

# Concepts, contents, and consciousness

Tom McClelland<sup>1</sup> and Tim Bayne<sup>1,2,\*</sup>

<sup>1</sup>Department of Philosophy, University of Manchester, Oxford Road, Manchester, M13 9PL, UK and <sup>2</sup>Rotman Institute of Philosophy, University of Western Ontario, Stevenson Hall 2150, London, Ontario, Canada N6A 5B8

\*Correspondence address. Rotman Institute of Philosophy, Stevenson Hall, University of Western Ontario, London, Ontario, Canada N6A 5B8. E-mail: [tim.bayne@gmail.com](mailto:tim.bayne@gmail.com)

## Abstract

In his paper ‘Are we ever aware of concepts? A critical question for the Global Neuronal Workspace, Integrated Information, and Attended Intermediate-Level Representation theories of consciousness’ (2015, this journal), Kemmerer defends a conservative account of consciousness, according to which concepts and thoughts do not characterize the contents of consciousness, and then uses that account to argue against both the Global Neuronal Workspace theory of consciousness and Integrated Information Theory of Consciousness, and as a point in favour of Prinz’s Attended Intermediate-level Representations theory. We argue that there are a number of respects in which the contrast between conservative and liberal conceptions of the admissible contents of consciousness is more complex than Kemmerer’s discussion suggests. We then consider Kemmerer’s case for conservatism, arguing that it lumbers liberals with commitments that they need not – and in our view should not – endorse. We also argue that Kemmerer’s attempt to use his case for conservatism against the Global Neuronal Workspace and Integrated Information theories of consciousness on the one hand, and as a point in favour of Prinz’s Attended Intermediate Representations theory on the other hand, is problematic. Finally, we consider Kemmerer’s overall strategy of using an account of the admissible contents of consciousness to evaluate theories of consciousness, and suggest that here too there are complications that Kemmerer’s discussion overlooks.

**Key words:** contents of consciousness; Global Neuronal Workspace Theory; Integrated Information Theory; Attended Intermediate-Level Representations Theory; concepts; conscious thoughts

## Introduction

When it comes to consciousness we are not lacking in grand theories. From accounts that appeal to quantum-level activity on the one hand to accounts that appeal to the functional and representational properties of personal-level mental states on the other hand, there is no shortage of proposals for what distinguishes conscious activity from unconscious activity. What we are lacking, rather, are constraints that can be used to evaluate such accounts.

In his stimulating paper, Kemmerer argues that one source of such constraints may be found by considering the kinds of contents that can figure in consciousness. Mental states have content insofar as they represent things as being some way, but consciousness is limited in the kinds of things it can represent –

only some kinds of contents are ‘consciously admissible’ (Hawley and Macpherson 2011). If we knew what kinds of contents can – or, as the case may be, cannot – figure in consciousness, then we could use that information to decide between competing accounts of consciousness. An acceptable theory of consciousness ought to be consistent with an account of the admissible contents of consciousness, and ideally it ought to explain why certain types of contents can be conscious whereas others cannot (Bayne 2009; Bayne and Montague 2011).

In short, we are sympathetic to Kemmerer’s attempt to use an account of the admissible contents of consciousness to constrain the evaluation of theories of consciousness. However, we find ourselves at odds with Kemmerer’s execution of this

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strategy. Kemmerer endorses a *conservative* account of the contents of consciousness according to which concepts and the thoughts into which they enter are never conscious, whereas we are rather more sympathetic to a *liberal* conception of the contents of consciousness, according to which concepts and thoughts are routinely conscious. Roughly speaking, conservatives take consciousness to be purely non-conceptual, whereas liberals regard the contents of consciousness as dependent on both conceptual and non-conceptual forms of representation. Suppose that we are looking at a banana in ordinary conditions. Conservatives take your visual experience to be exhausted by an awareness of the object's shape, texture, colour, and so on, whereas liberals allow that you might consciously experience it as a banana, as a fruit and perhaps even as edible.

### Liberalism versus conservatism

Like their political counterparts, the contrast between 'liberal' and 'conservative' accounts of the admissible contents of consciousness is elastic, and the labels are best thought of as picking out loose collections of views held together by relations of family resemblance rather than monolithic positions. This section identifies some of the main forms that liberalism can take, and thus reveals certain respects in which Kemmerer's discussion overlooks a number of important distinctions.

In giving an account of where to draw the line between liberalism and conservatism one must attend to three issues. Firstly, one must ask whether the account in question focuses on the role of *concepts* in consciousness or whether it focuses on the role of *thoughts* in consciousness. One kind of conservative denies only that thoughts ever figure in consciousness, whereas another (and bolder) kind of conservative denies that concepts ever figure in consciousness. (We consider below what it is for something to 'figure' in consciousness.)

This distinction is important, for there is nothing obviously incoherent in holding that concepts can figure in consciousness while denying that thoughts can. (It is, of course, incoherent to suppose that thoughts can figure in consciousness while denying that concepts can, for concepts are the constituents of thought.) Suppose – as many theorists do – that 'high-level' perception or 'seeing as' involves the deployment of concepts. Those who hold this view think that recognizing Barack Obama as Barack Obama requires the deployment of the singular concept <Barack Obama> and that recognizing a barred owl as a barred owl requires the deployment of the general concept <barred owl>. The claim that concepts can figure in perceptual content is controversial (see e.g. Byrne 2005; Fodor 2007; Woodruff-Smith 2011) and we are not here endorsing it. Our point is only that the existence of such a view indicates that we need to distinguish the debate about the conscious admissibility of *conceptual* content from the debate about the conscious admissibility of *thought* content.

