”. P#04

Second, they are not normal dreams, because some participants also claimed to be aware that they are in them (e.g. “*I was still lucid [and knew I was dreaming]*”; “*I realised I was awake inside the dream*”). However, they cannot be classified as lucid dreams either. Although some participants acquire insight while in this experience – they know they are having this

experience and can reflect on it — they perceive this phenomenon as something different from a dream. For instance, some participants reported how different the experience in the ‘No Scenery/Void’ was from a typical lucid dream:

“In terms of my experience in the rest of the world, including lucid dreams, it’s a higher one compared to that”. P#02

“The experience of being aware of my consciousness inside this void was very... it felt like a more advanced and deeper understanding of that freedom of being lucid could offer [...] I had a sense of the limitless possibility of lucidity when I was surrounded by an image dream, but with the absence at all that sense of limitlessness was really expansive”. P#03

“That wasn’t something that I could mistake for a dream. Nor could I mistake a dream for that. They are experientially very distinctive”. P#06

Could it be that these reports of the ‘No Scenery/Void’ are instances of what has been named ‘imageless lucid dreams’ (Magallón, 1991) or ‘hyper-space lucidity’ (Bogzaran, 2003)? In the literature, there are mentions to a type of lucid dream that involve non-conceptual imagery, including the appearance of “abstract imagery, mathematical equations, concentric circles, light dots, light phenomena, and oscillating lines, followed by a sense of “awe” and “spiritual opening” (Bogzaran, 1990:30). Similar experiences have been reported by Hurd (2008) who refer to this experience as ‘cosmic snow’. Other authors have described them as the experience of being in a void – a state of nothing (Magallón, 1991).

These experiences of imageless dreams have been classified as ‘minimal perceptual environments’ (LaBerge & DeGracia, 2000) because in most cases, there is still some sensory imagery present. Moreover, some authors argued that these sorts of experiences involve a minimal-body sense (Johnson, 2014:63). Following these assumptions, Windt (2015b) has argued that imageless lucid dreams are a kind of dream because they involve spatiotemporal situatedness (p. 523-4).²⁵ However, should imageless dreams be regarded as ‘dream’ experiences if they involve a minimal sense of spatiotemporal location? Or should they better be accounted as a case of conscious dreamless sleep? In the absence of further research on these sorts of experiences, I am unable to offer a definite answer. From the descriptions found in the literature, it seems that, again, we are encountering different sorts of experiences. In some cases, these sleep experiences involve the perception of minimal imagery (Gillespie, 2002; Bogzaran, 2003; Hurd, 2008). In other cases, these experiences involve a minimal sense of embodiment (Johnson, 2014; LaBerge & DeGracia, 2002). However, some other

²⁵ Remember that spatiotemporal situatedness is the mark of dream experiences according to Windt (2015a) and her ISTH model

descriptions talk of experiences that lack imagery and content altogether (Magallón, 1991). For this reason, future research should investigate further the relationship between imageless dreams and immersion and determine whether all imageless dreams do in fact involve some sense of spatiotemporal situatedness. Moreover, despite the descriptions of these experiences as ‘lucid’ we should also investigate what the ‘lucidity’ means in these cases. Were the individuals aware that they were having the experience while this experience was unfolding? This does not seem so clear in all the available descriptions. In the case of my participants, I assigned ‘No scenery/Void’ as a case of conscious dreamless sleep because the participants explicitly say that their experience was different from any other dream experience.

What about the simulative character? Should the experiences had during the ‘No scenery/Void’ be considered simulational? According to Simulational Theories of dreaming, such as the ISTH by Windt, an experience is simulational inasmuch it recreates a world for the subject who is having the experience (Revonsuo, 1995). Could we say the same for conscious dreamless sleep? Does it recreate a world? In the case of the experiences reported during the episode of ‘No scenery/Void’, this seems quite difficult. Participants reported this period as the experience of perception of absence or emptiness — they describe the experience of a void; there are no images and no visual experience — there is nothing. Thus, it does not seem that conscious dreamless sleep experiences can be simulational in this respect or, at least, not the sort of experiences in which we recognise awareness of minimal content (AoMC), awareness of awareness itself (AoAi) or awareness devoid of content (AdC). In the case of awareness of minimal content (AoMC), such as the perception of hallucinatory imagery, we should consider further whether these are simulational because of their perceptual character (I will discuss this point when referring to hypnagogia).

Therefore, I claim that the experiences reported by the participants during the episode of ‘No scenery/void’ should be better understood as conscious dreamless sleep experiences — they are experiences happening during sleep that cannot be categorised as dreams. I do, however, accept that these are limit experiences in the verge of dreaming and thus, they might resemble dreams in some ways. The transition between conscious dreamless sleep and dreams is gradual, and thus, some experiences classified as conscious dreamless sleep might display some features resembling dreams. Because of this fact, future research should consider further the different sorts of awareness had during dreamless sleep and their defining features. Consequently, we will be able to improve my proposed taxonomy and establish differences between typical cases of conscious dreamless and dreamful sleep. Moreover, future research should also reconsider the ISTH model of dreams by Windt and

explore further whether the lack of 'immersion' and 'simulation' are the defining features of conscious dreamless sleep.

5.1.2. Dreamless sleep and Hypnagogia

Hypnagogia or hypnagogic experiences occur during sleep-onset transition (Maury, 1848; Mavromatis, 1987). We usually experience these phenomena when we are falling asleep and we start feeling drowsy; between wakefulness and NREM sleep (Vogel, 1991). They can take different forms, with fleeting and isolated imagery as the most common one (Mavromatis, 1987; Foulkes & Vogel, 1965; Schacter, 1976; Hori, Hayashi, & Morikawa, 1994, Stickgold et al., 2000). Some other times, hypnagogic experiences can appear as auditory, vestibular, and kinaesthetic sensations (Hayashi et al., 1999). However, sometimes it is difficult to establish a clear cut-off between hypnagogic and dream experiences. Reports on sleep-onset experiences can show a more complex form of imagery and describe the perception of pictures as if it was a cinema screen (Mavromatis, 1987:14-15). Some other times, these phenomena are experienced similarly to dreams (Nielsen, Stenstrom, et al. 2005; Stenstrom et al., 2012). Because of this phenomenology, Windt argues that hypnagogic experiences can present some overlapping characteristics with dreams, and thus, we should refer to them as 'oneiragogic' experiences instead – experiences that lead into dreaming. Oneiragogic experiences thus, are phenomena that occur between wakefulness and dreaming (Windt, 2015:530). Therefore, we should conceptualise the transition between sleep-onset to full-fledged dreaming as a gradual shift in spatiotemporal situatedness – a gradual transition from a veridical reference frame to a hallucinatory one. This gradual shift explains reports of experiences where there is an overlapping of reference frames (for an example see Ernest March report mentioned in Windt, 2015:530).

Given the gradual transition between sleep-onset and dreams, if we want to establish the differences between both kinds of phenomena, we should investigate both extremes of the spectrum: clear cases of oneiragogia and clear cases of full-fledged dreams. Oneiragogia is usually static, brief and fragmented and subjects claim that its experience is different to that of dreams (see Collard, 1953; Myers, 1957). Contrary, dreams are lived as fully immersive experiences with a complex narrative (Windt, 2015a). Moreover, oneiragogic experiences usually only involve the perception of visual, auditory or kinaesthetic hallucinations but not a full-body hallucination, neither a shift in the reference frame (Windt, 2015b:530). Similarly, oneiragogia are usually experiences being presented "in front of one's eyes", similar to daydreaming (Leroy, 1933; Mavromatis, 1987). In the case of dreams, we feel integrated into the scenery. Windt exemplifies this difference by comparing

oneiragogia to watching a movie and dreams to virtual reality experience (2015a:530). Thus, oneiragogic experiences are not immersive nor simulational enough to be considered dreams. The shift to a hallucinatory reference frame has not been completed yet. However, it needs to be noted again that this differences between oneiragogia and dreams is clearer if we observe prototypical cases of each of them.

I claim, following Windt and colleagues (2016), that oneiragogic experiences should be considered as conscious dreamless sleep phenomena. I hold, like Windt, that oneiragogic experiences can take different forms and thus, some of them will be more similar to dreams than others. This will depend on the immersive and simulational character of each individual experience. Moreover, I have defended a classification in which oneiragogic experiences should be regarded as instances of awareness of substantial content. First, reports of oneiragogic experiences display the perceptual awareness of an external object. Individuals report having been aware of an image and thus, cannot be classified as a form of conscious dreamless sleep involving minimal or lack of content. Second, oneiragogic experiences are described as being different from other episodes of dreamless sleep, such as awareness devoid of content (AdC). In the case of my participants, oneiragogic experiences can be recognised after the termination of the period of 'No scenery/void'. A couple of participants (#01 and #06) described the appearance of visual forms after the end of this phase. These descriptions were classified as transitional events that distinguished between the period of 'No scenery void' and the experience of 'Other dreamless sleep phenomena'.

In his book, Mavromatis (1987) also exemplifies the comparison between hypnagogia and dreams. An interesting comparison is made with 'initial dreams', a term coined by Van Eeden (dreams happening in the first stages of sleep). Van Eeden bring the examples of 'initial dreams' to describe an interesting form of hypnagogic experience:

"[I]n hypnagogic hallucinations we have visions, but we have full bodily perception. In the initial dream type, I see and feel as in any other dream. I have nearly complete recollection of day-life, I know that I am asleep and where I am asleep, but all perceptions of the physical body, inner and outer, visceral or peripheral, are entirely absent. Usually, I have the sensation of floating or flying, and I observe with perfect clearness that the feeling of fatigue, the discomfort of bodily overstrain, has vanished. I feel fresh and vigorous, I can move and float in all directions; yet I know that my body is at the same time dead tired and fast asleep" (Van Eeden, 1969 quoted in Mavromatis, 1978:96)

This citation by Van Eeden resembles a description made by one of the participants in my study who described the end of the ‘No Scenery/Void’ period with the recovery of the awareness of their body.

“[following the experience of the void] And then I felt myself falling, not falling because it wasn’t physical... I felt myself moving into a different...how do I describe it? Lowering in some way. Then I started to think, ‘I wonder if I’m still in bed’. I did start to feel my physicality but I wasn’t sure if I was dreaming or I was in bed or actually in bed so I decided to put my hands between my back and the bed behind me to see if I was really in bed and when I did it I only feel space, I felt I was almost hovering back to my body again, and then I did and then I woke up” P#03

Therefore, we should consider the transition between wakefulness, oneiragogic experiences and conscious dreamful sleep as a gradual transition. In between oneiragogic phenomena and dreams, we could identify, in some cases, instances of awareness devoid of content (AdC) – reports lacking image and content altogether. One of the participants in my study recognised this state of AdC and named it ‘the dream matrix’. According to them, this is a familiar space that they can enter willingly and describes it as space in between dreams. In their reports, they described the dream matrix as a transitional state between waking consciousness and dreaming.

