Introduction

Consciousness is best understood in context, as one element of an interactive waking state in which the greater part 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 form the latter, what is consciousness, and what is its purpose? The answer to the second question depends crucially on our conclusion regarding the first. What is the property in virtue of which a state is conscious rather than nonconscious? In the following, it will be argued that of the answers most frequently proposed—
intentionality, subjectivity, accessibility, reflexivity—only the final characteristic, reflexive, autonoetic awareness, is unique to the conscious state. Reflexivity can best be explained not as the product of a self-representational data structure, but as the expression of a recursive processing regime, in which cognition registers the properties of the processing state to a greater extent than properties of the content represented. And the principal characteristic of a reflexive processing state is cognitive reflexivity or autonoetic awareness.

**Consciousness is Reflexivity**

Philosophy of mind, has over recent decades, been focused to a large extent on understanding consciousness as the expression of a particular cognitive modality—as the expression of either intentionality, accessibility, subjectivity or reflexivity. That is to say, consciousness has been equated either with (1) internal cognitive representation as such (intentionality); or (2) with the accessibility of primary informational content to various kinds of secondary processing (global broadcasting, logical thinking . . .); or (3) alternatively, on a minimalist interpretation of Nagel, with subjectivity or first-person perspective as such; or, finally and more recently (4), with reflexivity—the capacity for autonoetic or recursive, self-monitoring awareness—as the defining characteristic of consciousness. Of these four proposed primary indices of consciousness, however, only the latter—
reflexivity—is unique to consciousness, while the other three features characterize intentional cognitive representation as such, both conscious and nonconscious.

Intentionality or representationalism holds that conscious awareness can basically be equated with representational activity as such.\(^1\) However, as several critics have pointed out,\(^2\) 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.

Subjectivity was originally hailed as the index of consciousness by Thomas Nagel, who claimed that if conscious mentality were not configured subjectively, there would be no conscious experience, there would not be something it is like for the organism to be that organism.\(^3\) Some scholars have interpreted Nagel’s terse, and somewhat enigmatic language to indicate that the

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first person perspective of cognitive experience, in and of itself, is sufficient for conscious awareness. Stubenberg⁴, for example, insists that the having of qualia is subjective and the subjective having of qualia (not the knowing that you have, just the having) is consciousness. 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”⁵. But subjectivity, like intentionality does not discriminate conscious from nonconscious mentation⁶. Blindsight patients manually locate objects they are unaware of in relation to themselves, and nocturnal dreams retain an egocentric perspective, again without consciousness. Clearly, subjectivity characterizes cognition as such, not conscious cognition in particular.

Accessibility achieved notoriety as part of Ned Block’s claim⁷ that consciousness comes in several varieties, chief amongst which are phenomenal and access consciousness. Where the former relates to the subjective state of

experiencing qualia\textsuperscript{8}, access consciousness references, not a state, but cognitive content “poised” or available for rational analysis and use in guiding behaviour and speech\textsuperscript{9}. Consciousness “enables” information represented in the brain to be used in reasoning, reporting and rationally guiding action\textsuperscript{10}. A similar notion can be found in Tye’s styling of consciousness as abstract, non-conceptual, intentional content poised to become part of a conscious or ‘phenomenal’ state when interacting with beliefs & desires\textsuperscript{11}. Carruthers’ disposition HOT theory functions in much the same manner, where the conscious status of a perceptual state consists in its availability to higher-order thought\textsuperscript{12}. In the same vein, Baars’ \textit{global broadcasting} theory indexes consciousness in terms of the global availability of information to potential use by any one of multiple processors\textsuperscript{13}.

The guiding principle of these constructs is firmly centred on the dispositional condition (accessibility) of informational content: information that is disposed to be incorporated or configured into a conscious, as opposed to a nonconscious state, is (or can potentially become) . . . conscious. Clearly this

\textsuperscript{9} Block (1995): 231. \\
\textsuperscript{10} Ibid. \\
construct is more of a tautology than an explanation. It relates to the availability of nonconscious (or preconscious) information for inclusion within consciousness and explains little to nothing about the constitution of the conscious state itself\textsuperscript{14}. Equally evident, as Weisberg, Kriegel, Burge, Schlicht and many others point out\textsuperscript{15}, accessibility misconstrues consciousness the occurrent state as a mere disposition where no cognitive state (and certainly no conscious cognitive state) need actually occur at all. And finally, informational availability for processing is not associated exclusively with conscious states in any case. The great bulk of cognitive processing takes place unconsciously, and all information has to be available for processing in some sense or the system would not function. In that sense, the conditions of access could be satisfied by a nonconscious computer\textsuperscript{16}. As an explanation of what distinguishes consciousness, accessibility is essentially non-functional.

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What then of reflexivity, of autonoetic (self-knowing) awareness? Unlike subjectivity, intentionality and accessibility, reflexivity is unique to consciousness, and not merely unique to but the very essence of consciousness. The explicit “awareness of” or “knowing that”\textsuperscript{17} one is perceiving, thinking, feeling or behaving in particular ways is the defining characteristic of the conscious state. Informally, the centrality of the autonoetic character is reflected in conventional linguistic usage as captured in the Oxford English Dictionary’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.” This formal definition merely embodies a common understanding whereby it is counterintuitive to claim that conscious experiences occur without the subject being aware of them\textsuperscript{18}. More to the point, it is arguable that consciousness—conscious awareness of representational content—does not occur without there being a kind of reflexive, autonoetic awareness wherein whatever else the cognitive state might be aware of, it is intrinsically aware of its own occurrence. That conscious states do so occur is evident from the fact that they arise with awareness of their own occurrence immediately and involuntarily, that is without the need for some elaborate post hoc process of inferring or reasoning that one is


aware\textsuperscript{19}, nor certainly the need for any secondary introspective refocusing of attention on the internal aspect of the currently cognized moment\textsuperscript{20,21}. And on the basis of this ongoing self-awareness, conscious states are immediately and spontaneously reportable as such, as currently occurring or as having occurred. That is, a prerequisite for being able to report that one is having (or has had) a conscious experience of this or that kind, one must be (or must have been) consciously aware of it.\textsuperscript{22}