The second issue that needs to be considered concerns what it means for a concept/thought to 'figure in consciousness'. Kemmerer uses different locutions to explicate this idea. In one place, he characterizes conservatives as committed to the claim that 'we are never aware of concepts *per se*' (2015: 2), in another place he characterizes the debate in terms of whether 'concepts have intrinsic qualia' (2015: 2), and in yet another place he describes conservatism as the view that 'thoughts are always hidden from awareness' (2015: 4).

Kemmerer's use of different locutions here is understandable, for there is no canonical articulation of the 'figuring in'

relation, and different theorists operate with different conceptions of it (see Bayne and Montague 2011). However, it is also problematic, for the three locutions that Kemmerer employs are not co-extensive, and it is possible that concepts/thoughts can figure in consciousness in some of these senses but not others. Furthermore, at least one of the theorists who Kemmerer regards as an arch-conservative allows that concepts *can* figure in consciousness in one of these senses:

... we can only be aware of the contents of our thoughts if they're linked with pronunciation. So if we haven't yet turned a thought into words, we're only aware at best of thinking going on, not of exactly what the thought is. (Jackendoff 2012: 90–91)

Jackendoff denies that we are ever *directly* aware of our thoughts, but he proposes that thoughts can figure in consciousness *indirectly* by being suitably encoded in sensory content such as auditory representations of pronunciation (we return to this proposal below). So either the conservative must allow that we *can* be aware of the contents of our thoughts or Jackendoff is no conservative.

The third issue that needs to be recognized here concerns the possibility of non-phenomenal forms of consciousness. [Phenomenal consciousness is notoriously hard to define, but one promising approach is to understand phenomenal consciousness as the kind of consciousness that gives rise to the so-called 'hard problem' (Bayne 2009; Kriegel 2009; Carruthers and Veillet 2011; McClelland forthcoming); non-phenomenal varieties of consciousness do not seem to present this distinctive explanatory quandary.] One kind of conservative denies that concepts/thoughts can figure in phenomenal consciousness but allows that they can figure in some other kind of consciousness (e.g. access consciousness), whereas another kind of conservative denies that concepts/thoughts figure in any kind of consciousness.

The background issue here is whether 'consciousness' and 'awareness' are labels for the same phenomenon, or whether these terms have distinct referents. Kemmerer takes these terms to be synonyms, but many theorists distinguish them, or at least distinguish phenomenal consciousness from one or more non-phenomenal forms of consciousness (a move that essentially amounts to the same thing). This distinction is often (implicitly) motivated by the desire to accommodate a sense in which concepts and thoughts are conscious, together with doubts about whether concepts/thoughts can figure in phenomenal consciousness. This motivation is clearly evident in the following passage:

There *are* propositional attitudes, and we are sometimes noninferentially conscious about our attitudinal states. But such consciousness does not *feel* like anything. A propositional attitude and consciousness about that attitude have no phenomenological properties ... There are different sorts of states we call "conscious states," and the most important sorts are not like having sensations. (Nelkin 1989: 430)

Nelkin is a conservative insofar as he denies that thoughts are phenomenally conscious, but he doesn't deny that thoughts are conscious in some sense of the term – indeed, he *insists* on this point (see also Lormand 1996).

The upshot of these considerations is that we need to distinguish various strands of conservatism. Radical conservatives claim that neither thoughts *nor* concepts figure in consciousness in *any* sense of 'figuring' or of 'consciousness'. Although Kemmerer appears to be a radical conservative most

conservatives are rather less radical; in fact, we know of no other theorist who advocates the radical form of conservatism endorsed by Kemmerer. Carruthers denies that non-sensory thoughts figure in consciousness but accepts there is a sense in which perceptual concepts do (2015); Jackendoff (2012) and Prinz (2012) both deny that concepts or thoughts directly figure in consciousness but they accept that they can indirectly figure in consciousness; and although Nelkin (1989) and Lormand (1996) deny that concepts/thoughts are ever phenomenally conscious, they take them to be conscious in some non-phenomenal sense of the term. All of these individuals are card-carrying conservatives, yet they each resist the radical conservatism that Kemmerer appears to endorse. We will use the label 'moderate conservatism' for any form of conservatism that stops short of the radical form.

In our view, moderate conservatism is *far* more plausible than its radical sibling. Indeed, we confess that we find it difficult to take radical conservatism seriously, for it seems *obvious* to us that there's a sense in which our thoughts are often conscious. How can we express our thoughts if they are always unconscious? It also seems obvious to us that we are often perceptually aware of objects and events as instantiating high-level properties (i.e. properties of the kind that concepts might be needed to represent). Suppose that you and I are both talking with Barack Obama, but only you are aware of the identity of the person with whom we're conversing. Isn't it exceedingly plausible to suppose that the concept of <Barack Obama> figures in your experience whereas it fails to figure in mine?

