

CONSCIOUSNESS SHOULD NOT BE CONFUSED WITH QUALIA

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ABSTRACT: The equation of consciousness with qualia, of wakeful awareness with awareness-of-cognitive content (perceptions, conceptions, emotions), while intuitively attractive, and formally referenced as the primary index of consciousness by many philosophers, psychologists, and neuroscientists, nevertheless has significant difficulties specifying precisely what it is that distinguishes conscious from non-conscious cognition. Moreover, there is a surprisingly robust congruence of evidence to the contrary, supporting the notion that consciousness, as a state of reflexive awareness, is distinct from the content one is aware of, that this awareness/content amalgam is actually the product of an incorporation process of various intermittent, and constantly varying streams of content onto a pre-existing reflexively conscious state which is not reliant on these streams for its constitution as a reflexive state. Consciousness, the evidence strongly indicates, is not qualia, not the awareness of this or that perceptual, conceptual or emotional content, but reflexive, auto-noetic awareness as such.

KEYWORDS: consciousness, reflexivity, awareness, qualia, introspection, subjectivity

Introduction

As scholars have been insisting for some decades,¹ the essential question in relation to consciousness, concerns the specific psychological factor that discriminates conscious from nonconscious cognition. For many (see below), this distinction can be accounted for in terms of the presence or absence of qualitative character or qualia. There is, however, a twofold problem with the identification of consciousness with qualia: firstly, the sensory, conceptual and emotional content which provides the distinct quality of experience are available in

¹ Bernard Baars, *A Cognitive Theory of Consciousness* (Cambridge: Cambridge University Press, 1988); Bernard Baars and Nicole Gage, *Cognition, Brain and Consciousness: Introduction to Cognitive Neuroscience* (Amsterdam: Elsevier, 2007); Rocco Gennaro, "Liebniz on Consciousness and Self-Consciousness," in *New Essays on the Rationalists*, eds. Rocco Gennaro and Charles Huenemann (New York: Oxford University Press, 1999), 353-371; Uriah Kriegel, "Consciousness as Sensory Quality and as Implicit Self-Awareness," *Phenomenology and the Cognitive Sciences* 2 (2003): 1-26; William Lycan, "What Is the 'Subjectivity' of the Mental?," *Philosophical Perspectives* 4 (1990): 9-30; David Rosenthal, "A Theory of Consciousness," in *The Nature of Consciousness*, eds. Ned Block, Owen Flanagan, and Güven Güzeldere (Cambridge, MA: MIT Press, 1997), 729-753; Robert Van Gulick, "What Would Count as Explaining Consciousness?," in *Conscious Experience*, ed. Thomas Metzinger (Paderborn: Schöningh, 1995), 61-79.

nonconscious states as well as conscious; and secondly, the awareness of qualitative experience which comprises the ordinary conscious state can, in exceptional circumstances come apart, revealing a clear distinction between awareness and qualitative content. Consequently, it will be argued, consciousness is better understood, not as the awareness of this or that perceptual conceptual or emotional content, but as a state of reflexive auto-noetic (self-knowing) awareness as such.²

1. Consciousness is Not Qualia, Not awareness-of-content

Consciousness is best understood in context, as one element of an interactive waking state in which a significant portion of cognitive processing takes place in a nonconscious fashion. But if conscious and nonconscious processing are combined in the waking state, what distinguishes the former from the latter? For many philosophers,³ psychologists,⁴ and neuroscientists,⁵ the answer is qualia (plural

² This distinction between qualitative content and awareness per se should not be confused with Block's distinction (Ned Block, "On a Confusion about a Function of Consciousness," *Behavioral and Brain Sciences* 18 (1995): 227-257; Ned Block, "Consciousness, Accessibility, and the Mesh Between Psychology and Neuroscience," *Behavioral and Brain Sciences* 30 (2007): 481-548) between phenomenal (qualitative content) consciousness and access consciousness. On the one hand, the former (p-consciousness), according to Block ("On a Confusion," 235) obtains even in deep, dreamless sleep, a state which is consensually understood as nonconscious, and when awake, p-consciousness obtains even when we are not aware of it – as in the case of the pneumatic drill ("On a Confusion," 234). Access "consciousness," on the other hand, does not appear to be conscious at all, but simply content waiting or available to be included within a conscious state ("On a Confusion," 231). As for awareness, Block claims initially ("On a Confusion," 235) to "balk" at any notion of a monitoring or awareness-of capacity. In his later piece ("Consciousness, Accessibility," 284), he equivocates, insisting that while "phenomenal consciousness requires Awareness," the capitalized *Awareness* can refer either to simple intentionality as such ("that in having an experience, one experiences one's experience"), or to the claim that intentional experience includes an additional reflexive awareness of itself (as championed by Brentano). Clearly, *Awareness* cannot, as Block claims, be accommodated by both of these positions, since they differ so radically.

³ David Chalmers, *The Conscious Mind* (New York: Oxford University Press, 1996); Rocco Gennaro, *Higher-Order Theories of Consciousness: An Anthology* (Philadelphia, PA: John Benjamins, 2004); George Graham and Terry Horgan, "Qualia Realism: Its Phenomenal Contents and Discontents," in *The Case for Qualia*, ed. Edmond Wright (Cambridge, MA: MIT Press, 2008) 89-108; Thomas Nagel, "What is it Like to Be a Bat?," *The Philosophical Review* 83 (1974): 435-450; William Robinson, "Experience and Representation," in *The Case for Qualia*, ed. Edmund Wright, 73-88; John Searle, "Biological Naturalism," in *The Blackwell Companion to Consciousness*, eds. Max Velmans and Susan Schneider (Oxford: Blackwell, 2007), 325-334; Leopold Stubenberg, *Consciousness and Qualia* (Philadelphia PA: John Benjamins, 1998); Dan

form of the singular *quale*),⁶ the qualitative character of cognitive experience. Qualia are what makes consciousness conscious. Now while *qualia* has been described as “perhaps the slipperiest of all technical terms employed in the philosophy of mind”⁷ with no agreed-upon definition,⁸ and even outright denial by some of their existence,⁹ contemporary usage commonly emphasizes at least

Zahavi, *Self-Awareness and Alterity: A Phenomenological Investigation* (Evanston, Ill.: Northwestern University Press, 1999).

⁴ Baars, *A Cognitive Theory of Consciousness*; John Benjafield, *Cognition* (Englewood Cliffs, NJ: Prentice-Hall International, 1992); William Farthing, *The Psychology of Consciousness* (Englewood Cliffs, NJ: Prentice-Hall, 1992); Anthony Marcel, “Conscious and Unconscious Perception: Experiments on Visual Masking and Word Recognition,” *Cognitive Psychology* 15 (1983): 197-237; Thomas Natsoulas, “Consciousness,” *American Psychologist* 33 (1978): 906-914; Anil Seth, “Theories and Measures of Consciousness Develop Together,” *Consciousness and Cognition* 17 (2008): 986-988.

⁵ Francis Crick and Cristof Koch, “Towards a Neurobiological Theory of Consciousness,” *Seminars in Neuroscience* 2 (1990): 263-275; Antonio Damasio, *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (New York: Harcourt Brace & Company, 1999); Gerald Edelman, *Wider than the Sky: The Phenomenal Gift of Consciousness* (New Haven, Ct: Yale University Press, 2004).

⁶ For a history of term “qualia”, see Tim Crane, “The Origins of Qualia,” in *History of the Mind-Body Problem*, eds. Tim Crane and Sarah Patterson (London: Routledge, 2000), 169-194; Brian Keeley, “The Early History of the Quale and Its Relation to the Senses,” in *Routledge Companion to Philosophy of Psychology*, eds. J. Symons and P. Calvo (London: Routledge, 2009), 71-89.

⁷ James John, “Review of *The Case for Qualia* by Edmund Wright,” *Notre Dame Philosophical Reviews*, 2009.06.19. URL= <http://ndpr.nd.edu/news/24057-the-case-for-qualia/>.

⁸ Amy Kind, “Qualia Realism,” *Philosophical Studies* 104 (2001): 44; Crane, “The Origins of Qualia,” 170; Daniel Dennett, *Sweet Dreams: Philosophical Obstacles to a Science of Consciousness* (Cambridge, MA: MIT Press, 2005), 78.

⁹ The very existence of qualia has been denied on several grounds: by Churchland (Paul Churchland, “Eliminative Materialism and Propositional Attitudes,” *The Journal of Philosophy* 78 (1981): 67-90; Paul Churchland, “Subjective Qualia,” *Proceedings of the Biennial Meeting of the Philosophy of Science Association* (1984): 773-790; Paul Churchland, “Reduction, Qualia, and the Direct Introspection of Brain States,” *The Journal of Philosophy* 82 (1985): 8-28) as part of his claim that mental entities including qualia are a misidentification (or folk psychological mischaracterization) of purely physical processes; by Dennett (Dan Dennett, “Quining Qualia,” in *Consciousness in Modern Science*, eds. Anthony Marcel and Eduard Bisiach (New York: Oxford University Press, 1988), 42-77), on the basis that the four properties claimed for qualia (that they are ineffable, intrinsic, private and immediate) do not obtain; and by advocates of the transparency thesis (Gilbert Harman, “The Intrinsic Quality of Experience,” *Philosophical Perspectives* 4, *Action Theory and Philosophy of Mind* (1990): 31-52; Michael Tye, *Consciousness, Color, and Content* (Cambridge, MA: The MIT Press, 2000)) to the effect that the Blockean notion of qualia as qualities of the representing experience (rather than properties

one of three dimensions of qualia as the quality of cognitive events which supports their conscious status.