“when I notice this the dream matrix has a very beginning and then it seems to recognise it because... sometimes it’s a dream and sometimes it’s like moving into this lucid stage. If it’s a dream it happens in the first stages of the dream matrix and then the dream it will fade. This lucid state will still be there”

“The dream phase and the sense of the shift to a more normal consciousness, didn’t seem so dramatic, but a realisation that I’m outside the dream matrix. This state isn’t a kind of access state where another dream will happen” P#04

Previous research in hypnagogia also calls for a more gradual transition among the different sleep phenomena. While the original scoring system by Rechtschaffen and Kales (1968) only identified among four different stages before REM sleep (Wake, S1, S1, S2 and S4), Hori et al. (1994) proposed a classification of up to nine different stages. Following Hori’s classification, the traditional Wake, S1 and S2 of sleep are divided into nine stages. Thus, Hori’s stage 1 corresponding to Wake and stage 9 corresponding to the beginning of Rechtschaffen and Kales’ Stage 2. With this classification, Hori and colleagues identified a wider spectrum of physiological changes between the beginning of sleep-onset and the appearance of the sleep spindles. Following this division, several projects found a correlation between Hori’s stages and the appearance of different hypnagogic mentation (Michida et al.

1998; Ogilvie, 2001). More recently, the content of linguistic intrusions during sleep-onset has also been studied (Noreika et al., 2015; Speth, Schloerschedit & Speth, 2016), as well as the phenomenological characteristics of these sorts of mentation (Windt, 2015b; Nielsen, 2017). This research undertaken after Rechtschaffen and Kales has shown a wide variability of hypnagogic experiences. Similarly, a large number of sleep studies has also been looking into the differences between NREM and REM sleep and showed local changes between phases, which indicates the possibility of different conscious experiences through the sleep spectrum (Siclari et al, 2017; Siclari & Tononi, 2017; Lee et al. 2019).

As I argued in the introduction, the traditional scoring system does not seem to integrate a wide range of sleep phenomena. Even after the implementation of the AASM system in 2007, the canonical taxonomy of sleep does not properly correlate the different sleep phenomena experienced with the neural correlates displayed in the EEG.²⁶ Thus, in the quest towards the development of an improved sleep taxonomy, we should start by identifying all sorts of sleep phenomena, including those appearing in sleep-onset and NREM sleep. Research in oneiragoga can shed light on this taxonomy by providing us with more fine-grained descriptions of the different oneiragogic experiences that we have.

A recent example of this research can be found in the work of Nielsen (2017). In this study, Nielsen investigates micro-dreams, which are described as brief and simple images that appear during the early stages of sleep-onset transition (p.5). With the use of phenomenological reports and polysomnographic measures, Nielsen has described seven phases between waking and full-fledged dream that recognise a more detailed spectrum, ranging from hallucinatory and fleeting images to full-blown dreams. Similarly, Nielsen has also proposed an amendment of the sleep-onset spectrum proposed by Windt (2015). The work of Windt and Nielsen identifies six phenomenological categories to describe this transition which includes the acquisition of immersion and the experience of a simulated world.²⁷ Similarly, Windt has recently argued that the case of micro-dreams exemplifies how these phenomenological categories can categorise micro-dreams as a case or oneiragogic experiences instead of immersive dreams (Windt, 2019).

²⁶ The American Academy of Sleep Medicine amended the original Rechtschaffen and Kales's system (1968) by merging Stages NREM 3 and 4 (original scoring system) to Stage N3.

²⁷ The phenomenological categories are: (i) visuospatial scene, (ii) phenomenal embodiment, (iii) temporal reference frame, (iv) waking memory sources, (v) autobiographical historicity, (vi) spatiotemporal kinesis (Nielsen, 2017).

5.1.3. Dreamless sleep, contentless and imageless dreams and white dreams

In dream research, the absence of dream reports upon awakening can be interpreted in different ways. One way is to understand this absence of reports as the absence of any experience. There is no report because there was nothing it was like to be in the period of sleep — there was no experience. At the beginning of this thesis, I have described the absence of reports as non-conscious experiences and I have set them aside. Another way is to understand the absence of reports as failure to recall the dream content. I wake up and I have the feeling that I had a dream, but I am unable to recall it – I have forgotten the dream. In this case, there was a conscious experience during sleep, but we are unable to recall it. This phenomenon is known as *white dreams* (Cohen, 1972; Lewis et al., 1966; Fazekas, Nemeth & Overgaard, 2018).

There are also different ways to interpret white dreams. One interpretation is that white dreams are actually contentful dreams had during sleep – while sleeping I had a full-fledged dream. However, upon awakening, there is no memory of that dream (Siclari et al., 2017). A different interpretation is that white dreams are imageless dreams – while sleeping, I had a dream that lacked any imagery. This interpretation asserts that what I recall upon waking up is an actual experience that lacks any visual features (Windt, 2015a). A third interpretation of white dreams is also available. White dreams are a memory report of a contentful dream, but a dream that was somehow of reduced content (Fazekas, Nemeth & Overgaard, 2018).

Further exploration of white dreams could help us understand if instances of awareness during deep sleep were actually dreams or if it was the other way around: white dreams are not actually dreams, but conscious dreamless sleep experiences. Thus, future research should be able to distinguish between: (i) experiences that lack content, (ii) experiences that had content but lacked imagery, (iii) experiences with reduced content, (iv) experiences which content was forgotten. For instance, studies on serial awakenings (Noreika, 2009) show similar amounts of reports of dreams, white dreams and absence of reports during N2 and N3.²⁸ In these cases, subjects describe static content — their experiences lack movement sensations and narrative progression (Noreika, 2009, 2010). Windt argues that the fact that we can find the three forms of reports (dreams, white dreams and absence) suggests the existence of a transition between sleep and dream (Windt,

²⁸ In sleep research, serial awakening is paradigm of research were subjects are woken up during different sleep stages and are told to report the experiences immediately prior to their awakening.

2015b: 878). However, we need to develop more research of white dreams to clarify whether these are instances of AdC, failures in recalling contentful dreams or the experience of reduced content.

In sum, the conceptual worries highlighted in this section can be addressed through the second goal for future research: the development of neurophenomenological studies in dreamless sleep.

5.2. Developing a neurophenomenological approach to study the correlation of dreamless sleep reports to sleep stages

Future research should aim to develop a neurophenomenological approach that combines the micro-phenomenological interview method (MPI) with experimental sleep research. By following this approach, we would be able to correlate the subjective reports with their sleep stage and thus, have more tools to compare dreamless sleep phenomena with other associated phenomena. Similarly, the adoption of a neurophenomenological framework will allow the construction of an improved taxonomy of sleep phenomena that combines the phenomenology and physiology of sleep.

Neurophenomenology is a scientific method for the collection of first-person data started by Francisco Varela (1996). This method aims at bridging neuroscience and phenomenology by considering subjective experiences in the experimental setting. In all experimentation, there are variables that cannot be controlled, but influence the results. Gallagher (2003) describe the uncontrolled variables that refer to subjective reasons, subjective parameters or SPs (p.86). Usually, in experimentation, SPs are ignored or generalised by the results of other participants. However, knowing them and taking them into account could change the conclusions drawn by the experiment's results. Thus, Varela set the neurophenomenological method as a tool for understanding the participant's phenomenology better. An excellent example of the use of this method is the experiment of Lutz et al. (2002). This experiment recorded the neural activity of participants while seeing a three-dimensional illusion. Participants were trained to identify their SPs during the experiment, such as their level of attention or they perceived readiness. *A posteriori*, each participant was categorised into different clusters in base of their SPs. Thus, the interpretation of the results was based on the relationship between the performance of the participants and their SPs. In this way, the researchers could explain why some participants were performing poorly and understand better the difference in performance among the subjects.

Unfortunately, dream research cannot be performed in the same way – we cannot ask participants about their SPs while they are sleeping (or dreaming in this case). With the exception of lucid dreamers, dream research is carried out using the reports made by the subjects upon waking up. However, a neurophenomenological approach can also be adopted in this area of research. With techniques like the MPI (see [chapter 4](#)), we can improve the gathering of phenomenological reports upon awakening and thus gain more fine-grained descriptions of the experiences had during sleep. On top of the MPI, adequate sleep research performance can enhance the reports provided by the participants by associating the phenomena described to a different sleep stage. An example of a future research undertaking this approach is the replication of the pilot study presented in chapter 4. A future study could replicate the same procedures in a sleep-lab so we can corroborate whether participants were in fact in a sleep state during the episodes of conscious dreamless sleep. Thus, a combination of sleep recordings, serial awakenings and MPI will help to compare the reported experiences by the participants with other associated phenomena during sleep-onset and sleep. This approach for studying the ‘depth’ of dreams — how dreams are subjectively experienced (Solomonova, Fox & Nielsen 2014) — has been encouraged by lead dream researchers (Windt, 2015b; Thompson, 2015b; Solomonova & Wei (2016). Thus far, no study to date has developed a neurophenomenological approach to study in detail the micro-structure of sleep phenomena as the one presented in the previous chapter.

There is, however, a large number of studies adopting the neurophenomenological method to investigate changes in sleep physiology on expert meditators. The replication of these studies, and the adoption of similar ones in the wider population, is an option for future research on dreamless sleep. For instance, the study by Dentico et al. (2016) demonstrated that short-meditation sessions with a group of expert meditators could induce gamma activity (low-frequency waves) during sleep. These results corroborate previous research that showed the increase of EEG gamma activity during meditation (Berkovich-Ohana, Glickson and Goldstein, 2012; Lutz et al., 2004; Cahn, Delorme and Polich, 2010). These changes seem to occur not only during meditation, but also during NREM (Ferrarelli et al., 2013), suggesting local changes in sleep EEG due to meditation training. A good empirical question is to investigate whether participants who display an increase in gamma activity during NREM also report conscious dreamless sleep experiences. The reason for this is that gamma activity during sleep has previously been associated with lucid dreaming (Voss et al., 2009, 2014) and thus, will better insight of one’s sleep experiences. Similarly, increases in theta and alpha oscillations with gamma activity have also been found in studies with transcendental meditator practitioners. Dentico et al. (2015) have suggested that these

findings could be related to the increase in the level of awareness during sleep. A study by Maruthai et al. (2016) also showed changes in REM sleep on expert meditators. Expert meditators displayed an increase in frequency and duration of REM episodes, including the activity of the eye movements. Moreover, expert meditators exhibited shorter NREM stage 2 periods and a decrease in REM onset latency.

