The Unity of Consciousness and the First-Person Perspective

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Abstract

From a felt, introspective perspective, one can identify various kinds of *unity* amongst all of one's experiential parts. Most fundamentally, all of the states you are experiencing right now seem to be *phenomenally unified*, or, felt together. This introspective datum may lead one to believe that where consciousness exists, it always has this structure: there is always a numerically singular subjective perspective on a unified experiential field. In this dissertation, I expose this intuition and subject it to critical scrutiny.

In "Chapter 1: The Unity Intuition and Split-Brain Consciousness," I will lay a foundation and introduce my primary test case: so-called "split-brain" patients. I will also discuss three philosophers' perspectives on the case: Thomas Nagel, Timothy Bayne, and Elizabeth Schechter.

Next, in "Chapter 2: The Partial Unity Account of Split-Brain Consciousness," I will discuss an interpretation of split-brains called "partial unity." I think this position is underexplored in the literature because of its conceptual counterintuitiveness, rather than any strong empirical reasons against it. I discuss both in this chapter, concluding that this model of split-brain consciousness is a live option.

On my interpretation of partial unity, there is not always a determinate whole number of minds that partially unified organisms can be said to have. So, in "Chapter 3: Is There a Fact of the Matter?" I explain that the original purpose behind "counting subjects" does not in fact necessitate settling upon a metaphysical fact. I advocate for a kind of deflationary (or pluralist) position on the question of "how many" subjective perspectives these patients have. In "Chapter

4: ‘What-it’s-Likeness’ and the ‘Point of View,’” I emphasize that this position on counting minds is perfectly compatible with a conception of consciousness as what-it’s-likeness.

Then, in “Chapter 5: Perspective, Metaphor, and the ‘First-Person’: Zhuāngzi’s Debate by the River Hao,” I apply some of the developed concepts regarding perspective to an analysis of Zhuāngzi’s epistemic perspectivism. Finally, I close with “Chapter 6: The Craniopagus Case: Sensation Sharing and the ‘First-Person’ Perspective,” where I discuss the possibility for sensation-sharing using the example of Krista and Tatiana Hogan, craniopagus twins with a thalamic bridge.

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Table of Contents

1. The Unity Intuition and Split-Brain Consciousness

Abstract
From the inside, consciousness seems to be *unified* in various ways. Subjects of experience take themselves to be singular entities who occupy their own perspective and are having one, fully unified experience at a time. But consider the neural processes that instantiate conscious experience. They seem fragmented, dissociated - many. How do we reconcile external seemings of *multiplicity* with internal seemings of *oneness*? Could we be mistaken about the unity we take our conscious experience to have? Can this unity break down in anomalous cases? Are minds the kinds of things which we should expect to be able to count in whole numbers, and if so, how should they be counted? In this chapter, I aim to frame questions about phenomenal unity and the individuation of subjects of experience by using the split-brain case as a conceptual tool. The case seems to present us with a puzzle that makes it difficult (or impossible) to count a whole number of conscious "experiencers." Aided by Thomas Nagel, I explain why we *expect* to be able to count subjects in whole numbers. I will then canvas two prominent attempts, by Tim Bayne and Elizabeth Schechter, to apply this idea of whole-number-countable minds to split-brain cases.

1.1 Preliminaries

Typical discussions of the unity of consciousness begin with an introspective report of the author's own conscious experience.[1] This report may be real or imaginary, but importantly it must indicate some kind of felt *unity* in the author's phenomenal experience. For example, the author may report that she can feel, in this moment, a twinge of anxiety, the physical sensation of her fingertips striking the keyboard, a slight chill from a cool breeze, and a cramp in her toe. There is something it is like to undergo each of these experiences - they are what some call *phenomenally conscious*. Further (or so the story goes), there is something it is like to be undergoing each of them *together*: there is a *conjoint phenomenal character* evident when each of these states is experienced by the same subject in a single moment.

[1] Since I am skeptical that verbal reports grounded in introspection are an infallible guide to the very nature of a subject's conscious experiences, I am hesitant to take this route directly. I shall leave it upon my reader to feel her experience, in the current moment and through time. Very roughly, it feels like something to be you, from your perspective - that much, you know.

Sometimes glossed as "felt-togetherness," this *phenomenal unity* is a paradigmatic relation between conscious states of the same subject at a time. When I experience the aforementioned four sensations at once, there results a phenomenally unified total experience, whereas if I experience two of them and you experience the other two, all four states do not seem to be phenomenally unified. The notion of phenomenal unity, then, (at least as advanced by Tim Bayne) is intimately related to the very notion of a subject of experience (Bayne, 2010). That is, part of what it is to be a subject of experience is to have a singular "phenomenal field" of conscious contents, the parts of which are all jointly unified.

But what does phenomenal unity actually amount to?[2] What, if anything, substantial can be said about it? And is Bayne correct to propose that necessarily, all the conscious states experienced by a single subject at a time are phenomenally unified?[3] Introspecting on experience seems to suggest that he is right. In other words, it is difficult to imagine that I, at the same time, could be having two experiences 'E_1' and 'E_2', yet fail to be having an experience of 'E_1 and E_2'. This seems to be the case for any two conscious contents which I can introspectively access and pick out from the first-person perspective. However, I do not want to simply assume that introspection is an infallible guide to the structure of conscious experience.

Apart from introspecting on the structure of one's own conscious experience, another strategy for mapping conceptual space here is through test cases. How should we understand, for example, questions about phenomenal unity in the split-brain case? Thomas Nagel was one of the

[2] If it really is a necessary feature of the experience of any subject, then I would lack a contrastive class of non-phenomenally unified experiences with which to compare my phenomenally unified experiences. This seems to me a prima facie reason to doubt the sense of the term, or at least to doubt whether the term can be made sense of from the human epistemic standpoint.

[3] I must admit, I am wont to lose my footing quickly when discussions turn to the concept of phenomenal consciousness *itself* - getting clear on the nature of the explananda seems a more daunting task than doing the actual explanatory work. The notion of "phenomenal unity" fares no better. One difficulty is the inability to locate introspectively accessible token experiences which are phenomenally unified with one another, but not unified in any other way (or vice versa). If this could be done, conceptualizing phenomenal unity would be easier.

first philosophers to write of the split-brain case, saying that it may provide evidence that dismantles "...the ordinary, simple idea of a single person..." (Nagel, 1971, p. 411). This is because, as he argues, this ordinary idea of a person is an idea of a thing that is countable in whole numbers. Further, he claims there is no plausible interpretation of the split-brain case that ascribes to them a whole number of minds, either one or two. The split-brain case, if analyzed using the ordinary concept of mind, violates assumptions that are so basic to our understanding of ourselves and others as persons that it becomes "...impossible to arrive at an interpretation of the cases under discussion in terms of a countable number of minds" (407).

Nagel was not asking about phenomenal unity by name (if at all). He was simply laying out the possibility space when it comes to ascribing a determinate number of minds to the split-brain patient. But Nagel's understanding of the unanalyzed conception of mind has certain core features in common with Bayne's conception of a subject of experience. Unlike Nagel, however, Bayne thinks his notion *is* applicable to the split-brain case. Bayne asserts that we *can* count the number of subjects of experience associated with a typical split-brain patient, and this number is one. Schechter agrees that minds are countable in whole numbers, but she disputes the identity between persons and minds. Schechter argues for a "two-minds" approach to split-brain cases, which is nonetheless consistent with these patients being one *person*.

