The Ontological Structure & Limitations of Lucid Dreams

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Chapter One

Three Philosophic Concerns Regarding The Discovery of Ontological Self-Awareness During Sleep

Three Philosophic Concerns Regarding The Discovery of Ontological Self-Awareness During Sleep

- 1. Language (i.e., how do you express non-sensory experiences in an embodied language?)
- 2. Defining lucid dreams (i.e., what are the limits and ontological boundaries to these phenomena?)
- 3. REMS and NREMS (i.e., is dreaming restricted to rapid-eye-movement sleep?)

Heretical Beliefs

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- Lucid dreaming was believed to be impossible.
- High skepticism around the topic.
- How can one be conscious while asleep?
- Subject was traditionally associated with esotericism and magic.

Heretical Beliefs

- Stephen LaBerge wrote his Ph.d dissertation on lucid dreams at Stanford University in the 1970s.
- He showed that lucid dreamers can communicate with the outside world through predetermined eye movements.

Stephen Laberge

Heretical Beliefs

- His original findings have been independently reproduced since then.
- Most recently the Max Planck Institute has shown in 2011 that lucid dreams are real phenomenon through the use of MRI machines.

1. Language Defines, Shapes and Structures Phenomenological Experiences

1. Language Shapes, Structures and Limits Phenomenological Experiences

- Language was developed to express a particular reality or dimension of experiences.

- As cognitive linguist George Lakoff and philosopher Mark Johnson put it:

“The peculiar nature of our bodies shapes possibilities for conceptualization and categorization.”

1. Language Shapes, Structures and Limits Phenomenological Experiences

- Ludwig Wittgenstein, arguably the most influential philosopher of the twentieth century, concluded that language is incapable of accurately expressing non-sensory experiences.

"If a lion could talk, we could not understand him."

–Ludwig Wittgenstein

1. Language Shapes, Structures and Limits Phenomenological Experiences

- Words belong to *subjective* worlds, or as Wittgenstein scholar, Pasquale Frascolla, puts it, words are a form of *"semantic solipsism."*

1. Language Shapes, Structures and Limits Phenomenological Experiences

- This is why Wittgenstein famously declared in his *Notebooks*: "*The Limits of my language* stand for the limits of my world".

- Language is a reflection of a *particular* world, or phenomenological reality. In this case, the subjectivity of embodiment.

"If objects are identified with qualia, and the combinatorial potential of objects is mirrored by the combinatorial potential of their names, then the limits of language that I understand inevitably means the limits of *my* world."

–Pasquale Frascolla

1. Language Shapes, Structures and Limits Phenomenological Experiences

- Embodiment shapes the structure of language and consequently the limits of phenomenological dialogue.
- It cannot accurately express an experience that extends beyond the phenomenology of wakefulness.

2. Defining Lucid Dreams

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- Lucid dreaming is a difficult phenomenological state to delimit and define.
- According to quantitative researcher Issac Taitz:

"There exists some debate over whether lucidity encompasses control, or whether control dreams are separate from lucid dreams."

–Issac Taitz

2. Defining Lucid Dreams

- If lucid dreams are equated with control, then as psychotherapist Scott Sparrow explains, a lucid dream is a phenomenological experience in which, "one presumably can do whatever one wishes"

2. Defining Lucid Dreams

- For example, lucid dream researcher Tim Post writes that in some cases lucid dreamers can shape their dreams into anything, “they are able to conceive while dreaming”.

- Mary Ziemer observes, “some lucid dreamers report shape changing [i.e.,] taking on new bodily form”.

2. Defining Lucid Dreams

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- Some researchers, however, don't see control as an indigenous characteristic of lucid dreams.
- To quote Kripnner, in most cases, "the dreamer knows that a dream is occurring, but is unable to refashion the flow of the dream".
- This group of researchers see conscious awareness as the defining characteristic of lucid dreams. Not dream content control.

2. Defining Lucid Dreams

- In recent years, successive stages of lucidity accompanied by different degrees of perceptual awareness have been observed in subjects by a number of researchers.

"Most lucid dreams are marked by transient episodes of lucidity."

–Harvard Psychiatrist Allan Hobson

"One lucid dream may have nothing more than the thought, 'I am in a dream,' while another may have extended activities in which the individual deliberately changes the dream or engages the dream in a dance of cause and effect."

–Kelly Bulkeley and Ryan Hurd

2. Defining Lucid Dreams

- Lucid dreams are unstable states of awareness that exhibit a number of diverse characteristics and qualities. Dream content manipulation is only one among them.