### Kemmerer's case for conservatism

As we read him, Kemmerer defends the conservative view by presenting three arguments against liberalism. We challenge each of these arguments before suggesting an overall diagnosis of where Kemmerer is off the mark.

#### The objection from generality

Kemmerer's first objection trades on '... the remarkable specificity of experiences and the equally remarkable generality of concepts' (2015: 4). We might put his worry in terms of the following argument:

- (1) The contents of consciousness are purely specific.
- (2) Concepts have purely general content.
- (C) So, concepts cannot figure in the contents of consciousness.

The argument is valid, so the only question is whether its premises are true. But in order to address that question, we must first ask what the premises *mean*, for it is not at all clear what the contrast between the 'specificity of consciousness' and the 'generality of concepts' amounts to. Unfortunately, Kemmerer doesn't provide an analysis of these terms, so we are left with the task of reconstructing the distinction on his behalf. We examine two ways of reading the distinction, both of which tally with certain claims Kemmerer makes. We argue that on *neither* of these readings is the argument convincing.

#### (i) Types versus tokens

The general/specific distinction can be understood as a distinction between types and tokens, where types are kinds and tokens are particular examples of that kind. For instance, goats are a type of object and your pet goat Billy is a token of that type. Similarly, hairiness is a type and Billy's hairiness is a particular token of that type. Our concept <goat> does not just refer to some particular goat like Billy, but rather refers to the type

to which all goats belong. Similarly, our concept <hairiness> is not attached to a specific instance of hairiness but rather refers to the property exemplified by all hairy things. This is what allows us to think about goats and hairiness in abstraction, without having to think about any specific goat or specific case of hairiness.

What does this mean for the prospects of concepts figuring in consciousness? Kemmerer (2015: 4) endorses Jackendoff's claim that '... everything you perceive is a particular individual ... you can't perceive categories ...'. The idea seems to be that you can only ever be conscious of the token goat (or goats) with which you are presented. You cannot, on this account, be conscious of goats in general, or of some unspecified goat, or of *goatness* in abstraction. Kemmerer goes on to make a parallel point regarding properties. In response to Dehaene's claim that we experience Da Vinci's *Mona Lisa* as a 'seductive Italian woman', Kemmerer states that '... it is extremely hard to imagine how anyone could directly experience seductiveness in some sort of general, all-encompassing sense' (2015: 5). The claim here is that we can only experience particular tokens of properties with which we are presented. On this reading, Kemmerer is arguing:

- (1<sub>i</sub>) Consciousness only ever represents tokens.
- (2<sub>i</sub>) Concepts always represent types.
- (C) So, concepts cannot figure in the contents of consciousness.

Although (1<sub>i</sub>) has some intuitive force, it is hotly contested whether consciousness really does represent particular tokens. Some theorists argue that perceptual content is general, in the sense that one's perceptual experience of a tree as green is not essentially about that specific tree or that specific instance of greenness (Davies 1992; McGinn 1997; Horgan and Tienson 2002). Our perceptual experience represents the presence of an object before us at such-and-such a distance, but arguably it does not pick out any *particular* tree as opposed to any other tree of exactly the same description. Experience represents an object as being of the green type but does not pick out this tree's greenness as opposed to some other token of the same shade of green. On this view, the contents of perception can be unattached to specific tokens in much the same way as the contents of thought. This is not to say that there is no difference between the contents of thought and those of perception, it is just to say that the distinction between representing types and representing tokens does not mark that difference.

There are, however, accounts of perceptual content that paint (1<sub>i</sub>) in a much more positive light. According to some theorists, perceptual content is singular or object-involving (Evans 1982; McDowell 1986; Martin 2002). On such views, the contents of your visual experience when looking at a goat involve the particular goat (Billy) that you are looking at. Had you been looking at an indiscriminable but numerically distinct goat (Bobby) then the contents of your visual experience would have been likewise distinct. On this view, perceptual experience is committed, as it were, to the existence of the token individual at which one is looking.

But although embracing the singular view of perception would allow Kemmerer to defend (1<sub>i</sub>), the very existence of general accounts means that Kemmerer is not entitled to take (1<sub>i</sub>) for granted. Furthermore, there are passages in Kemmerer's discussion (e.g. 2015: 4) that seems to suggest that he himself thinks of perceptual content in general rather than singular terms.

What about (2<sub>i</sub>)? Although there is certainly a use of the term 'concept' according to which concepts refer only to general

properties – properties that can, in principle at least, be instantiated by more than one object – this use of ‘concept’ is not the one that Kemmerer has in mind, for he recognizes the existence of ‘... concepts for one-of-a-kind entities, like the well-known people and places that are represented by ... ATL cells ...’ (2015: 4). We might call such concepts ‘singular concepts’ in order to distinguish them from ‘general concepts’ such as <green>, <goat>, and <gaiety>. You might, for instance, have a singular concept for your pet goat Billy. Such a concept is appropriately applied to Billy independently of how he appears to you, and is not appropriately applied to anything other than Billy. Insofar as Kemmerer recognizes the existence of singular concepts he cannot also embrace (2<sub>i</sub>).

