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Consciousness, Semiosis, and the Unbinding Problem

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Abstract

Any wider discussion of semiosis must address not only how semiosis came about, in terms of evolutionary pressures and requisite cognitive infrastructure, but also – as importantly, and too easily forgotten – how human beings experience and have experienced it, and how that experience reflects (at the same time shaping) its development. Much discussion has focused on resolving how inputs from external sensory modalities combine with internal brain processes to produce unified consciousness: the so-called *binding problem*. One might wish to distinguish between the coming together of conscious experience in terms of underlying mechanics and the seemingly unavoidable reality that human beings experience a consciousness that is, from the onset, phenomenally unified. The *unbinding problem* is shown to be potentially just as important to telling the story.

Keywords: binding problem, experience, semiosis, semiotic resources, multimodality, language origins.

1. Introduction

You are, let us suppose, studying a landscape painting hung on a museum wall; while so doing you are absentmindedly playing with a pen, exploring its shape with your fingers, and over to your right you can hear a murmured conversation. The painting, as it features in your consciousness, is a complex of many parts all of which are unified in a distinctive way: you see the depicted tree-covered mountains, the bubbling brook, the frame and surrounding wall. The same applies to your experiences of the pen and the conversation: these too are unified complexes – albeit in different sensory modalities [1, p. 209].

My focus in this paper is semiosis, which I take to be a necessary step on the road to language. For these purposes, semiosis should be understood as an intermediate level between the most basic forms of structured communication,

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found across a range of species,¹ and human-style language in all its syntactic and semantic richness². In particular, my focus is on three things I see as critical to understanding both semiosis’ origins and development in the species: the cognitive preconditions for its appearance, which I take to include phenomenal conscious experience; the nature of that conscious experience: in particular, its phenomenal unity, and how that unity should be approached; and, finally, the nature of the accounts one is obligated to tell, when direct observations are necessarily lacking. Without these things in hand one will not understand the origins and development of semiosis; and without that understanding, one will not understand the origins and development of language. One will be left trying to interpret a jigsaw puzzle with key pieces missing.

The hallmark of semiosis is the capacity to employ at least semi-arbitrary signs for communicative purposes with conscious awareness of the distinction between expression and content [5, p. 1], [6]. When we engage in semiosis, we do so not just through the signs that we choose but through our bodies, and not just through our bodies but through all the other *semiotic resources* we can bring to bear – where “semiotic resources” are simply any features of ourselves or our physical or social environments that we can, on the fly, incorporate into the sign function. This makes them intrinsically multimodal (and at the same time, of course, amodal, in that they are independent of any particular modality). The spirit is precisely the same as the one in which *extended mind hypothesis* [7, 8] talks about incorporating various aspects of ourselves and our environment into our cognition on the fly: thoughts, notebooks, feelings, calculators; what matters is not where the resources are located – “in” us or “in” the world – but what role they play. Indeed, the relation to *extended mind* will prove important in other ways.

The hallmark of consciousness – as of conceptual agency [9]³ – is the capacity for flexible, “reasoned” response to one’s environment. Though many attempts have been made to define consciousness, I will follow Joe Levine’s [11] and Susan Blackmore’s [12] lead in taking as a starting point the notion of “what it’s like to be a . . .” [13]. That is, for certain cognitive agents, there is not just cognition but *experience*, including not just sensory experience but (not necessarily in any

¹What Merlin Donald [2] sees as dependent on *episodic* memory: that is, the capacity not just to categorize objects and happenings in one’s environment but to structure them into coherent episodes; see also [3, pp.79-80].

²For a good introduction to semiosis in an evolutionary context, see [4].

³...Where conceptual agency is understood as the capacity to cognize in a systematically and productively structured fashion, as reflected in behaviour. For reasons discussed at some length in that paper and reflected below, I am inclined to see consciousness and conceptual agency as two sides of one coin, observing that, where people are inclined to attribute the one, they are generally if not almost invariably inclined to attribute the other; and where they withhold the one, they withhold the other. Such an assumption I take to be implicit in all but the most strongly reductive if not eliminative theories of consciousness – an assumption that, I think, if one is indeed making, one would be well advised to make explicit. As I argue at length in [10], concepts and experience are locked in a circular causal relationship whereby experience gives rise to concepts, which in turn structure experience, such that it is impossible for the conceptual agent to say how or where the circle begins.

way explicit⁴) experience of cognition. This is to say that phenomenality is, in one degree or another, an aspect of *all* mental states that are appropriately deemed conscious states – in direct opposition to the familiar access vs. phenomenal consciousness distinction [14], whereby the two phenomena are meant to be mutually dissociable.

