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Feeling of being

Dimensionality of consciousness

On measuring experience

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Abstract
Modern developments ...

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Chapter 1

Introduction

Consciousness remains an elusive concept despite extensive scrutiny from many traditions (Van Gulick 2017). Philosophy of mind, neuroscience, psychology and - recently - computer science have been prodding the concept from a plenitude of angles. [1] This endeavour is paramount to understanding the human condition, but raises unavoidable and highly intricate existential questions (Amodei et al. 2016; Soares and Fallenstein 2016).

Since the 19th century developments within neuroscience are rapidly increasing our understanding of the cognitive processes that partake in the construction of consciousness (Atkinson, S.C. Thomas, and Cleeremans 2000).[2] Simultaneously, the development within computational theory has matured to a point where many of the neurophysiological properties can be replicated in silicon (Tononi 2004; Schmidhuber 2015).[3]

The developments within neuroscience is apparent in Atkinson, S.C. Thomas, and Cleeremans (2000)'s search for *neural correlates of consciousness (NCC)* gave rise to a plethora of theories that tries to

, but to just mention a few of the approaches taken by cognitive science see (Baars 2005; Block 2007; Crick and Koch 2003; DAMASIO 2003; Dehaene and Naccache 2001; Kouider et al. 2010; Tononi 2004; Zeki 2008; Van Gulick 2017; Schmidhuber 2015; Nilsson 2009).

(Dennett 2017).

what for how come

disclaimer: idea that covers many complicated concepts (Van Gulick 2017). In this essay consciousness will exclusively relate to the *hard* problem of inner experience as coined by Chalmers 1995, also known as phenomenological consciousness.

[1] The Stanford Encyclopedia of Philosophy offers an overview of many of the disciplines and approaches involved in the quest to explain consciousness so far (Van Gulick 2017).

[2] Some philosophers require consciousness to include metaphysical properties (Van Gulick 2017) (dualism). This essay eludes the question by focusing on falsifiable and positivistic theories, in the hope that they can bring us closer to the truth - whether that entails dualism or reductionism.

[3] Other technologies show promising advances in forming computational substrates such as molecular biology and quantum computing, but have yet to reach the complexity of digital electronic computers.

1.1 Vectors and dimensionality

1.2 Alternative approaches

Common for each contribution is a fundamental desire to deepen the understanding of both consciousness as a concept, and the principles partaking in the creation of the concept. Guided by years of academic training and tradition, each discipline have approached this top-down by, in abstract terms, describing or bottom-up (Van Gulick 2017), : either constructing abstract frameworks (Block 2007; Kouider et al. 2010) or

top-down *and* bottom-up (Dehaene and Naccache 2001; Baars 2005)

1.3 Convergent theory

Glossary

bottom-up Bottom-up approaches in this article refer to the combination of many smaller concepts to form a greater whole. This approach is typical for the natural sciences. An example of such a bottom-up approach to understanding consciousness is Tononi's idea of an information integration measure (Tononi 2004). 3–5

computation Computation refers to any process (in any substrate) that can deduce new information based on old information. In this is manifested as computing instructions.. 2

consciousness Consciousness pertains to the feeling of being alive and attentive. This circular definition covers over the fact that consciousness is an old and multifaceted idea that covers many complicated concepts (Van Gulick 2017). In this essay consciousness will exclusively relate to the *hard* problem of inner experience as coined by Chalmers 1995, also known as phenomenological consciousness.. 2

NCC Neural patterns or constructions that somehow correlate with consciousness. See (Atkinson, S.C. Thomas, and Cleeremans 2000).. 2

top-down This essay employs top-down as a higher-order approach to a solution or approach to a problem. An example of a top-down approach to understanding consciousness is the global workspace theory by (Baars 2005) or the framework presented by Francis Crick and Christof Koch (Crick and Koch 2003). While both contain elements of neurobiology (bottom-up) they are explicitly trying to offer an explanation on what consciousness is.. 3

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