A deeper objection to (2<sub>i</sub>) is that it misconstrues how conceptual representation works. Consider the concept <seductive>. This is a concept of a type, but when you apply this concept you place a particular token under that type. In such cases, there is a clear sense in which you are conceptually representing a token, so it is wrong to say the concepts only ever represent types. Kemmerer may well be right that when we look at the *Mona Lisa* we do not ‘... directly experience seductiveness in some sort of general, all-encompassing sense’ (2015: 5). But rather than experiencing *seductiveness itself* perhaps we simply experience the *Mona Lisa’s seductiveness*. That is, we conceptually represent a particular token of that type. If this sounds unintuitive, consider the fact that although we can never experience forms, colours, or textures in a ‘general, all-encompassing sense’, it is beyond doubt that we experience the form, colour, and texture of the *Mona Lisa*. Overall, neither premise of this formulation of the argument is convincing.

#### (ii) Coarse-grained versus fine-grained properties

The second way of reading the specific/general distinction is as a distinction between coarse-grained and fine-grained properties. Consider a door painted in a specific shade of red (see Kemmerer 2015: 7). This door has the property of being coloured: more specifically, it has the property of being red; more specifically still, of being crimson; yet more specifically, of being a very particular shade of crimson for which we have no word (let us call it ‘crimson<sub>237</sub>'). Properties like being crimson<sub>237</sub> are extremely fine-grained properties whereas properties like being coloured, being red, and being scarlet are more coarse-grained. On this reading, Kemmerer’s argument is:

- (1<sub>ii</sub>) We are only ever conscious of fine-grained properties.
- (2<sub>ii</sub>) Conceptual content is always coarse-grained.
- (C) So we are never conscious of concepts.

Both premises have some plausibility. Kemmerer remarks that ‘[p]erhaps the most salient property of conscious states is their extraordinary degree of differentiation’ (2015: 4). Concepts, by contrast, ‘abstract away from all this diversity’ yielding more ‘wide-ranging, similarity based categories’ (2015: 4). One can think about a door being red without having to attribute to it any specific shade of red. Yet whenever one *experiences* the colour of a door one seems to experience it as having some ‘precise shade of red’ (2015: 7). Similarly when one thinks of a triangle ‘it must have three sides but need not have any particular size or shape’ yet whenever we experience a triangle it appears to have some specific size and shape (2015: 7). But despite its intuitive appeal, this version of Kemmerer’s argument does not withstand scrutiny.

Regarding (1<sub>ii</sub>), there are some plausible counter-examples to the claim that we are only ever conscious of extremely fine-

grained properties. The wealth of data surrounding ‘gist’ perception provides a case for thinking that coarse-grained properties are consciously represented. For example, there is evidence that we perceptually encode: the trustworthiness of a face (Todorov et al. 2008); the average mood of a crowd (Haberman and Whitney 2011); whether an object is an animal or a vehicle (Li et al. 2002); and whether the perceived environment is a forest, a beach, or an urban scene (Greene and Oliva 2009). In a similar vein, Sperling’s (1960) research into the perceptual representation of briefly presented stimuli is sometimes taken to suggest that conscious states with *only* coarse-grained content are possible. For example, Grush (2007) claims that when we are briefly presented with an array of letters, we represent them as letters without representing either the specific kinds of letters that they are or their fine-grained shape [though see Block (2007) for objections to this interpretation]. We don’t take these findings to demonstrate that coarse-grained properties are consciously represented, but we do think that they undermine any entitlement we might have for assuming that consciousness is limited to fine-grained properties.

Regarding (2<sub>ii</sub>), although it is clear that many of our concepts are coarse-grained, we are also capable of forming any number of fine-grained concepts. For example, colour scientists and paint manufacturers can presumably form concepts corresponding to the most specific hues that human beings are able to discriminate, such as <crimson<sub>237</sub>>. Indeed, given the appropriate theoretical scaffolding, one can presumably form concepts referring to *any* perceptually given property. Of course, these concepts cannot be applied to perceptual input in the way that coarse-grained concepts can be, the colour scientist will be able to apply the concept <red> directly and non-inferentially whereas she will not be able to apply the concept <crimson<sub>237</sub>> in that same way, for <red> is a recognitional concept whereas <crimson<sub>237</sub>> is not.

In light of this objection, Kemmerer might try a modified argument:

- (1<sub>iii</sub>) We are only ever conscious of fine-grained properties.
- (2<sub>iii</sub>\*) Only coarse-grained concepts can be applied directly and non-inferentially.
- (C) So we are never conscious of concepts.

The problem with this version of the argument is that it comes very close to begging the question against the liberal. We can grant that <crimson<sub>237</sub>> cannot be applied to objects directly and non-inferentially, but what about <crimson> itself? Isn’t this the kind of concept that *can* be directly and non-inferentially applied to objects? Could it not be the kind of property that enters into the contents of consciousness? We see little prospect here of a persuasive objection to liberalism.