There has also been some research on the phenomenon studied in this thesis — experiences of awareness during dreamless sleep. In particular, some studies have looked into the sort of awareness that I have described as awareness devoid of content (AdC). Examples of this, are the studies performed by advocates of the transcendental meditation programme (TM) to study ‘witnessing-sleep’ experiences. As I highlighted at the end of [chapter 2](#), TM practitioners understand ‘witnessing sleep’ as a period of ‘pure awareness’ experienced during deep sleep, which, at the same time, they conceive of as the essence of consciousness (Travis et al., 1994; Mason et al., 1997). For instance, Travis et al. (1994) reviewed different studies investigating EEG patterns during different transitions. Those studies show similar EEG patterns — peaks of delta/alpha power — during (i) the transition of sleep-onset to REM, NREM to REM and REM to wakefulness, (ii) the experience of the so-called ‘witnessing sleep’, and (iii) the practice of TM. According to Travis et al., similar EEG patterns evidence the presence of an underlying experience, namely, ‘pure awareness’ or consciousness as such (ibid). From this evidence, Travis and colleagues developed the ‘junction point model’, which asserts that pure awareness underlies the states of waking, NREM and REM (Travis et al., 1994:72). However, there are some problems with the studies performed by Travis, colleagues, and other proponents of the TM programme. In [§2.3](#), I claimed that we should not understand the sort of experiences named as ‘witnessing sleep’ as the essence of consciousness, but instead, as conscious states that can be had during dreamless sleep. Similarly, the studies carried out by the supporters of TM are also questionable. None of their research accompanies the results with the phenomenological reports provided by the participants. Therefore, it is difficult to analyse what the experience was, and what the structure and dynamics of the experience were. Nonetheless, the different studies performed by researchers of the TM programme can serve as a guide for the performance of future studies. It would be interesting to investigate whether similar experiences can be had during each of the sleep stages transitions, and what the phenomenology of those is.

More recently, a study by Siclari et al. (2017) aimed to find the differences between dreaming experiences and lack of experiences during sleep, as well as the difference between

reported content and reported lack of content. They distinguished among dream experiences (in their terminology, DE), no-dream experiences (NE) and dreaming experiences without recall (DEWR). The results showed that there was less Slow Wave Activation (SWA) preceding reports of dream experiences (DE) than preceding reports of no-dream experiences (NE). This similar zone was active when participants reported dream experiences without content (DEWR). These results brought the researchers to conclude that this hot zone was a marker for the type of experiences recalled. However, recently, Fazekas et al. (2018) have commented on this study by suggesting that DEWR are actually reports of dream experiences with reduced content, not examples of white dreams (forgotten dream experiences). On their side, Windt et al. (2016) have claimed that white dreams could be a case of contentless sleep phenomena. These disagreements in the interpretation of the results evidence the need for distinguishing among different sorts of sleep experiences. Thus, in the future, we should consider the possibility of finding sleep experiences that: (a) have content, (b) have reduced content, (c) do not have content, and (d) have content but is forgotten.

Following the different states spelled out thorough this thesis and the phenomena analysed in this last chapter, I propose the several states that should be considered in the construction of a taxonomy of sleep phenomena (see figure 7).

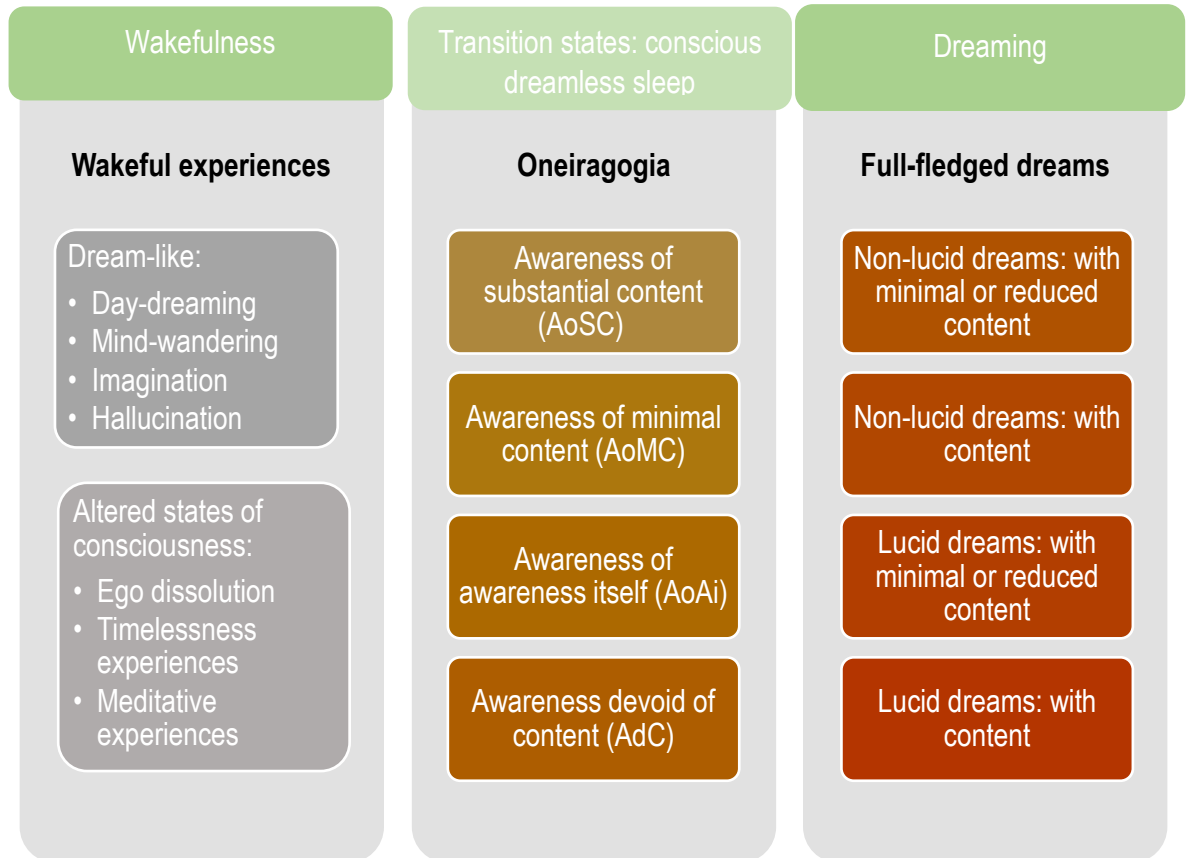


Figure 6. Schema of sleep phenomena and associated states

Future research should be able to provide a taxonomy of sleep phenomena that considers all the full range of states during sleep. In this thesis, I have constructed part of this taxonomy by providing a novel account of conscious dreamless sleep that considers a variety of mental states that differ in their content (awareness of substantial content, awareness of minimal content, awareness of awareness itself, and awareness devoid of content). I have argued that these states should be better referred to as oneiragogia, following Windt (2015), to describe transition states between wakefulness and dreaming. A future taxonomy should also investigate further dream experiences and spell out the differences between non-lucid and lucid dreams. In this case, we should distinguish between the possibility to have non-lucid and lucid dreams that have minimal or reduced content, and non-lucid and lucid dreams that have substantial content. This work, which has already been started by Windt (2015b), has argued for spatiotemporal situatedness as the mark of dreams. Thus, dreams are a special kind of sleep experiences because they involve immersive and simulational character (Windt et al., 2016). As I have argued in [§5.1.1](#) is open to future research whether some forms of conscious dreamless sleep do also display immersive and simulational character, and in that case, how they would fit in a taxonomy of sleep phenomena. Finally, we should also consider experiences occurring during wakefulness that display a dream-like character, such as daydreaming (Morley, 1998), mind-wandering (Voss & Windt, 2018) and other imaginative experiences or hallucinations (Waters et al., 2016). Similarly, other wakeful altered states of consciousness, occurring during meditative practice or under drug consumption, such as ego-dissolution or timelessness experiences (Berkovich-Ohana et al., 2013), should be considered for a comparison with oneiragogic experiences. Their study would allow us properly describing the phenomenology of the different sleep phenomena.

Summing up, the goals proposed in this chapter reveals that the adoption of a taxonomy of dreamless sleep like the one I have developed can shed light on the phenomenology of sleep phenomena. Shifting from a two-dimensional approach to consciousness to a multidimensional approach where we consider different conscious states during the same global state, allows us to investigate a wider range of phenomena. Similarly, the adoption of first-person tools for the study of consciousness, such as the micro-phenomenological interview, can enhance the examination of the microstructures of different experiences. Finally, by moving towards a neurophenomenological approach that considers phenomenological and neuroscientific research, we will be able to develop a more adequate taxonomy of sleep states.

Conclusion

This thesis argued for the possibility of having different conscious states during deep sleep. Deep sleep, usually associated with stage 3 of NREM, has been deemed a period of neural inactivity. Contrary to other sleep stages, during deep sleep the EEG activity shows very low brain activation, which leads to the assumption that during this period we are not conscious. However, is this assumption warranted? Can we conclude that consciousness is merely related to the amount of activation? Is it still possible to have instances of consciousness during deep sleep? By taking evidence from sleep research, anecdotal reports from meditators, and descriptions from Indian philosophical traditions, this thesis argued that some forms of awareness do occur during deep sleep. I investigated different phenomena classified under the umbrella term of ‘dreamless sleep’; phenomena that occur during sleep that cannot be classified as dreams. This thesis advocated for the existence of different dreamless sleep phenomena by developing a novel taxonomy of dreamless sleep.

In [Chapter 1](#), I introduced this taxonomy by spelling out different possible states during conscious dreamless sleep: (1) awareness of substantial content (AoSC), (2) awareness of minimal content (AoMC), (3) awareness of awareness itself (AoAi), and awareness devoid of content (AdC).

The first three, AoSC, AoMC and AoAi are understood as conscious states with content. I stated that AoSC is different to AoMC and AoAi inasmuch as during this state there is perception (veridical or non-veridical) of an object of awareness. Contrary, during AoMC and AoAi, although there is no perceptual experience, we can still recognise some sort of intentional content that describes these mental states. In the literature, forms of AoMC have mainly been described as awareness of non-conceptual content. Moreover, these forms do not involve the perception of any sensorial elements (i.e. visual perception). The sole difference between AoMC and AoAi is that the intentional content in AoAi is exclusively about awareness of awareness itself. In this case, awareness is the object and the act of awareness at the same time.