In this chapter, I aim to get clear on what is at issue when we ask questions about unity (in the split-brain case or otherwise). To provide further clarity on the different kinds of questions one may ask about unity, I will discuss and distinguish between kinds of conscious unities in Section 1.1.1. Because introspection can only take one so far in conceptualizing what is at issue, I will turn to the split-brain case in Section 1.1.2. The split-brain case can in part be used as a conceptual tool for investigating the relationship between information integration and conscious unity. This is

because not all callosotomies result in two entirely independently operating hemispheres - the level of connectedness between brain hemispheres seems to be a matter of degree. But some questions of unity seem not to admit of degrees - this is exactly Nagel's point, so I turn to it in Section 1.2. The conception of minds at issue is one of *numerically singular entities*.

Nagel wrote that this idea of numerical singularity, though conceptually integral to our concepts of mindedness, was nonetheless empirically intractable - particularly when considering cases like the split-brain. Both Bayne and Schechter have attempted to respond to his puzzle, by filling in interpretations of the case that ascribe to these patients either one mind or two, respectively. I will cover these accounts of the split-brain case in Sections 1.3 and 1.4. I think that Bayne's model ultimately fails, and Schechter's account fares much better empirically. However, the "two-streams" account of split-brain consciousness is not the end of the story. Counting minds, in my view, is an explanatory tool for mapping consciousness and enabling imaginative projection into a subjective perspective. Counting a split-brain patient as "two" minds may be useful in some contexts, but counting them as "one" may also be useful.

This is where the partial unity account becomes helpful. The partial unity account allows for us to conceive of a split-brain subject as a single experiencing being, albeit one whose experiential parts are not wholly unified. Both Schechter and Bayne reject the partial unity interpretation, for different reasons, so it will be important to devote adequate attention to this issue, which I defer to the following chapter.

1.1.1 Kinds of Unity

I have so far given only a rough characterization of phenomenal unity as "felt togetherness." Cashing out more specifically what this notion amounts to is a contentious matter, however. In this section, I will recapitulate the various kinds of unity relations that are evident in conscious

experience. Distinguishing the notion of phenomenal unity from all the other kinds of unity may leave us in a better position to make sense of the former and its relation to subjectivity. The intuitive pull behind questions of unity should be clear. Why do we care about the answers to questions about the unity of consciousness? In my view, these questions are as fundamental as questions about consciousness itself (in particular, when consciousness is conceptualized as "what-it's-likeness" - see Chapter 4). When I inquire as to what it is like to be you, or a bat, or myself,[4] there may be implicit assumptions about unity *built-in* to the very question.

We can begin with the notion of **subject unity**. Subject unity should be quite intuitive to grasp, if you are a conscious being reading these words at this moment in time. It is *you* reading these words, and you feeling the physical sensations of your body, and you thinking your thoughts. You are a subject of experience, or at least you take yourself to be. Insofar as you are a subject of experience, you are a *single thing*. Regardless of the relationship between all of the experiences that you are in, regardless of the individuation criteria for experiences and/or experiential parts:[5] you exist, and you occupy your own perspective.[6] To grasp the concept of subject unity, we can even set aside questions of whether you are the *same* subject of experience across time. At the very least, in any given moment (e.g. this one), if you exist as a singular thing having experiences, if you are a subject of experience, you should understand the notion of subject unity.[7]

[4] Or when I ask other types of "what-it's-like" questions, like "what is it like to see red?" etc.
[5] For example, perhaps you are having only one experience that contains no parts (Masrour, 2014; Tye, 2003).
[6] You can imaginatively occupy my perspective, as well, by putting yourself in my shoes - but even in doing so, it would still be *you* doing it.
[7] An interesting depiction of subject unity is given in a recent review of the split-brain literature. The authors say: "Subject unity is present if all the experiences generated in a system belong to one subject. In other words, if a system contains a first person perspective, then subject unity is preserved if that system only contains one such perspective, but subject unity is absent if the system contains multiple first person perspectives" (de Haan et al., 2020, p. 225). I am not entirely sure what it means for a system to "contain a perspective," but the basic idea is rooted in the same characterization as I gave, that two states are subject unified if they are felt by the same subject (so a system contains subject-disunified states if it contains multiple states which are felt but not all felt by the same subject). I will say more about the idea of the "subject" in Chapter 3, and more about "perspective" in Chapter 4.

Subject unity is not necessarily a relation *between* conscious states. This is because subject unity could exist even if there were not multiple, but only one, conscious state being experienced by an organism. Subject unity is a kind of singularity - just by being a single subject of experience you have subject unity. It can be thought of as a relation in some cases as well, however. Simply: two conscious experiences are subject-unified if and only if they are experienced by the same subject.[8] (Note that Bayne and Chalmers build a "same time" relation into their proposed conception of subject unity, I do not (Bayne & Chalmers, 2003)). Talk of unity *relations* can be generalized, as there are many ways in which conscious states (within and between subjects) can be thought of as unified. I will list some ways in which conscious states may be in unity relations with one another.

> 1. *Objectual Unity:* Objectual unity, sometimes referred to in terms of the crossmodal binding problem in neuroscience, refers to the kind of unity between properties of the same object in conscious experience. If I am having an experience with perceptual contents as of a red ball, the ball's redness and its sphericality are objectually unified (Bayne & Chalmers, 2003).
>
> 2. *Representational Unity*: Two conscious states with representational contents "A" and "B" are representationally unified if and only if their contents are integrated, such that there exists a conscious state with representational contents "A and B." There are various ways for conscious contents to be integrated. Objectual unity is one type of representational unity. As Bayne writes, "Perceptual features are not normally represented by isolated states of consciousness but are bound together in the form of integrated perceptual objects" (Bayne, 2010, p. 10).
>
> 3. *Spatial Unity*: Two conscious percepts are spatially unified if they are perceived as occupying the same spatial field (Bayne & Chalmers, 2003). Spatial unity is another type of representational unity, wherein objectually unified objects are integrated such that they are perceived as bearing spatial relations to one another.
>
> 4. *Temporal Unity*: Two conscious percepts are temporally unified if they are perceived by their subject as occurring at the same time.
>
> 5. *Spatiotemporal Unity*: Two conscious percepts are spatiotemporally unified if they are perceived by their subject as occupying the same spatial field at the same time.

[8] I do not know if subjects are metaphysically real entities or if this is just a way of talking. The language here is meant to be neutral with respect to those options.

6. *Bodily Unity*: Two conscious states that are experienced as states of the same physical body are bodily unified.

7. *Subsumptive Unity:* Two conscious states are subsumptively unified if they are "both subsumed by a single state of consciousness" (Bayne & Chalmers, 2003). Whether this is a veritable unity relation depends on one's account of the mereology of experience. Can an experience be a proper part of a larger or more total experience? If so, subsumptive unity refers to the relation between two experiences (or experiential parts) which are both proper parts of the same experiential whole.

8. *Comparative Unity:* Two states with contents "A" and "B" are comparatively unified if the subject experiencing them can consciously compare them, for example by recognizing their degree of similarity and/or difference. For example, if I have an experience in my left visual field of a blue swatch and an experience in my right visual field of a red swatch, and these experiences are comparatively unified, then I have an experience of "red," an experience of "blue," and an experience (or judgment) of "difference."

9. *Phenomenal Unity*: Two conscious states are phenomenally unified if and only if there is something it is like to undergo them together (Bayne thinks that phenomenally unified experiences exhibit a "conjoint experiential character", which is more primitive than subject and representational unity (Bayne, 2010, p. 10)).