Conversely, the principal distinguishing mark of nonconscious states is the lack of self-awareness, the absence of first-person knowability, the knowing that a particular experience is occurring. Sleep (both dreamless and dreamful), coma and anaesthetic unconsciousness are marked by a total absence of just this


\textsuperscript{21} U. Kriegel, “Consciousness as Intransitive Self-Consciousness: Two views,” Canadian Journal of Philosophy XXXIII (2003b): 103-132, 105; Greg Janzen, “The representational Theory of Phenomenal Character: a Phenomenological Critique,” Phenomenology and the Cognitive Sciences V (2006): 321-339, 329; G. Janzen, The Reflexive Nature of Consciousness (Philadephia, PA: John Benjamins, 2008): 106. Kriegel and Janzen 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. They might have added that where consciousness includes both awareness of current perceptual input and ongoing internal commentary about that current situation—as well as past remembrances and future plans—introspective awareness refocuses attention only on the latter, internal display at the expense of perceptual awareness. Reflexivity, then, is the mechanism which establishes or generates conscious awareness of both internal and external inputs, while introspection merely focuses attention on a particular facet (internal mental information streams) of an already-conscious state.

element of reflexive awareness. And the termination of these nonconscious states, the moment of waking up consists precisely in the regaining of reflexive awareness that one is in a particular cognitive state.

The claim that a state is intransitively conscious only to the extent we are transitively aware of it (or to the extent that that the state is transitively aware of itself), forms the basis of the most widely accepted definition or characterization of consciousness, Rosenthal’s “transitivity principle”, that consciousness is a state that I am aware of being in.”

To say that consciousness is “a state I am aware of being in” is to claim that for the subject, this is the way it seems. However, given the frequent disparity between the way cognitive events seem and the way cognitive processes actually work—the brain does not, for example, employ round blue representations to represent a round blue ball in the mind—we need to establish

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whether reflexivity is a mere subjective seeming, or self-knowing in an empirically genuine fashion. As it turns out, there is good evidence that a state’s being self-aware (immediately aware of its own occurrence) is a cognitive reality. By way of general background, reflexivity can be understood as a refinement or variation of cognitive processing architecture which is built from the ground up on self-referential principles, because self-regulation of homeostasis through behaviour is the guiding principal of cognition as a whole. That is to say, cognition extends the self-regulative homeostasis-maintaining capacity beyond the organism itself to the organism-environment interaction, by regulating self-movement in relation to homeostatic and emotional needs of the organism.

This self-regulating control of self-to-environment interaction is achieved through a cognitive system that is self-referencing in the sense of relating the outputs of various components to the needs of other components of the system. Most basically, behavioural outputs are monitored, prioritized and adjusted by homeostatic requirements for food, water, oxygen and thermoregulation, and more generally by motivational and behavioural goals. Perceptions are also referenced against internal emotional memory before proceeding to motor

output. 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. Further, cognitive systems have developed an even more proactive feed-forward or anticipatory form of self-reference in the form of predictive emulation architectures that modulate output on the basis of the anticipated result of that output.

Self-referential architecture, particularly the internal self-adjusting loops involved in predictive cognitive activity, then, make possible the development of the kind of immediately reflexive self-cognizant processing state that constitutes consciousness. And cognitive evidence for the expression of such recursive activity in the form of genuinely reflexive self-recognizing, self-perceiving and self-knowing awareness can be gleaned from at least four distinct areas of research. 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.\textsuperscript{32,33} 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. And this ongoing self-recognition has practical, empirically-observable consequences. In Perry’s (1979) 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 on 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.” 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\textsuperscript{37}, and lucid dreaming constitutes a conscious awake state where all the content is internally generated.\textsuperscript{38} The presence of dream content, 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 judgement (correct or not) upon her state;\textsuperscript{39} remembers the content of her state;\textsuperscript{40}


deliberately controls the narrative content of the dreams as it progresses;\textsuperscript{41} and remembers details of one’s waking life as being of one’s waking life.\textsuperscript{42} 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.

**Theories of Reflexivity**

The principal factor differentiating conscious from nonconscious states, the primary index of consciousness as it were, can be accounted as reflexivity, immediate (pre-introspection), autonoetic awareness which is self-knowing in the sense that it is self-recognizing, self-knowing and self-perceiving. As the very essence of what it is to be conscious, reflexivity serves as a natural basis on which to judge the viability of current theories of consciousness. Which theories do and which do not recognize reflexivity as the principle constituent of consciousness, and of those that do, which explain the mechanisms which underlie the cognitive production of reflexivity?

\textsuperscript{40} Buzzi (2011): 69.  
\textsuperscript{41} Buzzi (2011): 113.  
\textsuperscript{42} Cheyne (2004): 9.
1. Reflexivity as Subjectivity

The most frequently encountered definition of consciousness was introduced by Nagel as being something it is like for the organism to be that organism.\(^{43}\) Nagel’s somewhat enigmatic phrasing has been interpreted by some scholars as primarily referencing the subjectivity or first-person perspective of cognitive experience, without any reference to reflexivity.\(^{44}\) By contrast to this straightforward reduction of conscious reflexivity to subjectivity, a second group of scholars—Zahavi, Janzen and Kriegel—clearly identify consciousness with subjective reflexivity, but relate reflexivity to subjectivity in distinctly opposite ways. Dan Zahavi overtly casts the central constituting characteristic of consciousness as reflexivity or self-awareness, stating that

\[\text{[I]n much phenomenological literature, the discussion of self-awareness is not so much a discussion of how consciousness is aware of a self . . . as it is a discussion of how consciousness is aware of itself. . . . Consciousness is self-luminous. It is characterized by intentionality, but being intentionally aware of objects, it is simultaneously self-aware through and in itself. Its self-awareness is not due to a secondary act or reflex but is a constitutive moment of the experience itself, and} \]

\[^{43}\text{Nagel (1974):436.}\]
consciousness can consequently be compared to a flame, which illuminates other things, and itself as well.  