#### The objection from brain damage

Kemmerer’s second objection to liberalism concerns the impact of certain kinds of brain damage on conscious experience. He writes:

... it has been repeatedly shown that dysfunction of the ATLs due to stroke, surgical resection, gradual deterioration or congenital disease impairs the ability to recognize famous people like Bill Clinton or Jennifer Aniston, but does not impair the ability to consciously see their faces. ... This dissociation greatly strengthens the argument that whenever we see a familiar person, the relevant concept cells in the ATLs play an essential role in allowing us to identify them, but do not contribute directly to our conscious experience. (2015: 4)



We are rather puzzled by this argument, for the impairment that Kemmerer describes – prosopagnosia – seems to be clearly an impairment of consciousness; indeed, it is surely an impairment of *visual* experience. Individuals suffering from prosopagnosia can consciously recognize people on the basis of the sound of their voice or the way that they walk, but they do not recognize them visually. Of course, prosopagnosics can still consciously *see* the faces of the people that they cannot recognize, but that's no objection to liberalism, for the liberal need not hold that high-level content is *essential* to visual experience. If the structure of Kemmerer's argument were sound it would also show that representations of colour or motion cannot be part of the contents of visual experience, for individuals who have suffered damage to ventral occipital cortex or posterior visual cortex still consciously see objects despite the fact that they no longer experience their colour or motion. But this conclusion is obviously false, thus Kemmerer's argument too must be unsound.

### The objection from viewer-invariance

Kemmerer's third objection to liberalism is that it allows for viewer-invariant representations, whereas:

... neither visual awareness nor any other form of awareness contains viewer-invariant representations; on the contrary, possessing a first-person perspective – one that, for sighted people, is typically anchored behind the eyes – is often taken to be a fundamental requirement of bodily self-consciousness. (2015: 10)

Here, Kemmerer is echoing an argument for conservatism previously made by Prinz (2011). In our view, it is doubly flawed.

Firstly, it seems evident that there *are* conscious viewpoint-invariant representations. Consider the proposition <Paris is north of New York City>. One can consciously entertain this proposition without having any viewpoint on the state of affairs that it represents. It might be argued that this proposition cannot be entertained in phenomenal consciousness, but one would need an argument for such a claim. Kemmerer's concern is not with entertaining propositions but with the question of whether *perceptual* experience includes viewer-invariant representations, but in order to count as an objection to liberalism the argument needs to rule out the possibility of any kind of viewer-invariant content, and even if Kemmerer is right that perceptual representations are never viewpoint-invariant, this hardly constitutes a reason to doubt that other kinds of conscious representation might have viewpoint-invariant content. Of course, Kemmerer might flatly deny the existence of non-perceptual conscious episodes such as entertaining a proposition but this would be to assume the very position that the argument is meant to motivate.

But what about perceptual experience – is it viewpoint invariant? Distinguish the question of whether perceptual experience is *purely* viewpoint invariant from the question of whether it can *contain* viewpoint-invariant content. Following Prinz (2011), Kemmerer seems to think that the liberal is committed to the claim that it is possible to see (or indeed visually imagine) a chair 'from no vantage point'. But there is no more reason to saddle the liberal with this commitment than there is to saddle the conservative with the claim that low-level sensory properties such as colour, texture, or form can be experienced 'from no vantage point'. Just as conservatives will hold that redness can be perceptually experienced only in the context of an egocentrically anchored representation, so too the liberal might – and in our view probably should – hold that chairness can be

perceptually experienced only in the context of a egocentrically anchored representation. To represent something as a chair is to represent it as possessing a viewpoint-invariant property, but there is reason to think that representations of this property can enter perceptual awareness only when bound to representations of the chair's viewpoint-variant properties.

### Real liberalism

In the course of assessing Kemmerer's objections to liberalism, we have suggested that he often misconstrues the liberal's position. Perhaps by setting the record straight on these issues we can show liberalism in a more favourable light.

Two misconstruals appear to play a central role in motivating Kemmerer's resistance to liberalism. First, Kemmerer seems to assume that liberals are committed to the possibility of conscious states with *exclusively* conceptual content. Although Kemmerer is in good company in making this assumption – both Prinz (2011) and Pautz (2013) also endorse it – we see no reason to saddle the liberal with any such commitment. It is one thing to hold that conscious states can have contents that are at least partly conceptual and quite another to hold that conscious states can have purely conceptual content. (Compare: 'some muffins contain blueberries' with 'some muffins are made of nothing but blueberries'.) Although *some* liberals do indeed countenance conscious states that are purely conceptual, others either reject that possibility or take no stance on this issue.

This misconstrual of liberalism is at work in all three of Kemmerer's objections. Regarding generality, Kemmerer makes the plausible claim that all conscious states have specific content, but he fails to recognize that they might simultaneously have some general content. The existence of such general content is quite consistent with the impossibility of conscious states with exclusively general content. Regarding brain damage, Kemmerer rightly notes that those suffering from prosopagnosia can still experience faces, but he fails to recognize that neurotypical subjects might enjoy conscious states that represent faces both non-conceptually and conceptually. The existence of such conceptual content is quite consistent with the impossibility of consciously representing a face as Jennifer Aniston without representing it as having any particular shape, colour, or texture. Regarding viewer-invariance, Kemmerer makes the plausible claim that all conscious states have viewer-dependent content, but he fails to recognize that they might simultaneously have viewer-invariant content. The existence of such viewer-invariant content is quite consistent with the impossibility of conscious states that involve no point of view at all.

Second, Kemmerer sometimes talks as though liberals must assume that conscious states are essentially imagistic. He argues against the possibility of experiencing triangularity on the grounds that 'no image could capture the conceptually vital fact that ... a triangle must have three sides but need not have any particular shape or size' (2015: 7). Similarly, he argues against the possibility of consciously thinking that something is 'taller than Tom' on the grounds that no mental image of Tom and the object '... would be able to indicate, in a purely visual, non-symbolic fashion, that what's really important is the relative height of the two objects' (2015: 5).