This list is not meant to be exhaustive, as there may be many more kinds of potential unity relations that we could identify between parts of our experiential whole.[9] Questions about the unity of consciousness may concern a particular one of these, or perhaps all of them. From a felt perspective, introspecting on what it is like to be oneself at any given moment, the existence of all of these kinds of unity seems relatively clear. But how are these felt relations established in the physical brain? Which of these unities can sensibly break down, and which (if any) hold necessarily between states of the same subject? Which of these unity relations can hold in a *degreed* fashion, and which are all or nothing? What are the entailment relations between the kinds of unity (e.g. does phenomenal unity entail comparative unity)? Which (if any) unity relations may

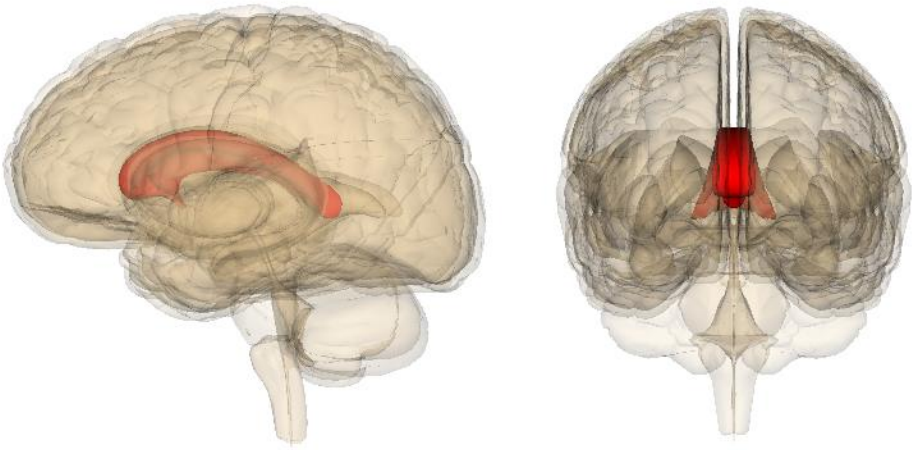
[9] You may notice that I did not include Access Unity on this list, which refers to the unity relation between states which are jointly accessible (Bayne & Chalmers, 2003). I am sympathetic to the idea that if phenomenal unity makes sense, it should entail access unity (Wiese, 2018, p. 9-10). I think introducing access unity as a separate type is likely to introduce further confusion.

be intransitive? In this dissertation, my focus is primarily on phenomenal unity, and the question of whether conscious states of any given subject or organism are always phenomenally unified. Split-brain cases provide an opportunity to put these questions to the test empirically.

1.1.2 The "Split-Brain" Procedure

The "split-brain" procedure, as it is so called, severs the corpus callosum (and in some cases, in addition, both the anterior and hippocampal commissures as well). This is a large band of nerve fibers which connects the two cerebral hemispheres of the brain (see Figure 1.1).[10]

Figure 1.1: Corpus Callosum[11]

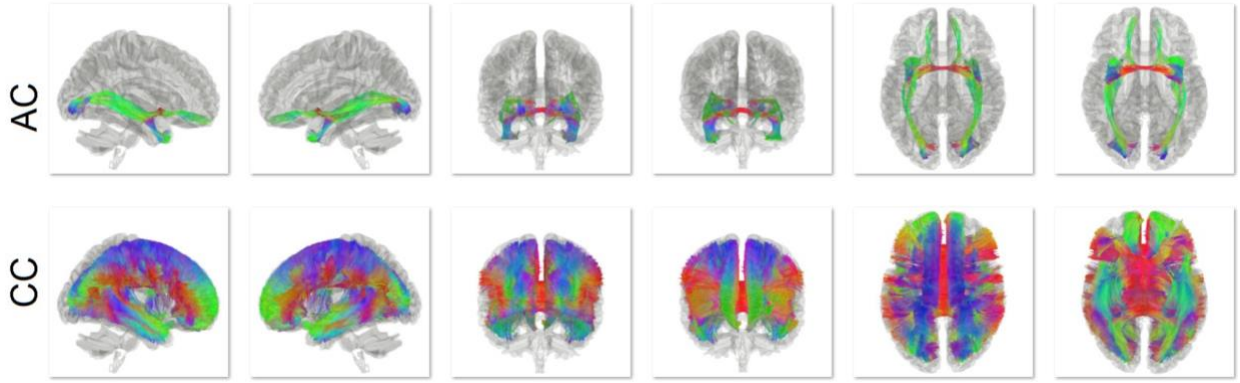


[10] It is important to note that it is impossible to entirely disconnect the two hemispheres. Some structures remain connected to both cerebral hemispheres. Further, there are various kinds of split-brain procedures, some of which are more extensive than others. "In some patients all commissures were severed ("commissurotomy"), in others only the corpus callosum was cut ("callosotomy") and some patients fall somewhere in between these two boundaries" (de Haan et al., 2020, p. 224). The corpus callosum itself can also be sectioned in degrees and is not necessarily all or nothing (Roberts, 1985).

[11] Image source: https://commons.wikimedia.org/wiki/File:Corpus callosum.png

The surgery was developed as a treatment for the most severe forms of epilepsy; seizures were less likely to spread from one cortical hemisphere of the brain to the other if the connections between those hemispheres had been cut. There is documentation regarding the split-brain procedure and its effects as early as the 1940's, and more early evidence comes from the work of Gazzaniga, Sperry and colleagues in the 1960's (van Wagenen & Herren, 1940; Gazzaniga, Bogen, & Sperry, 1962, 1963). Each team of neurologists had specific protocols for performing the surgery. In one team, their eighth commissurotomy patient died twelve days after their operation which occurred on Feb 15, 1974 (Wilson, Reeves, Gazzaniga, & Culver, 1977; Reeves & O'Leary, 1985). After that tragedy, they decided to "refine the surgery by dividing only the corpus callosum and, necessarily, the underlying hippocampal commissure" - and not, in addition, the anterior commissure (Wilson et al., 1977, p. 714). The corpus callosum projects axons to almost every cortical brain region, and it is thought to play a critical role in the integration of information between the two cerebral hemispheres. See Figure 1.2 for a structural connectomic map of these pathways.

Figure 1.2: Corpus Callosum (CC) and Anterior Commissure (AC) - Population Averaged Structural Connectome Map (Yeh et al., 2018)[12]



[12] For Image source, see: http://brain.labsolver.org/diffusion-mri-templates/tractography/commissural-pathway

To aid in our interpretation of the case, note that the human brain exhibits some laterality of function. Generally, the left hemisphere (LH) gleans information from the right visual field and controls the right half of the body, and the right hemisphere (RH) gleans information from the left visual field and controls the left half of the body. Additionally, many language functions are often (but not always) localized to the left hemisphere. With intact commissures, the laterality of function of the brain's cerebral hemispheres can go unnoticed behaviorally, since LH and RH are able to share information using these neural pathways. So, the so-called "split-brain" procedures provided a novel means by which researchers could gain behavioral evidence regarding the laterality of brain function.

Gazzaniga and colleagues (1962) discuss patient W.J., a male patient, 48 years of age, who had been suffering seizures (ranging from one per week to up to seven each day) due to injuries suffered in 1944 during the war. He underwent a complete section of not only the corpus callosum, but the anterior and hippocampal commissures as well. Immediately following the surgery, they report that he seemed to have difficulty moving and speaking, but this cleared up relatively quickly. The procedure had seemed effective at reducing his seizures while remarkably leaving "no gross changes in temperament or intellect" (Gazzaniga et al., 1962, p. 1766). Between six and twenty weeks following the surgery, researchers subjected him to weekly, 3 hour long, testing protocols in order to document the effects of the commissurotomy. The testing protocols were not as developed as they eventually became, but researchers did notice some "odd" effects, e.g. (Gazzaniga et al., 1962, p. 1766):

> Tests involving tactual function have revealed no significant impairments in the right side of the body connected to the dominant left hemisphere. Similar testing of the left hand, however, has indicated a severe agnosia, anomia, and agraphia. For example, in blindfold tests, the patient has regularly been able to manipulate and use correctly most familiar objects such as a pencil, cigarette, ring, pistol, hat, glasses, etc., but has been totally unable to name or to describe any of these. Prior

> to surgery he could write legibly with the left hand, but afterward has produced only a meaningless scribble.