(1) The first characteristic of qualia aligning it with consciousness concerns the fact that the distinctive quality is subjectively or privately apprehended. Thus Nagel famously equated consciousness (in the sense of qualia) with subjectivity:

The fact that an organism has conscious experience *at all* means basically that there is [cognitive subjectivity] something it is like to *be* that organism ... [F]undamentally, an organism has conscious states if and only if there is something it is like to *be* that organism – something it is like *for* the organism ... like perceiving or feeling pain, fear, hunger and lust.¹⁰

And Searle similarly insists:

There is a sense in which each person's consciousness is private to that person, a sense in which it is related to his pains, tickles, itches, thoughts, and feelings in a way that is quite unlike the way that others are related to those pains.... [S]ince consciousness and qualia are coextensive, it is unnecessary to introduce another expression. All qualia are conscious states, all conscious states are qualia. It is important to hammer this point home. There are not two kinds of conscious state, one qualitative, one nonqualitative. All conscious states are qualitative.¹¹

(2) The second and most frequently emphasized characteristic of qualia supporting its equivalence with consciousness is the specific qualitative character of mental events, including sensations (the redness of a ripe tomato, the smell of gasoline, the unignorable discomfort of a pebble in the shoe or the insistent pain of arthritic inflammation), feelings (hope, fear, love) and thoughts (concepts, plans, opinions, judgments).¹² Crick and Koch express their equation of qualia with consciousness in this manner:

of things represented by the experience) must be false because, ordinarily, we notice only the objects represented by the experience.

¹⁰ Nagel, "What is it Like," 436, 439 (his emphasis); cf. Benj Hellie, "Factive Phenomenal Characters," *Philosophical Perspectives* 21 (2007): 259-306.

¹¹ John Searle, "The Problem of Consciousness," *Consciousness and Cognition* 2 (1993): 310; John Searle, *Consciousness and Language* (Cambridge: Cambridge University Press, 2002), 26; John Searle, "Biological Naturalism," in *The Blackwell Companion to Consciousness*, eds. MaxVelmans and Susan Schneider (Malden, MA: Blackwell, 2007), 327.

¹² There has been considerable debate as to whether, in addition to perceptions (redness, roundness), bodily sensations (pain), and emotional moods (regret, boredom, love, fear), one should include propositional attitudes (believing, desiring, hoping, understanding) and conceptual thought (5+5 =10) within the concept of qualia (For discussion, see Tim Bayne, "Cognitive Phenomenology: An Introduction," in *Cognitive Phenomenology*, eds. Tim Bayne and Michelle Montague (New York: Oxford University Press, 2011), 1-34; Sara Copic, "The Content of Consciousness: Do We Need Qualia?," *Kaleidoscope* 9 (2010): Article 23, available at:

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The most difficult aspect of consciousness is the so-called 'hard problem of qualia' – the redness of red, the painfulness of pain, and so on. No one has produced any plausible explanation as to how the experience of the redness of red could arise from the actions of the brain.... [Thus] we are interested in the general nature of the neural activities that produce each particular aspect of consciousness, such as perceiving the specific colour, shape or movement of an object.¹³

Chalmers emphasized a similarly tight equation of consciousness with qualitative feels:

We can say that a being is conscious if there is *something it is like* to be that being ... Similarly a mental state is conscious if there is something it is like to be in that mental state. To put it another way, we can say that a mental state is conscious if it has a qualitative feel – an associated quality of experience. The qualitative feels are also known as phenomenal qualities, or *qualia* for short A number of alternative terms and phrases pick out approximately the same class of phenomena as 'consciousness' in its central sense. These include 'experience,' 'qualia,' 'phenomenology,' 'phenomenal,' 'subjective experience,' and 'what it is like'.... To be conscious: in this sense is roughly synonymous with 'to have qualia,' 'to have subjective experience,' and so on.¹⁴

<http://uknowledge.uky.edu/kaleidoscope/vol9/iss1/23>; Sørensen Klausen, "The Phenomenology of Propositional Attitudes," *Phenomenology and the Cognitive Sciences* 7 (2008): 445-462. But I follow Kriegel's argument (Kriegel, "Consciousness as Sensory Quality," 11-13) that "intellectual" concepts, emotional states and propositional attitudes should be considered qualia in virtue of the fact that they, while they do not represent external things, can nonetheless be differentiated from each other by the cognitive system. The fact that they have some distinguishable cognitive quality implies representation of some kind, and their necessary inclusion within the notion of qualia (cf. George Graham and Terence Horgan, "Qualia Realism: Its Phenomenal Contents and Discontents," in *The Case for Qualia*, ed. Edmund Wright (Cambridge, MA: MIT Press, 2008), 89-108; Terry Horgan and John Tienson, "The Intentionality of Phenomenology and the Phenomenology of Intentionality," in *Philosophy of Mind: Classical and Contemporary Readings*, ed. David Chalmers (New York: Oxford University Press, 2002), 520-533; Galen Strawson, *Mental Reality* (Cambridge, MA: MIT Press, 1994); John Haugeland, *Artificial Intelligence: The Very Idea* (Cambridge, MA: MIT Press, 1985), 230-35). On the other hand, some insist (Ned Block, "Inverted Earth," *Philosophical Perspectives* 4, *Action Theory and Philosophy of Mind* (1990): 53-79; Barry Maund, "A Defense of Qualia in the Strong Sense," in *The Case for Qualia*, ed. Edmund Wright, 269-284) that qualia most properly refer to nonintentional qualities of the experiencing state rather than intentional features of the thing represented. The adoption here of the phrase "Qualia are the way things seem to us" is intended to allow for both possibilities.

¹³ Francis Crick and Cristof Koch, "Towards a Neurobiological Theory of Consciousness," *Seminars in Neuroscience*, 2 (1990): 119.

¹⁴ Chalmers, *The Conscious Mind*, 4-5; and cf. Gerald Edelman and Giulio Tononi, *Consciousness – How Matter Becomes Imagination* (London: Allen Lane, 2000), 157; Rocco

For some authors,¹⁵ qualitative character and subjectivity constitute the two essential dimensions of qualia.

(3) Arguably, however, in order to distinguish conscious from nonconscious cognition, we require some specification of the character of the subjective apprehension, a more precise notion of the manner of subjectively cognizing the distinct qualitative feel, if the equation of qualia with consciousness is to succeed. For there to be a distinctive quality for the subject, for experience to be this way rather than that way for the subject, it must be cognized as such in some manner. We need some reference to the epistemic dimension of qualia.¹⁶ The epistemic character of qualia is usually accounted as direct acquaintance – as opposed to inferentially deduced cognizance. Graham and Horgan, for example, express their equation of consciousness with qualia (phenomenal consciousness) in terms that stress this epistemic “direct awareness” sense:

[...] *genuinely* conscious mental states have a distinctive and proprietary qualitative character, a ‘what-it’s-likeness.’ To use the influential terminology of Ned Block all ‘access conscious’ mental states are, on our view, ‘phenomenally conscious’ as were. Indeed, being phenomenally conscious is what *makes* the states ‘access conscious.’ ... Since phenomenal character is also self-presenting to the experiencing subject, it therein wears its intentional content on its subjectively manifest sleeve, that is, intrinsically. Suppose, for example, I am thinking of a city. A city-thought immediately presents itself to me, without needing to be ‘read’ or interpreted by me ... (the city-ish intentionality of my thought, the thought’s purporting to refer to a real city, is intrinsic....The what-it’s-likeness of conscious experience is not just intentional, but intrinsic.¹⁷

Dennett also highlights the epistemic element in his attempt to “Quine” (argue for the inexistence of) qualia:

[Q]ualia are essentially private properties. And ... since they are properties of my experiences ... qualia are essentially directly accessible to the consciousness of their experiencer (whatever that means), or qualia are properties of one’s

Gennaro, *Consciousness and Self-Consciousness* (Amsterdam: John Benjamins, 1996), 7; Sydney Shoemaker, “Self-Knowledge and ‘Inner Sense,’” *Philosophy and Phenomenological Research* 54 (1994): 121; Stubenberg, *Consciousness and Qualia*.

¹⁵ Maund, “A defense of qualia,” 270; Joseph Levine, *Purple Haze* (Oxford: Oxford University Press, 2001), 6-7; Peter Carruthers, *Phenomenal Consciousness: a Naturalistic Theory* (Cambridge: Cambridge University Press, 2000), 27ff.

¹⁶ As discussed by Kind, “Qualia Realism.”

¹⁷ Graham and Horgan, “Qualia Realism,” 90, 91-92.

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experience with which one is intimately or directly acquainted (whatever that means), or 'immediate phenomenological qualities' (whatever that means).¹⁸

Indeed, what *does* that reference to direct or immediate apprehension really mean? Scholars differ. For some this can mean simple cognitive registration without awareness of the underlying cognitive mechanisms at work.¹⁹ For others, immediate apprehension can refer to direct access to internal cognitive content via introspection.²⁰ And finally, there are those scholars for whom direct awareness signifies pre-introspective reflexive awareness, which is directly aware of its own occurrence as well as of its content.²¹

For the purposes of the following analysis, "qualia" can be taken to reference several intertwined notions: qualitative character, subjectivity, and direct apprehension. But is the equation of consciousness with qualia in these several senses warranted? Do all or any of these dimensions actually distinguish conscious from nonconscious cognition? In the following, evidence will be marshaled to demonstrate that only the last-mentioned characteristic of consciousness – reflexivity – actually differentiates conscious from nonconscious mental processing, and that consequently, consciousness is more properly characterised by reflexivity alone rather than the broader concept of qualia.

Subjectivity, the first of our 3 dimensions, was originally hailed as the index of consciousness by Thomas Nagel, who claimed that if conscious mentality were not realized subjectively, there would be no conscious experience, there would not be something it is like for the organism to be that organism.²² Some scholars have interpreted Nagel's terse and somewhat enigmatic language to indicate that the first person perspective of cognitive experience, in and of itself, is sufficient for conscious awareness. Stubenberg, for example, insists that the having of qualia is

¹⁸ Dennett, "Quining Qualia," 621-622.

¹⁹ Fred Dretske, *Naturalizing the Mind* (Cambridge, MA: MIT Press, 1995); Fred Dretske, "How Do You Know You Are Not a Zombie?," in *Privileged Access and First Person Authority*, ed. Brie Gertler (Aldershot: Ashgate Publishing Limited, 2003), 1-14.

²⁰ Kind, "Qualia Realism;" William Lycan, *Consciousness and Experience* (Cambridge, MA: MIT Press, 1996); Michael Tye, "Qualia," in *Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta (2013). Available at <<http://plato.stanford.edu/entries/qualia/>>.

²¹ Kriegel, "Consciousness as Sensory Quality"; Greg Janzen, *The Reflexive Nature of Consciousness* (Philadelphia, PA: John Benjamins, 2008); Frederic Peters, "Consciousness as Recursive, Spatiotemporal Self Location," *Psychological Research PRPF* 74 (2010): 407-22; Frederic Peters, "Theories of Consciousness as Reflexivity," *The Philosophical Forum* 44 (2013): 341-372; Frederic Peters, "Accounting for Consciousness: Epistemic and Operational Issues," *Axiomathes* (2014): In Press.