He then goes on to claim, with Flanagan, that reflexivity is inherent in or an intrinsic concomitant of subjectivity:

[I]nsofar as there is something it is like for the subject to have experiences, there must be some awareness of these experiences themselves; in short, there must be self-awareness . . . Thus, in our view, phenomenal consciousness is simply a primitive type of self-awareness, and we can therefore only agree with Flanagan when he writes: ‘. . . all subjective experience is self-conscious in the weak sense that there is something it is like for the subject to have that experience. This involves a sense that the experience is the subject’s experience, that it happens to her, occurs in her stream’ (Flanagan, 1992, p. 194).

Again, stressing the equivalence of “self-givenness” with “subjectivity”, Zahavi reiterates that subjectivity entails or brings with it an intrinsic form of self-referentiality or consciousness:

Mary might certainly realize that John is in pain, she might even sympathize with John, but she cannot actually feel John’s pain the same way John does. Mary has no access to the first-personal givenness of John’s experience. This is not something quite incidental to their being, a mere varnish that the experiences could lack

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without ceasing to be experiences. On the contrary, it is this first-personal
givenness that makes the experiences *subjective*. To put it differently, with a
slightly risky phrasing, their first-personal givenness entails a built-in self-
reference, a primitive experiential self-referentiality.  

In linking self-awareness with subjectivity, Zahavi follows Husserl who, he
says, “took self-awareness to be an essential feature of subjectivity.”

Like Zahavi (and Husserl), Janzen also cites Flanagan (1992, p. 194),
arguing that “phenomenal character” or what-its-likeness includes or constitutes
“a type of self-awareness”

Flanagan assumes, without argument, that the what-it-is-likeness or phenomenal
character of our experience is a type of self-awareness. My aim is to elaborate on
this suggestion, to defend the thesis that phenomenal character is constituted by a
type of self-awareness, i.e. by a low level or implicit self-awareness that is built
into every conscious state.

Zahavi and Janzen, like van Gulick, recognize that a central characteristic of
consciousness is reflexive awareness, but unlike van Gulick, they do not reduce
reflexive consciousness to subjectivity. Rather, they hold that subjectivity
intrinsically manifests or gives rise to self-awareness, to a Rosenthalian being
aware that one is in the cognitive state. This position amounts to a kind of

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49 Janzen (2008): 155; and see Janzen p. 28 where what-it-is-likeness or “phenomenal character”
is a criterion for state consciousness, providing its necessary and sufficient conditions.
form of cognitive capacity is a fundamental property of the physical universe, cognitive panpsychism would insist that a minimal form of conscious self-awareness accompanies every subjective cognitive act because subjectivity entails more than simply being the cognitive state (a la Stubenberg and Searle), more than an implicit registration of the world in relation to self (as with Van Gulick). Subjective cognition, they claim, has self-awareness, at least in some minimal form, because self-awareness is simply a fundamental property of subjective cognition. As Gennaro suggests, this is presumably Nagel’s position as well.

Zahavi and Janzen’s claim that (minimal) self-awareness is inherent in every subjective cognitive act can be contrasted with the position of Kriegel, an intrinsic self-representational theorist, who insists on the polar opposite, that reflexivity is primary and subjectivity essentially a derivative expression of it. 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.\(^{52}\)

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Is reflexive self-awareness inherent in subjectivity, as Zahavi, Janzen and presumably Nagel propose, or is subjectivity a derivative expression of reflexivity as outlined by Kriegel?

The evidence indicates that neither of the abovementioned positions is an accurate portrayal: reflexivity is not inherent in subjectivity, nor is subjectivity merely an expression of reflexivity. Subjectivity and reflexivity are two distinct cognitive characteristics or properties such that while subjectivity characterizes all cognitive events, not all cognitive events are conscious. and therefore subjectivity is not the factor distinguishing conscious from nonconscious cognition. That is, all cognitive experience—whether conscious or unconscious—is subjective in the sense that it only exists for the subject operationalizing that cognitive state; the subject has literally to be (or be in) that cognitive state in order to realize or have access to those cognitive characteristics—no objective observer can apprehend or register another’s thoughts feelings or sensations. In that sense at least, subjectivity is ontologically subjective as Searle maintains. But not all subjectively-realized cognitive experience is necessarily conscious.

Each of the epistemic dimensions of subjectivity—privileged or immediate access, first-person perspective and reference to a self—characterizes nonconscious as well as conscious cognition. Where immediate cognitive access


to its contents is considered a mark of consciousness, this same lack of mediation by inferential or deliberative processing is also characteristic of unconscious sensory-motor reflex arcs. Again, conscious subjectivity is frequently said to involve me-ness, an explicit ascription or awareness of a self, but nonconscious dreaming is also, routinely constructed around a self structure. And finally, subjectivity is characterized by an explicit first-person perspective, whereby the spatially extended manifold is configured egocentrically in relation to the subject as centerpoint, such that perceptions involve the use of what are often called egocentric directional vectors such as up, down, left right, behind, in front and so forth. But this spatial first-person perspective operates nonconsciously. Blindsight patients can manually locate objects without conscious awareness of their location vis-à-vis the subject. Nocturnal dreams retain an egocentric perspective, again without

consciousness. Non-spatial egocentric reference frame value judgements are exercised nonconsciously as are self-relating emotions.

Subjectivity, then, is characteristic of cognition in general, both conscious and nonconscious. As Carruthers puts it, non-conscious subjectivity involves mere sensory/perceptual engagement with the world (“worldly subjectivity), whereas consciousness involves awareness of one’s experience of the world (“experiential” subjectivity). As a basic characteristic of cognition, subjectivity is not intrinsically self-aware (as claimed by Flanagan, Zahavi and Janzen), nor certainly, dependent upon and merely a derivative expression of self-awareness (as claimed by Kriegel). As the basic substratum of all cognition, it lacks the critical ingredient that differentiates conscious from nonconscious states.