2. Defining Lucid Dreams

- Attempting to delimit the characteristics of lucid dreams, however, gives rise to the false impression that lucid dreaming amounts to a number of individual conditions that can be added together in order to form the sum total of a particular state of mind.

- In fact, this approach may show to be problematic as many lucid dream experiences exhibit spontaneous elements that defy most taxonomic efforts.

2. Defining Lucid Dreams

- Certain elements within the phenomenology of lucid dreams will either remain elusive to conscious control or entirely independent to it.

"Lucidity can be conceptualized as a spectrum of encompassing varying degrees of metacognitive processing similar to that occurring in waking consciousness."

–Tim Post

2. Defining Lucid Dreams

- Lucidity is not a distinct phenomenological state of awareness.
- It is in fact a distinct state of perception within the phenomenological structure of dreams.
- This is why certain elements of lucid dreams always remain elusive and outside the reach of conscious control.

3. REMS and NREMS

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- The problem in determining the structure and limitation of dreams derives from the fact that throughout a normal sleep cycle the mind produces a nearly unceasing stream of images.
- These images can range from hypnagogic, hypnopompic and unstructured transient impressions to vivid and coherent hallucinations, which have been traditionally associated strictly with REMS.
- There is still little consensus as to which mental imagery produced during sleep should be considered a “dream” and which should not

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3. REMS and NREMS

- A considerable amount of mental activity occurs throughout all stages of sleep.
- However, exactly what type of mental activity, or phenomenological experiences, qualify as dreaming depends on the adopted definition.

3. REMS and NREMS

- A number of studies have shown that dreams, according to the strictest definition of the term, do in fact exist outside REMS.
- According to William Moorcroft, the difficulty in tracing out the boundaries between REM and NREM dreams lies in the fact that, “reports of NREMS mentation become more dreamlike as the night wears one.”

3. REMS and NREMS

- Earlier NREMS dreams are less clear, vivid and coherent than REMS dreams.
- This means that there is still an important qualitative difference that can be observed between sleep stages.
- But, contrary to the REMS hypothesis, there is no major distinction that can be made between the dreams produced during REMS and NREMS.

"Dreamlike mentation occurs in all states, but REM is the best state to study dreaming."

–Allan Hobson

3. REMS and NREMS

- Given that dreams can take place during both REMS and NREMS, some researchers, such as Hurd, have tentatively concluded that lucid dreaming might also occur throughout all stages of sleep.

- Further research on lucid dreaming and its relation to NREMS stages of sleep is required to substantiate this claim.

Chapter Two

The Ontology of Sleep

The Phenomenology of Lucid Dreams

The Phenomenology of Lucid Dreams

- Dreams and wakefulness are different, but correlated, phenomenological states of experience.

- Waking reality is continuous. One event leads to the next.

- Put simply, during wakefulness events and locations are logically corresponding to each other.

- In contrast, dreams are structurally inconsistent and often illogical.

The Phenomenology of Lucid Dreams

- But this may not necessarily be so.

The Phenomenology of Lucid Dreams

- A number of experiments have shown that waking consciousness might actually be substantially poorer at noticing scenery changes than the dreaming mind.

The Phenomenology of Lucid Dreams

- According to Rock it was discovered, “that if you check in with a test subject every ten or twelve minutes during the daytime to get a report on what’s running through [the subject’s] mind, there are more discontinuities and scene changes in waking consciousness than there are in REM dreams”

The Phenomenology of Lucid Dreams

- In fact, this experiment and a number of subsequent ones (see below), suggest that "wandering thoughts" during wakefulness might occur at least as frequently as they do during dreams.

"The crucial difference is that the multi sensory world you experience while dreaming originates *internally* rather than *externally*. While awake, most of what you perceive corresponds to actually existing people, objects, and events in the external world. Because the objects of waking perception actually exist independently of your mind, they remain relatively stable.

–Stephen LaBerge

The Phenomenology of Lucid Dreams

- In other words, dreams are strictly contingent on internally generated mental worlds, whereas wakefulness is generated, for the most part, through sensory input derived from a stable phenomenology.

- In dreams, the experienced phenomenology is generated by the sleeping mind.

- This is why the content of dreams are more malleable and ephemeral than those of wakefulness.

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"dreaming can be viewed as the special case of consciousness without the constraints of external sensory input. Conversely, perception can be viewed as the special case of dreaming constrained by sensory input"

–Stephen LaBerge

The Phenomenology of Lucid Dreams

- In essence, LaBerge is saying that habitual forms of consciousness are equally present during dreams and wakefulness.

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- In fact, the main difference between dreams and wakefulness appears to be phenomenological and not perceptual or cognitive in nature.