²² Nagel, "What Is It Like," 436.

subjective and the subjective having of qualia (not the *knowing* that you have, just the having) is consciousness.²³ In a similar vein, Van Gulick writes “[T]he reflexive meta-intentionality associated with conscious states ... [derives] from the implicit self-perspectuality that is built into the intentional structure of conscious experience itself.”²⁴ But subjectivity, like intentionality does not discriminate conscious from nonconscious mental processing.²⁵ Blindsight patients manually locate objects they are unaware of in relation to themselves, and dreams retain an egocentric perspective, again without consciousness. Clearly, subjectivity characterizes cognition as such, not conscious cognition in particular.

What, then, of cognitive content, the second element of qualia? Can this sustain the equation of qualia with consciousness? As Vosgerau, Schlicht and Newman point out,²⁶ many philosophers assume that a mental representation is conscious if it has a certain, distinct kind of content. However, the evidence indicates clearly that no kind of content – perceptual, conceptual or emotional (P-C-E) – is exclusively conscious, all manifest unconsciously as well. More significantly, consciousness and cognitive content are dissociable: P-C-E cognitive content can manifest in the absence of consciousness; conversely, consciousness can manifest without access to and as distinct from P-C-E cognitive content. In relation to the first point, research in relation to the cognitive (or psychological) unconscious has demonstrated that a substantial degree of multimodal informational integration takes place preconsciously, including subliminal perception, preconscious semantic and featural analysis, the ascription of emotional valences, implicit learning and memory retrieval and reconstruction.²⁷ Modern philosophy of mind has also that conscious states cannot be conscious in virtue of having perceptual, conceptual or emotional content because contentful states sufficient to drive coherent behaviour need not involve consciousness at all. Armstrong drew the frequently-referenced analogy of the absent-minded long

²³ Stubenberg, *Consciousness and Qualia*, 33; and cf. Searle, “The Problem of Consciousness,” 310-311.

²⁴ Robert Van Gulick, “Higher-Order Global States (HOGS): An Alternative Higher-Order Model of Consciousness, in *Higher Order Theories of Consciousness: An Anthology*, ed. Rocco Gennaro (Philadelphia, PA: John Benjamins, 2004), 67-92, 84-85; and cf. Owen Flanagan, *Consciousness Reconsidered* (Cambridge, MA: MIT Press, 1992), 194; Zahavi, *Self-Awareness and Alterity*, 21-22.

²⁵ Joseph Neisser, “Unconscious Subjectivity,” *Psyche* 12, 3 (2006): 1-14; Peters, “Accounting for Consciousness.”

²⁶ Gottfried Vosgerau, Tobias Schlicht, and Albert Newen, “Orthogonality of Phenomenality and Content,” *American Philosophical Quarterly* 45 (2008): 329-348.

²⁷ Peters, “Accounting for Consciousness.”

distance truck driver who, thinking of other things, arrives at his destination and realizes he has been negotiating curves in the road, the hills and valleys without being aware of what he was doing:

After driving for long periods of time, particularly at night, it is possible to 'come to' and realize that for some time past one has been driving without being aware of what one has been doing. It is natural to describe what went on before one came to by saying that during that time one lacked consciousness.²⁸

Armstrong's example is dramatically illustrated in situations involving petit mal epileptic seizures, where subjects perceptually engage with the environment, walk, talk, and play the piano while completely nonconscious of doing so.²⁹

That the generation of P-C-E cognitive content is insufficient to account for a mental state being conscious is also evident, it has been argued, in situations like blindsight, covert face recognition and linguistic parsing, where perceptual processing sufficient to underwrite object recognition takes place without conscious awareness on the part of the subject.³⁰ In fact, nonconscious P-C-E processing, often referred to as the "cognitive unconscious,"³¹ is thought to compose the greater part of cognitive activity.³² But if unconscious informational processing comprises a significant component of wakeful mental processing, it forms the entirety of cognitive processing during periods of sleep when the conscious state is no longer active. Somnambulism (sleepwalking, sleeptalking, sleeppeating) involves informational processing as part of active behavioural engagement without conscious awareness,³³ while REM dreaming involves the

²⁸ David Armstrong, "What Is Consciousness?," in his *The Nature of Mind and Other Essays* (Ithaca, New York: Cornell University Press, 1981), 59.

²⁹ Block, "On a Confusion;" Robert Van Gulick, "What Difference Does Consciousness Make?," *Philosophical Topics* 17 (1989): 211-230.

³⁰ Carruthers, *Phenomenal Consciousness*; David Rosenthal, "Unity of Consciousness and the Self," *Proceedings of the Aristotelian Society* 103 (3003): 325-352.

³¹ John Kihlstrom, "The Cognitive Unconscious," *Science* 237 (1987): 1445-1452.

³² Jeffrey Gray, "To thine own synapses be true?," *Nature Neuroscience* 5 (2002): 1102-1115; Sue Pickett, "Does Consciousness Cause Behavior?," *Journal of Consciousness Studies* 11 (2004): 23-40. On the extent of nonconscious preprocessing, see Wilhelm Hoffman and Timothy Wilson "Consciousness, introspection and the Adaptive Unconscious," *Handbook of Implicit Social Cognition*, eds. Bertram Gawronski and Keith Payne (New York: Guilford, 2010) 197-215; and Max Velmans, "Is Human Information Processing Conscious?" *Behavioral and Brain Sciences* 14 (1991): 651-669.

³³ John Kihlstrom, "Conscious, Subconscious, Unconscious: A Cognitive Perspective," in *The Unconscious Reconsidered*, eds. Kenneth Bowers and Donald Meichenbaum (New York: Wiley, 1984), 149-206.

nonconscious³⁴ fabrication of narratives, albeit significantly disjointed, which still retain an egocentric perspective,³⁵ spatial location,³⁶ a sense of extension or progression through time,³⁷ and the full gamut of sensory qualities.³⁸

³⁴ Some scholars contend that dreaming, with its capacity to construct spatially embodied narratives, however strange, constitutes a kind of conscious awareness (Block, "On a Confusion;" Churchland "Reduction, Qualia, and the Direct Introspection of Brain States;" Jean Delacour, "An Introduction to the Biology of Consciousness," *Neuropsychologia* 33 (1995): 1061-1074; Antii Revonsuo, "Conscious and Nonconscious Control of Action," *Behavioral and Brain Science* 18 (1995): 265-266). However, the significantly limited extent of neurological activation argues for caution. The hypothalamic flip-flop switch runs its waking signal to the lateral hypothalamus, thence to the tuberomammillary nucleus (TMN) and brainstem nuclei (locus ceruleus, raphe), all of which contribute to the ventral (non-thalamic) projection directly to the cortex as well as to the dorsal projection through the thalamus. TMN also has its own dedicated projection directly to the anterior thalamus, thence to the posterior medial cortex. All three of these nuclei (TMN, LC, Raphe) cease activity during REM, which depends largely on cholinergic projections from the brainstem and the basal forebrain. And, of course, large areas of the cortex are deactivated during REM. Consequently during periods of REM, when the cortical arousal system is inhibited, EEG recordings of the early (0-200ms) thalamo-cortical sensory input remains the same as in waking, but the later (200-500ms) intra-cortical processing either recedes to a much later and weaker signal or disappears altogether (Denis Paré and Rodolfo Llinas, "Conscious and Pre-conscious Processes as Seen from the Standpoint of Sleep-waking Cycle Neurophysiology" *Neuropsychologia* 33 (1995):1155-1168; Giles Plourde, "Clinical Use of the 40-Hz Auditory Steady State Response," *International Anesthesiology Clinics* 31 (1993): 107-20; Nancy Wessenden and Pietro Badia, "The P300 Component in Sleep," *Physiology and Behavior* 44 (1988): 215-229). In addition, there is the fact that the limited cortical activation is generated initially by the amygdala, source of emotional processing which, as Ledoux made clear, is preconscious (Joseph Ledoux, *The Emotional Brain: The Mysterious Underpinnings of Emotional Life* (New York: Simon & Schuster, 1996)). Moreover, at the physiological level, the entire REM state is supported by secondary activations within the overall *sleep* (as opposed to waking) setting of the hypothalamic sleep-wake control switch (Jun Lu, David Sherman, Marshall Devor, and Clifford Saper, "A Putative Flip-Flop Switch for Control of REM Sleep," *Nature* 441 (2006): 589-594). At the cognitive level, the temporary emergence of lucid or conscious awareness within the dream state (lucid dreaming) demonstrates clearly that the dream state is normally nonconscious. As against the evidence that cognitively and physiologically, the brain is not in a waking state during REM, the contention that dreaming constitutes a kind of conscious awareness relies heavily (perhaps exclusively) on the equation of qualia, or representational P-C-E content, with consciousness. But the evidence presented in this paper indicates that the production of qualia is distinct from the conscious state.

³⁵ David Foulkes and Nancy Kerr, "Point of View in Nocturnal Dreaming," *Perceptual and Motor Skills* 78 (1994): 690.

³⁶ Revonsuo, "Conscious and Nonconscious Control."

³⁷ Alfred Gross, "The Sense of Time in Dreams," *Psychoanalytical Quarterly* 18 (1949): 466-470.

³⁸ Farthing, *The Psychology of Consciousness*.

In both the waking and sleep states, then, distinct qualities of sensory, emotional and conceptual information are constructed without the involvement of consciousness. The unavoidable conclusion is that since unconscious cognitive states have these sensory quality characteristics, then consciousness cannot be said to come into being as a result of, or as a necessary accompaniment to, these integrative informational processes. Manifestly, it does not. In short, the processing of informational content constitutes an *insufficient condition* for consciousness, as Kriegel points out:

When a mental state is conscious - in the sense that there is something it is like for the subject to have it - it instantiates a certain property *F* in virtue of which it is a conscious state. It is customary to suppose that *F* is the property of having sensory quality.... [But] if unconscious mental states can have a sensory quality, then sensory quality is an *insufficient condition* for consciousness.³⁹

Not only is it the case that that perceptual, conceptual and emotional processing are an *insufficient condition* for consciousness, but, as discussed below, the evidence from cognitive dissociation studies indicates clearly that they are an *unnecessary condition* as well. Consciousness survives their disruption and/or elimination in dissociation, and can even be said to persist as a distinct, unchanging cognitive dimension during the ever-changing sequential flow of cognitive P-C-E content.