2. Higher-Order Theories of Reflexivity

Where first order accounts of consciousness discount or ignore reflexivity altogether, effectively removing the distinction between conscious and nonconscious states, higher order (HO) representational theories are explicitly focused on explaining this distinction in terms of the presence of a secondary

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62 Carruthers (2000): Ch. 6
state directed at the primary world-directed state. Several cognitive data structures have been proposed to operationalize the crucial awareness-of capacity: higher order thought theory (HOT) insists that a first order state is the focus of an additional thought to the effect that the first order state is occurring.\(^{63}\) Both higher order belief theory\(^{64}\) and higher-order judgement theory\(^{65}\) invoke a dispositional state in relation to first order content, while higher-order feelings theory calls upon a second-order emotional state.\(^{66}\) Higher-order source monitoring\(^{67}\) invokes a species of executive processing. Higher-order global state theory (HOGS) turns to an all-encompassing self-to-world representational state into which primary content is incorporated.\(^{68}\) On the other hand, inner sense, or higher-order perception theories (at least those of Armstrong and Lycan), although normally included with the abovementioned


approaches, should not be considered a higher-order construction like the others because they do not relate to the mechanism initially constructing or creating consciousness, but rather to the application of a subsequent metacognitive process—introspection—over an already-conscious state.\(^{69}\)

Conscious reflexivity, as noted above, is immediate and effortless, occurring without the need for deliberate post hoc inference, nor certainly any secondary introspective refocusing of attention.

The central proposition of all of the higher-order constructions is that consciousness is created as the result of a second order cognitive data structure (a thought, perception, judgement, feeling) being directed at or arising in relation to a first order cognitive event, such that the combination of these two cognitive states creates consciousness. But this claim has raised a host of objections, leading some analysts to question the basic viability of higher-order theory altogether.\(^{70}\) The more significant criticisms include, firstly, that all

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\(^{69}\) Higher-order theories are customarily addressed in terms of a contrast between HOT and HOP; the former approach involving a second-order thought-like state, and the latter a perception-like process “scanning” first order content. On closer inspection however, it is evident, that the two leading proponents of HOP (Lycan and Armstrong) have consistently pointed to introspection as the cognitive process that produces consciousness (Lycan (1996): 13-14; cf. (2004): 101-102; (1987): 72; W. Lycan (1987). *Consciousness* (Cambridge, MA: MIT Press) 72; Armstrong (1997): Armstrong, D. (1997). *What is consciousness*. In Ned Block, Owen Flanagan & Güven Güzeldere (Eds.), *The nature of consciousness*. Cambridge MA: MIT Press) 721-728, 723-723. However introspection is better regarded as an attentional redirection process within an existing conscious state (Baars (1992); Flanagan (1992); Reber (1992); Stubenberg (1998). As pointed out in Note 21 above , pre-reflective consciousness (reflexivity) is effortless, involuntary, constant, ubiquitous and encompasses both perception and internal thought, while the latter (introspection) is effortful, deliberate (requires choice), infrequent, temporary and focused only on the internally-generated stream of cognitive content. The two, then, are quite distinct.

higher-order theories of consciousness are structured in terms of an awareness of first-order content, and are thereby directly at odds with evidence to the effect that perceptual, conceptual and emotional content is neither sufficient for the production of consciousness (as evidenced by the substantial domain of nonconscious cognition), nor even necessary for consciousness (as suggested in the various forms of dissociation of informational content from awareness in cases of hemispatial neglect, blindsight, aphasia and agnosia). Indeed, if we consider the fact (see sec. 3 below) that cognition includes the reading of the features of what is being represented as well as of characteristics of the representing state, it becomes apparent that conscious reflexivity reflects the latter (state properties) and as such, is therefore always distinct from the ever-changing streams of informational content relating to what is being represented. On this basis, consciousness is independent of informational content: consciousness is not equivalent to an awareness-of-qualia.

But higher-order theories are also seriously challenged in their effort to satisfactorily account for the generation of the reflexive awareness-of element even within the overall qualia (awareness-of-content) construct. Higher order theories attempt to account for this “awareness-of” in terms of “the mind directing its intentional aim upon its own states and operations” as Zahavi puts

71 For details see F. Peters, “Consciousness is Distinct From Qualia,” Submitted, under review (2013b).
it. However, crucially, the higher order construct itself which is supposed to supply the self-awareness is not itself self-aware,\textsuperscript{73} so that the critical “awareness of” is purportedly generated by a nonconscious thought, belief, judgement or feeling which is about something other than itself. But beliefs, judgements, feelings and thoughts about something else all can and routinely do take place nonconsciously,\textsuperscript{74} precisely because they are not inherently self-aware and do not engender self-awareness. The non-conscious status of the higher-order construct constitutes one of the most frequently voiced criticism of higher order theories, that a basically nonconscious cognitive construct cannot imbue consciousness in another nonconscious first-order construct or process.\textsuperscript{75}

This criticism, commonly referred to as \textit{the problem of the rock}, turns on the point that a rock doesn’t become conscious simply by my looking at it, so why

should a nonconscious cognitive data structure become conscious simply as a consequence of another data structure, or dispositional state being directed at it, (or being a representational redescription of it or simply being “about” it), particularly if the latter, second-order construct is nonconscious as well?

This problem of the rock also constitutes the main stumbling block for Gennaro’s wide intrinsicality view (WIV) theory, which, like other HOR theories, maintains that consciousness involves an awareness of being in the state one is in (2006, p.222), but unlike other theories, insists that the cognitive construct is a single, complex first-order state with two elements or parts, one directed at the world and the other (a metacognitive thought—MET) directed at the first part, thereby generating, according to Gennaro, a self-referential or conscious cognitive moment (1996, p. 28). It remains to be seen, however,

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76 Gennaro’s WIV theory seeks to avoid many of the criticisms levelled at the standard two-state construct of higher-order theories (particularly Rosenthal’s HOT) by stipulating that the two elements are part of one complex state. This is similar to Brentano’s one-state “intrinsic” theory, but Gennaro also wishes to avoid what he sees as Brentano-style claims that the second, consciousness-making element is somehow reflexively directed at itself, which he insists is impossible (2006:226ff; 2012: Ch5, and see also Genarro’s “Comments on Miguel Sebastian’s ‘Experiential Awareness: Do you prefer It to Me?’,” Online Consciousness Conference 4 (2012):3-4 where he notes similar sentiments by Kriegel). In an earlier piece (1996:28) he writes, “[s]trictly speaking, on the WIV, a CMS [conscious mental state] is not directed at itself. There is, rather, an ‘inner directedness’ or ‘inner relationality’ in the CMS. The MET is not directed back at the entire complex CMS, but rather at the first part, thereby generating, according to Gennaro, a self-referential or conscious cognitive moment (1996, p. 28). It remains to be seen, however,
why a relocation of this same two-part mechanism within a single state would render the dynamic (one representational element being intentionally ‘directed at’ or simply about another element) capable of generating conscious self-awareness when it is unable to do so in a two-state configuration.\textsuperscript{77}