This implies that I intend “consciousness” and “conscious experience” to be more or less interchangeable. I will use “consciousness” where my focus is on consciousness in all its aspects and “conscious experience” when my focus is particularly on its experiential aspects. The central claim of this paper is that, just as understanding the origins of semiosis is necessary to understanding language origins (a point I will not attempt to argue for), understanding the conscious experience of semiosis as a simultaneously multimodal/amodal activity is necessary for understanding its origins and nature; and *that* in turn depends on a correct understanding of the *phenomenal unity* of conscious experience that Barry Dainton describes in the opening quote.

1.1. *Phenomenal unity*

The phenomenal unity of conscious experience is often taken to be one of the defining characteristics of consciousness (see e.g. [15]) along with wakeful awareness, directed attention, categorization, information processing, aboutness – the way that, on many accounts at least, consciousness is always consciousness *of* – etc (*cf.* [16]). Conscious experience is not a jumbled set of disparate and disconnected pieces; it is – under ordinary circumstances at least – always and only a coherent whole, as Dainton explains. On the one hand, such phenomenal unity may seem so basic as to appear, to some, to be something one just is conceptually obligated to assume: that is, it is something to use for building explanations rather than something itself to be explained. On the other, a number of researchers – notably Dainton [1] – have made earnest efforts to provide an explanation for it.

The phenomenality and concomitant phenomenal unity of conscious experience are important to the onto- and phylogenetic development of semiosis in at least three ways:

- **Phenomenal primacy:** On certain accounts, phenomenal experience must come first, semiosis later. This is strongly implied by Jordan Zlatev’s [17, 18] *semiotic hierarchy* of nested dependencies where language presupposes semiosis presupposes culture presupposes consciousness presupposes life: each more basic level preceding and making possible the ones that follow. This is in contrast to the surprisingly common view – expressed, perhaps, most bluntly by Zoltan Torey [19] but also attributed to Daniel Dennett [20, 21] – that language is prerequisite for having consciousness.⁵

⁴As would require reflective self consciousness.

⁵Torey writes [19, p. 123], “It was language that brought insight and thought and upgraded the primate’s behavior. To suggest that insight and thought as we know it evolved

Such an approach clearly seems to favour an innate universal grammar arrived at (directly or accidentally) through evolution; otherwise, how would language appear, without consciousness to guide it?

- **Varieties of phenomenality:** Phenomenality would appear to come in degrees, not all of which may be available to all conscious agents, not all of which may be or likely are sufficient for the development of semiosis. Most importantly there is the phenomenologists’ distinction, articulated well by Shaun Gallagher [22], between pre-reflective and reflective (self) consciousness: i.e., between “bare” conscious awareness and conscious awareness of conscious awareness. This mirrors the observation that, although consciousness is attributed to a wide range of species [13], explicit self recognition – as implied, for many, by Gordon Gallup’s [23, 24] version of the mirror test and its variations [25, 26, 27] – has been found in only a few. The species that “pass” the mirror test are, probably not coincidentally, among those with the most sophisticated social structures, cognitive capacities, and communications systems that come closest to resembling human semiosis.
- **Phenomenality and self-reflection:** It follows that, at least for certain semiotic agents, it will be important to consider not just their possession and use of semiotic resources but their *active* experience of those resources: i.e., their introspective consideration of their pre-reflective experience of those resources. How would they describe themselves as semiotic agents to themselves and others?

1.2. “Just so” stories

A “just so” story I will take to be any attempt to fill, with plausible content, gaps in a scientific account where direct and unambiguous empirical evidence is lacking, often because the requisite evidence is located deep in the past. “Just so” stories can be hard to distinguish from attempts to overcome the same difficulties by logical fiat: i.e., to claim that a certain chain of events must logically have been the case, because any alternatives are either lacking or incoherent – as when some would claim, according to Stephen Pinker and Paul Bloom’s [28] reading at least, that human language *could not possibly* be a product of natural selection. The problem, as those authors go on to argue, is that such a conclusion only is logically mandated given certain potentially dubious assumptions about the nature of both Darwinian evolution and language. So while such researchers as Noam Chomsky (see e.g. [29]) and Stephen Gould [30] (see also [31]) might like one to believe that language is *not* selected for, Pinker and Bloom would like one to believe that it is, while all four researchers take it as an essentially biological (as opposed to, say, primarily cultural) phenomenon – with no principled way, for the moment at least, to decide in any conclusive way which approach is

independently in the primate, and that language came along to give it expression, puts the cart before the horse.”

correct or even (as I suggest in Section 3.3) whether there is one and only one “correct” account, not least because no one was around to watch the original appearance of language as it occurred. Yet all these researchers strenuously deny telling “just so” stories. Indeed, [31] is a direct response to and attempt to refute Chomsky’s and Gould’s claims that adaptationist accounts of language origins amount to “just so” stories. The moral I wish to take is that while such empirical evidence as is available does, indeed, mitigate the difficulties, it cannot remove them entirely.