In spite of longstanding claims from the contemplative traditions of East and West regarding the possibility of “pure” contentless consciousness,⁴⁰ the case for consciousness without content has received remarkably little attention in

³⁹ Kriegel, “Consciousness as Sensory Quality,” 1, Abstract. Other scholars making this point include Peter Carruthers, “Brute Experience,” *Journal of Philosophy* 85 (1989): 258-269; Güven Güzeldere, “Problems of Consciousness,” *Journal of Consciousness Studies* 2 (1995):112-143; Marcel, “Conscious and Unconscious Perception”; Norton Nelkin, “The Dissociation of Phenomenal States from Apperception,” in *Conscious Experience*, ed. Thomas Metzinger (Paderborn: Schonigh, 1995), 373-386; David Rosenthal, “Two Concepts of Consciousness,” *Philosophical Studies* 49 (1986): 329-59; David Rosenthal, “The Independence of Consciousness and Sensory Quality,” in *Consciousness: Philosophical Issues*, ed. Enrique Villanueva (Atascadero, CA: Ridgeview, 1991), 15-36; David Rosenthal, “Sensory Qualities, Consciousness, and Perception,” in *Consciousness and Mind*, ed. David Rosenthal (New York: Oxford University Press, 2005), 175-225; Vosgerau, Schlicht and Newen, “Orthogonality of Phenomenality and Content.”

⁴⁰ Robert Forman, *The Problem of Pure Consciousness* (New York: Oxford University Press, 1990); Philip Almond, *Mystical Experience and Religious Doctrine* (New York: Mouton Publishers, 1982); Robert Zaehner, *Mysticism: Sacred and Profane* (New York: Oxford University Press, 1961).

either classical or contemporary philosophy of mind,⁴¹ although recently discussed evidence in regard to the cognitive registration of state properties as well as properties of the represented content suggest that the cognitive system is quite capable of relying on the former (state properties) without the latter – see below for details. Psychology has, moreover, found abundant evidence in various forms of dissociation for the closely-related claim that since consciousness persists without access to, and thus in the absence of various streams of content, it must, in some sense, be distinct from and constituted independently of those inputs.

On the perceptual side, hemispatial neglect provides an example of this consciousness-from-content separability, where consciousness can function without perceptual access to large sectors of sensory input.⁴² Simultagnosia

⁴¹ The possibility of pure (contentless) consciousness invited substantial debate within the discipline of Religious Studies (Foreman, *The Problem of Pure Consciousness*; Steven Katz, *Mysticism and Religious Traditions* (New York: Oxford University Press, 1983) as a consequence of Katz' claim that "all experience is processed through, organised by and makes itself available to us in extremely complex epistemological ways ... [such that] there are NO pure (i.e. unmediated) experiences (Steven Katz, "Language, Epistemology and Mysticism," in *Mysticism and Philosophical Analysis*, ed. Steven Katz (London: Sheldon Press, 1978), 25). Within Philosophy of Mind, the topic has remained marginal, although both Dainton (Barry Dainton, "Précis: Stream of Consciousness," *Psyche* 10, 1 (2004): 1-29; Barry Dainton, *Stream of Consciousness: Unity and Continuity in Conscious Experience* (New York: Routledge, 2000/2006)) and Gennaro (Rocco Gennaro, "Between Pure Self-Referentialism and the Extrinsic HOT Theory of Consciousness," in *Self Representational Approaches to Consciousness*, eds. Uriah Kriegel and Kenneth Williford (Cambridge, MA: MIT Press, 2006), 221-249; Rocco Gennaro, "Are There Pure Conscious Events?," in *Revisiting Mysticism*, eds. Chandana Chakrabarti and Gordon Haist (Cambridge Scholars Press, 2008), 100-120) have mounted sustained arguments against the possibility of a conscious state without P-C-E content. Gennaro's disciplined approach is grounded in the conviction that all cognition involves the application of, and is structured by, concepts (Gennaro, "Are There Pure Conscious Events," 2-3), which negates the possibility of contentless consciousness from the outset. Dainton's highly questionable treatment (Dainton, *Stream of Consciousness*, 51ff) sets up a series of "straw man" arguments which misdefine consciousness variously as attention, engagement with content, cognitive vacuousness indistinguishable from noncognition, and nondual awareness with content, only to reject each, not surprisingly, as an implausible candidate for bare, contentless awareness. Strangely, Dainton ignores the one characteristic most scholars in Philosophy of Mind currently understand consciousness to be – reflexivity (see Peters, "Theories of Consciousness as Reflexivity") – and consequently he does not canvass the possibility that reflexivity requires no P-C-E content.

⁴² Daniel Schacter, Mary McAndrews, and Morris Moscovitch, "Access to Consciousness: Dissociations Between Implicit and Explicit Knowledge in Neuropsychological Syndromes," in *Thought Without Language*, ed. Larry Weiskrantz (London: Oxford University Press, 1988), 242-278.

(Balint's syndrome) again involves an inability to grasp the whole field of vision in its entirety such that individual objects disappear⁴³ with no impairment of arousal, alertness, or cognition. In blindsight, consciousness persists without access to particular visual sensations (which are nonetheless registered nonconsciously), and persists in the retinally blind without access to any visual sensory input. In agnosia resulting from brain injury, consciousness persists in the absence of perceptual recognition in one or other sensory mode (visual, auditory, tactile). Subjects with either Broca's or Wernicke's aphasia remain conscious and functional without access to syntactic and semantic information.⁴⁴ There are also reports of general content diminution – referred to as *minimal perceptual environments* – during lucid dreaming episodes,⁴⁵ as well as during experimental conditions involving sensory deprivation where subjects are encouraged to maintain awareness.⁴⁶ Similar results of continuing conscious awareness with minimal to no cognitive content have been obtained in ganzfeld experiments involving exposure to a featureless perceptual field.⁴⁷ Hypnosis also provides a rich array of sensory effects (positive and negative hallucination, posthypnotic amnesia) induced during periods when consciousness is deliberately dissociated from preconscious perceptual processing.⁴⁸ In short, as numerous scholars note,

⁴³ Antonio Damasio, "Disorders of Complex Visual Processing," in *Principles of Behavioral and Cognitive Neurology*, 2nd ed, ed. Marcel Mesulam (New York: Oxford University Press, 2000), 332-372.

⁴⁴ Schacter, McAndrews, and Moscovitch, "Access to Consciousness."

⁴⁵ Stephen LaBerge and Donald J. DeGracia, "Varieties of Lucid Dreaming Experience," in *Individual Differences in Conscious Experience*, eds. Robert Kunzendorf and Benjamin Wallace (Amsterdam: John Benjamins, 2000), 269-308.

⁴⁶ The generation of minimally contentful conscious states, characterized by "a loss of body and time awareness, an absence or diminution of thought, and a feeling of egolessness" (William Plotkin, "The Alpha Experience Revisited: Biofeedback in the Transformation of Psychological States," *Psychological Bulletin* 86 (1979): 1132) have been achieved in experimental conditions during EEG alpha-biofeedback training that involves sensory deprivation in combination with an emphasis on sustaining alertness. In these trials, conducted in several EEG laboratories, minimization of sensory and conceptual content was achieved by the sparse biofeedback setting (trainees sit on a comfortable chair or lie on a bed, eyes closed, in a sound-proof room with low or no lighting, and asked not to move so as not to disturb the EEG electrodes), along with restricted attentional focus on the monotonous alpha feedback signal. Sustained alertness is encouraged by high levels of motivation and dedication to the task on maintaining the feedback tone for as long as and as strongly as possible, along with the expectation of distinct changes in experiential state.

⁴⁷ Moshe Gur, "Perceptual Fade-Out Occurs in the Binocularly Viewed Ganzfeld," *Perception* 20 (1991): 645-654.

⁴⁸ Kihlstrom, "Conscious, Subconscious, Unconscious."

the evidence indicates that consciousness is neither intrinsic to nor derivative of the occurrence of cognitive P-C-E content.⁴⁹

It is the evident dissociability of consciousness from various input processing streams that induced Schacter⁵⁰ to formulate his model of a *conscious awareness system* (CAS) distinct from and constituted independently of its various input sources. Schacter explains:

[In view of the dissociation evidence] we hypothesize that (a) conscious or explicit experiences of perceiving, knowing and remembering all depend on the functioning of a common mechanism, (b) this mechanism normally accepts input from and interacts with a variety of processors or modules that handle specific types of information, and (c) in various cases of neuropsychological impairment, specific modules are disconnected from the conscious mechanism ... Such disconnection need not involve damage to the consciousness mechanism itself and thus would not result in a global disruption of conscious awareness; it would produce the kind of domain-specific impairments that were observed in the studies reviewed earlier.⁵¹

Schacter's CAS diagram⁵² shows various specialist input processors feeding a common "conscious awareness system" to illustrate the independence of consciousness from any one of its inputs. But it could be argued that the dissociative conditions reviewed above, particularly the evidence regarding the diminution of perceptual input as a whole, demonstrates that access to cognitive content as a whole is unnecessary for the persistence of consciousness the state; or better, that it is not so much a matter of consciousness *without* content, as of consciousness *as distinct from* content. Perhaps what these abnormal dissociative conditions actually illustrate is that consciousness and P-C-E content are distinct and in a sense dissociated and independently constellated in normal unaffected cognition *at every moment*.

It could be said that the cognitive system functions successfully *because* it is able to dissociate informational input from conscious awareness in two distinct ways. Firstly, and most obviously, it has developed a specific mechanism to manage this dissociation – attention – which selects specific inputs for inclusion

⁴⁹ A point argued for by several scholars, including Kriegel ("Consciousness as Sensory Quality"); Vosgerau, Schlicht and Newen ("Orthogonality of Phenomenality and Content"); and Velmans ("Is Human Information Processing Conscious?").

⁵⁰ Schacter, McAndrews, and Moscovitch, "Access to Consciousness."

⁵¹ Schacter, McAndrews, and Moscovitch, "Access to Consciousness," 269-270.