- This poses an existential problem: if the habitual forms of consciousness are equally present during wakefulness and dreaming, what is the ontological difference between these two phenomenological states?

The Phenomenology of Lucid Dreams

- In essence, LaBerge is saying that habitual forms of consciousness are equally present during dreams and wakefulness.

- In fact, the main difference between dreams and wakefulness appears to be phenomenological and not perceptual or cognitive in nature.

“In the end, there is no normal state […] Waking is no more normal than sleeping. Letting your mind wander is no less normal than keeping it on the starting and narrow. Being calm, cool, and collected is no more normal than being impassioned. Our needs change with our environment”

–Robert Stickgold

The Phenomenology of Lucid Dreams

- This passage suggests that wakefulness cannot readily be defined as real.

- In fact, at least on a perceptual level, whatever the mind experiences at any given moment is *real*.

- This means that the "reality" of a phenomenological state is intrinsically relative, or dependent, on our knowledge of other phenomenological states.

The Phenomenology of Lucid Dreams

- The main differences between lucid dreams, wakefulness and non-lucid dreams are phenomenological in nature.

- From a perceptual level, neither one of these states can be classified as real or unreal.

- They are all equally *real* when experienced.

- However, there are different characteristics that can be associated with each one of these phenomenological states of awareness.

The Phenomenology of Lucid Dreams

- For example, according to Hobson et al., lucid dreams are, “often described as taking on a hyperreal quality.”

“calling it *dreaming* robs my experiences of their full experiential form—fuller often than the many inattentive, thoughtless, or careless moments of which reality when “awake” is usually composed”

–Jorge Conesa-Sevilla

The Phenomenology of Lucid Dreams

- In fact, the phenomenological reality of lucid dreams is repeatedly described by lucid dreamers as more real than real.
- Given that these experiences have been corroborated by hundred of independent reports, it follows that these linguistic paradoxes emerge from the application of an embodied language within a non-sensory environment

*(as discussed in chapter one of this presentation under the section—Language Shapes, Structures and Defines Phenomenological Experiences).

The Phenomenology of Lucid Dreams

- On an emotional level, lucid dream researcher Jayne Gackenback and psychology researcher Harry Hunt observe that lucid dreams are often described as a:

"vivid kinaesthetically enhanced presence and feelings of awe, fascinating, and at times bliss similar to that associated with Maslow's peak experience and Otto's descriptive phenomenology of a numinous feeling of the felt sense of the sacred"

"According to my own experience and the testimony of thousands of other lucid dreamers, lucid dreams can be extraordinarily vivid, intense, pleasurable, and exhilarating. People frequently consider their lucid dreams as among the most wonderful experiences of their lives"

–Stephen LaBerge

The Phenomenology of Lucid Dreams

- This suggests that the internal reality of lucid dreams, in addition to control and an ontological form of self-awareness, enables a degree of elation that is not normally present during wakefulness or non-lucid dreams.

- Given that lucid dreams develop out of the phenomenological structure of dreams while relying on habitual perceptual components of wakefulness, they create the conditions for a unique form of consciousness.

The Brain on Dreams

The Brain on Dreams

- Until recently, dreams have remained an elusive and poorly understood phenomenon.

- A number of recent studies have made a number of significant contributions to our understanding of sleep and dreaming.

The Brain on Dreams

- According to Krippner a major advancement in the field of dream research came when researchers discovered that,

“the events experienced in lucid dreams produce effects in the brain and the body that are remarkably similar to those that would be produced if the events were experienced while awake”

"[W]hen people dream of performing an action, such as singing […] their bodies and brains respond as if they were actually doing it, except that their muscles remain paralyzed by the REM process. Apparently, the neural impulses from the brain to the body are still active and quite similar, if not identical, to those that would accompany the same acts in waking"

–Stephen LaBerge

The Brain on Dreams

- LaBerge concluded that dreams are persistently mistaken for reality because,

“to the functional systems of neuronal activity that construct the experiential world model of our consciousness, dreaming of perceiving or doing something is equivalent to actually perceiving or doing it”

The Brain on Dreams

- In fact, the reason why dreams feel real when they happen is because they emulate the neurobiological functions of waking consciousness.

The Brain on Dreams

- Cognition and the normal psychological components of waking consciousness (e.g., autobiographical memory, an unambiguous sense of personal identity, desires and goals) are also present during dreams.

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“expert dreamers can reason rationally, remember the condition of waking life, and act voluntarily within the dream upon reflection or in accordance with plans decided upon before sleep”

–Stephen LaBerge

The Brain on Dreams

- An experienced lucid dreamer appears to be able to engage with the dreamscape on a metacognitive level while simultaneously retrieving components of waking memory.