If you poked W.J. on a specific point on his hand, he would be able to localize that point with the same hand, but not the other hand. Similarly, if you tapped him lightly some number of times on either foot or hand - he could reproduce that number of taps with the hand on the same side of the body, but not the other one. He could put together a puzzle with either hand on its own, but he seemed to have difficulty when asked to use both hands to do the puzzle. Researchers interpreted this as a difficulty with tasks that required "cross-integration." In the visual domain, they took particular note of the abnormalities regarding W.J.'s abilities to identify or describe objects and/or object-features (either verbally or via drawing or selection) displayed to his left visual hemifield (which, recall, is processed by the right hemisphere). When it came to motor control, both hands seemed to have the same dexterity and movement capability as before, and the hands were able to work well either separately or together on routine tasks, but when it came to more complicated tasks or arbitrary commands, the left hand sometimes would "fail to respond at all or the response may be spasmodic and grossly inadequate" (Gazzaniga et al., 1962, p. 1767). If allowed to use both hands, the right hand may help the left hand in achieving its task (Gazzaniga et al., 1962, p. 1767):

> Frequently, when his left hand had been fumbling ineffectively at some task, he would become exasperated and reach across with the right hand to grab the left and place it in the proper position.

The researchers did not notice any similar difficulties with W.J.'s dominant right hand; it seemed to them able to respond to commands just fine. His wife, however, did claim that the right hand sometimes had difficulties as well, and she also noticed times at which the two hands seemed to be at odds with one another (Gazzaniga et al., 1962):

> However, transient difficulty with the right hand was reportedly seen on a few occasions by the patient's wife. She has also noted antagonism between the actions of the right and left hands, e.g., the patient would pick up the evening paper with the right hand, but put it down abruptly with the left and then have to pick it up again with the right. Similar contradictory movements were observed occasionally in the course of dressing and undressing, and in other daily activities, at times on a scale sufficient to be distinctly bothersome.

Their primary takeaway was "that the separated hemispheres were each unaware of activity going on in the other in the case of those functions that are highly lateralized, e.g., visual perception within right or left half-field, language functions, or tactile and motor functions of the extremities" (Gazzaniga et al., 1962, p. 1767). The wording here is especially interesting - each *hemisphere* is described as being "unaware" of particular goings-on. "Awareness" is typically conceived of on a personal level of description - it is *subjects* who are aware of, or not aware of, some such or other. Was W.J. now *two* subjects of experience? Could he always have been, just that before the surgery these subjects communicated more completely? What about agency - are there two intentional agents cohabiting his body, or one? What about "thinkers" – are are the right and left hemisphere both, separately, producing "I" thoughts? If so, do these "I" thoughts co-refer? What other behavioral effects can we observe in patients with different degrees of callosotomy procedure - how individually specific are the results? What is it like to be a split-brain person? How many times does this question need to be asked - once (for the patient as a whole) or twice (one for each hemisphere)? What can our conceptualization of this case tell us about consciousness, its unities, and their grounding in the physical body and brain?

1.2 Nagel's Interpretation

This procedure is of interest to philosophers studying unity and consciousness in part because we can explore how the disruption of information integration between the two cerebral hemispheres

may affect the structure of an organism's conscious experience. Thomas Nagel's seminal piece on the split-brain phenomenon, "Brain Bisection and the Unity of Consciousness," has been highly influential for philosophical scholarship and serves as a useful starting point.

He begins his analysis with a "folk" conception of minds and mindedness. The crucial component of this folk conception of minds is that they are *singular* and *countable* in whole numbers. It is part of the standard conception of mindedness that the number of minds in the universe should be in the set of natural numbers $\mathbb{N}$. It is in part this feature of the folk conception of mind which makes it difficult to interpret the split-brain case. If minds are the kinds of things which are determinately countable in whole numbers, then we should be able to say clearly and definitively whether the split-brain patient has *one* or *two* of these things.

He argues that utilizing the concept of countable minds leaves us with five options for how philosophers should make sense of a split-brain patient's inner life. Further, he argues that *none* of these options works perfectly, and in fact the idea of singular, countable minds may not be applicable to these patients *at all*. And yet, he says, we seem unable to abandon this conception of minds as countable in whole numbers.[13] It seems that the very same conception which renders our own experience sensible, and demands that we make sense of cases like the split-brain, makes doing so seem impossible. Though there has been a good degree of scholarship on the split-brain case since Nagel, most interpretations of the case can be categorized as fitting into one of his five interpretive options. The five interpretative options he lays out are as follows:

> 1. Patients have one mind, located in the left hemisphere, and the right hemisphere is non-conscious
>
> 2. Patients have one mind, located in the left hemisphere, and the right hemisphere has conscious phenomena that aren't associated with a 'mind'

[13] I think Nagel's insight was largely correct, but that we have not yet fully appreciated the weight of this implication. Further, I think we can make more progress than he thinks possible in "discovering the neurophysiological basis of mind" - we just need to revise our expectations for what this would look like.

3. Patients have two minds - one can talk, one can't

4. Patients have one mind, whose contents derive from both hemispheres and are rather peculiar and dissociated

5. Patients have a single mind in their ordinary life, when data available to each hemisphere is not restricted, but in experimental conditions have two

As mentioned, he ultimately thinks none of these interpretive options will work to make sense of the body of behavioral data we have from split-brain patients. Options (1) and (2) are unsatisfactory because we have no reason to suppose that the right hemisphere cannot support conscious experience. I think this is largely correct, particularly as a response to (1), and it is implausible to deny conscious experience to the right hemisphere. Often cited here are cases of total *hemispherectomy* - if done early enough, a human being can survive with an entire hemisphere *removed* from their skull. Left hemispherectomy patients are not nonconscious, so the right hemisphere is capable of supporting consciousness.[14]

Option (2) perhaps deserves more attention than it has been given, depending on what we mean by "mind." If all we *mean* by being "minded" is being a subject of experiences, being a thing capable of having experiential properties, then option (2) makes little sense. If by 'mind' we mean something more robust, requiring a capability for not only conscious experience but conscious *thought*, or conscious experience of a particular *kind* with a particular *structure*, an evaluation of (2) requires empirical study into the specific nature of the kinds of representations produced by each hemisphere.

[14] There is at least *some* conceptual room for an objector to push back here with claims of left hemisphere dominance, something like that the right hemisphere is capable of consciousness in a left hemispherectomy patient only because it no longer has to compete with the dominant left hemisphere. I am not going to devote space to this issue since I am not aware of any current defenses of it, but even if the latter claim were true, it would not necessarily provide a defense of option (1), since the severance of the callosal connection would also prevent the competitive mechanisms if they existed.

Option (3), he says, does not do enough to make sense of the large degree of integration observed in the patient's daily life. The model according to which a split-brain patient has two minds has been popular, and it has recently been given thorough philosophical exposition and argument in a book by Elizabeth Schechter (Schechter, 2018). I will canvass the general idea of two-streams approaches in Section 1.2.1, and Schechter's specific account in Section 1.4. As for option (5), Nagel thinks it seems ad hoc, since "so unusual an event as a mind's popping in and out of existence would have to be explained by something more than its explanatory convenience" (Nagel, 1971, p. 408). We would need some neurophysiological basis to support a contention that the structure of a patient's experience could change so drastically based on environmental context.