Finally, it is basically questionable, in any case, whether higher order mental constructs (beliefs, percepts, thoughts, judgements), either extrinsic to the first-order state or intrinsic as in Gennaro’s model, actually do monitor or arise in relation to first-order states one-on-one—and in fact, it seems they do not. Consciousness is unified not only synchronically but also diachronically – a constant flow. But the evidence from introspection\textsuperscript{78} and thought sampling studies\textsuperscript{79} is that while inner cognitive processing (thinking, daydreaming, remembering) does proceed in a more or less unbroken stream, it is not necessarily or even generally related to or directed toward the current perceptual input. These inner judgements, thoughts, beliefs and so on proceed more or less independently of first-order perceptual content, and are therefore not related to it in the way that higher-order theory requires. Moreover, even if that higher-order content were directed toward every instance of first-order input, there is


\textsuperscript{78} Byrne (1997): 117.

simply no possibility, analysts point out, that cognition has a store of higher-order conceptual constructs sufficiently varied to match the combinatorial possibilities of every distinct aspect of one’s primary experience.\textsuperscript{80}

The problem here is the almost total reliance on self-referential data structures of one sort or another as the generating instrument of phenomenal self-awareness. For not only is it the case that intentional data structures cannot cause first-order content to become conscious simply as a consequence of their being directed toward that first-order content (the problem of the rock), but neither can they reference themselves in an actively reflexive manner. This has to do with the direction of intentionality, the direction of cognitive reference in any and every representational data structure is antireflexive, referring away from the representing structure towards that which is represented, towards the content the state is about. It is this very other-directedness or “aboutness” which makes transparency (ignorance of the fact there is a representing vehicle) possible. Intentional data structures do not and cannot reference themselves in a directly reflexive manner because the direction of intentionality does not allow it. In this regard, Kriegel writes:

For a content to be conscious is not at all for it to be represented by itself, or for the mental state that carries it to represent itself to carry it, or anything in the vicinity . . . So it is simply false that a mental state’s representation of itself is conscious in virtue of the state representing itself to represent itself.\textsuperscript{81}

It may be reasonably concluded, then, that higher-order constructs do not arise to match first-order content one-on-one, and even if they did, it would lack the requisite capacity to give rise to consciousness. Higher-order theory is incapable of explaining conscious reflexivity.

3. Intrinsic or Self-Representational Theories of Reflexivity

Higher-order theory fails not because it has misconceived the primary reflexive characteristic of consciousness, but essentially because of its reliance on a two-state relational structure to achieve said reflexive self-awareness: where neither primary nor higher-order state is itself conscious, there simply is no possibility of generating the required reflexive awareness. What is needed, clearly, is not a representing of other things by the higher-order construct, not a subject-object, two-state structure, but a single-state, subject-subject structure, a representing of a cognitive state by itself to itself, a genuinely self-representational reflexive state. “Intrinsic” or “self-representational” (SR) theories insist that consciousness is indeed a matter of self-awareness not other-awareness; that

consciousness is not a two-state cognitive construct, but a single reflexive selfrepresentational state. The locus classicus for this position is usually traced to Franz Brentano:

[Every conscious act] includes within it a consciousness of itself. Therefore, every [conscious] act, no matter how simple, has a double object, a primary and a secondary object. The simplest act, for example the act of hearing, has as its primary object the sound, and for its secondary object, itself, the mental phenomenon in which the sound is heard.\(^{82}\)

Moreover, he insists, the primary act of hearing and secondary awareness of that act inhere within a single mental state:

The presentation of the sound and the presentation of the presentation of the sound form a single mental phenomenon.... In the same mental phenomenon in which the sound is present to our minds we simultaneously apprehend the mental phenomenon itself. What is more, we apprehend it in accordance with its dual nature insofar as it has the sound as content within it, and insofar as it has itself as content at the same time.\(^{83}\)

This Brentanian notion of a single state with two parts, one directed outwards toward the world, and other inwards towards the state itself, has been recently adopted by several analysts.\(^{84}\)


\(^{83}\) Brentano (1874/1973): 127.

The self-representational approach to explaining conscious reflexivity is not without its problems, however. First and foremost, is the fact that intrinsic theories are qualia theories which explain consciousness in terms of a reflexive-awareness-of-content structure, rather than reflexive-awareness as such.\textsuperscript{85} Van Gulick and Gennaro both explicitly criticise any deviation towards a notion of self-awareness as distinct from qualia.\textsuperscript{86} But as the evidence reviewed above in relation to HOR theories indicates, consciousness is not qualia, reflexive self-awareness need not and does not arise as a result of the generation of perceptual, emotional or conceptual content. Moreover, to the extent that consciousness supervenes on the representation of state rather than content properties (see sec. 3 below for further discussion), the presence or absence of first-order representational content is irrelevant to and does not impinge upon the overall cognitive quality (conscious or nonconscious) of the processing state.

In the case of SR theory, with its emphasis on a single, internally complex state construct, the problematic result of conflating consciousness with


qualia is that it leads to a fundamental self-contradiction; for while all current SR theories explicitly acknowledge both nonconscious as well as conscious modes of cognitive processing, the intrinsic self-representational position is essentially committed to the notion that all cognition is inevitably conscious. Intrinsic theory insists that there is a single state wherein the being-aware-of-itself is intrinsic to and thus an ineluctable consequence of the first-order content state. Conscious self-awareness arises simultaneous with and as part of the first-order cognitive act, so that the resulting state is described as being aware of its object and of itself all at the same time and as of the same, singular, state. The first-order mental occurrence and second-order awareness of it, are, as Natsoulas puts it, “a single unmediated unity [where] neither of them has any existence apart from the other.” But then, if self-awareness is so utterly intrinsic to and co-existent with first-order content, how is it possible for first-order states to arise non-consciously, without self-awareness, as they clearly do most of the time.