Lastly, I argued that, in the same way we should consider the possibility of different contentful states during conscious dreamless sleep, we should also consider the possibility of a state that lacks content altogether. Thus, AdC is understood as a period of awareness lacking any intentional content, including that of ‘emptiness’ or ‘nothingness’. I have defended a view in which a conscious state does not require representational content to be conscious. I have described instances of AdC as phenomenological reports made once the subject wakes up and says to ‘know’ they were aware during dreamless sleep and nothing else.

[Chapter 2](#) started by considering further the possibility of having different sorts of conscious states during conscious dreamless sleep by looking into the descriptions made in Indian philosophical traditions. I considered (a) states of awareness with no content, (b) awareness of the very state of dreamless sleep, and (c) awareness of the very awareness. The first type is mentioned by the Advaita

Vedānta and Yoga schools. According to those schools, dreamless sleep is a special mode of consciousness — *sushupti* — that differs from wakefulness and dreaming consciousness. During this state of *sushupti*, we experience bare awareness, an awareness lacking any sort of object. The Advaitins and Yogis explain this bare awareness by referring to the *sākṣīn* –awareness that cannot become the object of awareness. I claimed that this interpretation made by the Advaita Vedānta and Yoga schools, that of dreamless sleep as a special sort of awareness, should in fact be understood as one of the few case of awareness with no content (AdC) described in the literature of dreamless sleep.

The second and third type, awareness of the state of dreamless sleep, and awareness of the very awareness, are mentioned in the tradition of Tibetan Buddhism. I introduced the practice of Yoga Nidra, a meditative practice that aids the acquisition of lucidity during deep sleep. This practice, which also receives the name of Luminosity Yoga, is said to reveal the nature of our own mind. Thus, according to Tibetan Buddhism, the practice of Yoga Nidra leads us to recognise a state of luminosity during dreamless sleep. I argued that this state should be understood as a self-intimating state –I am aware of my awareness itself (AoAi). I argued that AoAi is the state that has received most of the attention in dreamless sleep research and has led to the coinage of the term ‘lucid dreamless sleep’ (LDS). However, as I argued later in this chapter, AoAi should be only one of the possible readings that we should make of awareness during dreamless sleep. Thus, we should not always consider instances of consciousness in dreamless sleep as ‘lucid’, or as a state in which we can recognise an object of awareness (in this case, awareness itself).

Finally, I introduced the concept of ‘witnessing-sleep’ proposed by the transcendental meditation programme (TM). According to the proponents of TM, during deep sleep we can reach a state of pure consciousness — a state that is purely phenomenal. However, although this definition of witnessing-sleep may be similar to that of awareness devoid of content (AdC), advocates of TM consider pure consciousness as the essence of consciousness. I argued against this conceptualisation and claimed that instances of AdC should be understood as forms of bare consciousness, but not as a sort of all-prevailing awareness present in every conscious state. Consequently, I claimed that the term ‘witnessing-sleep’ can lead to a misunderstanding of the metaphysical constraints associated with this state of awareness during dreamless sleep and its use should be avoided. Future investigations should consider further whether they want to conceptualise awareness devoid of content as an example of the essence of consciousness — what is common in all conscious states — or just as an instance of bare awareness that we can experience sometimes — an experience of awareness as such alone.

[Chapter 3](#) analysed one of the most recent views of conscious dreamless sleep by Windt et al (2016). Windt and colleagues described LDS as a form of pure awareness during dreamless sleep. These authors proposed a similar description of LDS to that of the descriptions of awareness devoid of content found in Indian traditions. Moreover, Windt (2015b) describes LDS as characterised by the experience of present time or ‘nowness’ — during LDS we only experience a bare form of present

time. Therefore, Windt et al. conclude that since LDS is the MPE and LDS is understood as the experience of nowness, pure temporality is the simplest form of conscious experience and the MPE. I argued that Windt proposal on LDS and thus, in conceiving what the MPE is, has several shortcomings. I argued that we should understand Windt and colleague's definition of LDS as awareness of minimal content (AoMC) instead, and thus, conceive this as a possible experience had during dreamless sleep, but not the most minimal one. I do accept the existence of LDS, but I argued that, for avoiding possible conflation between Windt and colleague's definition and that found in the different Indian traditions, we should not use 'lucid dreamless sleep' for referring to an awareness devoid of content during dreamless sleep. Instead, we should use my proposed taxonomy to discriminate among the different sorts of awareness had.

In [chapter 4](#), I presented a pilot study performed with the aim to corroborate the different conscious states identified in my taxonomy. The study consisted of micro-phenomenological interviews (MPI) with five participants that described periods of awareness during sleep in the absence of dreams. The analysis of the interviews identified different phases in the reported experiences and distinguished among periods of non-lucid dreaming, lucid dreaming, dream dissolution, no scenery/void, and other dreamless sleep phenomena. A more careful analysis of the period of 'No Scenery/Void', revealed descriptions of awareness quite similar to those found in the literature I revised in chapters 2 and 3. All participants described a period that followed the dissolution of the dream-world as the perception of a 'void' or 'absence of imagery'.

In the discussion of the study, I argued that the different sorts of conscious experiences identified in my taxonomy could be isolated across the period of 'Other dreamless sleep experiences' and 'No Scenery/Void', namely:

1) *Awareness of substantial content (AoSC)*

Instances of AoSC, involve the perceptual (veridical or not) experience of an external object of awareness. In the study, these descriptions were found during the period of 'Other dreamless sleep phenomena' identified in the reports, which described the appearance of colours and shapes after the period of 'void'. In these descriptions, participants assert the end of the period of 'No Scenery/Void' because they perceive something again; there is no absence of imagery or perception any longer, but there is no dream neither. I argued that these instances of AoSC should be referred as examples of hypnagogic experiences.

2) *Awareness of minimal content (AoMC)*

In chapter 1 and 3, I argued that examples of AoMC appear in the literature as minimal forms of awareness during deep sleep – instances in which there is not a substantial content of awareness, but that still involve some content of awareness. In this type of awareness, I included all the descriptions referring to 'No Scenery/Void' as a period where participants perceived an absence or emptiness, which was described in visual terms, such as the perception of darkness or light. I

claimed that these descriptions should not be understood as actual perception of an object, such as ‘I perceived the period of void as dark’, but instead, should be understood as a metaphor used by the participants to describe their experience. Similarly, other descriptions included mentions to a lack of physical body or lack of self-representation altogether during the void. In this type of awareness, I also included descriptions of feelings during this period.

3) *Awareness of awareness itself (AoAi)*

This type of awareness, quite similar to the above AoMC, also includes the perception of a minimal content of awareness; in this case, the content refers exclusively to that of the mind. Instances of this awareness were in descriptions that referred to awareness of awareness itself. Here, I also included those descriptions that took a similar form to that of Tibetan Buddhism and instead, participants described the awareness of awareness itself by making allusion to a period of ‘clarity’, ‘nature of my own mind’ or alike. The reason of this, is that, as I explained in chapter 2, in Tibetan Buddhism, awareness during dreamless sleep is understood as a period in which we realise the nature of our mind – we perceive awareness itself. Thus, I included descriptions that use similar metaphors used in Buddhism.

4) *Awareness devoid of content (AdC)*

Finally, in AdC, there is not perception of an object of awareness, nor we can identify any content of awareness. In this category, I found mentions to dreamless sleep similar to that of the Advaita Vedānta, Yoga and Tibetan Buddhism. Three of the participants described this perception of awareness as the absence of content – they said to experience only awareness and nothing else.

In [chapter 5](#), I reasserted the use of my proposed taxonomy of dreamless sleep. I argued that this taxonomy could help to discriminate among different states of awareness during sleep. By comparing dreamless sleep to other associated sleep phenomena, I claimed that the difference between them is gradual and thus, in some cases reports made by subjects can overlap with more than one type of sleep phenomena. These gradual differences make difficult the discrimination between some phenomena, such as dreamless sleep and hypnagogic experiences, or hypnagogic experiences and dreamful sleep. Therefore, I advocated for the construction of a larger taxonomy of sleep phenomena that can establish these differences. With this aim, I proposed two goals: the development of an account of dreamless sleep that distinguishes between dreamless sleep and associated phenomena, and the development of a neurophenomenological approach in sleep research.

First, I considered different sleep phenomena, namely dreams, hypnagogic experiences and white dreams. I argued that conscious dreamless sleep should be considered as a *sui generis* phenomenon, and thus, should not be categorised as dreams. My argument has been that the phenomenology of conscious dreamless sleep experiences, especially those ones described as the experience of a ‘No scenery/Void’, do not seem to match with that of dreams. Participants themselves talk of their experiences during the ‘No scenery/void’ as something qualitatively different from any

other experience they might had. In some cases, they are also able to become lucid while in this period – they recognise the state of dreamless sleep while is happening. Even in those moments, participants say that the experience is different to that of a lucid dream. I contrasted the descriptions obtained in the study with descriptions of hypnagogic experiences. I concluded that hypnagogic experiences should be better understood as ‘oneiragogic experiences’ — experiences leading into dreams.

Then, I introduced several studies that have collected successful results on the phenomenology of different experiences by adopting a neurophenomenological approach. I argued that future research should adopt a similar framework and carry experimental sleep research that also applies first-person methods of research such as the micro-phenomenological interview. By adopting a neurophenomenological framework, we will be closer to develop a multidimensional model of consciousness by first considering the different conscious states during dreamless sleep and sleep.

Summing up, this thesis defended a taxonomy of dreamless sleep that considers different conscious states had during this period. I defended a taxonomy that can be used in the future to develop a multidimensional model of consciousness that does not consider the difference among conscious states as a that of ‘levels’ or ‘degrees’ or consciousness. Instead, this taxonomy should consider the differences between states in terms of type of content. I supported this taxonomy by analysing definitions found in the literature and by developing a novel qualitative exploration by experimental subjects. I analysed several definitions on dreamless sleep from Indian contemplative traditions and analytical philosophy and concluded that, what has largely been described as a period lacking any object of awareness and intentional content, it is in fact a period where different types of awareness can be found. This was also supported by the results in a study I conducted in which participants reported experiences of awareness during a period in sleep described as a ‘void’. Again, the different types of awareness were isolated from the reports gathered. Consequently, future research on sleep should shift the characterisation of dreamless sleep as that of ‘deep sleep’ – a period where consciousness is missing altogether – to that of ‘transition to dreaming’ – a state in the verge of dreaming. This shift can be done by the development of a larger taxonomy of sleep states that contemplates the existence of several types of awareness during sleep.