I am most interested in his rejection of option (4), since it tells us a lot about the intuitive conception of "mind" that he is working with. Option (4) asks us to imagine a single conscious subject being simultaneously conscious of non-integrated contents. This approach, according to Nagel, violates assumptions so basic to our concept of persons that it, too, must be discarded. The assumption is "... that a single mind has sufficiently immediate access to its conscious states so that [for two simultaneous mental events] the mind which is their subject can also experience the simpler *relations* between them if it attends to the matter" (Nagel, 1971, p. 407).[15] In other words, it seems that if one and the same subject is simultaneously conscious of two distinct experiential parts, they should also in some way be conscious of some relation between these parts.

There is something important about the intuition that Nagel is pointing to here. In fact, Bayne uses a similar line of reasoning in his argument against partial unity accounts of split-brain cases, calling them "weakly inconceivable" (Bayne, 2010). Before turning to that, a few more

[15] Schechter quotes this passage from Nagel as well in her definition of *access unity* (Schechter, 2018). I think experiencing relatedness between experiential parts is at least conceptually divorceable from those experiential parts being jointly accessible, but this may be a minor point.

notes about Nagel's diagnosis of the problem. First, there is a lot built in to Nagel's "folk" conception of mind. The kind of singular, countable things he is talking about are not only subjects of experience but also thinkers of thoughts and agents of actions. Teasing apart these notions may help us to make sense of the conceptual space here, since his reasons for rejecting the various options depend on different aspects of the folk conception. I want to specifically focus on the subject of experience since my interest is in phenomenal unity. As such, Nagel's objections against options (1) and (2) stand firm - I agree that the right hemisphere of the brain can produce phenomenally conscious phenomena. Options (3), (4), and (5) are at this stage still live - and, crucially, I do not take them to be mutually exclusive. I think it is at least possible at the outset that a split-brain patient could have both one mind and two.[16]

There are prominent attempts to ascribe a determinate number of minds to the typical split-brain patient I will need to contend with. I will canvass two popular accounts, one which ascribes to them *one* unified mind and one which ascribes to them *two*. Both accounts preserve the intuitive idea that minds are whole-number countable, and that the contents of a conscious mind are internally unified. These accounts are the switch-model proposed by Bayne (Bayne, 2010), and the two-minds model proposed by Schechter (Schechter, 2018). We will return to their specific accounts in Sections 1.3 and 1.4, respectively. Bayne's account most closely aligns with Nagel's option (4), but his is *not* the partial unity account, as he holds that at any given moment, all the contents of a split-brain subject's conscious experience are internally unified (preserving synchronic unity). Before returning to that, let us first overview the general landscape of two-streams approaches.

[16] As Lycan rightly notes in a precis of Schechter's book on the split-brain, questions of individuation are often purpose-relative, and we need not presuppose that questions about "how many minds" always have a single determinate answer (Lycan, 2022).

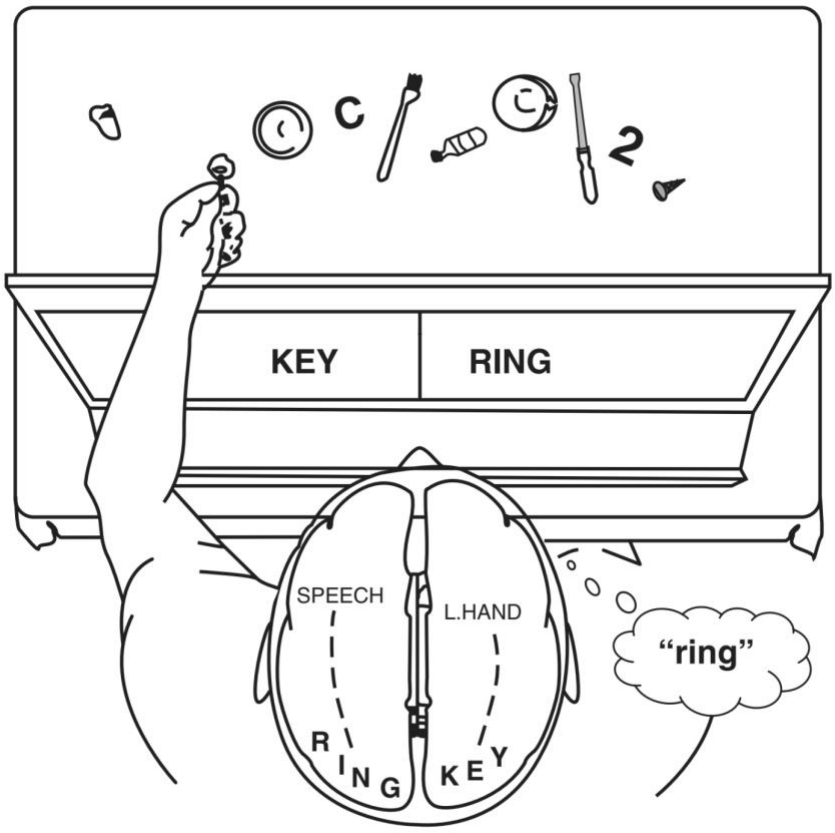
1.2.1 The Two-Streams Model

The “two-streams,” or “two-minds,” or “conscious-duality” approach to split-brain consciousness has been a popular interpretive framework since early studies began to come out (Gazzaniga et al., 1962; Sperry, Zaidel, & Zaildel, 1979). Due to the oft observed lack of direct visual and tactile integration between the brain hemispheres of a split-brain patient (among other things), it became easy to think of these patients as having two minds, two streams of consciousness, apiece.

One common research paradigm to demonstrate the duality in the visual system was the retinal fixation study. Subjects were instructed to keep their eyes fixated on a cross in the center of a screen, and a word or image was briefly flashed to both sides of it. With their eyes fixed forward, the information on the left side of the screen would occupy the patient’s left visual field (LVF) which crosses over via the optic chiasm such that it is processed in the right hemisphere (RH), whereas the information presented to the right visual field (RVF) is processed in the left hemisphere (LH).

The famous “key-ring” example is useful in its simplicity (See Figure 1.3). If you displayed the word “Key-Ring” to a split-brain patient such that “Key” occurred in the LVF and “Ring” in the RVF, the words will be processed by RH and LH respectively. The patient verbally is likely to report only seeing “Ring,” but will be able to select a “Key” with their left hand out of an array of objects.

Figure 1.3: The Key-Ring Example (Sperry, 1974)



Perhaps the most readily available interpretive route by which to understand results like these as they relate to consciousness is to say that the patient now contains *two* distinct conscious minds, a left hemisphere (speaking) mind and a right hemisphere (often non-speaking) mind. The LH-associated subject sees "Ring," and does not see "Key," so this subject will report only that they saw the word "Ring." The RH-associated subject sees "Key," but it does not see "Ring," but this subject is not able to speak aloud to report on these experiential contents. This subject is able to control the left hand, so they demonstrate perceptual access to "Key" by picking out the object among an array of objects. Tim Bayne characterizes the two-streams account of split-brain consciousness thusly (Bayne, 2010, p. 193):

> Proponents of the two-streams account hold that the conscious states that a split-brain patients has at any one time can be assigned to one of two non-overlapping

> sets, where the members of each set are mutually unified but no member of either set is phenomenally unified with any member of the other set.

As he notes, its actual proponents may not adopt this precise characterization of their position.[17] We will return to Schechter's specific version of the two-minds view in Section 1.4.