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89 A point made by P. Carruthers, The Architecture of the Mind (New York: Oxford, 2006) 299; cf. Rosenthal (1997): 745. The implication that all cognition is conscious may be an unfortunate legacy of adopting a Bretanian model of self-representation, since Brentano himself was convinced that all cognition is conscious: “every mental act . . . includes within it a consciousness of itself” (1874/1973, p. 153). But the evidence does not support Brentano. The cognitive unconscious is a fact of mental life, and SR theory does not allow for this fact. Nor is it possible to argue that self-awareness does not necessarily arise with every first-order cognitive event, but when it does arise it does so simultaneously with and as part of that first-order event. If self-awareness does not arise in some cases, then some additional causative factor must be at work in those cases where it does, and that additional factor is unaccounted for in self-representational theory. If it were introduced, it would be extrinsic to the first-order state which
In addition to its inability to allow for nonconscious cognition, SR theory is also vulnerable in relation to the adequacy of its accounting for consciousness itself. What concrete mechanism is being proposed to account for the reflexivity of the conscious component of the complex cognitive state? How is this self-representational capacity achieved? Janzen (2008) and Natsoulas (1996-2006) don’t nominate a specific psychological mechanism. Van Gulick, on the other hand, enlists “enhanced subjectivity” (enhanced first-person or egocentric perspective) as the psychological means of achieving reflexive cognition. He writes, “[T]he reflexive meta-intentionality associated with conscious states . . . derives not from the addition of distinct explicit self-ascriptive meta-states, but from the implicit self-perspectuality [subjectivity] that is built into the intentional structure of conscious experience itself.”90 But as we have seen, subjectivity, while certainly a necessary part of reflexive consciousness does not, of itself, entail reflexivity because all cognitive acts—conscious and unconscious—are realized subjectively.

Woodruff Smith91 offers an enhanced version of Husserl’s temporal layering of experience which consists of a synchronic perceptual moment, linked with a secondary retention of the just-past moment as well as anticipation

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90 Van Gulick (2004): 84.
(“protention”) of the next moment. Smith retains this temporal layering structure (current intentional moment, retention of just past moments and protentions of future moments) but he notes that the proper character of the conscious modality (inner awareness) is reflexivity, not mere temporal extension. Consequently, Smith proposes that consciousness supervenes not on the temporal flow of representational content (past, present & future musical tones) but on the IRP temporal extension of the representational vehicle (past, present and future hearings of the musical tones). Now it is certainly true that the temporal layering of intentional representations to produce a diachronically unified temporal flow of experience (a flow of musical tones) does not reverse the direction of intentionality at any individual moment to generate the requisite reflexivity, as Smith notes. But it is difficult to discern how reflexive awareness would arise merely on the basis of the temporal extension of

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94 ibid., 105-6.

95 ibid., 104-105.
nonreflexive experience, nonconscious cognitive moments. The problem of the rock applies with equal force here as it did for the HO theory—two, or in this case three, nonconscious constructs don’t make a conscious moment simply because they succeed or overlap each other (the problem of the diachronic rock).

The other prominent SR theorist, Uriah Kriegel, has developed a version of self-representation involving “cross-order integration” (COI) whereby a first-order object representation is combined with a second-order representation of that first-order state. He describes this internally complex one-state construct as follows:

[A] state is conscious because it has the right sort of representational content: it folds within it [A] a representation of an external object and [B] a representation of that representation.  

Kriegel’s contention is that the integration (and not simply the simultaneous activation) of parts A and B, creates an entirely new state-of-integration C, which constitutes the conscious state because it involves a state totally aware of itself in virtue of indirectly (implicitly) representing the whole of itself.

[C]onscious states have a part [B] that represents directly another part [A], and in virtue of that represents indirectly the whole state [C].  

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This emphasis on the derivation of consciousness through an indirect representing of the whole (the first-order element, the higher-order representation of that first order element, and the integration of the two) in virtue of its representing a part (the first-order state) constitutes an extension of the original cross-order integration thesis which claimed that consciousness derives from the binding of a first order sensory quality (representing an environmental feature) and a second-order representation of that first order state,\(^98\) and, it should be noted, a complete reversal of his original insistence (2003a) that sensory quality is neither sufficient or even necessary for inner awareness.\(^99\)

In any event, the central question remains as to whether this final indirect self-representation configuration of Kriegel’s COI theory provides a viable account of reflexivity. Critics have been unanimous in their assessment that it


\(^{99}\) As Gennaro notes (2006:235-236, 2012: 3), Kriegel’s support for the equation of consciousness with qualia (his cross-order integration construct involving the integration of awareness with first-order data content) stands in flagrant contradiction to his 2003a article devoted entirely to the proposition that consciousness is not qualia, not reflexive awareness of first order content (“sensory quality”), but inner self-awareness as such. His conclusion to that 2003 article reads: “[A]ccording to our account, for one’s experience to be conscious at all, it must involve implicit self-awareness; but which specific kind of experience it is, is a matter of which sensory quale one is (implicitly) aware of one’s experience as having. . . The upshot is that consciousness is not a matter of sensory qualia. . . To devise a theory of consciousness, what we would have to explain is the phenomenon of permanent implicit self-awareness” (2003a:21). Having argued at length and clearly demonstrated that sensory quality is neither sufficient nor even necessary for consciousness, his subsequent espousal of a qualia theory is inexplicable. There is, in addition, the perplexing fact that Kriegel, in his 2009 book (68-71, ff.) attempts to uphold the principle of transparency, which insists that state characteristics of an experience, such as conscious awareness itself, are “diaphanous” and unnoticed, not phenomenally explicit (you look through the state characteristics and see only the perceptual-conceptual-emotional content) while at the same time basing his theory of subjective awareness on the claim that we do, Brentano-style, experience the state of representing bluishness alongside the bluish sensory content. (2009: 109-110). The latter is Smith’s claim that consciousness has to do with state (modality) characteristics and not sensory qualities (mode), which Kriegel has consistently rejected (2003b, 2005, 2009:103).
does not. They point out that (1), if Kriegel’s cognitive construct did generate conscious self-awareness, it would, in fact, produce two conscious states, not the single state he claims. In chapter 3 his first-order construct “qualitative character” consists of the representation of response-dependent properties of an object. But this is emended in Ch. 4 such that “qualitative character” derives not from first-order representational content of, for example, a red tomato, but from higher-order representing of the first-order state of perceiving a red tomato. 100 This, in effect leads Kriegel to posit 2 conscious states; 101 the first consisting of the aforementioned higher-order representation of the first-order state; 102 and the second, of the self-awareness arising from the whole integrated state. 103 Kriegel concedes this by granting the former “submaximal consciousness” status and the latter “maximal”. 104 These twin conscious states would, if actual, undermine Kriegel’s claim to be describing a single, self-representing state. 105