Kemmerer may well be right about the limitations of imagistic representation here but he is wrong to saddle liberals with the assumption that all conscious content is imagistic. We know of no liberal who holds an imagistic view of thought, nor

do we know of any reason to think that liberals ought to hold such a view. When liberals claim that we can be conscious of triangularity, or that we can consciously entertain the proposition that no object is taller than Tom, they are positing the existence of non-imagistic experiences.

### Three Theories of Consciousness

In the previous section, we argued that Kemmerer's objections to liberalism are unpersuasive. Here we put those issues to one side in order to examine Kemmerer's claims concerning the implications of conservatism for the assessment of three influential theories of consciousness. But before we consider the details of these accounts, we want first to draw attention to the distinction between a theory of consciousness as-it-is-formulated-by-its-leading-advocates and the essential core of the theory itself. There is a difference between (say) a global neuronal workspace theorist making some claim about consciousness and that claim actually being entailed by the essential core of that theory, and even where an advocate of a theory takes some claim to be entailed by the essential core of that theory, we don't necessarily have to agree with them. This distinction is important, for the leading advocates of a certain theory of consciousness might be committed to a particular account of the admissible contents of consciousness without that account being entailed by the relevant theory. It is one thing for the leading advocates of the Global Neuronal Workspace Theory (GNWT) (for example) to assume liberalism and quite another for GNWT itself to be essentially liberal. The central question, of course, concerns the essential commitments of a theory of consciousness.

#### Global Neuronal Workspace Theory

We begin with the GNWT of consciousness (Baars 1989; Dehaene and Naccache 2001; Dehaene and Changeux 2011). We take the GNWT to consist in the claim that representations are conscious when and only when they occur within the global neuronal workspace – an information integrating and broadcasting network that is implemented by brain circuits that are predominantly located in the prefrontal and parietal lobes. The critical questions here are:

- a. Do thoughts/concepts enter the global workspace?
- b. If thoughts/concepts enter the global workspace, do they thereby figure in phenomenal consciousness?
- c. If thoughts/concepts in the global workspace figure in phenomenal consciousness, do they do so directly or indirectly?

Regarding (a), it is very plausible that thoughts and concepts do indeed enter the global workspace. As discussed, we evidently have access to at least some of our occurrent thoughts and perceptual conceptual classifications. The contents to which we have access are precisely those contents that have entered the global workspace, thus concepts must enter the global workspace. This tallies with the passages from Dehaene's work cited by Kemmerer. Dehaene clearly countenances conscious thoughts, and his description of the perceptual experience of looking at Da Vinci's *Mona Lisa* (2014: 177–179) suggests that he takes concepts to also feature in perception.

There are, however, theorists who deny that thoughts can enter the global workspace, such as Peter Carruthers. Carruthers (2015) argues that global broadcasting is achieved by attention, and that because attention can be directed only at midlevel sensory areas, nonsensory thoughts cannot enter the

global workspace. Carruthers does not exclude *all* conceptual content from the global workspace – he holds that concepts can be globally broadcast insofar as they are suitably bound to sensory contents in the form of high-level perception or sensorily embedded thoughts – but he certainly denies that nonsensory thoughts are ever conscious. Although Carruthers' treatment of conscious thought is highly counter-intuitive (as he himself acknowledges), its tenability indicates that it is an open question whether GNWT does indeed entail a liberal view of consciousness.

What about (b)? Is the GNWT intended as a theory of *phenomenal* consciousness, or is its target *access* consciousness? Taking GNWT to be a theory of only access consciousness would still render it incompatible with a radical form of conservatism that denies we are conscious of concepts in any sense, but it would be quite compatible with more moderate forms of conservatism that preclude only concepts from directly figuring in phenomenal consciousness.

It is not entirely clear whether Dehaene advances GNWT as a theory of phenomenal consciousness. On the one hand, he emphasizes that GNWT is an account of conscious access, and refrains from using the terms 'phenomenal consciousness', 'qualia', and the like. At the same time, Dehaene does claim that the '... global availability of information is precisely what we subjectively experience as a conscious state' (2014: 4), and talk of 'subjective experience' certainly suggests that he has phenomenal consciousness in mind. Dehaene's worry may not be with the notion of phenomenal consciousness as such but with 'the notion of a phenomenal consciousness that is distinct from conscious access', a notion that he describes as 'highly misleading' (2014: 10).

It is, of course, controversial whether Dehaene is right to assume that phenomenal consciousness necessarily involves conscious access, for there are those who argue that we should take seriously the possibility that we have phenomenal states to which we lack 'conscious access' (e.g. Block 2007, 2011). But the more relevant issue here is not whether phenomenal consciousness entails conscious access but whether conscious access entails phenomenal consciousness. Kemmerer himself expresses doubts about the possibility of access consciousness and phenomenal consciousness coming apart (2015: 5), but many of his fellow-conservatives assume that content can be access conscious without being phenomenally conscious. We conclude that the answer to (b) should be left open for now: it is not clear whether all advocates of GNWT take it to be a theory of phenomenal consciousness, and it is even less clear that doing so ought to be regarded as an *essential* feature of the account. (That said, there is little substance to the GNWT if it is merely regarded as a theory of *access* consciousness, for it's almost tautological to claim that access conscious information must be contained within a global workspace. Arguably the empirical content of the GNWT when understood as a theory of access consciousness is largely limited to its neuronal components.)