The primary objection that Nagel raises against the two-streams model is that patients seem relatively "unified" outside of experimental conditions. Patients do not seem to think of themselves as two, nor do they report a drastic change in their inner worlds post-surgery. Many of them are able to go on about their lives in a relatively normal fashion, continuing to work and/or go to school, and engage in coordinated activities that require both hemispheres. Would this really be possible if the patients suddenly have two distinct minds vying for control? A proponent of the two-streams model can respond to these kinds of objections in at least two ways.

First is to explain why the behavioral data gleaned in experimental contexts seems different from "everyday" contexts, even if there are in fact two minds in both. In experimental settings, the information available to each hemisphere, and the cross-cuing allowed by the patient, is controlled for. Outside the lab, the patient can turn their head and move their eyes, so the same information is available to each hemisphere. This can help explain why the patients are able to engage in coordinated activity outside the lab: their two minds are simply able to share more information and communicate better.

The second way to respond is to note that in fact, there *are* many ways in which the patients' everyday activities exhibit "disunity." Consider patient W.J. above, whose hands seemed to disagree about whether to pick up the newspaper or not. Or consider patient P.O.V., who after surgery, began to have difficulties with daily activities such as getting dressed (which would take

[17] Schechter, for example, does not necessarily think that two minds must of necessity be nonoverlapping and discrete, saying: "...some remaining direct interhemispheric interaction is consistent with R and L being *distinct* thinkers, albeit thinkers whose mental lives are not *discrete*" (Schechter, 2018, p. 109).

1-2 hours), going to the grocery store (up to 3 hours), and fixing a meal (2-3 hours). Researchers report (Ferguson, Rayport, & Corrie, 1985, p. 503-504):

> The most prominent symptoms occurred in POV, a right-handed, 27-year-old female. After CCS II she reported that the ordinary activities of dressing, food preparation, and shopping took inordinate amounts of time and in fact dominated her daily schedule. Dressing would require 1-2 hr. Examples of dressing difficulty have been expressed by the patient at each followup visit during the 38 months since CCS II. At 14 months she reported that her left hand was "pulling out the wrong thing" or that she was putting on more than one pair of underwear. At 16 months she had found a partial remedy. "It's better when I get mad and put it into words." At 24 months she said, "I open the closet door. I know what I want to wear. As I reach for something with my right hand, my left comes up and takes something different. I can't put it down if it's in my left hand. I have to call my daughter." This difficulty has persisted to the present.

It is very natural to interpret this report by supposing that there are two competing sets of desires within one body. It is simple: P.O.V.'s left hemisphere wants to wear one thing, and her right hemisphere wants to wear something else, so her hands reach for different items. This is one example of evidence that can be taken to support the "two minds" interpretation of a split-brain patient post-surgery. At the same time, there are reasons to think otherwise, such as the one Nagel mentions (and not all patients exhibited results like P.O.V.'s).

One primary strength of the conscious duality model is the way in which it accords with intuition and the observed lack of integration between the brain hemispheres in these patients, at least in experimental settings. It may be odd to imagine a single conscious organism with two minds, but it does not shatter our way of thinking about mindedness *in general*. To use Nagel's terminology, the two-minds approach allows us to interpret the case using the assumption of "whole number countability." Not only are minds countable under this approach, but they are also internally unified. Each of the two minds in a split-brain patient contains experiential parts which are unified with the other parts of that same mind, so we do not have to imagine that there could be a single mind with fragmented contents.

1.3 Bayne's Unity Thesis

Tim Bayne's *The Unity of Consciousness* develops an account according to which, necessarily, all conscious states of the same subject are phenomenally unified. He intends for his *unity thesis*, positing the necessary unity between states of the same subject, to be substantive rather than trivial. So, he contends with potential counterexamples drawn from neuropsychological research, such as anosognosia, hypnosis, schizophrenia, and of course the split-brain case.

On one way of understanding Bayne's unity thesis, the two-streams model would not necessarily count as a counterexample. After all, there is a way of conceiving of the case such that there are now two *subjects*, each of which has a phenomenal field with internally unified experiential contents. He briefly considers this possibility, but sets it aside, saying (Bayne, 2010, p. 194):

> Just what to say about the unity thesis should we identify subjects of experience not with organisms but with intentional systems raises many complex issues, not least of which is the problem of how to individuate such systems. However, I will leave this issue for others to pursue, for if the account of the split-brain that I offer [the switch-model] is sound then the unity thesis can be saved without denying that subjects of experience can be counted by counting conscious organisms.

In other words, he intends to endorse a stronger version of the unity thesis in which all conscious states of the same *organism* are phenomenally unified (at least synchronically), which is why he wants to argue that *even if* we consider the split-brain patient *as a whole t*o be a subject, they still do not violate the unity thesis. I will call this stronger version of the unity thesis the *organismic* unity thesis. The two-streams account does not hold that the split-brain case is a violation of the *subject* version of the unity thesis, but only the *organismic* version of the unity thesis. Bayne's switch model is meant to preserve both.

1.3.1 The Switch Model of Split-Brain Consciousness

Bayne's model for the split-brain case is called the "switch model." He claims that a split-brain patient has a single stream of consciousness whose contents are sequentially informed by the percepts generated in either LH or RH, but not both at once. This preserves the unity thesis when interpreted synchronically, because the split-brain patient will never have two concurrent phenomenally conscious percepts which fail to be phenomenally unified. While consciousness can switch from one hemisphere to the next in this view, it cannot straddle both hemispheres at one time. As Bayne argues, the main problem with disunity accounts is the assumption that both hemispheres can be simultaneously conscious. Since arguments from both representational disunity and access disunity depend upon this assumption, they are flawed since Bayne argues it is erroneous. In experimental cases where responses are elicited from both hemispheres, this could be due to a rapid and fluid switching between the two. In cases where only one hemisphere responds, Bayne argues it is more likely that the non-responding hemisphere is unconscious rather than unable or unwilling to respond.

I do not think that Bayne's "switch model" can be supported empirically. There is no biological reason to suppose that each hemisphere could not simultaneously support conscious experience in the split-brain case. He directly responds to the objection that his account is mechanistically implausible, but his response is unsatisfactory for the kind of worry I am raising. He first points out the fact that the mechanisms underlying sleep/wakefulness remain unified in the split-brain, as split-brain patients do not exhibit unihemispheric sleeping patterns (Bayne, 2010, p. 217). He also points to attentional mechanisms as a potential place to look, and these mechanisms may or may not remain unified in a split-brain patient.

This is a good start. I agree that the mechanisms underlying consciousness probably relate to mechanisms underlying wakefulness and attention, and as such can potentially remain unified in the split-brain case.[18] However, this response does *not* make it clear why this type of mechanism would favor sequential, mutually exclusive activation of each hemisphere. It appears to be evident that conscious experience in a non-callosotomized patient can include information from multiple brain regions or modules. If this is true, it seems arbitrary for Bayne to suppose that consciousness can only be produced by one hemisphere at a time *after* the split-brain procedure. What about the split-brain procedure would change the nature of the proposed attentional mechanisms underlying consciousness, making it such that they could only send resources to one hemisphere at a time? I think the *only* reason Bayne has to suppose this is the case is a conceptual one.

For similar conceptual reasons, Bayne rejects the partial unity account, and as such his framework cannot account for partial integration in patients for whom some sense modalities are split but not others. Instead, Bayne's will have to suppose that patients like this enjoy a conscious experience that is fully unified in each moment, but rapidly switching from moment to moment.