In similar spirit, Thomas Polger [32] exemplifies a familiar view in disparaging the use of “just so” stories for explanations of the origins and evolution of consciousness, in favour of using only “hard” empirical evidence. He would, one suspects, be just as disparaging toward the use of such stories in explanations of the origin and evolution of semiosis. At the same time, unless one is prepared to bite the bullet and simply claim as absolute principle that, in all cases and everywhere, semiotic ontogeny recapitulates semiotic phylogeny – something that, when it comes to language acquisition, Pinker and Bloom argue strongly against – one faces the problem of how to gather the evidence. On this point, Polger offers little in the way of clues. Even so far as one *can* take ontogeny as a guide, one has the problem that the adult observer’s view of developing faculties may and likely does not match the child’s: the two represent, it would seem, quite different perspectives, neither *a priori* more “correct” than the other. Further evidence – i.e., concerning phylogeny directly – would seem dependent either on someone inventing a time machine, or having a great deal of time and patience (likely lasting many human lifetimes) to wait for the appearance and development of these faculties in some natural or artificially created species; even then, one might rightly worry about missing the “view from the species”.

Otherwise, it might seem that “just so” stories – backed as much as possible by empirical evidence⁶ – have an essential role to play; in which case, it is important to tell the story from both points of view: the “view from without” and the “view from within”. That is, the story must tell not just how the building blocks of the relevant faculties are assembled into their mature form in individuals and species from the viewpoint of an “objective” third-party observer but how they are experienced subjectively and intersubjectively by the agents themselves – which almost certainly will *not* be in such a building-block fashion. One might suspect that the latter experience begins more (to borrow Gilbert Ryle’s [33] classic distinction) as *knowledge how* than *knowledge that*, with increasingly sophisticated labels and schemas appearing only relatively late in the game.⁷

⁶... Which is, of course, how to guard against accusations of *post hoc* explanations, which is what I take most researchers to be reacting against when they use the expression “just so” story” disparagingly.

⁷Such experience still counts as conceptually structured on Peter Gärdenfors’ [34] *Conceptual Spaces Theory* of concepts, which my own *Unified Conceptual Space Theory* [35, 36] builds upon, provided it is systematically and productively structured. On Gärdenfors’ account, paradigmatic concepts occupy the space between *knowledge how* and *knowledge that*,

The assembly of the building blocks into unified conscious experience – synchronically (in each moment of experience) and diachronically (i.e., developmentally, over time) – is the so-called *binding problem* (Section 2). The development of progressively more sophisticated categorization schemas for visualizing and describing those processes I will call the *unbinding problem* (Section 3).

The questions raised and claims made by the *binding* and *unbinding* problems are at the level of metaphysics rather than empirical discovery: that is to say, they concern the starting assumptions that subsequently frame empirical research. The stories they help to tell about the evolution of consciousness and semiosis, like most “just so” stories, can neither be proven wrong nor right; their proof lies in their explanatory payoff: given *these* assumptions, here is what one can explain or explain differently or better. So although not themselves empirically testable, they do have serious empirical consequences (Section 4)⁸.

What kind of story am I proposing?... a dependency-based one, in the spirit of the *semiotic hierarchy*, in which:

- The appearance of life on Earth greatly precedes the appearance of consciousness, exemplified by basic behavioural flexibility as opposed to strictly stimulus/response-based behaviour;
- The appearance of conscious experience greatly precedes the appearance of higher-order consciousness of consciousness; that, in turn, precedes and makes possible the appearance of human semiosis:
 - By making possible the higher-order concept of *self-as-myself* [3, pp. 68-69] and an explicit self/other distinction (allowing the thought that *I* am communicating with *you*);
 - By making possible the deliberate use of representation: *A* standing in for *B* [37] (I am using *A* to communicate with you);
 - By greatly expanding the possibilities for *mental time travel* already discernible in some non-human primates: see e.g. [38, 39, 40] (I am using *A* to communicate with you with respect to past or potential future events).
- The appearance of semiosis precedes – perhaps greatly (here the evidence seems particularly preliminary) – the appearance of fully fledged language, as the *semiotic hierarchy* implies.

2. The *binding problem*

... The neural processes associated with seeing shape, color, and location occur in different parts of the brain’s visual centers. How

neither intrinsically one nor the other.