Appendix I – INTERVIEW TEMPLATE

The following is an interview template that was used for all the micro-phenomenological interviews. The template includes prompt questions for the different phases of the interview. However, as detailed in §4.1.2, the specific questions vary from participant to participant and according to what each participant answers. The interview template it is just a guide for the interviewer (I) to carry out the interview and to cover the similar dimensions of experience in each participant.

PRESENTATION

I: Thanks [name] for agreeing in participating in this study. This session will be recorded and only an audio file will be saved for posterior transcription. The file will be stored using the remote desktop of the University of Glasgow and once the transcription is done it will be destroyed. If that it is ok with you, I will start with the recording.

I: Following the Information Sheet you received, this session will consist in three parts. We will start with a pre-interview, which will consist in the execution of a small mental exercise. The aim of this is to practice the interview technique that I will use and to make you more aware of the kind of things you need to pay attention during the actual interview. Then, we will start the main interview, which will be about an experience of awareness during sleep in absence of dreams that you have had recently. We will finish with a short post-interview in which you will have the chance to ask me questions about the study and to add any information or anything you have not mentioned during the first two stages. Is this ok?

PHASE 1: PRE-INTERVIEW

I: I am going to ask you to perform a small mental exercise and then I will ask you some questions about your experience. The task is very simple and will not take more than 20 minutes. I am going to ask you to memorise a short list of words:

[SHOW LIST]

[Lion, Daffodil, Tyrolean, Academic, Distraction, Teardrop, Triumph, Shade, Validation, Welcome]

I: Take some minutes to memorise the list and when you consider you are ready, let me know.

I: OK, so now I am going to ask you to go backwards in time. Imagine that we are able to rewind the experience, as if it was a movie. The movie is about the experience that you have just lived right now: memorising this list of words. It is very easy, as you have just done it, so we are just going to rewind, and to do that I am going to ask you to immerse yourself again in this experience. Remember, I started out by me asking you to perform a small mental exercise and me showing you a list of words. I would like you to go back to the moment in which I show you the list of words. What did you do, what happened?

[Once the participant answers, the interviewer can follow the interview by covering the dimensions specified below]

<p>A. Evocation state: First, the interviewer asks questions to bring the participant back to the experience. The questions aim at situating the participant back in the particular place and time where the experience happened.</p>
<ul style="list-style-type: none"> • Let's go back to... • Where/When • Visual/Sounds • Position of body, Feelings, Sensations
<p>B. Diachronic Structure: The aim of the questions about the Diachronic structure is to investigate the evolution of the experience in time. The following questions are specific about the mental task that the participant carried out in the Pre-Interview.</p>
<ul style="list-style-type: none"> • <u>Trigger</u>: How do you know how to begin? • <u>Beginning</u>: How do you start? • <u>Sequence</u>: What do you do then? • <u>The end</u>: What happens at the end? • <u>Test</u>: How do you know...? • <u>Deepen the description</u>: And when you do X, what do you do? And when you feel X, what do you feel? And when you do nothing, what do you do? How do you know that you don't know?
<p>C. Synchronic Structure: The aim of the questions about the Synchronic structure is to investigate the configuration of the experience at a given instant in time. The following questions are specific about the mental task that the participant carried out in the Pre-Interview.</p>
<ul style="list-style-type: none"> • <u>Mental image:</u> What do you see? Where do the words appear? How is the image? Are you inside the scene or do you see it as a film? • <u>Auditory sensations:</u> What do you hear? How is it your inner voice? • <u>Bodily feelings:</u> Could you come back to this feeling? And when you feel X, what do you feel? Where is this sensation? Is it located somewhere?

PHASE 2: INTERVIEW PHASE

I: Thanks [name]. Now that you have seen how the micro-phenomenological method works, we are going to move into the main interview. This is going to be similar than the one we just had about the memory exercise, but instead, we will talk about an experience you have picked. For this interview, I asked you to think of an experience that you have had recently while sleeping in which you recall some sort of awareness in absence of dreams. It is important that you pick a specific experience. Does not matter if it is too short, the important

thing is that you can recall it very vividly. I will ask you different questions about this experience and I will ask you to focus on some particular dimensions of that experience. Also, at some points, I will rephrase some of the things you have said, but feel free to interrupt me if I rephrase them wrong. As you agreed in the consent form, you are not obliged to answer all the questions and we can also stop at any time you wish.

So, could you describe me any moment of awareness you had during sleep the days prior to this interview?

I: [Rephrase what the interviewee has said] [Pick a moment]

[Once the participant answers, the interviewer follows a similar process that the one outlined in the Pre-Interview. In this case, the interview focus on the experience of awareness during dreamless sleep reported by the participant]

A. Evocation state
<ul style="list-style-type: none"> • Let's go back to...[pick a moment described by the participant] • Where/When this happened? • Visual questions: When you are there, do you see anything? I would like you to describe the place. Look around and what do you see? [REFORMULATION] • Auditory questions: At this moment, do you hear anything? Listen again, find noises [REFORMULATION <i>setting and perception</i>] • Kinesthetic and interoceptive questions: What is the position of your body? Do you feel anything?
B. Diachronic Structure
<ul style="list-style-type: none"> • <u>Beginning</u>: How does the experience starts? • <u>Sequence</u>: What do you do then? • <u>The end</u>: What happens at the end? • <u>Deepen the description</u>: And when you do X, what do you do? And when you feel X, what do you feel? And when you do nothing, what do you do? How do you know that you don't know?
C. Synchronic Structure: Configuration of the experience at a given instant in time
<ul style="list-style-type: none"> • Description of an inner image When you see X, what do you see? Are you inside the scene or do you see it as a film? Where do you see this image? • Description of an auditory sensation Does this sound come from somewhere?

What is its volume? Its tone?

Is it your own voice, or the voice of somebody else?

- **Bodily feeling**

What do you feel? Is this feeling located somewhere?

Does it have a size? What is it like?

If you had to teach me how to feel it, what would you tell me?

- **Verifications:**

Is there anything else?

What else is going on at this time?

Did you have perhaps feelings, thoughts or anything else at this moment?

What else is happening at this moment?

PHASE 3: POST-INTERVIEW

I: Is there anything else that you want to add?

-Thank you [name]. With this, we have finished the main interview. Is there anything that you would like to add that we have not covered?

-Are there any questions that you have about the project?

Appendix II – Screening questionnaire for participants

Age:

Nationality:

Medical information

Do you suffer from any physical or mental condition? (*Diagnosed or no diagnosed*)

Yes No

If any, which one?

Are you currently taking any medication? (*Prescribed or no prescribed*)

Yes No

If any, which one?

For how long are you expecting to be taking this medication?

Lifestyle and alcohol/drug consumption

Do you practice any sort of meditation?

- a. If so, how often?
- b. Which type of meditation?

Do you consume alcohol?

Yes No

If you do, how often?

Do you consume any recreational drugs?

Yes No

If you do, how often?

Sleep (routine, quality and experiences)

On a normal day,

What time do you go to sleep?

What time do you wake up?

How would you rate your quality of sleep? (average)

Excellent Good Bad Very bad

Do you have problems falling asleep? (average)

Do you usually remember your dreams upon awakening?

Yes No

If you do, with how much frequency?

Every day <5 times a week >5 times a week Very rarely

Are you ever aware of dreaming while dreaming?

Yes No

If you are, how often?

Every day <5 times a week >5 times a week Very rarely

Do you recall any sort of mental phenomena when you fall asleep? (*e.g. images, sounds, thoughts*)

Yes No

If you do, briefly describe an example

Are you usually aware when you are falling asleep?

Yes No

a. If so, could you describe which sort of things you notice in that moment?

Can you describe an episode of awareness during sleep in absence of dream content?

Appendix III – Excerpt of an interview

The following are some excerpts of the transcription of the interview with participant #06. Every number specifies a different descripteme. P= participant #06; I= Interviewer.

Section 2: Micro-phenomenological interview

- (1) **I: You told me that you have experience awareness during dreamless sleep; that this was something that you knew about.**
- (2) P: [*Participant explains that they heard that you could induce and experience of awareness in deep sleep through his practice in Tibetan Buddhism and that he was practicing to achieve this state. He heard that he could go from a lucid dream to this state and they decided they wanted to practice this from some months each time he was getting lucid*].
- (3) P: I'm going to talk about the one I was going to talk you about.
- (4) In this dream [it happened around 1 year ago, but he had this in a dream diary and he really remembered this] I was having a normal dream, non-lucidly aware and
- (5) I was with my driving instructor and
- (6) I pulled out of the house. It was a terrace house, I think it was Victorian era house.
- (7) This isn't unusual to me. A lot of my dreams, a lot of lucid dreams take place in this era.
- (8) I went to the house, I went upstairs, and my step-father was there so it was my mother and they said something which was odd,
- (9) and I had a previous dream that night which wasn't lucid but involved hockey equipment.
- (10) I don't play hockey, doesn't really have any significance for me but I know what it is.
- (11) I was upstairs, and I looked around and this hockey equipment was in a corner by the door.
- (12) I think that what happened was that I saw the hockey equipment and I thought: 'that it's from my dream'
- (13) and then I thought: 'hang on, if this is from my previous dream that means that I'm still dreaming'.
- (14) As I said, at this time I was trying very much to induce this experience of awareness in non-dreaming sleep.
- (15) I realised I was dreaming, and I went to another room in the house
- (16) because I remembered what my dream goal was, my dream plan and
- (17) I went to another room and
- (18) I shouted out the dream 'dissolve this dream in the ultimate state'.
- (19) It might have been different wording but that was the essence of it.
- (20) Nothing happened. The dream remained precisely as it was.
- (21) So I said: I try again.
- (22) So I shouted out the same phrase and
- (23) the room started to spin, it started to move but it never got that far.
- (24) I was in the middle
- (25) and everything was moving around like a carousel.
- (26) It went from right to left but never went very far, maybe a quarter of the way round or something like that.
- (27) At this point everything faded into white light, as you would see in a film, you know.