What about (c)? According to the indirect view, thoughts are conscious in virtue of the fact that they are carried by/embedded in some sensory state, such that the thought and the sensory state form some kind of composite. Prinz, for example, suggests we should '... allow conscious concepts and thoughts as long as they are encoded in sensory vehicles and have no qualities above and beyond their sensory qualities.' (2011: 177). On this view, consciously thinking that Bert is taller than Ernie might involve some kind of visual image of seeing Bert as taller than Ernie, or perhaps it might involve an inner utterance with

the meaning ‘Bert is taller than Ernie’ (Prinz 2011). Here, thoughts would indeed occur within a global workspace, but they would not have any *intrinsic phenomenology*. Instead, they would enter consciousness in virtue of the fact that they are ‘clothed in’ or ‘carried by’ sensory qualities. This view is neatly captured in the passage from Jackendoff discussed earlier and is endorsed by many conservatives.

But is GNWT consistent with this account of how concepts figure in phenomenal consciousness? We suggest that GNWT does not complement the indirect view. Putting aside worries about question (a), it’s plausible that concepts enter the global workspace. And if we interpret the GNWT as an account of phenomenal consciousness, then it predicts that all contents in the global workspace will be phenomenally conscious. Since concepts can figure in phenomenal consciousness directly, there’s no need for them to be ‘carried’ by sensory content.

Again though, this natural reading of GNWT is not beyond reproach. Carruthers claims that ‘[c]oncepts can be constitutive components of globally broadcast perceptual states while making only a causal contribution to the phenomenal properties of those states’ (2015: 73). On this view, both sensory content and (certain kinds of) conceptual content enter the global workspace, but only sensory content becomes phenomenal. Conceptual content can show up in our phenomenology, but only by indirectly influencing the sensory content of our experience.

As before, Carruthers’ position is not one we would endorse. As far as we can tell, he has no explanation for why sensory content figures in phenomenal consciousness directly while conceptual content does not. Indeed, his position seems to be driven by a prior commitment to conservatism rather than by any theoretical considerations. It is worth noting though that here we find yet another obstacle to Kemmerer’s conclusion that GNWT is committed to liberalism, albeit an obstacle we suspect can be overcome.

In summary, the question of whether GNWT is committed to liberalism is significantly more complex than Kemmerer’s discussion might lead one to think. GNWT is hard to square with a radical conservatism, but the considerations raised show that more needs to be done to rule out the possibility of GNWT being consistent with a moderate conservatism. Specifically, one would have to address doubts about: (a) whether non-sensory thoughts can enter the global workspace; (b) whether GNWT entails that concepts/thoughts entering the global workspace thereby figure in phenomenal consciousness; and (c) whether GNWT entails that concepts/thoughts that figure in phenomenal consciousness do so directly.

### Integrated Information Theory

Kemmerer suggests that Integrated Information Theory (IIT) entails a ‘... strong endorsement of the liberal view that concepts are conscious when activated’ (p. 7). Some of the questions raised by this assessment are easily addressed. We noted that it is something of an open question whether Dehaene’s concern is with phenomenal consciousness, but there is no parallel question here, for Tononi is explicitly concerned with phenomenology (e.g. 2012: 317): ‘what it’s like’ for a subject (e.g. 2012: 306); qualia (e.g. 2012: 298); and experience (e.g. 2012: 295). Furthermore, this is clearly integral to IIT and not a quirk of Tononi’s exposition. IIT is specifically constructed to address phenomenological data (see especially Tononi 2012: 296–298) and is not plausibly restricted to access consciousness.

So IIT is clearly intended as an account of phenomenal consciousness, but what conception of phenomenal consciousness does it bring with it? Is it committed to liberalism? To conservatism? Or can it be developed in either conservative or liberal directions?

Tononi himself seems to be committed to a liberal conception of consciousness, for there are a number of passages in his work in which he refers to concepts being conscious. However, as Kemmerer points out (2015: 6), Tononi uses the term ‘concept’ idiosyncratically: according to Tononi, any element of the contents of consciousness is a ‘concept’. That said, it is clear that at least some of the so-called ‘concepts’ that Tononi and his co-authors take to figure in consciousness are genuinely conceptual. For example, Tononi and Koch (2015: 9) claim that we consciously represent the property of ‘being Jennifer Aniston’, and Tononi (2012: 302) claims that we consciously represent objects as *tables*. Tononi also talks about invariant properties (2012: 318) and the meaning of linguistic utterances (2015) figuring in the contents of consciousness. In all these cases, it is natural to assume that mental representation of such properties would be conceptual. Of course, these textual observations only tell us that the *advocates* of IIT endorse liberalism. Our real concern should be with whether this is an essential commitment of the theory itself.