⁵² Daniel Schacter, "On the Relation Between Memory and Consciousness: Dissociable Interactions and Conscious Experience," in *Varieties of Memory and Consciousness*, eds. Henry Roediger and Fergus Craik (Hillsdale, NJ: Erlbaum, 1989), 355-389.

within the conscious state and ignores others. Secondly, within the conscious state itself, a real distinction remains between the invariant ongoing awareness and the ever-changing stream of cognitive content of which one is aware (the constant ebb and flow of different sensory modes, the serial progression of internal thoughts and the consistently changing balance between perceiving and thinking). This very real distinction can be explained in terms of a differential reading of content features as distinct from properties of the state. There is a clear contrast, in other words, between the registration of features of the objects represented, as distinct from representation of modal or state properties.

The capacity of the cognitive system to register features of its processing state as opposed to the content of that state has received a great deal of attention, specifically in relation to the question of consciousness. Following Moore,⁵³ both Dretske⁵⁴ and Tye⁵⁵ have argued that consciousness is essentially invisible or transparent, that cognition sees through the auto-noetic state, as it were, to register only the contents of the representational state, that the “awareness-of” component of conscious cognition is negligible because it is invisible. But this strong transparency claim is essentially negated by the fact that our conscious experiences do explicitly register qualitative features that are not identical to the particulars of the objects represented.⁵⁶ These include the “inner light show” one experiences when one presses a finger against the eyeball,⁵⁷ the continuous explicit awareness of the distinction between current auditory and visual streams of sensation,⁵⁸ as well as non-object-related qualities of these sensations, such as the difference between seeing clearly and with blurred vision (where blurriness is a property of the visual process not the content.⁵⁹ Moreover, there is an overt, ongoing distinction registered between the external perceptual panorama as a

⁵³ Gordon Moore, “The Refutation of Idealism,” in his *Philosophical Papers* (London: Routledge and Kegan Paul, 1903).

⁵⁴ Dretske, *Naturalizing the Mind*.

⁵⁵ Michael Tye, *Ten Problems of Consciousness* (Cambridge, MA: MIT Press, 1995).

⁵⁶ Greg Janzen, *The Reflexive Nature of Consciousness*; David Woodruff Smith, “Return to Consciousness,” in his *Mind World: Essays in Phenomenology and Ontology* (Cambridge: Cambridge University Press, 2004), 76-121; Zahavi, *Self-Awareness and Alterity*.

⁵⁷ Amy Kind, “What’s So Transparent about Transparency?” *Philosophical Studies* 115 (2003): 225-244.

⁵⁸ Michael Pace, “Blurred Vision and the Transparency of Experience,” *Pacific Philosophical Quarterly* 88 (2007): 328-354; Amie Thomasson, “Phenomenal Consciousness and the Phenomenal World,” *The Monist* 91 (2007): 191-214.

⁵⁹ Greg Janzen, “The Representational Theory of Phenomenal Character: A Phenomenological Critique,” *Phenomenology and the Cognitive Sciences* 5 (2006): 321-339 ; Kind, “What’s So Transparent”; Pace, “Blurred Vision and the Transparency of Experience.”

whole as against internal bodily sensations on the one hand as well as one's ongoing thought commentary on the currently perceived situation on the other hand.⁶⁰ In addition, there is the direct awareness of a distinction between memories recalled to mind as against ongoing perception (*reality monitoring*)⁶¹ and pseudo hallucination, a condition involving internally-derived perception-like experience sufficiently vivid to constitute a hallucination, but explicitly recognized to be a hallucination by the subject,⁶² much as dream content is recognized as such by the lucid dreamer.⁶³ In both instances, there are characteristics of the cognitive experience over and above the qualities of the represented content. Metzinger⁶⁴ points out that deliberately-initiated periods of conscious thought processing entail an awareness that these are internal thought processes.

There is also the temporal dimension of experience. During the passage of the sensory, emotional and conceptual events, there is ongoing, overt awareness of the temporal duration of an experience, the passage of time, a temporal awareness which is intrinsic to the cognitive state, not the objects represented in that state. This temporal awareness is called subjective time because time is not a quality directly registered by the senses, but constructed internally. Of significance is the fact that this internally-constructed sense of duration varies. Time spent in interesting and novel surroundings that one is attending to and actively exploring can seem to pass in an instant. Acutely life-threatening situations can seemingly slow the passage of time to a standstill. The course of an average undemanding, uneventful day, on the other hand, can flow by relatively quickly. This difference in the sense of time passing quickly or slowly is related, as Pockett⁶⁵ explains, to a

⁶⁰ Pace, "Blurred Vision and the Transparency of Experience."

⁶¹ On reality monitoring, see Marcia Johnson, "Reality Monitoring: Evidence from Confabulation in Organic Brain Disease Patients," in *Awareness of Deficit After Brain Injury. Clinical and Theoretical Issues*, eds. George Prigatano and Daniel Schacter (New York: Oxford University Press, 1991), 176-197; Robert Kunzendorf, "Self-Consciousness as the Monitoring of Cognitive States: A Theoretical Perspective," *Imagination, Cognition and Personality* 7 (1987-88): 3-21.

⁶² German Berrios and T.R. Denning, "Pseudohallucinations: A Conceptual History," *Psychological Medicine* 26 (1996): 753-763.

⁶³ Celia Green and Charles McCreary, *Lucid Dreaming: The Paradox of Consciousness During Sleep* (London: Routledge, 1994); Stephen LaBerge, *Lucid Dreaming* (Boston: J.P. Tarcher, 1995).

⁶⁴ Thomas Metzinger, *Being No One: The Self-Model Theory of Subjectivity* (Cambridge, MA: MIT Press, 2003), 359-62

⁶⁵ Sue Pockett, "How Long is 'Now'? Phenomenology of the Specious Present," *Phenomenology and the Cognitive Sciences* 2 (2003): 55-68.

difference in the duration of *now*. Experimental studies suggest that the subjectively experienced duration of *now* can vary from milliseconds,⁶⁶ through hundreds of milliseconds,⁶⁷ to one or two seconds.⁶⁸ The duration of this now-moment, in turn, is a direct reflection of the rate of sensorimotor sampling of the external world, or better, according to the rate of sensorimotor processing which includes sampling.⁶⁹ The subjective sense of the duration of *now* expands and contracts as the rate of sensorimotor updating expands and contracts, but inversely; that is, a faster rate of updating generates more *now* moments in relation to the actual passage of the event – more subjective time is packed into the event – which makes it seem to be passing more slowly. Fewer updates of subjective *now* pack in less *now* moments, less time into an event which seems to pass more quickly.

The principal implication is that this sense of temporal duration reflects a registration of properties of the cognitive state (the rate of sampling which generates the state), not features of the particular objects which comprise the content of the represented event. Though it may not seem so, subjectively sensed time is actually a feature of the representing vehicle or state, not a quality or feature of the event represented much less the objects represented.

The weight of the evidence, then, strongly favors the conclusion that we are aware, at any and every waking moment, of aspects of the representational state as well as the content represented within that state. Taken in conjunction with the argument developed above that the conscious state does not consist in the awareness of representational content,⁷⁰ that conscious is not qualia, we are left with the conclusion that consciousness must reflect a reading or registration of a state property. As to the nature of that property, recall that this consideration began by noting the normal everyday qualia awareness consists of three distinct elements or dimensions – subjectivity, qualitative content and direct awareness – but that neither subjectivity nor representational content are specific to consciousness, and both constitute key elements of unconscious processing as well. That leaves the third property – direct awareness – as the one possible characteristic specific to consciousness.

⁶⁶ Pocket, “How Long is ‘Now.’”

⁶⁷ Tallis Bachmann, *Microgenetic Approach to the Conscious Mind* (Amsterdam: John Benjamins, 2000)

⁶⁸ Ernst Poppel and Tom Artin, *Mindworks: Time and Conscious Experience* (Boston: Harcourt Brace Jovanovich, 1988).

⁶⁹ Pocket, “How Long is ‘Now.’”

⁷⁰ Peter Carruthers, *Consciousness: Essays from a Higher-Order Perspective* (New York: Oxford University Press, 2005); Janzen, *The Reflexive Nature of Consciousness*.

As noted above, scholars insisting on a third, epistemic, dimension to qualia, agree that in addition to subjectivity and qualitative character, qualia are constituted by direct, non-inferential kind of knowing or awareness. But, as Dan Dennett⁷¹ interjects – what exactly does that mean? Current analysis suggests three interpretations of what *direct awareness* amounts to in relation to qualia and consciousness. Dretske,⁷² Tye⁷³ and others⁷⁴ invoke the notion of the transparency of cognitive experience relating to the fact that we are unaware of the representational mechanisms actively generating cognitive content, and are immediately or directly aware only of the content.⁷⁵ Now, as noted above, the claim that we are aware only of the content of cognitive states and not of the character of the state is inaccurate. Cognition registers both the content of experience and the character of its states. Moreover, as several critics have pointed out,⁷⁶ the assertion that conscious awareness and representational content are one and the same amounts to the claim that all intentional states are conscious as a consequence of their having intentional content, which in effect nullifies the distinction between conscious and unconscious representational states, and consequently fails as a distinguishing characteristic of the former.

⁷¹ Dennett, “Quining Qualia,” 621-22.

⁷² Dretske, *Naturalizing the Mind*, Ch. 2; Fred Dretske, “The Mind’s Awareness of Itself,” *Philosophical Studies* 95 (1999): 103-24; Dretske, “How Do You Know,” 1-14.

⁷³ Tye, *Ten Problems of Consciousness*, 30; Tye, *Consciousness, Color, and Content*, 47; Michael Tye, “Representationalism and the Transparency of Experience,” *Nous* 36 (2002): 137-151.

⁷⁴ Others supporting transparency include Harman, “The Intrinsic Quality of Experience;” Brian Loar, “Transparent Experience and the Availability of Qualia,” (Unpublished manuscript, 2002, 1; available online at <http://humanities.ucsc.edu/NEH/loar2.htm>); Sydney Shoemaker, “Qualities and Qualia: What’s in the Mind?” in his *The First-Person Perspective and Other Essays* (Cambridge: Cambridge University Press, 1996): 101.