⁸The claim seems often implicitly assumed that science can and should consist entirely of falsifiable hypotheses in the spirit of Karl Popper. The problem with this – as I think Popper himself would acknowledge – is that science essentially *always* involves starting assumptions; otherwise, how would it bootstrap itself?

do these spatially separated neural systems cooperate to produce a unified visual experience? [1, p. 210]

If the story I outline above is vaguely right then, for a semiotic agent to be a semiotic agent, she must be consciously *aware* of being a semiotic agent, and probably consciously aware of being consciously aware of it as well. The (reflective) awareness must come first – not only that, but she must also be aware of the communicative process itself, the signs and other semiotic resources she is attempting to use (regardless of modality), the nature and likely thoughts of the other agent or agents, and the setting in which the communication occurs. These things are not – cannot – be experienced in isolation, for the agent somehow to figure out how to assemble. Nevertheless, of course, the puzzle pieces *do* get assembled: this is the *binding problem*. Just as the tree, the brook, and the mountains are experienced as unified wholes, as is the picture itself, as is the entire scene in the museum, *as is the experience of the overall experience*; so, too, for the agent engaging in semiosis. This unity is, as Dainton notes, strongest synchronically but persists to some extent diachronically as well: in the case of the semiotic agent, over the course of the entire communicative exchange and even from one communicative exchange to the next.

2.1. The binding problem *restated*

In a great many if not most semiotic exchanges, some of the essential semiotic resources will be visual, and the experiences will be substantively *visual* experiences: for the “normally” sighted agent, one sees the other agent or agents, and the other agent or agents see you. Neuroscience tells us that the requisite processing happens in a number of different brain areas – yet there seems to be no conscious awareness of this whatsoever. The *binding problem* asks:

- How do these visual experiences come together with simultaneous auditory, olfactory, gustatory, and tactile experiences?
- How do these seemingly external senses come together with the seemingly internal senses of proprioception and interoception?
- How do all these sensory experiences come together with one’s experience of one’s own conscious thoughts: one’s conscious awareness of oneself as a semiotic agent?
- Where do unconscious thoughts come in? What role do *they* play? Do they colour experience and, if so, how?

In addressing the mechanics – primarily brain mechanics – underlying the unity of consciousness, the *binding problem* has much to contribute, and cognitive neuroscience is busy working on answers. Although there remains a tendency to focus on vision to the exclusion of other sensory modalities, still, understanding of visual processing *has* come a long way from David Marr’s [41] representation- and computation-heavy approach. The problem comes when one attempts – as Dainton does – to use the *binding problem* to attempt a complete account

of that unity, including its phenomenality: the heart of David Chalmers’ [16] formulation of the *hard problem* and indeed Dainton’s own focus.

2.2. Deficiencies of a binding-problem-only based account

Such an approach is unavoidably reductionist – and, as Thomas Nagel [13] points out, one cannot simply assume a reductionist approach to be correct (any more than one can simply assume it to be incorrect): *any* account of consciousness is beholden to provide a substantive account of phenomenality. If non-reductionist accounts must answer to Dennett’s [42] charges of *Cartesian materialism* – what one has when Cartesian substance dualism of mind vs. matter itself has been rejected, but the mindset remains – then reductionist accounts must address the concern that they are oversimplifying matters that are actually quite complex.

Such an approach frames unity strictly in terms of bottom-up processes, from neural firings to *readiness potentials* (RPs) to conscious experiences, and consequently assumes a linear as opposed to – what enactivists are generally inclined toward [43, 44, 45] – circular model of causality, where effects can themselves be causes and *vice versa*. In contrast to many standard readings (see e.g. [46]) of Benjamin Libet’s [47] experiments on free will, RPs could substantially causally shape (as opposed to fully causally determining) subsequent conscious decisions and experience, even as these in turn causally help to shape subsequent RPs.⁹ Rodney Brooks [48] has ridiculed the traditional linear account from sensory inputs to motor outputs as the *SMPA model*: *sense - model - plan - act*; by contrast, *sensorimotor theory* [49, 50] sees sensory “inputs” and motor “outputs” as hopelessly causally intertwined: hence the term “sensorimotor”.

Such an approach assumes an ontological – as opposed to merely pragmatic and conceptual – distinction between *internal* experience and *external* reality, which extended mind supporters, enactivists, and sensorimotor theorists alike are inclined to see as creating an artificial (and seemingly unbridgeable: [11, 51]) divide. “Internal” and “external” apply – in the first instance, at least – to physical volumes with reasonably well-defined boundaries; and although no one among these researchers is denying that mind is physically instantiated, nevertheless, it is not, itself (unless one just assumes a reductionist approach) a physical volume. Other uses of “internal” and “external” must surely be metaphorical – and should be recognized as such. The assumption of an ontological divide is reflected in the common distinction between the five so-called *external* senses and the internal senses of interoception and proprioception (to which one might add introspection) – a distinction that enactivists would be inclined to say might best be discarded, preserved only as a useful conceptual shorthand at best¹⁰. In place of external sensory modalities and internal sensory modalities, one ends up simply with sensory (actually, sensorimotor) experience,

⁹If right, this opens the door to the plausibility of a libertarian account of free will.