Although the issue is ultimately an empirical one, we suspect that IIT is likely to end up being committed to liberalism. For IIT, the key marker of consciousness is the extent to which information in a system is integrated, which is understood as the extent to which information generated by the whole system is irreducible to information generated by its sub-systems (Tononi 2012: 297). The ‘phi’ measure is designed to capture the degree to which ‘... the cause–effect structure specified by a system’s mechanisms changes if the system is partitioned along its minimum partition ...’ (Tononi and Koch 2015: 8). There is nothing to suggest that only sensory states can have a degree of phi greater than 0, and indeed it seems highly likely that conceptual structures will display relatively high degrees of phi. In addition to informational integration IIT also places other constraints on consciousness – for example, it requires conscious systems to have a differentiated cause–effect repertoire (Tononi and Koch 2015: 7) – but as far as we can tell none of these additional constraints rules out the possibility of concepts entering consciousness.

If concepts/thoughts do display informational integration, might IIT make the moderate conservative prediction that they only figure in phenomenal consciousness indirectly? This doesn’t seem likely, for as best we can tell there is nothing in the constraints that IIT places on consciousness to indicate that all phenomenal content must be carried by sensory content. So assuming conceptual information does indeed satisfy these conditions, IIT would be committed to the liberal conclusion that concepts figure in phenomenal consciousness directly.

### Attended Intermediate Representation Theory

Kemmerer argues that ‘... because the AIRT adopts the conservative view that concepts never reach awareness, it may have a significant advantage over both the GNWT and the IIT’ (2015: 8). The claim that Prinz and his theory are committed to conservatism is indisputable for there is no question of where Prinz stands on the admissibility debate: he is an explicit and vocal supporter of conservatism. Nor is there any question about whether conservatism follows from his account of



consciousness: Attended Intermediate Representation Theory (AIRT) is essentially conservative because the 'I' in 'AIRT' stands for the claim that only intermediate-level representations – that is, non-conceptual viewpoint-dependent sensory representations – can figure in the contents of (phenomenal) consciousness.

Kemmerer is right that AIRT is a conservative theory of consciousness, but does this provide an argument in its favour? We think not, *even if conservatism turns out to be true*. The central problem here is that AIRT entails conservatism only by stipulation. The key theoretical claim behind AIRT is that '[a]ttention ... is necessary and sufficient for consciousness' (2012: 89). The truth of conservatism would provide a good argument for AIRT if conservatism followed from the claim that attention is necessary and sufficient for consciousness, for in that case AIRT would explain why conservatism was true, and the 'I' in AIRT would be redundant. But as far as we can see conservatism wouldn't follow from the claim that attention was necessary and sufficient for consciousness, for it is plausible that states other than intermediate-level representations can be modulated by attention. Hence AIRT entails conservatism only because conservatism is explicitly stipulated by it.

In case this point remains obscure, consider a version of GNWT which includes the stipulation that only intermediate-level representations can enter the global workspace. This version of the global workspace theory would be explicitly conservative, but it would be preposterous to say that it would be supported by the truth of conservatism. The fundamental point here is that an account of the admissible contents of consciousness provides a reason to favour a theory of consciousness only if that theory explains why the contents of consciousness are constrained in the ways that they are. AIRT's claim that only states modulated by attention are conscious does not provide such an explanation, for that view is consistent with concepts and indeed thoughts figuring in the contents of consciousness.

### Concluding comments: Modus Tollens or Modus Ponens?

We bring our discussion to a close by considering an issue that frames Kemmerer's paper as a whole: how can we use an account of the admissible contents of consciousness to guide the evaluation of theories of consciousness?

In using his defence of conservatism as a reason to reject both the GNWT and IIT accounts of consciousness Kemmerer argues as follows:

1. Concepts/thoughts cannot figure in the contents of consciousness.
2. If GNWT/IIT were true then concepts/thoughts would be able to figure in the contents of consciousness.
3. So both GNWT and IIT are false.

This argument is valid but it is not dialectically compelling, for the case in favour of conservatism is far from conclusive – indeed, it is highly controversial. In light of this, advocates of the theories of consciousness that the argument targets might attempt to turn the argument on its head and argue as follows:

1. GNWT/IIT is true.
2. If GNWT/IIT is true then conservatism is false.
3. So, conservatism is false.

Thus, even if Kemmerer is right that both GNWT and IIT are committed to liberalism, this needn't compel advocates of those theories to abandon their views, but can instead be

regarded as a reason for them to advocate liberalism. In the jargon of philosophy, the advocates of these views would be within their rights to 'modus ponens' Kemmerer's modus tollens.

The fundamental point that emerges from the foregoing is that one's account of the admissible contents of consciousness must be consistent with one's theory of consciousness. Arguably, the method to be adopted here is that of *reflective equilibrium*: rather than privileging one set of claims over another, we should instead attempt to bring the most plausible account of what makes a mental state conscious into alignment with the most plausible account of what kinds of mental states can be conscious. Of course, theorists will have their own views as to what the most plausible views on the table here are (and thus reflective equilibrium may not lead to consensus), but all theorists should recognize that accounts of consciousness and accounts of the admissible contents of consciousness should not be considered in isolation from each other.

Although we have disagreed with Kemmerer on many points, we are in deep agreement with his claim that the question of whether concepts and thoughts ever reach awareness is an important one for the science of consciousness, and one that the science of consciousness ignores at its peril. In this regard, we hope that his paper receives the widespread attention that it deserves.

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