A Different Perspective on Lucid Dreams
(The Tibetan Claim)

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- One of the world's most developed, structured and on-going lucid dream traditions is rooted in Tibetan Buddhism and Bön.

- Over one thousand years old.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In contrast, the Western world has systematically explored the reality of lucid dreams for little more than a few decades.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In this section I will discuss the way Tibetan Buddhists and Bön practitioners understand the phenomenological world of lucid dreams and its relation to wakefulness.

- This endeavour can pave a tentative road towards future lucid dream research projects as well as offer a non-western philosophic perspective on the phenomenon.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- The idea of "wakefulness" or "awakening" is deeply embedded within the metaphysical worldview of Buddhism.

- The "Buddha" literally translates as the awakened one.

- Professor of psychology at UC Berkeley, Eleanor Rosch, explains:

"The Buddha has been called both The Awakened One and The Enlightened One, and both of these qualities are evoked by the word *lucid* in the way that we now use it to refer to lucid dreaming"

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- According to the Bön lama Tenzin Wangyal Rinpoche, Tibetans believe that, "the entirety of normal experience is made up of the mind's projections."
- Western philosophy, however, has traditionally diminished the "reality" of dreams in favour of experiences produced during wakefulness.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- For Tibetans there is no phenomenological difference or distinction between wakefulness and dreaming. In their view, wakefulness and dreams are equally real and equally illusory.
- In other words, all experiences are tinted by subjective perceptual awareness.
- For this reason, neither waking or dreaming perception is treated as an entirely objective phenomenon in Tibetan thought.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- From the Tibetan Buddhist perspective, this fact is used to reinforce a particular metaphysical system.

- As LaBerge puts it: “Lucid dreams plainly show us what it is like to think we are awake, and then to discover that we are not”

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In other words, lucid dreaming is an experiential dimension that is used by Tibetan practitioners to literally enact the Tibetan Buddhist narrative (i.e., awakening to the illusory nature of an immersing phenomenological reality.)

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- Regarding the limits of lucid dreams:

- Within the Tibetan lucid dream tradition it is believed that certain practices can lead to a degree of "unrestricted" control over the contents of dreams.

- *The Doctrine of the Dream State* (Early Dream Yoga Manual)

The Doctrine of the Dream State

- According to LaBerge, one of the earliest Tibetan dream yoga manuals, *The Doctrine of the Dream State,* presents a series of preparatory techniques and exercise that can lead, "to the capacity to dream anything imaginable."

The Doctrine of the Dream State

- Dream content transmutation.
- These mental feats, however, are supposedly dependent on the practitioner's mental stability and ability to focus

The Doctrine of the Dream State

- Gyatrul Rinpoche explains that the Tibetan practice of transmutation within lucid dreams can successfully, “increase one to many; gradually reduce many to one; transform pillars and pots and so on into living beings, both human and animal; within the environment and its inhabitants change living beings into pillars, pots and so fourth just as you please.”

"Western studies of lucid dream control have so far established rather more modest claims"

–Stephen LaBerge

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In addition to experiencing a form of "enlightenment" and learning to manipulate the phenomenology of dreams, Tibetan lucid dream practices also describes a secondary aim to lucid dream practices.

- Dreamless lucid sleep

**("Pristine Awareness")*

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- Tibetans have developed a particular type of meditation, known as *zhiné,* which enables the practitioner to maintain conscious awareness in between REMS cycles.

- The "emptiness," or lack of consistent phenomenological development during NREMS is considered by Tibetans, "to be the emptiness that underlies all things."

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In other words, dreamless lucid sleep is conceptualized by Tibetans as an unconditioned phenomenological reality. Wangyal explains that during these experiences: “There is neither subject nor object”

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- In other words, dreamless lucid sleep is conceptualized by Tibetans as an unconditioned phenomenological reality. Wangyal explains that during these experiences: “There is neither subject nor object.”

- It is difficult to achieve this degree of lucidity as it requires an almost unattainable degree of mental stillness.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- This criterion makes dreamless lucid sleep complicated to study in any reliable and systematic manner; in fact, it would be exceedingly difficult to find candidates capable of achieving this hypothetical state of awareness.

A Different Perspective on Lucid Dreams (The Tibetan Perspective)

- As LaBerge puts it, these types of reports are unfortunately not, "subject to public verification and scientific testing."

- As a matter of fact, finding suitable candidates for any type of lucid dream study is strenuous at best, let alone more exotic forms of experimentation.

- The difficulty in finding suitable candidates, and the current limitations of technology used during lucid dream studies, are two significant obstacle in this field of research.