¹⁰... A possibility I owe to Marek McGann (personal communication) for raising.

which may be conceptually carved up into as many modalities as present needs find useful.

Despite the evidence that Dainton [1, pp. 210-211] (provisionally) and others (often more boldly: see e.g. [52]) offer to the contrary – from mental-health diagnoses like *dissociative identity disorder*,¹¹ from split-brain patients – it is unclear whether *any* self-conscious human being experiences her consciousness as disunified¹² even though it may, indeed, appear as such to an “outside” observer. If this is so, then the unity of conscious experience may, indeed, be something that reflectively self-conscious agents are conceptually obligated to presuppose – in which case, it is not something that one ultimately can set aside, to view from the “outside”, objectively.

3. The *unbinding problem*

The unity of consciousness in no way depends upon the ego¹³; conversely, the latter is rendered possible by the former [53].

If the *binding problem* is one half of the question or one side of the coin that is phenomenal unity, then the *unbinding problem* is – on a non-reductive, non-linear, circularly causal, intrinsically interactive account – the other. How does an initially unified conscious experience with minimal conceptual structure get conceptually broken down and categorized into the various “internal” and “external” sensory modalities, thoughts, feelings, etc.? How does the semiotic agent come to increasingly sophisticated conscious conceptual understandings about the semiosis she engages in – acknowledging that there need not be one single “correct” way to do this – and how does that impact back on the ongoing semiosis?

As I wrote at the start of the previous section, the semiotic agent, to be a semiotic agent, must already be in possession of a rich conceptual framework – including not only all the concepts I mention there but probably most of the ones I suggest in [54]¹⁴ for moral agency: notably an at least implicit concept of *concept* itself. That is, the agent must be sensitive to – if not necessarily able to articulate even to herself¹⁵ – such possibilities as that if *a* is a *G*, then *b*, *c*,

¹¹The very move away from calling it *multiple personality disorder* reflects the divergence of views, within the mental health professions, of how the disorder should be understood – never mind whether it is a distinct disorder in the first place.

¹²Synchronically: i.e., “in the moment”. Diachronically, many if not most people report a sense of simultaneous unity and disunity: they feel that they both are and are not the same person they were ten or twenty or however many years ago.

¹³By “ego”, Gurwitsch means, of course, not “ego” in Sigmund Freud’s sense but rather the self in all the ways that human beings experience it.

¹⁴I argue in that paper that moral agency presupposes semiosis.

¹⁵Unless one just assumes or stipulates that conceptual agency derives from language ability, then there is no reason to assume that concepts must be articulable – as I argue in [3, pp. 52-53] and elsewhere. Even for linguistic agents, this leaves open the possibility for private concepts that the agent cannot articulate because she lacks the suitable words to do so.

and d might be G s, too; and that, provided they are, if a can R , then b , c , and d can likely R , too; likewise, if one can have an eN and a fQ , one can doubtless have an fQ and a eN as well. All of this reflects a practical knowledge-how- if not necessarily knowledge-that-type understanding of the intrinsic *systematicity* and *productivity* of concepts as set forth by the *Generality Constraint* [55, pp. 100-104] on conceptually structured thought.

All of this is not to say that concepts cannot change and conceptual frameworks become more sophisticated over time, for individuals, societies and species alike: indeed, in [45] I argue that they can, and do: concepts evolve not just as contingent possibility but necessary and observable fact. In the language of *conceptual spaces theory*, where concepts are described as convex shapes within an n -dimensional Voronoi tessellation (see Figure 1), the minimally partitioned conceptual space required for being a semiotic agent is far more sophisticated than that required for the most basic of conceptual agents – which is why one finds so relatively many species possessing conceptual agency according to e.g. Albert Newen and Andreas Bartels [56] or Colin Allen [57] (see also [58])¹⁶ yet seemingly only one engaging in semiosis. A working concept of concept may sound sophisticated but in many ways it is not. Our earliest semiosis-engaging ancestors are unlikely to have engaged in any intellectual theorizing about what they were doing, let alone constructed theories of semiosis: activities that very likely require language which, on Zlatev’s account, as on mine, they did not have. Likewise they will have had no need nor capacity to develop formal grammars, nor given explicit nod to the now essential¹⁷ distinction between *expression* and *content*, nor entertained anything like Pierce’s distinction between indices, icons, and symbols (and, indeed, many present-day semiotic agents still do not).