- (28) But that again didn't last very long,
(29) was momentary,
(30) and then it faded into blackness.
(31) I was in space,
(32) there were no visual images,
(33) there was a light and it was white in colour.
(34) There was nothing to see,
(35) but there was a kind of radiance.
(36) The radiance wasn't coming from anywhere.
(37) The light source was to my right or my left or in front of me, it was just there.
(38) And then I realised that this was the nature of mind.
(39) It was very peaceful.
(40) I was very relaxed.
(41) Then smoothly this image appeared of two hands
(42) in front of me.
(43) Palm up. Level of my belly button or whereabouts.
(44) And behind them, in the ground, which I was looking down, there was grass.
(45) This image didn't last for very long,
(46) but I remember thinking, 'this is a dream'.
(47) So in other words, what it was formed out of this experience of former awareness was a lucid dream, which I already knew when all this started.
(48) And this image lasted for a couple of seconds and then I woke up.
(49) **I: You are with your driving instructor and then you go into the house...**
(50) P: He stayed in the car and I went to the house alone.
(51) **I: And then you go upstairs and you meet your stepfather and your mum and they said something odd, which you don't remember. There was some hockey equipment around which you remember from a previous dream which triggers the thought that you are dreaming.**
(52) P: It was from a previous dream I had earlier that night.
(53) **I: And then you go to a different room and you try this technique.**
(54) P: The reason I move to the other room it's because I remember what the dream goal was. That was me taking 'control', deciding I want to implement my dream plan.
(55) **I: And the room you are moving is from the other dream?**
(56) P: No, this is just another room in the house.
(57) It was a window opposite to me but I don't remember other details.
(58) **I: You realise you are dreaming and you want to carry out this plan and then you shout out something like: 'this is the ultimate state'?**
(59) P: Dissolve this dream into the ultimate state.
(60) **I: You shout 'dissolve this into the ultimate state' and then nothing happens and then you try again and the room starts to spin from right to left. It's like being in a middle of a carrousel because you aren't moving but everything is moving.**
(61) P: Didn't go very far, just a quarter of the way.
(62) **I: then you describe a white light.**
(63) P: Everything dissolves into the white light.
(64) I don't know if you have seen the Lord of the Rings film, but there's a couple of moments towards the end of the last one in which you think the movie it's about to end because everything becomes white light; it's light that.

- (65) **I: What was momentary, the thing that everything was spinning or the dissolving?**
- (66) P: Both. The spinning was momentary
- (67) and the white light was momentary.
- (68) The next moment was a bit longer.
- (69) **I: Let's say that this is the first stage of the dream. Started as a normal dream but then there's a moment you are lucid when you realise the hockey equipment. Let's try to go into detail to each of the stages. You are first with your driving instructor, you go inside the house, you go upstairs, you find your stepfather and your mum and they say something odd and you see the hockey equipment and you realise that you are dreaming. Where are you in the moment in which you realise you are dreaming?**
- (70) P: Where was I? I was in the front door of the house.
- (71) I came up the stairs and there is a door in the right side as you came up the stairs. You...
- (72) I can't remember whether you double back on yourself or there's a door on your right as you come up stairs, either way, it was that room. Then it was in the front of the house.
- (73) **I: you went to this room that was in the front of the house and then you went to this room and found your stepfather and your mum.**
- (74) P: My stepfather was there I think my mum was there, yeah.
- (75) **I: And then you realise about this hockey equipment. You are coming the door of the room and then the hockey equipment is right out of the door. As you came up the door, in the wall, which was slightly on the left, there is the hockey equipment which is leaning against the wall and the chest of drawers.**
- (76) I didn't notice as I first came in and then I was talking with my step father and I turned around and then I saw it was there.
- [...]
- (94) **I: Where are you in that moment when you go into the other room and you shout: 'dissolve the dream into the ultimate state'.**
- (95) P: I was in a room at the back of the house. I don't remember much detail. I have a vague impression that there was a Turkish rug on the floor. Again, I think there was a window on the other side of the room and the walls were white. My impression is that it was vague.
- (96) **I: You are in this room at the back of the house that has a Turkish rug on the floor and white walls. Can you see yourself?**
- (97) P: No, I can't recall what I was wearing or my dream body.
- (98) When I was in this dream I was looking outwards. I wasn't interested in what I looked like or in my body or something like that. I was interested in carrying out a dream plan.
- (99) **I: Why do you mean by looking outwards?**
- (100) P: for instance now, if I'm looking into the screen I'm not interested in what I'm wearing.
- (101) In that I wasn't focused on what I was wearing.
- (102) I remember though that went I moved from one room to another I wasn't flying.
- (103) I have the feeling I walked.
- (104) I had a dream body but I wasn't paying attention to it.

- (105) **I: Do you have the feeling of you shouting ‘dissolve the dream into the ultimate state’?**
- (106) P: I shouted very loudly.
- (107) It wasn’t like shouting it in my head,
- (108) but shouting it out loud.
- (109) **I: and can you hear yourself?**
- (110) P: I’m not sure what you mean by that.
- (111) I shouted the words, they didn’t echo back or something like that.
- (112) I shouted and nothing happened. Very briefly because I didn’t wait to shout again.
- (113) **I: You shouted out loudly, nothing happened and then immediately after you shouted again.**
- (114) P: Then it’s when the spinning start to happened. The room move from right to left and it might also the spinning going downwards.
- (115) In terms of my reaction, this was so quick that I didn’t feel any emotion.
[...]
- (125) **I: What is the next thing you can remember?**
- (126) P: The next thing that happened is that there’s empty space.
- (127) There are no shapes or anything.
- (128) On the other hand is very luminous,
- (129) there’s this light. Isn’t red or green or yellow.
- (130) It’s just there and it’s all pervasive.
- (131) And I don’t think I had a body in this moment.
- (132) I wasn’t standing or sitting or laying down.
- (133) It was... I didn’t have a body.
- (134) **I: So you go into the empty space, which there’s no much. You don’t have a body. What happened after? You were telling me that this lasted longer than what it normally does.**
- (135) P: This was the first time that happened.
- (136) There was no other impression that what I said really except two things. I was conscious
- (137) and I was aware.
- (138) I might have thought, ‘ Do I have a body?’ or some other sort of thing.
- (139) But it was very peaceful.
- (140) **I: how was this experience that this was very peaceful?**
- (141) P: It was peaceful. That was it.
- (142) **I: Imagine I’m someone I have never experience what peace is.**
- (143) P: No struggle.
- (144) No need to go anywhere or do anything.
- (145) No worries or concerns.
- (146) Nothing to aim for or strive for.
- (147) But at the same time, being aware. Being present.
- (148) **I: When you say that there were two things happening in that stage; Everything is black. You don’t have a body. Nevertheless you know that you are aware; that you might have had some thoughts during that moment. Everythng is peaceful. And at the same time you are aware of being present. What do you mean by this?**
- (149) P: There was no intellectual content of awareness like ‘I’m Ben, I’m here’.
- (150) It was open, without being focus on anything.

- (151) It's quite difficult for me to separate... the experience I had, I also read a lot. I can certainly use words that I found in these texts that describe it accurately but I want to use my own impression. I want to avoid using those phrases.
- (152) The awareness it's... It was just unbounded.

Bibliography

- Albahari, M. (2009). Witness-Consciousness. Its definition, appearance and reality. *Journal of consciousness studies*, 16(1), 62-84.
- Alexander, C, Davies, J., Carol, D., Michael, D, Steven, D, Orne-Johson, D. (1990). Growth of higher stages of consciousness: Maharishi's Vedic psychology of human development.. In C. Alexander, & E. Alexander, C.N & Langer (Ed.). *Higher states of human development: Perspectives on adult growth* New York: Oxford University Press.
- Āraṇya, S. (1989). *Yoga philosophy of Patañjali*. Albany, NY: State University of New York Press.
- Arya, P. (1989). *Yoga Sutras Of-Patanjali With The Exposition Of Vyasa*. Honesdale, Pennsylvania: The Himalayan international institute of yoga science and philosophy of the usa.
- Ataria, Y., Dor-Ziderman, Y., & Berkovich-Ohana, A. (2015). How does it feel to lack a sense of boundaries? A case study of a long-term mindfulness meditator. *Consciousness and Cognition*, 37(November 2017), 133-147.
- Bachmann, T., & Hudetz, A. (2014). It is time to combine the two main traditions in the research on the neural correlates of consciousness: C=LxD. *Frontiers in Psychology*, 5(940), 1-13.
- Bayne, T. (2007). Conscious states and conscious creatures: explanation in the scientific study of consciousness. *Philosophical Perspectives*, 21, 3-22
- Bayne, T., & Montague, M. (2011). *Cognitive Phenomenology*. Oxford University Pres.
- Bayne, T., Hohwy, J., & Owen, A. (2016). Are There Levels of Consciousness? *Trends in Cognitive Sciences*, 20(6), 405-413.
- Berkovich-Ohana, A., Dor-Ziderman, Y., Glicksohn, J., & Goldstein, A. (2013). Alterations in the sense of time, space, and body in the mindfulness-trained brain: A neurophenomenologically-guided MEG study. *Frontiers in Psychology*, 4(912), 1-19
- Berkovich-Ohana, A., Glicksohn, J., & Goldstein, A. (2012). Mindfulness-induced changes in gamma band activity - Implications for the default mode network, self-reference and attention. *Clinical Neurophysiology*, 123(4), 700-710.
- Bitbol, M., & Petitmengin, C. (2017). Neurophenomenology and the microphenomenological interview. M. Velmans & S. Schneider (eds.), *The Blackwell Companion to Consciousness*, Second edition. Wiley & Sons, Chichester: 726–739, 201
- Blanke, O., & Metzinger, T. (2008). Full-body illusions and minimal phenomenal selfhood. *Trends in Cognitive Sciences*, 13(1), 7-13.
- Blanke, O., & Mohr, C. (2005). Out-of-body experience, heautoscopy, and autoscopic hallucination of neurological origin: Implications for neurocognitive mechanisms of corporeal awareness and self-consciousness. *Brain Research Reviews*, 50(1), 184-199.
- Block, N. (1990). Inverted Earth. In N. Block, & J. Tomberlin (Ed.), *Philosophical Perspectives 4, Action Theory and Philosophy of Mind* (pp. 53-79). Atascadero: Ridgevi.
- Block, N. (1996). Mental Paint and Mental Latex. *Philosophical Issues, Perception*, 7(1996), 19-49.
- Brentano, F. (1973). *Psychology from an Empirical Standpoint*. (D. A.C. Rancurello, & T. Terrell, & L.L. McAlister, Eds.) London and New York: Routledge.
- Bryant, E. (2009). *The Yoga Sutras of Patañjali*. New York, NY: North Point Press.