⁷⁵ As pointed out by James van Cleve (James van Cleve, “Troubles for Radical Transparency,” in *Supervenience in Mind: A Festschrift for Jaegwon Kim*, eds. Terry Horgan, Marcelo Sabates, and David Sosa (Cambridge: Cambridge University Press, 2005), there are in fact two distinct notions of transparency. The sense of transparency introduced by Harman (Harman, “The Intrinsic Quality of Experience”) highlights our lack of awareness of the cognitive processing which gives rise to cognitive content. An earlier version outlined by Moore (Moore, “The Refutation of Idealism”) focused on the fact that we see through the conscious state of awareness and experience only the P-C-E content of that state.

⁷⁶ Carruthers, *Consciousness*, 44-45; Robert Lurz, “Advancing the Debate Between HOT and FO Theories of Consciousness,” *Journal of Philosophical Research* 27 (2003): 30; Peter Carruthers, “Missing the Mind: Consciousness in the Swamps, Review of Fred Dretske’s *Naturalizing the Mind*,” *Nous* 31 (1997): 529; Amie Thomasson, “After Brentano: A One-Level Theory of Consciousness,” *European Journal of Philosophy* 8 (2000): 201.

A second interpretation of the epistemic dimension of qualia has *direct awareness* as involving introspection.⁷⁷ This however, aligns the subjective apprehension of qualitative character not with consciousness, but with an act of attention subsequent to and dependent upon a preexisting state of self-awareness. Kriegel⁷⁸ and Janzen⁷⁹ enumerate four important distinctions between immediately reflexive consciousness and subsequent introspection and reflection; the former is not effortful while the latter requires deliberate effort to remain focused on just those inner mental events as opposed to external, perceptually-mediated content; the former is involuntary or automatic (you cannot choose not to be conscious) where the latter requires volition, is a matter of choice; the former is constant, ongoing, while the latter is temporary and intermittent; finally, the former is ubiquitous, self-aware at every moment where the latter is infrequent. Introspection, then, is not constitutive of consciousness, it is constituted – infrequently – by consciousness.⁸⁰ Qualia do not align with consciousness on this interpretation of direct awareness.

There remains the third understanding of the epistemic dimension of qualia, that direct awareness consists of pre-introspective reflexive or auto-noetic (self-knowing) awareness. Kriegel writes

It is unlikely there could be anything it is like for a subject to be in a mental state she is unaware of being in ... [consequently] intransitive self-consciousness is a necessary condition for phenomenal consciousness: unless M is intransitively self-conscious, there is nothing it is like to be in M, and therefore M is not a phenomenally conscious state.⁸¹

Janzen, similarly, emphasizes reflexive awareness in relation to qualia inasmuch as every conscious mental act “upon whatever object it is primarily

⁷⁷ Kind, “Qualia Realism,” 151; Lycan, *Consciousness and Experience*, 69-70.

⁷⁸ Uriah Kriegel, “Consciousness as Intransitive Self-Consciousness: Two Views and an Argument,” *Canadian Journal of Philosophy* 33 (2003): 105.

⁷⁹ Janzen, “The Representational Theory of Phenomenal Character,” 329.

⁸⁰ Further points supporting the nonequivalence of introspection and consciousness are raised in Peters, “Accounting for Consciousness.”

⁸¹ Kriegel “Consciousness as Intransitive Self-Consciousness,” 106; cf. Uriah Kriegel, “Naturalizing Subjective Character,” *Philosophy and Phenomenological Research* 71 (2005): 23, 25; cf. Rosenthal, “The Independence of Consciousness and Sensory Quality,” 19; Rosenthal, “A Theory of Consciousness,” 733; David Rosenthal, “Exaggerated Reports: Reply to Block,” *Analysis* 71 (2011): 433; and Zahavi, *Self-Awareness and Alterity*, 23-4. The understanding that consciousness is intrinsic to each perceptual moment was originally introduced by Brentano (Franz Brentano, *Psychology From an Empirical Standpoint*, eds. Oscar Kraus and Linda McAlister, trans. Antos Rancurello, D. Burnham Terrell, and Linda McAlister (London: Routledge and Kegan Paul, 1874/1973)).

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directed, is concomitantly directed upon itself [such that] my act of seeing is a reflexive act or a form of self-consciousness.”⁸²

Of the three commonly-referenced dimensions of qualia (subjectivity, informational content, direct awareness), only reflexivity, the *recursive awareness-of* component, is specific to and constitutive of consciousness. Subjectivity is common to both conscious and nonconscious states, qualitative character proves to be neither sufficient nor even necessary for consciousness, and the only form of direct awareness which is both exclusive to and constitutive of conscious mental processing is reflexive or auto-noetic awareness. Consciousness then is most properly characterised by reflexivity alone rather than the broader concept of qualia which references elements of nonconscious processing as well. So what is reflexivity?

2. Consciousness is Reflexivity, Awareness as Such

Reflexivity points to the referring-back-upon-itself or auto-noetic character of awareness. Common linguistic usage of the term “consciousness” as *reflexivity* is captured in the OED’s definition of consciousness as “the reflex act whereby I know that I think, and that my thoughts and actions are my own and not another’s.” The understanding of consciousness as reflexivity, in the sense of knowing-that or being-aware-that one is perceiving, thinking, feeling or doing can be fairly described as the classical pre-scientific position of western Philosophy of Mind from Aristotle⁸³ through Descartes,⁸⁴ Kant,⁸⁵ Leibniz,⁸⁶ and Locke,⁸⁷ as well as of eastern contemplative philosophy.⁸⁸

A significant quorum of contemporary scholars continue to maintain this emphasis on reflexivity, characterizing consciousness as “a process that takes note

⁸² Janzen, *The Reflexive Nature of Consciousness*, 105.

⁸³ Aristotle, *De Anima*, ed. David Ross (Oxford: Clarendon Press, 33 BCE/1961).

⁸⁴ René Descartes, “Meditations on First Philosophy,” in *The Philosophical Writings of Descartes* (vol. 2), eds. John Cottingham, Robert Stoothoff, and Dugald Murdoch (Cambridge: Cambridge University Press, 1984-99).

⁸⁵ Immanuel Kant, *Critique of Pure Reason*, ed. and trans. Paul Guyer and Allen W. Wood (Cambridge: Cambridge University Press, 1998).

⁸⁶ Gottfried Leibniz, “Principles of Nature and Grace,” in *G. W. Leibniz: Philosophical Essays*, eds. Roger Ariew and Daniel Garber (Indianapolis: Hackett, 1989).

⁸⁷ John Locke, *An Essay Concerning Human Understanding*, ed. Peter Nidditch (Oxford: Clarendon Press, 1975).

⁸⁸ On reflexivity in eastern contemplative traditions, see Frederic Peters, “Lucid Consciousness in Traditional Indian Psychology and Contemporary Neuro-Psychology,” *Journal of Indian Psychology* 16,1 (1998): 1-25.

of itself,”⁸⁹ “states [that] represent themselves,”⁹⁰ “direct reflective awareness of [a] mental-occurrence instance ... not contemporaneously mediated by any other mental-occurrence instance,”⁹¹ “concurrently aware of its own transpiring,”⁹² “higher-order self-referential representational activity,”⁹³ and “a perception-like awareness of current states and activities in our own mind.”⁹⁴ Most widely recognized, perhaps, is Rosenthal’s formulation (his “transitivity principle”) that consciousness “...is a state that I am aware of being in.”⁹⁵ It is also understood that this awareness of being in the conscious state is “pre-reflective,” indicating that before initiating any additional metacognitive operations such as self-attention (introspection – see above) or discursive thought, and independent of them, I am already directly acquainted or “self-intimate” with my self-consciousness.⁹⁶ Consciousness is essentially matter of being aware *that* we know.

This longstanding characterization of consciousness as reflexivity however, while correctly referencing the way consciousness seems in subjective experience,

⁸⁹ Donald Perlis, “Consciousness as Self-Function,” *Journal of Consciousness Studies* 4 (1997): 513.

⁹⁰ Uriah Kriegel, *Subjective Consciousness: A Self-Representational Theory* (New York: Oxford University Press, 2009), 370.

⁹¹ Thomas Natsoulas, “What Is Wrong with Appendage Theory of Consciousness,” *Philosophical Psychology* 6 (1993): 137.

⁹² David Woodruff Smith, *The Circle of Acquaintance* (Dordrecht: Kluwer, 1989), 81.

⁹³ Hans Flohr, “Sensations and Brain Processes,” *Behavioural Brain Research* 71 (1995): 160.

⁹⁴ Armstrong, “What Is Consciousness,” 61.

⁹⁵ Rosenthal, *Consciousness and Mind*, 3-4. See also David Rosenthal, “Thinking That One Thinks,” in *Consciousness: Psychological and Philosophical Essays*, eds. Martin Davies and Glyn W. Humphreys (Oxford: Blackwell, 1993), 199; Rosenthal, “Two Concepts of Consciousness,” 335; Rosenthal, “A Theory of Consciousness,” 736, 742; and cf. Alex Byrne, “Some Like it HOT: Consciousness and Higher-Order Thoughts,” *Philosophical Studies* 86 (1997): 103-129; Janzen, *The Reflexive Nature of Consciousness*, 17 and Ch. 4; Kriegel, “Consciousness as Intransitive Self-Consciousness,” 131; Uriah Kriegel, “Consciousness and Self-Consciousness,” *The Monist* 87 (2004): 191; William Lycan, “A Simple Argument for a Higher Order Representation Theory of Consciousness,” *Analysis* 61 (2001): 3; Thomas Natsoulas, “The Case for Intrinsic Theory I,” *Journal of Mind & Behavior* 17 (1996): 269; David Smith, “Rey Cogitans: The Unquestionability of Consciousness,” in *Perspectives on Mind*, eds. Herbert Otto and James Tueidio (Norwell: Kluwer Academic, 1988), 28; Van Gulick, “Higher-Order Global States (HOGS),” 69, Robert van Gulick, “Mirror, Mirror—Is That All?,” in *Self-Representational Approaches to Consciousness*, eds. Uriah. Kriegel and Kenneth Williford (Cambridge, MA: MIT Press, 2006) 12; Josh Weisberg, “Same Old, Same Old: The Same-Order Representation Theory of Consciousness and the Division of Phenomenal Labor,” *Synthese* 160 (2008): 162, 176.