So what one has, between the first appearance of semiosis in the species or the infant individual – albeit on vastly different time scales – is the progressive partitioning of that minimally partitioned conceptual space sufficient for semiosis (see Figure 2). Consequent of that progressive partitioning, one has a shift from more concrete to more abstract concepts (something that language doubtless vastly accelerates [59, p. 4], [45, pp. 206-207]), from first-order (non-self-referential) to higher-order (self-referential) concepts, from more time-bound to more timeless concepts.

The thesis I would propose then is that the *unbinding problem* is just as important to understanding (the unity of) conscious experience – and, by extension, its individual and collective phenomenology – as the *binding problem* is to understanding the underlying mechanics. Neither can be taken to be more basic, more true to underlying reality than the other. Either without the other tells not half the story but no coherent story at all. The *binding problem* on its own fails to give adequate account to the (ineliminable) role of the observer.

¹⁶Briefly, the conceptual agent must show behaviourally a capacity for deriving new categories, applying those categories to novel situations and – perhaps most importantly – expressing surprise when the consequent expectations are violated: none of which *prima facie* requires language.

¹⁷... Within semiotics at least.

Figure 1: A 2D Voronoi tessellation (image downloaded from Wikimedia Commons: <https://commons.wikimedia.org>).

Having seemingly removed the observer altogether in arriving at a truly impartial and objective account, it faces the difficulty of how to add the observer back in – as I believe one must do if one is to give a full account of semiosis. The *unbinding problem* on its own rapidly becomes needlessly relativistic: there may be no one single “correct” way to partition the conceptual space, given the world in which we live; but there will be many partitionings that are appropriately deemed incorrect, precisely because of their failure to align with individual and collective experience as constrained by mind-independent reality (even as experience is, for the conceptual agent, always conceptually mediated [10]). Caricatures of radical constructivism aside, one does not get to believe whatever one wants about the world; if one does, one is likely rapidly to be deemed insane, or end up dead.

Of course, the *unbinding problem hypothesis* as one might call it is not a hypothesis in Popper’s sense; there is nothing to falsify. Again, what is at stake here is not empirical but metaphysical: not about observations but about initial axioms and consequent interpretation of empirical results. *Sensorimotor contingency theory* [50] is fairly clear about making such a move, as is *extended mind hypothesis* [7]. *Integrated information theory* (IIT) – which attempts to provide a non-reductive theory of the phenomenality of consciousness – acknowledges this to some extent in presenting its “five axioms” [60], though “axiom” is used

Figure 2: One possible progressive partitioning.

in a somewhat different sense than I intend, more like what I have described as conceptually obligated presuppositions than starting assumptions that can be set aside.

The rest of this section summarizes the support for the *unbinding problem hypothesis* from phenomenology, enactivism, and metaphysics as I have outlined it up to this point.

3.1. Support from phenomenology

- Experience is fundamental (irreducible).

The *unbinding problem hypothesis* finds both inspiration from and support in Edmund Husserl’s notion that everything, for human beings, begins with and ultimately comes back to lived experience and to the *lifeworld*: i.e., the world as experienced by a conscious living organism; cf. Chalmers’ [16] proposal that conscious experience be treated as a fundamental (hence irreducible) entity. Obviously one cannot logically question (past a certain basic point) that which one cannot set aside: one cannot offer a full explanation of a phenomenon within a system that is obligated to presuppose it. In the later Husserl [61] one finds the idea that subjective/intersubjective experience and objective reality are inextricably intertwined, neither derivative of the other: the idea of a “strictly” objective perspective is a useful conceptual fiction at best. The implication is that science errs when it thinks to remove the observer altogether from the observations; having seemingly (though not actually) removed the observer, it faces the problem of how to add the observer back in as one must when confronting mind, cognition, consciousness, and related phenomena such as semiosis; better to acknowledge that the observer is present in some capacity all along. Science is not atemporal but always is conducted within a cultural and historical context, shaped by the individual and collective biases of its practitioners; scientific truth is a moving target. Perspective matters¹⁸.

¹⁸Intersubjective consensus may be a useful, even necessary stand-in for objective certainty, distancing one from any narrowly subjective perspective; but, as Thomas Kuhn [62, 63] seeks to remind, the most overwhelming expressions of intersubjective consensus in the scientific community may sometimes, with benefit of hindsight, be seen to be spectacularly wrong.

Aron Gurwitsch, whose quote opened this section, spent his professional career arguing for the irreducible unity of conscious experience. If, logically, it must be something that nature arrives at; nevertheless, for reflectively self-conscious agents, it is necessarily one’s starting point: whenever one looks, it is there¹⁹.

3.2. *Support from enactivism*

- Agent and environment are co-continuous.
- The relevant causality is circular, not linear.