This eventuality is somewhat mitigated by the second arm of critical assessment to the effect that (2) Kriegel’s construct could not be said to give rise to phenomenally-explicit conscious self-awareness at all. Kriegel’s account

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100 J. Levine, “Review of Subjective Consciousness by Uriah Kriegel,” Notre Dame Philosophical Reviews 2010, III.
of subjective self-awareness rests entirely on the notion of representational content. His publications have consistently rejected Woodruff Smith’s position that consciousness derives from properties of the cognitive vehicle, the representational process,\textsuperscript{106} and have insisted, to the contrary, that self-awareness derives from properties of the content represented.\textsuperscript{107} The problem, as Kriegel points out,\textsuperscript{108} is that intentional representation is always inherently antireflexive, the direction of intentionality is outward not inward, away from itself to something else, not towards itself. Kriegel frequently acknowledges this antireflexivity of intentional content in terms of the antireflexive direction of causality (a thing cannot cause itself).\textsuperscript{109} He highlights the insufficiency of representing, of itself, to achieve self-awareness when he writes

\[\text{For a content to be conscious is not at all for it to be represented by itself, or for the mental state that carries it to represent itself to carry it, or anything in the vicinity . . . So it is simply false that a mental state’s representation of itself is conscious in virtue of the state representing itself to represent itself.}\textsuperscript{110}\]

It is in order to circumvent the nonviability of direct self-representation that Kriegel proposes his theory of indirect self-representation (outlined above). But if direct representational content is inherently incapable of producing a reflexive cognitive gesture, as Kriegel concedes, then an indirect, merely implicit


representation of the whole state cannot possibly be said to constitute a “phenomenologically manifest” state of self-awareness. This is the conclusion of analysts, and Kriegel himself concedes that indirect (implicit) representation does not become consciously explicit. Indirect self-representation, then, does not constitute a viable mechanism for the generation of reflexive self-awareness.

**Reflexivity Derives From a Reflexive Processing Regime**

*(not Self-Referential Data Structures)*

It is becoming increasingly apparent that current attempts to explain the cognitive mechanism of reflexivity, both higher-order representation theories and intrinsic or self-representational theories, may well have reached an impasse, for lack of a viable mechanism, which is the critical enabling factor as

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113 Kriegel’s admission (2009:230) that indirect (implicit) representation of the whole cognitive state is not phenomenally explicit (i.e. not conscious) is similar to an earlier admission (2005:50) that his cross-order integration construct does not achieve self-representational consciousness. He wrote: “the cross-order information integration approach offers, in fact, a representationalist account of subjective character but one which does not appeal to self-representation. Instead, it suggests a way in which mental states that are not self-representing could have the sort of representational content that self-representing states would have. . . . It would be overly presumptuous to conclude from these remarks that cross-order information integration must be the key to the subjective character of conscious experience.”
Gennaro rightly suggests. And this for two reasons, both of which derive from the almost universal reliance on intentional data structures of one sort or another as opposed to the way data structures are processed. The first problem is that for intentional data structures, the direction of intentionality, the direction of cognitive reference in any and every representational data structure is antireflexive. Consequently, even elaborate representational contortions (Husserlian iterations, Kriegel’s implicit re-representations) do not succeed in overcoming this inherent antireflexivity of intentional representation. The second problem for current theories of reflexivity is that while intentional data structures cannot reference themselves in an actively reflexive manner, neither can they cause first-order content to become conscious simply as a consequence of their representing or being directed toward that first-order content.

But if intentional data structures can neither reference themselves reflexively nor confer reflexivity on another, first-order structure, how is reflexivity to be achieved? The solution may lie not in the data structure but in the way it is processed. Both Gennaro and Kriegel emphasize the capacity of a cognitive processing regime to create a genuinely new cognitive event. Kriegel writes “if two states are united by a psychologically real process, that

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115 Known as “the problem of the rock,” discussed above Higher-Order Theories of Reflexivity; and see Levine (2006): 22-23.
process would presumably affect the causal powers of the whole.”117 The particular mechanism they have both proposed, the integration of two data structures, is not actually associated with conscious processing—masked priming and subliminal perceptual integration both remain unconscious—and therefore integration is insufficient to the task.118 Furthermore, even if integration were equal to the task, it is unclear how much of the phenomenological workload (generating self-awareness) is being performed by the processing regime and what percentage devolves upon the fact that the secondary data structure represents the primary act of world representation.119

Clearly, not just any processing regime will generate the requisite reflexive state. But an immediately recursive processing regime which essentially monitors or cognizes itself, most certainly could underwrite a reflexive form of cognitive awareness, particularly if that recursive monitoring did not rely on a reading of content properties but rather on the registration of state properties, the chief feature of which in this case is the reflexive autonoetic quality of the processing regime. There is good evidence for both capacities in the cognitive system.