- C, Ancoli-Israel S, Chesson A, Q. (2007). *American Academy of Sleep Medicine: The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications* (1st ed.). Westchester, IL: American Academy of Sleep Medicine.
- Cahn, B., Delorme, A., & Polich, J. (2010). Occipital gamma activation during Vipassana meditation. *Cognitive Processing*, 11(1), 39-56.
- Chatterjee, S., & Datta, D. (1950). *An Introduction to Indian Philosophy*. Calcutta: University of Calcutta.
- Chatterjee, T. (1982). The concept of saksin. *Journal of Indian Philosophy*, 10, 339-356.
- Christensen, J., Aubin, S., Nielsen, T., Ptito, M., Kupers, R., & Jennum, P. (2019). Rapid eye movements are reduced in blind individuals. *Journal of Sleep Research*. 1-10.
- Cohen, D. (1972). Failure to Recall Dream Content: Contentless vs Dreamless Reports. *Perceptual and Motor Skills*, 34(3), 1000-1002.
- Collard, P. (1953). Hypnagogic visions. *Light*, 73, 233-235.
- Dalai Lama. (1996). *Sleeping, Dreaming, and Dying: An exploration of Consciousness with the Dalai Lama*. Boston: Wisdom Publications.
- d'Aquili, E., & Newberg, A. (1999). *The mystical mind: probing the biology of religious experience*. Minneapolis, MN: Fortress Press.
- Dentico, D., Ferrarelli, F., Riedner, B., Smith, R., Zennig, C., Lutz, A., . . . Davidson, R. (2016). Short Meditation Trainings Enhance Non-REM Sleep Low-Frequency Oscillations. *PLoS ONE*, 11(2), 1-18.
- Dretske, F. (1995). *Naturalising the mind*. Cambridge, MA: MIT Press.
- Evans-Wentz, W. (1960). *The tibetan book of the dead*. Oxford University Press.
- Fasching, W. (2010). 'I Am of the Nature of Seeing': Phenomenological Reflections on the Indian Notion of witness-consciousness. In *Self, no self? Perspectives from analytical, phenomenological, and Indian traditions*, eds Siderits, M, Thompson, E and Zahavi, D, 193-216. Oxford: Oxford University Press
- Fazekas, P., Nemeth, G., & Overgaard, M. (2018). White dreams are made of colours: What studying contentless dreams can teach about the neural basis of dreaming and conscious experiences. *Sleep Medicine Reviews*, 43, 84-91.
- Ferrarelli, F., Smith, R., Dentico, D., Riedner, B., Zennig, C., Benca, R., . . . Tononi, G. (2013). Experienced Mindfulness Meditators Exhibit Higher Parietal-Occipital EEG Gamma Activity during NREM Sleep. *PLoS ONE*, 8(8), 1-9
- Forman, R. (1986). Pure consciousness events and mysticism. *Sophia*, 25(1), 49-58.
- Forman, R. (1988). The Construction of Mystical Experience. *Faith and Philosophy: Journal of the Society of Christian Philosophers*, 5(3), 254-267.
- Forman, R. (1999). What Does Mysticism Have to Teach Us about Consciousness? *Models of the Self*, 5(2), 361-378.
- Fort, A. (1984). The Concept of saksin in Advaita Vedanta. *Journal of Indian Philosophy*, 12, 277-290.
- Foulkes, D. (1985). *Dreaming: a cognitive-psychological analysis*. New York; East Sussex: Routledge.

- Foulkes, D., & Fleisher, S. (1975). Mental activity at sleep onset. *Journal of Abnormal Psychology*, 84, 66-75.
- Foulkes, D., & Scott, E. (1973). An above-zero baseline for the incidence of momentarily hallucinatory mentation. *Sleep research*, 2, 108.
- Foulkes, D., & Vogel, G. (1965). Mental Activity At Sleep Onset 1. *Journal of Abnormal Psychology*, 70(4), 231-243.
- Fremantle, F. (2001). *Luminous emptiness. Understanding the Tibetan Book of the Dead*. Boston: Shambhala.
- Gambhirananda, S. (1937). *Eight Upanishads with the commentary of Shankaracharya*. (Volume 2 ed.). Calcuta: The Sharada Press.
- Gillespie, G. (2002). Dreams and dreamless sleep. *Dreaming*, 12(4), 199-207.
- Gorgoni, M., Bartolacci, C., D'Atri, A., Scarpelli, S., Marzano, C., Moroni, F., . . . De Gennaro, L. (2019). The spatiotemporal pattern of the human electroencephalogram at sleep onset after a period of prolonged wakefulness. *Frontiers in Neuroscience*, 13(APR).
- Green, C. (1968). *Lucid dreams*. London: Hamish Hamilton.
- Gupta, B. (1998). *The disinterested witness: A fragment of the advaita vedanta phenomenology*. Illinois: Northwestern University Press.
- Harman, G (1990) The intrinsic quality of experience. In J. Tomberlin (Ed.), *Philosophical perspectives 4: Action theory and philosophy of mind* (pp. 31-52). Atascadero, CA: Ridgewell Publishing Company.
- Hayashi, M., Katoh, K., & Hori, T. (1999). Hypnagogic imagery and EEG activity. *Perceptual and Motor Skills*, 88(2), 676-678.
- Hellie, B. (2007). That Which Makes the Sensation of Blue a Mental Fact: Moore on Phenomenal Relationism. *European Journal of Philosophy*, 15(3), 334-366.
- Hobson, J. (2009). REM sleep and dreaming: towards a theory of protoconsciousness. *Nature reviews. Neuroscience*, 10(11), 803-813.
- Hohwy, J. (2009). The neural correlates of consciousness: New experimental approaches needed? *Consciousness and Cognition*, 18(2):428-38
- Holecsek, A. (2016). *Dream Yoga: Illuminating your life through lucid dreaming and the tibetan yogas of sleep*. Boulder, Colorado: Sounds true.
- Hori, T., Hayashi, M., & Morikawa, T. (1994). Topographical EEG changes and the hypnagogic experience. In T. Hori, M. Hayashi, & T. Morikawa, *Sleep onset: Normal and abnormal processes* (pp. 237-253). Washington, DC, US: American Psychological Association.
- Hurd, R. (2008). *Exploring the void in lucid dreaming*. Retrieved from dream studies: <https://dreamstudies.org/2010/05/13/exploring-the-void-in-lucid-dreaming/>
- Husserl, E. (1982). *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy – First Book: General Introduction to a Pure Phenomenology*. (T. Kersten, F., Ed.) The Hague: Nijhoff.
- Indich, W. (1980). *Consciousness in Advaita Vedanta*. Delhi: Motilal Banarsidass.
- Kriegel, U. (2005). Naturalizing Subjective Character. *Philosophy and Phenomenological Research*, 71(1), 23-57.

- Kriegel, U. (2009). *Subjective Consciousness: A Self-Representational Theory*. Oxford University Press.
- Kühle, L. (2015). Insight : What Is It , Exactly? *Open Mind*, 38(C), 1-13.
- LaBerge, S. (1985). *Lucid dreaming*. New York: Ballantine.
- LaBerge, S., & DeGracia, D. (2000). Varieties of lucid dreaming. In S. LaBerge, D. DeGracia, R. Kunzendorf, & B. Wallace (Eds.), *Individual differences in conscious experience* (pp. 269-307). Amsterdam: John Benjamins.
- Laureys, S. (2005). The neural correlate of (un)awareness: Lessons from the vegetative state. *Trends in Cognitive Sciences*, 9(12), 556-559.
- Le Van Quyen, M., & Petitmengin, C. (2002). Neuronal dynamics and conscious experience: an example of reciprocal causation before epileptic seizures. *Phenomenology and the Cognitive Sciences*, 1(2), 169-180.
- Lee, M., Baird, B., Gosseries, O., Nieminen, J., Boly, M., Postle, B., . . . Lee, S. (2019). Connectivity differences between consciousness and unconsciousness in non-rapid eye movement sleep: a TMS–EEG study. *Scientific Reports*, 9(1), 1-9.
- Leroy, E. (1933). *Les visions du demi-sommeil*. Paris: Librairie Felix Alcan.
- Lewis, H.B., Goodenough, D.R., Shapiro, A. S. (1966). Individual differences in dream recall. *Journal Abnormal Psychology*, 71(1), 52-59.
- Lutz, A., Greischar, L., Rawlings, N., Ricard, M., & Davidson, R. (2004). Long-term meditators self-induce high-amplitude gamma synchrony during mental practice. *101*(46), 16369-16373.
- Lutz, A., Lachaux, J.-P., Martinerie, J., & Varela, F. (2002). Guiding the study of brain dynamics by using first-person data: synchrony patterns correlate with ongoing conscious states during a simple visual task. *Proceedings of the National Academy of Sciences of the United States of America*, 99(3), 1586-1591.
- Magallón, L. (1987). Awake in the Dark : Imageless Lucid Dreaming. *Lucidity Letter*, 6(1), 1-5.
- Maharishi, M. (1969). *On the Bhagavad-Gita: a new translation and commentary*. Harmondsworth, U.K: Penguin.
- Maharishi, M. (1972). *The Science of Creative Intelligence*. New York: MIU Press.
- Maruthai, N., Nagendra, R., Sasidharan, A., Srikumar, S., Datta, K., Uchida, S., & Kutty, B. (2016). Senior Vipassana Meditation practitioners exhibit distinct REM sleep organization from that of novice meditators and healthy controls. *International Review of Psychiatry*, 28(3), 279-287.
- Mason, L., & Orme-Johnson, D. (2010). Transcendental consciousness wakes up in dreaming and deep sleep. *International Journal of Dream Research*, 3(1), 28-32.
- Mason, L., Alexander, C., Travis, F., & Gackenbach, J. (1990). Eeg Correlates of Consciousness. *Lucidity Letter*, 209(2), 2-4.
- Mason, L., Alexander, C., Travis, F., Marsh, G., Orme-Johnson, D., Gackenbach, J., . . . Walton, K. (1997). Electrophysiological Correlates of Higher States of Consciousness During Sleep in Long-Term. *Sleep*, 20(2), 102-110.
- Massimini, M., Ferrarelli, F., Murphy, M., Huber, R., Riedner, B., Casarotto, S., & Tononi, G. (2010). Cortical reactivity and effective connectivity during REM sleep in humans. *Cognitive Neuroscience*, 1(3), 176-183.