⁹⁶ Flanagan, *Consciousness Reconsidered*, 194; Alvin Goldman, *A Theory of Human Action* (New York: Prentice-Hall, 1970), 96; Kriegel, “Consciousness as Sensory Quality,” 14.

often assumes that subjectively experienced reflexive awareness is self-validating. Philosophers, in particular from Descartes⁹⁷ through Husserl⁹⁸ to Chalmers,⁹⁹ Flanagan,¹⁰⁰ Smith,¹⁰¹ and Stoljar¹⁰² have taken this reflexivity to be a self-validating or incorrigible fact, a claim which depends heavily on “epistemic transparency,” the unawareness (or refusal to recognize the fact) of representational processing giving rise to cognitive states. More importantly, as Thompson¹⁰³ points out, it involves the untested assumption that there is necessarily an isomorphism between the content of subjective experience and the structure of the underlying psychological representations and processes, such that the way the psychological moment seems to the subject is a direct reflection of the cognitive components and their operation.

But complete – even partial – isomorphism is unlikely to be the case given that the brain’s electromagnetic activity does not use time, space, or any of the sensory qualities (colour, texture, smell, shape etc.) to directly represent time, space, and the sensory qualities.¹⁰⁴ What then of conscious reflexivity? Is self-awareness merely seemingly so or actually so? Since isomorphism between subjective experience and cognitive structures is clearly not the case, current consensus¹⁰⁵ holds that conscious self-awareness, while it does indeed arise for the subject in a *seemingly* reflexive fashion, is not necessarily so at psychological and neurological levels. It *could* be genuinely reflexive to a significant extent, in other

⁹⁷ Descartes, “Meditations on First Philosophy.”

⁹⁸ Edmund Husserl, *Cartesian Meditations: An introduction to Phenomenology*, trans. Dorion Cairns (Dordrecht: Kluwer, 1960).

⁹⁹ David Chalmers, “Facing Up to the Problem of Consciousness,” *Journal of Consciousness Studies* 2 (1995): 200-19.

¹⁰⁰ Owen Flanagan, *The Science of Mind* (Cambridge, MA: MIT Press, 1984).

¹⁰¹ Smith, “Rey Cogitans.”

¹⁰² Daniel Stoljar, *Ignorance and Imagination: The Epistemic Origin of the Problem of Consciousness* (New York: Oxford University Press, 2006).

¹⁰³ Evan Thompson, “Look Again: Phenomenology and Mental Imagery,” *Phenomenology and Cognitive Science* 6 (2007): 137-170.

¹⁰⁴ Dretske, *Naturalizing the Mind*; cf. Lycan, “What Is the ‘Subjectivity’ of the Mental.”

¹⁰⁵ Andy Clark, “Is Seeing All It Seems? Action, Reason and the Grand Illusion,” *Journal of Consciousness Studies* 9 (2002): 181-202; Daniel Dennett, “Who’s on First? Hetero-Phenomenology Explained,” *Journal of Consciousness Studies* 10 (2003): 19-30; Güzeldere, “Problems of Consciousness;” Alva Noë, “The Critique of Pure Phenomenology,” *Phenomenology and Cognitive Science* 6 (2007): 231-245; Eric Schwitzgebel, “No Unchallengeable Epistemic Authority, of Any Sort, Regarding Our Own Conscious Experience – Contra Dennett,” *Phenomenology and Cognitive Science* 6 (2007): 107-113; Charles Siewert, “In Favor of (Plain) Phenomenology,” *Phenomenology and Cognitive Science* 6 (2007): 201-220; Thompson, “Look Again.”

words, but subjectively seeming to be so does not guarantee that outcome without further proof. It remains for empirical investigation to determine whether subjective experiences really are as reflexive as they seem.

In order to address this question of the empirical reality of reflexive, self-aware, cognitive processing, it is perhaps best to begin with the cognitive system as a whole. Is it self-referential to the extent that it could give rise to a fully reflexive processing module given a sufficiently compelling functional reason for doing so? The evidence suggests that the answer is unequivocally yes. Self-reference, in the sense of intercommunication between parts of a whole, comprises a fundamental dimension (arguably *the* defining characteristic) of cognitive architecture, for the same reason that self-regulation (via self-reference) is what biological organisms, including cognitively-endowed biological organisms, are all about. Cognition is an extension of biological organization, and biological organisms are, of necessity, self-regulating machines.¹⁰⁶ That is to say, the fundamental challenge for all biological organisms is to maintain survival by sustaining homeostasis – the internal conditions supporting life – in the midst of ongoing interaction with an ever-changing, often threatening environment.¹⁰⁷ Cognition provides a means of extending the biological homeostasis by maintaining self-regulative capacity beyond the organism itself to the organism-environment interaction through developing the capacity to not simply to generate self-movement,¹⁰⁸ but to control or guide self-movement in relation to the homeostatic and emotional needs of the organism.¹⁰⁹ A cognitive organism unable to relate the behavior it produces to what it needs for ongoing homeostatic balance will not – cannot – survive.¹¹⁰ A cognitive organism self-regulates then by *controlled* self-to-environment interaction.

This self-regulating control of self-to-environment interaction is achieved through self-referencing cognitive architecture that regulates one cognitive process by another. Behavioral outputs are monitored, prioritized and adjusted by homeostatic requirements for food, water, oxygen and thermoregulation,¹¹¹ and more generally by motivational and behavioral goals.¹¹² Bottom-up sensory inputs

¹⁰⁶ Marcello Ghin, “What a Self Could Be,” *Psyche* 11 (2005): 1-10.

¹⁰⁷ Walter Cannon, *Wisdom of the Body* (New York: Norton & Company, 1932).

¹⁰⁸ Damasio, *The Feeling of What Happens*.

¹⁰⁹ Peters, “Consciousness and Self-Regulation.”

¹¹⁰ Patricia Smith Churchland, *Brain-Wise: Studies in Neurophilosophy* (Cambridge, MA: MIT Press, 2002).

¹¹¹ Churchland, *Brain-Wise*.

¹¹² Karl Pribram, “A Review of Theory in Physiological Psychology,” *Annual Review of Psychology* 11 (1960): 1-40.

are referenced against top-down perceptual expectations,¹¹³ which in combination with attentional highlighting,¹¹⁴ determine what sorts of sensory inputs proceed into the higher perceptual and ideational processing levels.¹¹⁵ Motor output is monitored by feedback loops that register a sense of agency to the cognitive system without which schizophrenic confusion and behavioral paralysis ensue.¹¹⁶ More broadly, the ideomotor principle underlying perceptual control theory indicates that motor output is monitored and controlled by pre-established goals represented internally in terms of desired perceptual inputs.¹¹⁷ Most fundamentally self-referential processing is embodied in the brain's executive function, which includes the setting of goals, planning of actions, even the shifting of homeostatic set points by reference to internally generated motivational and emotional dispositions.¹¹⁸ The metacognitive capacity to monitor and control one's current emotions, or one's understanding of, or ability to deal with a particular situation, to learn particular kinds of information, and assess the workability of a plan – all are yet further forms of self-referential cognitive processing.

Of singular importance to the claim that immediately reflexive self-awareness develops from an existing base of self-reference that characterizes cognitive processing generally, cognitive systems have developed an even more proactive feed-forward or anticipatory form of self-reference in the form of predictive emulation architectures.¹¹⁹ Anticipative or predictive self-referential processing regimes feature throughout the cognitive system, in sensory and emotional processing, attentional selection, motor control, language production

¹¹³ Robert Desimone, "The Physiology of Memory: Recordings of Things Past," *Science* 258 (1992): 245-6.

¹¹⁴ Risto Naatanen, *Attention and Brain Function* (Hillsdale, NJ: Erlbaum, 1992).

¹¹⁵ Larry Cauller, "Layer I of Primary Sensory Neocortex: Where Top-Down Converges Upon Bottom-Up" *Behavioral Brain Research* 71 (1995): 163-170.

¹¹⁶ Chris Frith, "The Positive and Negative Symptoms of Schizophrenia Reflect Impairments in the Perception and Initiation of Action," *Psychological Medicine* 17 (1987): 631-648.

¹¹⁷ Bernhard Hommel, Jochen Musseler, Gisa Ascherleben, and Wolfgang Prinz, "The Theory of Event Coding (TEC): a Framework for Perception and Action Planning," *Behavioral and Brain Sciences* 21 (2001): 849-937.

¹¹⁸ Phan Luu and Don Tucker, "Self-regulation by the medial frontal cortex. Limbic representation of motive set-points," in *Consciousness, Emotional Self-Regulation and the Brain*, ed. Mario Beauregard (Amsterdam: John Benjamins, 2004), 123-161.

¹¹⁹ Paul Churchland and Patricia Churchland, "Neural Worlds and Real Worlds," *Nature Reviews Neuroscience* 3 (2002): 903-907; Rick Grush, "The Emulation Theory of Representation: Motor Control, Imagery and Perception," *Behavioral and Brain Sciences* 27 (2004): 377-442.

and comprehension as well as executive control.¹²⁰ Several analysts have concluded that predictive processing (an ongoing future orientation) constitutes one of the fundamental principles of cognitive processing.¹²¹ In conjunction with the organizing principle of self-regulation via self-referential processing, this leads to the conclusion that cognitive self-regulation is achieved in large measure by *predictive* self-referential processing architecture.

Predictive self-referential processing, in turn, provides the basis for developing the capacity for the self-referential monitoring of a process by itself. It has been argued¹²² that predictive feed-forward processing architecture has developed reflexive feed-forward circuitry as a simple, energy-efficient means of providing a continuous base reference frame for ongoing wakeful interaction between the subject and the environment. Continuous iteration of this base frame is achieved by means of recursive, self-stimulatory processing circuitry because predictive architectures already employ a more extended form of recursion (recurrent self-reference) as a way of monitoring the capacity of motor outputs to achieve required perceptual outcomes. Rationalizing this periodically self-referencing circuitry into a more immediately recursive, self-updating circuit simply repeats the evolutionary emergence of fast predictive processing loops within slower motor-output-to-perceptual-feedback loops that form the basis of predictive processing architecture.