The *unbinding problem hypothesis* finds support as well from the enactivist tradition of Humberto Maturana [64], Francisco Varela [65, 66], Evan Thompson [67], and others, with its – as noted – rejection of any ontological distinction between “inner” experience and “outer” reality in favour of an underlying continuity between agent and environment – one where the agent is fully in the world and the world is fully in the agent (“fully” objective and “fully” subjective/intersubjective). Mind and consciousness have – can have – no precise physical location²⁰. As Thompson writes [67, p. ix], “the roots of mental life lie not simply in the brain, but ramify through the body and environment. Our mental lives involve our body and the world beyond the surface membrane of our organism, and so cannot be reduced simply to brain processes inside the head.” A common phrasing in the literature is to talk about the *co-creation* of agent and environment, each bringing the other forth. Enactivism’s favoured view of life in terms of *autopoiesis* [68] – systems are alive when they are able to maintain themselves in far-from-equilibrium environments, displaying *operational closure* (the behaviour of the system is determined within the system, perturbed but not determined by “external” forces), autonomy, and adaptivity [69] – is often misunderstood as creating an absolute boundary at the cell wall (“first-order autopoiesis”) or the organism (“second-order autopoiesis”); but it is a boundary that is only made possible because of the underlying continuity. Not only agent and environment but cognition and life are continuous [70]. There can be no inputs and outputs in such a system nor any simple linear progression from cause to effect except as an occasionally useful way of simplifying one’s way of looking at things.

3.3. *Support from neutral monism*

- Neither mind nor matter is ultimately primary.
- What is primary depends on one’s present focus.

¹⁹Compare this to the critical – I think – distinction between concepts when we reflect on them *as* concepts, where representations are simply what we find; and concepts as we get on with possessing and employing them pre- or non-reflectively, as we must, most of the time, do (see [3, pp. 37-38]).

²⁰Contrast this with Dennett’s [42] position, which is that consciousness has no precise location in the brain but is still, very much, in the brain.

- Few problems of any sufficient complexity will allow one and only one correct explanation.

Still, the *unbinding problem hypothesis* receives its strongest, or most direct, support from the metaphysical position known as *neutral monism* – as opposed to *physical monism* (often simply rendered as “physicalism” or “materialism”) or *mental monism* (as one associates with e.g. George Berkeley[71]) – whereby reality consists of one substance that is neither properly mental nor physical. Historically *neutral monism* is associated with such names as William James, Bertrand Russell, and Spinoza. I have in mind in particular *dual-aspect monism* [72], which makes the implied paradox at the heart of *neutral monism* explicit by insisting that the common substance is *both* mental and physical and, at the same time, neither. The problem is our inability to step outside the system to see how the apparent contradiction can be resolved²¹.

My preferred variant of *dual-aspect monism* I call *perspectival dualism*, both to stress the central role played by perspective and the ambiguously monistic/dualistic nature of *dual-aspect monism*: for, truly, it is a kind of dualism, albeit a more epistemological than (the usual) ontological one: it is less concerned with how things “really” are and more with what we (think we) know and how we come to know it. What one calls “mental” and what one calls “physical” are neither two ontologically distinct substances (Cartesian dualism) nor two ontologically distinct sets of properties of one common substance (property dualism) nor “mere” confusions imposed by language (predicate dualism). Like *yin* and *yang*, they reflect competing, complementary, mutually necessary, ultimately irreconcilable ways of looking at one and the same world. They are contrastive perspectives one shifts constantly and mostly unselfconsciously between, *such that they seem to blur into one unified view* (until one stops to reflect on what one is doing). Neither is ultimately reducible to the other; either can be taken as primary, the other (temporarily) secondary. One perspective places the observer front and centre; the other banishes the observer into the background or seemingly removes the observer altogether. This way of looking at things is what Chalmers has in mind when he writes [8, p. xiii], concerning whether one or another resource is or is not part, at any given moment, of an extended cognitive state: “...we can flip back and forth between both ways of looking at things. We have a sort of Necker cube effect, with mental states counting as extended or not depending on our perspectives and on our purposes.”

Perspectival dualism is *both* monism and dualism, denying any strict bifurcation between the two. Even as it talks about switching between two perspectives it, itself, is monistic from one perspective, dualistic from the other. It suggests that the ideal of “fully” non-dualistic thinking – ironically put forward by many enactivists – is not just undesirable but likely incoherent. How, after all, would one make a distinction between what is *X* and all that is not *X*? Perspectival

²¹This, I suggest in [3, pp. 103-106], is what sets paradoxes apart from genuine contradictions. Russell [73] (see also [74]), by contrast, says that paradoxes just are contradictions in disguise.

dualism entails that, for nearly all sufficiently complex phenomena, there will be no one single fact of the matter, no one “complete and consistent” explanation. Rather, one will have multiple explanations lining up along one or the other perspective.