- Maury, A. (1848). Des hallucinations hypnagogiques ou des erreurs des sens dans l'etat intermediaire entre la veille et le sommeil. *Ann Medico-Psychol. Syst. Nerveux*, 11, 26-40.
- Mavromatis, A. (1987). *Hypnagogia: the unique state of consciousness between wakefulness and sleep*. London: Routledge and Kegan Paul.
- Metzinger, T. (2003). *Being no one. The self-model theory of subjectivity*. Cambridge, MA: MIT Press.
- Metzinger, T. (2019, May). Minimal Phenomenal Experience.
- Michida, N., & Hayashi, M. (1998). Event Related Potentials With and Without Hypnagogic Imagery. *Psychiatry and Clinical Neurosciences*, 52, 145-147.
- Montague, M. (2017). What Kind of Awareness is Awareness of Awareness? *Grazer Philosophische Studien*, 94(3), 359-380.
- Moore, G. (1903). The refutation of idealism. *Mind*, 12(48), 433-453.
- Morley, J. (1998). The private theater: A phenomenological investigation of daydreaming. *Journal of Phenomenological Psychology*, 29(1), 116-134.
- Mormann, F., & Koch, C. (2007). Neural Correlates Of Consciousness. *Scholarpedia*, 2(12), 1740.
- Myers, O. (1957). Images in the mind. *American Journal of Psychology*, 51, 62-73.
- Nagel, T. (1974). What Is It Like to Be a Bat? *The Philosophical Review*, 83(4), 435.
- Namkhai Norbu. (1983). *Dream yoga and the practice of natural light*. Ithaca, New York: Snow Lion Publications.
- Nielsen, T. (2010). Dream analysis and classification: The reality simulation perspective. In T. Nielsen, M. Kryeger, T. Roth, & W. Dement (Eds.), *Principles and practice of sleep medicine*. New York: Elsevier.
- Nielsen, T. (2017, 1 1). Microdream neurophenomenology. *Neuroscience of Consciousness*, 2017(1).
- Nielsen, T., & Stenstrom, P. (2005). What are the memory sources of dreaming? *Nature*, 437(7063), 1286-1289.
- Nieminen, J., Gosseries, O., Massimini, M., Saad, E., Sheldon, A., Boly, M., . . . Tononi, G. (2016). Consciousness and cortical responsiveness: A within-state study during non-rapid eye movement sleep. *Scientific Reports*, 6(July), 1-10.
- Noreika, V., Canales-Johnson, A., Koh, J., Taylor, M., Massey, I., & Bekinschtein, T. (2015). Intrusions of a drowsy mind: Neural markers of phenomenological unpredictability. *Frontiers in Psychology*, 6(MAR), 1-10.
- Noreika, V., Valli, K., Lahtela, H., & Revonsuo, A. (2009). Early-night serial awakenings as a new paradigm for studies on NREM dreaming. *International Journal of Psychophysiology*, 74(1), 14-18.
- Noreika, V., Windt, J., & Lenggenhager, B. (2010). New perspectives for the study of lucid dreaming : From brain stimulation to philosophical theories of self-consciousness
Commentary on “ The neurobiology of consciousness : Lucid dreaming wakes up ” by J . Allan Hobson. *International Journal of Dream Research*, 3(1), 36-45.
- Ogilvie, R. (2001). The process of falling asleep. *Sleep Medicine Reviews*, 5(3), 247-270.
- Olivelle, P. (1998). *The early Upanishads: Annotated text and translation*. New York; Oxford:: Oxford University Press.

- O'Shaughnessy, B. (1986). Consciousness. *Midwest Studies in Philosophy*, *X*, 49-62.
- Padmasambhava, Rinpoche, G., & Wallace, A. (2008). *Natural Liberation. Padmasambhava's Teachings on the Six Bardos*. Boston: Wisdom Publications.
- Petitmengin, C. (2005). Un exemple de recherche neuro-phénoménologique : l'anticipation des crises d'épilepsie. *Intellectica*, *40*(1), 63-89.
- Petitmengin, C. (2006). Describing one's subjective experience in the second person: An interview method for the science of consciousness. *Phenomenology and the Cognitive Sciences*, *5*(3-4), 229-269.
- Petitmengin, C., Baulac, M., & Navarro, V. (2006). Seizure anticipation: Are neurophenomenological approaches able to detect preictal symptoms? *Epilepsy and Behavior*, *9*(2), 298-306.
- Petitmengin-Peugeot, C. (1999). The intuitive experience. *Journal of Consciousness Studies*, *6*(3), 43-77.
- Ponlop Dzogchen, R. (2006). *Mind Beyond Death*. Ithaca, NY: Snow Lion
- Raveh, D. (2008). Ayam aham asmīti: Self-consciousness and identity in the eighth chapter of the Chāndogya Upaniṣad vs. Śankara's Bhāṣya. *Journal of Indian Philosophy*, *36*(2), 319-333.
- Rechtschaffen A, K. (1968). *A manual of standardized terminology, techniques and scoring for sleep stages of human subjects*. NIH Publ., 204. US Washington: Government Printing Office.
- Revonsuo, A. (1995). Consciousness, dreams and virtual realities. *Philosophical Psychology*, *8*(1), 35-58.
- Revonsuo, A. (2006). *Inner presence*. Cambridge, MA: MIT Press.
- Revonsuo, A., Tuominen, J., & Valli, K. (2015). The simulation theories of dreaming: How to make theoretical progress in dream science. *Open MIND*, *32*(March), 1-8.
- Rinpoche, G. (2002). Meditation, transformation and dream yoga. *Snow Lion*, *91*, 399-404.
- Rinpoche, T. (1989). *Tibetan Yogas of Dream and Sleep*. Ithaca, NY: Snow Lion.
- Schacter, D. (1976). The hypnagogic state: A critical review of the literature. *Psychological Bulletin*, *83*(3), 452-481.
- Shear, J., & Jevning, R. (2011). Pure Consciousness : Scientific Exploration of Meditation Techniques. *Journal of Consciousness Studies*(2), 189-209.
- Siclari, F., & Tononi, G. (2017). Local aspects of sleep and wakefulness. *Current Opinion in Neurobiology*, *44*, 222-227.
- Siclari, F., Larocque, J., Bernardi, G., Postle, B., & Tononi, G. (2017). The neural correlates of consciousness in sleep: A no-task, within-state paradigm. *Nature Neuroscience*, *20*, 872–878.
- Siclari, F., LaRocque, J., Postle, B., & Tononi, G. (2013). Assessing sleep consciousness within subjects using a serial awakening paradigm. *Frontiers in Psychology*, *4*(AUG), 1-9.
- Solomonova, E., & Wei, S. (2016). Exploring the depth of dream experience: The enactive framework and methods for neurophenomenological research. *Constructivist Foundations*, *11*(2), 407-416.

- Solomonova, E., Fox, K., & Nielsen, T. (2014). Methodological considerations for the neurophenomenology of dreaming: commentary on Windt's "Reporting dream experience". *Frontiers in human neuroscience*, 8(317), 1-3.
- Speth, J., Schloerscheidt, A., & Speth, C. (2016). As we fall asleep we forget about the future: A quantitative linguistic analysis of mentation reports from hypnagogia. *Consciousness and Cognition*, 45, 235-244.
- Stace, W. (1960). *Mysticism and philosophy*. London: Macmillan.
- Stenstrom, P., Fox, K., Solomonova, E., & Nielsen, T. (2012). Mentation during sleep onset theta bursts in a trained participant: A role for NREM stage 1 sleep in memory processing? *International Journal of Dream Research*, 5(1), 37-46.
- Thompson, E. (2015a). Dreamless Sleep, the Embodied Mind, and Consciousness. *Open MIND*, 37.
- Thompson, E. (2015b). *Waking, dreaming, being: self and consciousness in neuroscience, meditation, and philosophy*. New York: Columbia University Press.
- Thompson, E. (2015c). Steps Toward a Neurophenomenology of Conscious Sleep. *Open Mind* 37.
- Tononi, G. (2008). Consciousness as integrated information: A provisional philosophical critique. *Journal of Consciousness Studies*, 215(3), 216-242.
- Tononi, G., & Koch, C. (2008). The neural correlates of consciousness: An update. *Annals of the New York Academy of Sciences*, 1124, 239-261.
- Travis, F. (1994). The junction point model: A field model of waking, sleeping, and dreaming, relating dream witnessing, the waking/sleeping transition, and Transcendental Meditation in terms of a common psychophysiological state. *Dreaming*, 4(2), 91-104.
- Tye, M. (2002). Representationalism and the transparency of experience. *Nous*, 36(1), 137-151.
- Valenzuela-Moguillansky, C., O'Regan, J., & Petitmengin, C. (2013). Exploring the subjective experience of the "rubber hand" illusion. *Frontiers in human neuroscience*, 7(October), 659.
- Valenzuela-Moguillansky, C., & Vásquez-rosati, A. (2019). An Analysis Procedure for the Micro-Phenomenological Interview. *Constructivist Foundations*, 14(2), 123-145.
- VanEeden. (1913). A study of dreams. *Proceeding of the Society for Psychical Research*, 26, 431-416.
- Vogel, G. (1991). Sleep-onset mentation. In G. Vogel, S. Ellman, & J. Antrobus (Eds.), *The mind in sleep: psychology and psychophysiology* (2nd ed., pp. 125-136). New York: Wiley and Sons.
- Voss, U., Schermelleh-Engel, K., Windt, J., Frenzel, C., & Hobson, A. (2013, 3). Measuring consciousness in dreams: the lucidity and consciousness in dreams scale. *Consciousness and cognition*, 22(1), 8-21.
- Wallace, B. (2012). *Dreaming Yourself Awake: Lucid Dreaming and Tibetan Dream Yoga for Insight and Transformation*. Boston: Shambhala.
- Waters, F., Blom, J., Dang-Vu, T., Cheyne, A., Alderson-Day, B., Woodruff, P., & Collerton, D. (2016). What Is the Link Between Hallucinations, Dreams, and Hypnagogic-Hypnopompic Experiences? *Schizophrenia bulletin*, 42(5), 1098-1109.
- Windt, J. (2010). The immersive spatiotemporal hallucination model of dreaming. *Phenomenology and the Cognitive Sciences*, 9(2), 295-316.

- Windt, J. (2015a). Just in Time—Dreamless Sleep Experience as Pure Subjective Temporality
Target Author, *Open Mind* (Vol. 37).
- Windt, J. (2015b). *Dreaming: a conceptual framework for philosophy of mind and empirical research*. Cambridge, MA; London: MIT.
- Windt, J., & Voss, U. (2018). Spontaneous Thought, Insight, and Control in Lucid Dreams (Vol. 1)
in K.Christoff and C.R Fox Kieran, *The Oxford Handbook of Spontaneous Thought: Mind-wandering, Creativity and Dreaming*. Oxford University Press.
- Windt, J., Nielsen, T., & Thompson, E. (2016). Does Consciousness Disappear in Dreamless Sleep? *Trends in Cognitive Sciences*, 20(12), 871-882.