1.4 Schechter's Two-Thinkers account

Schechter agrees with me that partial unity is at least *conceptually* coherent, but she argues that the two-minds view is better supported empirically. She rejects the identification of minds with persons, and holds that at least some split-brain patients have two minds, but remain single persons. She does not hold that the two minds are or need to be *discrete* in order to be justifiably counted as two - she is well aware of subcortical structures that remain intact even in a full callosotomy. She is also amenable to the idea that there may be "degrees" of two-mindedness, a kind of spectrum

[18] Though, there is debate on this matter (Arguin et al., 2000).

between an organism that clearly has one mind and clearly has two, and different specific split-brain patients may fall on different ranges of this spectrum.

1.4.1 Positive Argument for Two Minds

Schechter's book gives a thorough and well-reasoned defense of the two-minds claim. She separates the "two minds" approach into three separate categories and defends duality in all three. The split-brain patient, in her view, is composed of two *thinkers*, two *subjects of experience*, and two *intentional agents*. She accepts that there are intermediate points between a clear case of one mind and a clear case of two minds, but argues that at least *some* split brain patients fall into the latter end of the spectrum. Specifically, she states that "the 2-thinkers claim is true of at least P.S., V.P. (also known as P.O.V. or C.Z.), J.W., L.B., and most likely C.K." (Schechter, 2018, p. 20).

In Chapter Two, called "Subjects of Experience and Subjective Perspectives," she formalizes one argument for conscious duality thusly (Schechter, 2018, p. 24-25):

> *P_1*. In a split-brain subject, S, there are RH-associated elements of experience and LH-associated elements of experience.
> *P_2*. If RH elements are unified with RH elements, and LH elements are unified with LH elements, but RH elements are not unified with LH elements, then the RH elements belong to experiential perspective E_1 and the LH elements to perspective E_2, and $E_1 \neq E_2$.
> *P_3*. RH elements are unified with RH elements, and LH elements are unified with LH elements, but RH elements are not unified with LH elements.
> SC_1. $E_1 \neq E_2$
> *P_4*. Each perspective is the perspective of some subject of experience, and each subject of experience has *exactly one* perspective.
> C. The subject of $E_1 \neq$ the subject of E_2

This is a very interesting and persuasive argument. Of primary importance is to clarify what is meant by "perspective," and to elucidate what *types* of disunities make it such that P_2 is true. Then we must determine whether these same types of disunities make it such that P_3 is true. P_4 seems stipulative, at least in part; one could argue that a single subject can occupy multiple perspectives,

but this does not seem to be what Schechter means by "perspective" here. She is referencing the subjective perspective in particular, which is just perhaps defined as the thing a single subject experiences. The emphasis on *exactly one* does concern me a bit; should we not leave it conceptually open whether subjects of experience can have multiple perspectives? This stipulative definition implies that *if* subjects are necessarily countable in whole numbers, so too must subjective perspectives be. But in part that seems to be one of the very things meant to be under discussion - can what was once a singular subjective perspective fragment for (what can still be justifiably counted as) a single subject? This is no minor point and I think clarity about the phraseology of "subjective perspective" is crucially important, but I will leave it there for now[19] and accept the terms of the argument as given.

The more substantial claim for our purposes is P_3, which must be supported by empirical data. One of Schechter's supporting arguments for the failure of unity between LH and RH in many split-brain patients is their failure at "cross-comparison" tests. A patient may be able to identify a pen with RH, and a pipe with LH, but not be able to say whether "the two objects the subject is holding are of the same or different kinds" (Schechter, 2018, p. 29). She takes this to mean that LH and RH are independently conscious of the stimuli (even conscious of their types), but each fails to be conscious of the conjunction of the stimuli. This is a failure of unity. Specifically, it is a failure of access unity. She defines access unity as such: "Two elements are access unified when they (or their contents) are jointly available for use in reasoning, reporting, or rationally guiding action" (Schechter, 2018, p. 26).

I have concerns with P_3 for primarily empirical reasons: even with the paradigmatic failures of representational unity shown in studies like the key-ring experiment, it remains possible that

[19] See Chapter 4, specifically Section 4.4.3 for an explication of my own usage of language like "phenomenal perspective."

there are still other kinds of unity between hemispheric contents. Both hemispheres may, for example, be unified in their detection of object presence even if they are not unified in their identification of object type. I also have concerns about the conceptual and empirical consequences of the conjunction of P_2 and P_4. I am concerned that these premises could lead us into a conceptual puzzle if we allow for cases where either: there are noncortical elements of experience (see Chapter 2, Section 2.3.2), or cortical elements of experience are only partially integrated (see, for example, Chapter 2, Section 2.1.1).

All in all, Schechter's detailed and nuanced articulation of the two-minds approach to split-brain cases is a worthwhile contribution to the literature, and a viable interpretative option. I do not disagree that sometimes the best approach to interpreting the phenomenal landscape of certain split-brain patients is to suppose there are two minds there. I also agree with her that there is a *spectrum* between situations that clearly seem to involve one mind and situations that clearly seem to involve two minds. She is interested in carving out the latter edge of this spectrum and providing an argument that there are split-brain patients which fall into this category. Quite frankly, I am not sure whether I disagree with her, or just have a different set of interests. I am more interested in what lies in the liminal spaces *between* one-mind and two-mind frameworks. For even if Schechter is correct that the particular patients she mentions, *in fact,* have two minds - some patients do not fit so cleanly into this category. Some patients have a partially unified consciousness, falling somewhere between one and two minds - how do we interpret these? Nagel's original insight that the split-brain cases dismantle our ordinary conception of necessarily whole-number countable minds still stands even if we can only find *one* case that falls within this liminal space. And if we can, I suspect it will open a range of interpretative options for the other cases, as well. We will

return to my positive construal of what partial unity means for minds and "counting" questions in the following chapter.

1.4.2 Minds versus Persons

Aside from putting forward a "two minds" interpretation of split-brain cases, another major contribution of Schechter's work is her distinction between minds and persons. For those split-brain patients that have two minds, Schechter maintains that they remain single *persons*. Denying the "one mind, one person" rule is her strategy for maneuvering out of what she calls the *unity puzzle*. The unity puzzle consists of the inconsistent set of intuitions that: a split-brain patient has two minds, a split-brain patient is one person, and all persons have exactly one mind (Schechter, 2018, p. 17).

Whether this proposal makes sense, of course, depends on what we mean by "mind" and by "person". When pressed on these definitions during a debate context, she stated: "I take it that to have a mind is to have a certain set of capacities" (Debate: "Do Split-Brain Patients Have Two Minds?" (LeDoux, Pinto, Schechter), 2018). These capacities are meant to be defined functionally, such that determining whether the split-brain patient has one mind or two consists in determining how many causally definable systems there are which exercise the capacities of a minded thing. Given that there is direct intrahemispheric causal interaction and only indirect (in her view) interhemispheric causal interaction, the split-brain patient has two systems exercising the capacities constitutive of mindedness.

Persons, on the other hand, are very special *kinds* of thinkers with a *particular* set of capacities. Summarizing, she states that (Debate: "Do Split-Brain Patients Have Two Minds?" (LeDoux, Pinto, Schechter), 2018):

> One of the capacities that persons have is the capacity for self-consciousness. And along with this capacity for self-consciousness is the ability to distinguish yourself from other self-conscious thinkers. And I argue that R and L lack this ability to distinguish themselves from each other because they share one body, and that this ultimately makes them parts of one person.

In other words, R and L do not view themselves as distinct thinkers (even if they are in fact two separate minds). If R speaks, L takes ownership of the utterance. Sometimes, in patients whose left hand "goes rogue," L may get frustrated and regard the left hand as a quasi-independent agent, she says - however, based on behavioral data, it does not seem that L regards the conflict with the patient's left hand in the same way that we regard *interpersonal* conflict. If there is conflict between R and L, it is better modeled as conflict *within* rather than *between* persons.