4. Empirical fallout

When the mind’s focus is the focusing mind, new problems arise. The object and the instrument of the inquiry become one and logic is compromised [19, p. 15].

MIND, *n.*: A mysterious form of matter secreted by the brain. Its chief activity consists in the endeavor to ascertain its own nature, the futility of the attempt being due to the fact that it has nothing but itself to know itself with [75].

Together, the *unbinding problem hypothesis* and *perspectival dualism* bias one strongly toward the view that the origins and development of consciousness (what, if I am right, the *binding problem* can never be used to explain in its entirety, particular when it comes to its phenomenality and phenomenal unity) and of conceptual agency (as addressed by the *unbinding problem*) are two competing ways of looking at one and the same phenomena. Both are needed for understanding the prerequisites for and phenomenology of semiosis; neither can be given primacy over the other. This opens the way for a principled approach to considering different levels of consciousness across species, along the lines suggested by the so-called *animal concepts* philosophers [56, 57, 58], and knowing where to look for the possible future emergence of semiosis in other species. It has the further consequence that getting one’s theory of concepts “right” is essential to getting one’s theory of consciousness “right”, and getting *both* “right” is essential to getting one’s theory of semiosis “right”.

The *unbinding problem hypothesis* and *perspectival dualism* bias one strongly as well against any substantive division between “internal” and “external” sensory modalities: one simply has sensory modalities; and, indeed, against any substantive division between sensory modalities as the conscious agent encounters them and introspection: one simply has various levels of conscious experience. That is to say, conscious awareness itself becomes a sensory modality²² and introspection a higher-order sensory modality. Focusing on any one modality to the exclusion of the others will likely yield a highly distorted picture.

The underlying difficulty stems from the mind’s inability to set itself and its inevitable imposition of perspective aside. Intersubjective consensus – so critical to science – frees one at least partly from strictly individual bias but not from the necessity of taking a perspective, where no one perspective can

²²...Albeit a seemingly higher-order one, not unlike the higher-order modality proposed by *inner-sense/higher-order sense theory*, though on the latter account it is the higher-order modality that makes consciousness possible in the first place; see e.g. [76].

be assured to be the right one. This difficulty becomes most clear when one is addressing issues of mind and consciousness and when one is trying to account for things, like evolutionary events, that cannot be directly observed because they lie inescapably in the past.

If the proposal that opened this paper is right, and explorations into the origin and evolution of semiosis necessarily involve the telling of “just so”-like stories – however empirically well informed – then it is surely important to tell *both* sides of the story. On the one hand, one has the progressive development of new capacities and new details to existing capacities in a seemingly tidy bottom-up building-block-like fashion; on the other, a progressive development from initially largely undifferentiated experience to finer and finer categories for describing that experience, whether from a folk psychological or evolutionary semiotic point of view. (One might observe that the broader field of evolutionary linguistics today has far more subdisciplines and far more categories and subcategories than it did just a few decades ago.)

Where to go next? Evolutionary linguistics has often enough excelled at spelling out the dry and dusty details of plausible enough accounts; but a speculative/intuitive, potentially emotion-laden look into the likely individual and collective conscious experience of these developments has rarely if ever been attempted.

The issue here is not just that evolutionary semiotics needs to take phenomenology seriously – though that is part of it. *Perspectival dualism* suggests strongly that third-person methodologies on their own will never be sufficient to these purposes, and that new first-person methodologies need to be developed, taking on board the best parts of 19th Century introspectionism and the neuropsychophenomenology movement of the 1990s to present, with its tongue-in-cheek discussion of the “view from within” (see e.g. [77]).

The deeper issue though is that researchers need to take into account their own subjective and intersubjective experiences of and biases on these matters. Human communication has come a long way since the first appearance of semiosis. Language is a tool that has become so essential to people’s daily lives that they have, in large part, forgotten that it is or could be anything other than an intrinsic part of themselves: hence the not infrequent claims that – as Torey puts it so bluntly – no language, no mind. It may be a useful fiction to think that one can strip away all the layers of interpretation that language and modern culture lay on – as Husserl’s *phenomenological reduction* seemed at times inclined to try to do. The more realistic goal though – and, I think, the lesson to be gleaned from Husserl’s later writings – is that one should seek instead to become aware of and so strip away all the *unnecessary* layers of interpretation, albeit with no expectation that what remains will be anything like “pure” experience, “pure” observation. It is enough not to make mistakes of interpretation that one need not make. Then, supposing someone *is* able to build a time machine or observe the initial appearance and development of protosemiotic and semiotic capacities *in situ*, researchers will be much better placed to interpret what they observe more meaningfully. In the meantime, they can be telling much better, much richer, more genuinely plausible stories.

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