Recursive self-activation (or self-updating) at the neural level has the capacity to support reflexive self-knowing or self-awareness at the cognitive level, on the basis that reflexive self-awareness embodies a registration of state rather than content properties; in this case the reflexivity of the processing regime. As noted above, conscious mentation does in fact register many features of the cognitive state including the different sensory modes, the distinction between externally-sourced perception and internally-generated conception and the temporal duration of events. Since, as we have argued, consciousness is not qualia, not a cognitive registration of content properties, it can be concluded that

¹²⁰ Peters, "Consciousness as Recursive, Spatiotemporal Self Location."

¹²¹ Andreja Bubic, Yves von Cramon, and Ricarda Schubotz, "Prediction, Cognition and the Brain," *Frontiers in Human Neuroscience* 4 (2010): 1-15; Jacob Hohwy, Andeas Roepstorff, and Karl Friston, "Predictive Coding Explains Binocular Rivalry: An Epistemological Review," *Cognition* 108 (2008): 687-701; Marcel Kinsborne and Scott Jordan, "Embodied Anticipation: A Neurodevelopmental Interpretation," *Discourse Processes* 46 (2009): 103-126; Giovanni Pezzulo, Joachim Hoffmann, and Rino Falcone, "Anticipation and Anticipatory Behaviour," *Cognitive Processing* 8 (2007): 67-70.

¹²² Peters, "Consciousness and Self-Regulation;" Peters, "Consciousness as Recursive, Spatiotemporal Self Location."

consciousness reflects a reading of the principal state property of the reflexive self-referring processing regime established by recursive processing circuitry, a kind of reflexive self-knowing or auto-noetic awareness of the fact *that* it knows. Consciousness, then, is best understood as expressing at the cognitive level, a modal reading of the principal state property of the reflexive processing regime – reflexivity.

We began this section by asking whether conscious reflexivity is merely a subjective phenomenal appearance, or whether there is a degree of empirical reality to the apparently reflexive, self-aware, cognitive processing. The evidence reviewed indicates that cognitive architecture is self-referencing because it is, of necessity, a self-regulating regime, and that cognitive self-regulation is achieved in large measure by *predictive* self-referential processing architecture. Predictive self-referential processing, in turn, has the capacity to develop self-referential monitoring of a process by itself in the form of recursive feed-forward circuitry as an energy-efficient means of providing a continuous base reference frame for ongoing wakeful interaction between the subject and the environment.¹²³ Recursive self-activation (self-updating) at the neural level gives rise to reflexive self-knowing or self-awareness at the cognitive level, on the basis that the reflexive self-awareness embodies a registration of state rather than content properties, in this case the reflexivity of the processing regime.

Establishing the mechanism of conscious reflexivity is critical to establishing the empirical reality of reflexive, self-aware, cognitive processing because, on the working assumption that mental activity is brain activity, identifying a suitable brain mechanism or processing regime can be taken as equivalent to establishing the empirical reality of a mental process or phenomenon. “Suitable” brain mechanisms would include those (1) similar to other known mechanisms but distinct in their own right (if the mechanism is not distinct from other mechanisms, then the cognitive correlate cannot be taken as a distinct natural kind); and (2) those which serve a real function, because a mechanism that does not fulfill a function is unlikely to be real.¹²⁴ The mechanism proposed here (recursive circuitry) is similar to existing *predictive* self-referential processing architecture but unique, in that it feeds forward into itself. Recursive circuitry serves a purpose, the need to provide an energy-efficient form of consistent activation of a base reference frame for the ongoing self-to-

¹²³ Peters, “Consciousness as Recursive, Spatiotemporal Self Location;” Frederic Peters, “Consciousness as Reflexivity: A Neuro-Cognitive Mechanism,” 2014, Under Review.

¹²⁴ Elizabeth Ervine, *Consciousness as a Scientific Concept: A Philosophy of Science Perspective* (Dordrecht: Springer, 2013).

environment interactive event. Similarly, registration of the principal state property of this reflexive processing regime shares a common ancestry with other readings of state features (temporal duration, sensory modality etc.) which serve to augment properties not available in the represented content. The legitimacy of the processing regime (reflexive circuitry and state property registration) constitutes a basic empirical demonstration of cognitive reflexivity as a natural kind.

Following this focus on mechanism, one can look to evidence canvassed from four distinct areas of research which point to the conclusion that a recursive processing circuitry in combination with a modal reading of the principal state property of that processing regime does achieve a genuine capacity for reflexive self-reference in the form of a self-recognizing, self-perceiving and self-knowing cognitive state.

At the level of personal subjective experience, consciousness arises as a single experiential field wherein distinct sensory, emotional and conceptual elements are simultaneously co-experienced as part of a common state.¹²⁵ But while a unified cognitive state could be operationalized by the iterative or recurrent activation of a single schema, the resultant state would not be conscious, not self-aware, not aware of its being unified, because the mere repetition of an intentional data structure does not reverse the direction of intentionality which is antireflexive, always about something other than itself. A reflexively-processed schema on the other hand would be diachronically unified and self-knowing, aware of being so. The experience of consciousness as a consistently unified state provides strong support, then, for the contention that consciousness is genuinely reflexive in the sense of self-knowing.

Secondly, when conscious, cognition does genuinely recognize itself in the sense that it is immune to error through misidentification. One cannot think an 'I'- thought without knowing that it is in fact about oneself, because self-recognition is non-inferential, it does not rely on perceptual identification processes.¹²⁶ And this ongoing self-recognition has practical, empirically-

¹²⁵ Baars, *A Cognitive Theory of Consciousness*; Tim Bayne and David Chalmers, "What is the Unity of Consciousness?," in *The Unity of Consciousness: Binding, Integration and Dissociation*, ed. Axel Cleeremans (Oxford University Press, 2003), 23-58; Paul M. Churchland, *The Engine of Reason, the Seat of the Soul: A Philosophical Journey Into the Brain* (Cambridge, MA: MIT Press, 1996); Thomas Metzinger, "The Problem of Consciousness," in *Conscious Experience*, ed. Thomas Metzinger, 3-40.

¹²⁶ Hector-Neri Castaneda, "Self-Consciousness, Demonstrative Reference, and the Self-Ascription View of Believing," *Philosophical Perspectives* 1, ed. James Tomberlin (Atascadero: Ridgeview, 1988), 405-454; John Perry, "The Problem of the Essential Indexical," *Nous* 13, 1 (1979): 3-21; Shoemaker, "Self-Knowledge and 'Inner Sense.'"

observable consequences.¹²⁷ In Perry's¹²⁸ illustration of following a trail of spilt sugar through supermarket aisles, only to realize that he was the careless shopper, the realization "It is I" had real psychological effects leading to immediate action (adjusting the leaky bag of sugar in his own cart). The motivational force of internal attitudes depends critically whether the subject recognizes herself as the subject of that attitude. Consequently, self-awareness in the form of self-recognition can have a real psychological effect in terms of objectively observable behavioural expression. Consciousness can be accounted genuinely reflexive in the sense of self-recognizing.

A third source of confirmatory evidence issues from the fact that reflexivity involves a form of self-perceiving. It has always seemed self-evident, indeed logically incontestable, that when conscious, the mind is aware of itself. Thus Güzeldere notes, "The very fact of questioning the nature of my consciousness renders the fact of our not being in some way self-aware, a blatant contradiction."¹²⁹ The empirical reality of this self-perception is expressed in the capacity for metacognition, which requires a more basic pre-existing reflexive awareness by the mind of its own state, including the contents of that state such that I am able to know when I do or do not understand, remember or perceive such and such. Reflexive awareness then can be accounted a genuine form of self-knowing in the form of self-perceiving.

Finally, where philosophy has concluded that self-awareness or "I-consciousness" is genuinely immune to error through misidentification, psychology provides evidence that conscious self-awareness is immune to error through misattribution – that it is not possible to seem to be awake and reflexively self-aware without actually being so. "False awakening" is conventionally described as a nonconscious, dreaming subject who thinks she has awakened when in fact she has not. This conventional interpretation appears mistaken, however, based on the false assumption that dream content only arises in nonconscious sleep states. This is not the case. Abnormal waking states such as sleep paralysis, alternate veridical perceptual content with internally-generated dream-type content,¹³⁰ and lucid dreaming constitutes a conscious awake state where all the content is internally generated.¹³¹ The presence of dream content,

¹²⁷ Brie Gertler, *Self-Knowledge* (London: Routledge, 2011), 214-5.

¹²⁸ Perry, "The Problem of the Essential Indexical."

¹²⁹ Güzeldere, "Problems of Consciousness," 115; cf. Weisberg, "Same Old, Same Old," 166.

¹³⁰ Allen Cheyne, "Borderlands of Consciousness: Between Dream World and Wake World," Paper presented at *Toward a Science of Consciousness*, Tucson, Arizona, April 10, 2004.

¹³¹ LaBerge, *Lucid Dreaming*.

then is not an infallible indicator of a non-conscious sleep state. In fact, the state of “false awakening” bears all the hallmarks of an awake state wherein the subject exercises explicit metacognitive judgment (correct or not) upon her state;¹³² remembers the content of her state;¹³³ deliberately controls the narrative content of the dreams as it progresses;¹³⁴ and remembers details of one’s waking life as being of one’s waking life.¹³⁵ The fact that false awakening is in fact a genuinely awake state with dreamlike content can be taken as an indication that reflexive self-knowing cannot be simulated, that reflexivity is not a mere subjective seeming but a cognitive actuality.

Conclusion

In sum, consciousness can be accounted genuinely reflexive in the sense that it is generated by an empirically real recursive processing mechanism giving rise to a genuinely reflexive cognitive state which is immediately self-recognizing, self-perceiving and self-knowing. No doubt, it is the veracity of this auto-noetic state of knowing *that* it knows which lends such deep conviction to the naïve presumption that it knows what it knows, that it sees everything there is to see (the grand illusion), that it is intimately aware of its own motivations (telling more than it could know) and that it delivers unmediated contact with “the real world” (transparency). Conscious experience seems complete and veridical – the basis of naïve realism – in large measure because the medium of that experience, the reflexive state, is genuine and cognitively complete in itself.

¹³² Giorgio Buzzi, “False Awakenings in Light of the Dream Protoconsciousness Theory: A Study in Lucid Dreamers,” *International Journal of Dream Research* 4 (2011): 114.

¹³³ Buzzi, “False Awakenings,” 69.

¹³⁴ Buzzi, “False Awakenings,” 113.

¹³⁵ Cheyne, “Borderlands of Consciousness,” 9.