The Future of Lucid Dream & Consciousness Research

The Future of Lucid Dreams and Consciousness Research

- In the animated film *Paprika* (2006) directed by the late Satoshi Kon, a group of scientists develop a device that enables them to see and interact with their patients' dreams.

The Future of Lucid Dreams and Consciousness Research

- In the film, doctors place a DC Mini device on their patient's head and then connect it to a monitor that runs a computer simulation of whatever the patient is happening to be dreaming at the time.

- The dreams are then recorded and stored for later analysis.

The Future of Lucid Dreams and Consciousness Research

- A device like the one used in *Paprika* could potentially revolutionize the field of lucid dream research.

- In particular, a device that could monitor dreams as they happen could verify subjective dream reports and establish the phenomenological boundaries of dreams in a reliable and reproducible manner.

The Future of Lucid Dreams and Consciousness Research

- In fact, such a device would be particularly useful in researching the more exotic claims of lucid dreamers e.g., dreamless lucid sleep.

- In addition, lucid dream researchers would be able to create new experimental models and scrutinize more efficiently the content, phenomenology and limits of lucid dreams.

The Future of Lucid Dreams and Consciousness Research

- A primitive form of this device exists.
- A team of scientist are currently testing this revolutionary technology in Kyoto, Japan at the ATR Computational and Neuroscience Laboratory led by Yukiyasu Kamitani.

The Future of Lucid Dreams and Consciousness Research

- This new technology provides a unique glimpse into the ephemeral world of dreams.

- In the following passage, Michio Kaku describes how the new technology works:

“Subjects are first placed in an MRI machine and shown four hundred black-and-white images, each consisting of a set of dots within ten-by-ten-pixel framework. One picture is fasted at a time, and the MRI records how the brain responds to each collection of pixels. As with other groups working in this field of BMI, the scientists eventually create an encyclopedia of images, with each image of pixels corresponding to a specific MRI pattern. Here the scientist are able to work backwards, to correctly reconstruct self-generated images from MRI brain scans taken while the subject dreams”

The Future of Lucid Dreams and Consciousness Research

- In other words, the ATR team first begins by mapping visual correlates during wakefulness with the aid of a magnetic resonance imaging (MRI) machine.

- The imaging neural correlates are then processed and recognized when they re-occur during the hypnogogic stages of sleep.

"In fact, any mental state of the brain might be imaged in this way, including dreams, as long as a one-to-one map can be made between a certain mental state and an MRI scan"

– Yukiyasu Kamitani

The Future of Lucid Dreams and Consciousness Research

- In the following passage Kaku describes his first encounter with a more developed form of Kamitani's technology at the Gallant Laboratory at UC Berkeley:

"I talked to a postdoctoral staff member, Dr. Shinki Nishimoto, who allowed me to watch the video of one of his dreams, one of the first ever done. I saw a series of faces flickering across the computer screen, meaning that the subject (in this case Dr. Nishimoto himself) was dreaming of people, rather than animals or objects. This was amazing. Unfortunately, the technology is not yet good enough to see the precise facial features of the people appearing in his dream, so the next step is to increase the number of pixels so that more complex images can be identifies. Another advance will be to reproduce images in color rather than black and white"

The Future of Lucid Dreams and Consciousness Research

- As the passage indicates, this technology is still crude.
- In addition to the low resolution quality of the images, it is difficult to asses their correlative validity.
- In other words, it is still difficult to assert whether the dream recording is an accurate estimation of a subject's dream or simply the result of randomly generated images.
- This is one of the main reasons why Gallant's work is still unpublished.

The Future of Lucid Dreams and Consciousness Research

- The technology developed by Kamitani and refined by Gallant has not yet been applied to lucid dreams.

The Future of Lucid Dreams and Consciousness Research

- In fact, once this type of technology becomes perfected it can be used to study not only lucid dreaming, but consciousness itself.

The Future of Lucid Dreams and Consciousness Research

- In particular, because of its inherent "paradoxical" state, lucid dream research might have a direct impact on our understanding of consciousness and its functional neural correlates.

The Future of Lucid Dreams and Consciousness Research

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“Imaging studies of a subject in a lucid dream should identify the location of the neurons that tie us to reflective consciousness”

—Allan Rechtschaffen

The Future of Lucid Dreams and Consciousness Research

- This means that through the use of new imaging technologies future lucid dream research may also lead to unprecedented advancements in the scientific understanding of consciousness, in addition to contributing to important developments in dream theory models.

“If neuroscientists hope to understand the vexing relationship of brain and mind, they need to get a handle on dreams”

—Bruce Bower