119 This is Smith’s argument (2004:104-5) for the insufficiency of Husserl’s temporal fusion of retentions, intentions and protensions into an integrated, singluar, flowing state to produce reflexive conscious awareness. It is arguable, though, that integration plays such as significant role in Husserl’s construct as to include it with the theories of Gennaro and Kriegel as a (somewhat) process-oriented theory.
As to the first, the viability of reflexive processing, we have discussed above the self-referential character of cognitive architecture (serving the basic requirement for self-regulatory engagement with the environment), and the fact that cognitive systems have developed an even more proactive feed-forward or anticipatory form of self-reference in the form of predictive emulation architecture. This development is significant because predictive self-referential processing provides the basis for developing the capacity for the self-referential monitoring of a process by itself simply by rationalizing existing loops that update a current state with a predicted next state, into a more immediately recursive loop that updates a current state by a virtual copy of itself (see Peters, 2010, for detailed discussion). Predictive architectures already employ a more temporally extended form of recursion (recurrent self-reference) as a way of monitoring the capacity of motor outputs to achieve desired perceptual inputs. Rationalizing this periodically self-referencing anticipative circuitry into a more immediately recursive, self-updating circuit simply repeats the original 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. The capacity of the cognitive system to register features of its processing state as well of the content of that state has received a great deal of attention, and specifically in relation to the question of consciousness. Several analysts point out that our conscious experiences do explicitly register qualitative features that are not identical to the particulars of the objects represented. These include the “inner light show” one experiences when one presses a finger against the eyeball, the continuous explicit awareness of the distinction between current auditory and visual streams of sensation, as well as non-representational 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. In addition, there is the direct awareness of a distinction between memories recalled to mind as against ongoing perception.

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The temporal dimension also expresses the registration of state rather than content properties. 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 like a very long time. Acutely life-threatening situations can slow time seemingly 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 Pockett (2003) explains, to a difference in the duration of now. Experimental studies suggest that the subjectively experienced duration of now can vary from milliseconds,\textsuperscript{125} through hundreds of milliseconds,\textsuperscript{126} to one or two seconds.\textsuperscript{127} 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 (Pockett, 2003). 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. Taken in conjunction with the evidence, referenced above, that the conscious state does not consist in the awareness of representational content, that conscious is not qualia, we are left with the conclusion that consciousness must reflect a reading or registration of a state property, in this instance the reflexive or autonoetic character of the state engineered by recursive processing circuitry.

Conclusion

The theory outlined above can be distinguished from existing higher-order and self-representational theories in terms of the allocation of phenomenal labour. Where previous theories of consciousness as reflexivity rely wholly or in large measure on the self-referential intentionality of data structures\textsuperscript{129}, the theory advanced here relies exclusively on the self-cognizing capacity of a recursive processing regime, that is, on the recursive manner of processing along with the fact that cognition is reading the features of that manner of processing. This could be understood as a return to the focus of earlier psychological theories which attempted to explicate consciousness as issuing from a particular kind of processing activity, as proposed by Johnson-Laird: “if consciousness depends on the computations of the nervous system, then it is likely to be a property of the algorithms that are used to carry out those computations rather than a property of their [informational] results.”\textsuperscript{130} Suggested processing mechanisms include the coordination of a central executive, attentional highlighting of informational content, internal linguistic commentary on perception, the comparison of sensory input with stored memory engrams, short term or working memory, the global broadcasting of information, the logical computation of meaningful symbols, action selection, source monitoring, and

\textsuperscript{129} Rosenthal’s higher-order thought theory (1997), for example, relies totally on the referential content of data structures to generate the requisite “awareness that,” while Gennaro (2006) and Kriegel (2007a) introduce some measure of reliance on the processing regime involved.

recurrent (but not immediately recursive) processing loops.\textsuperscript{131} Interestingly, cognitive psychologists and neuroscientists\textsuperscript{132} have also proposed mechanisms involving the embedding of a first-order data structure within a secondary representation of that first order process or state, a construct which is similar to those of Kriegel and Gennaro. Flohr envisages the process as follows:

The system would generate second-order representations of internal states. An iteration of such processes would generate higher-order, self-referential representations of the system itself and of its current state [of representing]. The system can . . . embed first-order representations in a model of itself and thereby


represent itself as an actually representing system . . . they would know ‘what it is like’ to be such a system.\textsuperscript{133}

With this in mind, the trend, in the theories of Gennaro and Kriegel, toward a greater emphasis on process over intentional representation expresses a move by philosophy of mind toward a more psychological and empirically verifiable approach to the explanation of consciousness. Certainly this is the intention of the theory outlined here, where a fully recursive processing regime generates a reflexive state.

In the pantheon of consciousness theories, this solution would best be described as a \textit{reflexive state} theory. As opposed to theories which envisage consciousness as qualia, wherein consciousness arises either as intentional representation per se (FOR theories), or as intentional representation that is object of higher order representation (HOR theories), or a self-representing element of a complex state (Intrinsic Self Representational theories), reflexive state theory characterizes consciousness as an actively self-cognizing state \textit{extrinsic} to primary informational streams. Rather than the self-representational cognitive structure being conjoined to, arising as part of, or being directed at primary informational content in some fashion, the direction of fit is reversed: conscious self-awareness is independently generated and that portion of unconscious processing which is directed to (or permitted access into) this state

\textsuperscript{133} Flohr (1995):160.
becomes incorporated\textsuperscript{134} into the reflexive state and consequently partakes of the reflexive quality of the state. But regardless of the amount or type of primary information currently incorporated, the reflexive state remains a cognitive entity distinct from that content because independently constituted as a consequence of the registration or reading of state rather than of content properties. Consequently, the principal property of a recursive processing state is reflexive or autonoetic awareness—consciousness.

\textsuperscript{134} Other incorporational models include those of Metzinger (2000), Dennett (1991), Van Gulick (2004), and Antii Revonsuo, \textit{Inner Presence: Consciousness as a Biological Phenomenon} (Cambridge MA:MIT Press, 2005). But all envisage consciousness as something other than a reflexive autonoetic state. The first two envisage information becoming conscious when incorporated into a spatiotemporal array which is somehow “conscious” in virtue of its spatiality (Revonsuo (2005):123) or its status as the highest order model (Metzinger (2000): 289-290, 299). Daniel Dennett’s 1991 “multiple drafts” theory of consciousness models the recruitment of content into an ongoing serial narrative, which for Dennett, as for Metzinger and Revonsuo, does not amount to a reflexively self-aware state, but is nominated “conscious” nonetheless. For van Gulick, individual phenomenal elements are subsumed within the larger conscious state, which, however, is conscious simply in virtue of being subjective (Van Gulick (2004):19-20, (2006):30). However, as discussed above (\textit{Reflexivity as Subjectivity}), subjectivity characterizes all cognition but is insufficient to explain reflexive conscious cognition.