I am not opposed to her conceptual revision here, calling for a distinction between the individuation schema for minds and persons such that they do not always exist in a 1:1 ratio. While I do not disagree with a functionalist individuation schema for minds, I do not think of their causal capacities at the root of what it is to be a minded thing. I am interested in questions of individuation if minds are construed as *subjects of experience*. How many *experiencers* is a split-brain patient? How many appropriate targets of "what-it's-like" questions are there? Does *this* question require a whole-number factual answer?

Suppose Schechter is right, and P.S. (for example) is one person with two minds, on her definitions of these terms. How many phenomenally conscious beings are there in this situation? Does it make sense to ask what it might be like, experientially, to be a person with two minds - an experiencing being with two loci of thought? Does it also make sense to ask what it might be like, experientially, to be a mind that is only a proper part of a whole person? I think that both of these questions make sense (see Chapter 3 for more about my pluralist/deflationary attitude, and Chapter 4 for more about how I understand questions about "what it's like"), and frameworks for asking

and answering them will be part of sketching an understanding of the phenomenal landscape of a patient like P.S. as a whole.

1.5 Counting Minds

So, if minds are subjects of experience, and subjects of experience are beings for which things are like something (appropriate targets of "what-it's-like" questions - beings for which a third person causal construal of activities *leaves something out*), where does that leave us when it comes to questions of counting? How many subjects is a split-brain patient? One, synchronically unified but diachronically disunified subject (as Bayne says)? One, synchronically disunified subject (as the partial unity account may be taken to hold)? Or two subjects, one associated with each hemisphere, each of which is internally unified?

1.5.1 Deflationary Accounts

There is another option - perhaps Nagel was right, "and there is no whole number of individual minds that these patients can be said to have" (Nagel, 1971, p. 409). There are various reasons this could be the case. Perhaps there is a truth about the nature of the phenomenal space experienced by the organism, but there is no way to carve that space into a determinate, whole number countable number of subjects. Perhaps there are a plurality of ways, but none uniquely exactly right. Perhaps there is a non-whole number of subjects of experience.[20] Or perhaps all these questions about "counting" minds are either the wrong kinds of questions, or good questions albeit

[20] I have trouble conceiving of this option. What would it mean to say that there are π subjects in an organism, for example? Whole numbers of subjects are much easier to conceive. But why? Is there something mathematical that makes it true that subjects should be countable in whole numbers? Does it matter what base we count these whole numbers in? How fundamental is "whole-number-countability" to our conception of subjectivity?

ones with no answers at all. Characterizing this type of account, Schechter writes (Schechter, 2018, p. 19):

> Or we could seek the nearest exit, as it were, and take a *deflationary attitude* towards the "how many?" questions, one that assumes that the psychological identities of split-brain subjects are metaphysically indeterminate.

She then further states that (Schechter, 2018, p. 21):

> A deflationary attitude toward the "how many minds?" question is not equivalent to "it's all just a giant mess" dismissiveness. My own sense, however, has been that too often the latter is what the former seems to inspire.

Indeed, she is correct that deflationism does not account to dismissal nor a handwaving of the case as an impenetrable, uninterpretable mess. In fact, the idea that there is no metaphysically determinate fact of the matter about how many minds exist in the body of a conscious organism has merit. I believe that rather than closing us off to a closer examination of empirical data, a kind of deflationary attitude may serve to open our perspective and interpret that data as consistent with a *range* of counting-schema. I intend to explore this option more deeply without simply "seeking the nearest exit." Is there a way to interpret the split-brain case and the lived experience(s) of the conscious organisms who undergo this procedure *without* presupposing that we should be able to ascribe to them a determinate, whole number of minds?

1.6 Concluding Remarks

In this chapter, I have laid the groundwork for different kinds of "unity" questions, particularly in the split-brain case. I have reviewed interpretations of the case via prominent work by three philosophers: Thomas Nagel, Timothy Bayne, and Elizabeth Schechter. I think each of these thinkers gets something right about the case and provides us with important insights when it comes to the relevant conceptual landscape as well as the empirical takeaways. One lacuna in the literature

is a genuine defense of a partial unity approach - Michael Lockwood suggests one (Lockwood, 1989), but later retracts it. I think that partial unity is a viable approach to understanding split-brain consciousness.

It may be enough to make the weak claim that there is *at least one* patient for whom partial unity yields the correct model, and to do this would not necessarily be to disagree with Schechter, who argues for two-minds in certain specific patients but is open to the idea that different models fit different patients better. However, I think that even for some of the specific patients she mentions, partial unity presents a viable alternative to the two-minds approach. Another contribution I have in mind is the idea that different schema for counting minds are not necessarily mutually exclusive, because they do not necessarily track a metaphysical fact of the matter.[21] Carving up minds to be counted is a conceptual tool that enables projective empathy (among other things), but "minds" so individuated do not need to be taken to reflect an independent metaphysical reality.

In the course of this project, I intend to develop this view more fully. This will involve a close examination of the *concept* of a perspective, as well as how it relates to the concept of phenomenal consciousness. What implications does the juxtaposition of these concepts have for questions of counting? In my view, conceiving of phenomenal-consciousness in "what-it's-likeness" terms means that our answers to counting questions should be used with an eye toward understanding another being's experiential field(s). The split-brain person poses particular challenges for doing this, being neither clearly one nor two, but the answers to counting questions do not need to be clear or determinate in order to do what we need them to do.

[21] Defending partial unity and defending a somewhat "deflationary" attitude toward split-brain patients are not two separate projects. For reasons I will explain, making sense of partial unity *allows* a greater degree of acceptance that no one single schema for counting is authoritatively correct.

In the next chapter, for example, I will specifically discuss patient P.S., since there is a good amount of data about him, and because he is included on the list of persons to whom Schechter thinks the two-minds (and not the partial unity) model applies. In one sense, I agree with her that the two-minds model applies to P.S. - I think it makes sense to think of ourselves as imaginatively projecting into two experiential subjects given his level of disconnection. However, I *also* think the partial unity model applies, and thinking that the two-minds model is the end of the story will invariably leave something out about P.S.'s (for example) experiential life. For though it makes sense to attempt to imaginatively project into his LH and RH separately, I will argue that it also makes sense to ask "what it's likeness" questions about the patient *as a whole*. This is not *merely* a claim that in practice, we should (morally, etc.) *treat* P.S. as a single experiencing being. I think there is a genuine way in which P.S. *is* a single experiencing being, so our attempts at imaginative projection should reflect that.

To make this case, I will need to show data that there are at least *some* experiential parts that remain unified for the patient as a whole post-surgery. As I discussed earlier, aided by Schechter, it is no simple task to divorce the conceptual from the empirical when it comes to comparing between the partial unity and the two-minds models for split-brain cases. However, Schechter has at least framed her position in a way that is intended to be empirically falsifiable. Is there direct, rather than merely indirect, interhemispheric interaction within patient P.S.? If the case can be made that there is, this would pose a direct threat to her account of P.S.

At the same time, even if there is *some* direct interhemispheric interaction in a split-brain person, it is more limited than a typical, non-split person. There may be many senses in which the hemispheres do operate independently, and senses in which it may be *useful* to think of them as "housing" two distinct "conscious streams." Schechter thinks that a deflationary picture about

counting minds "may discourage us from taking a hard and detailed look at the empirical literature" (Schechter, 2018, p. 21), but I do not see it this way. My account is *perhaps* better characterized as pluralist rather than deflationary, but they share in common the idea that there is no necessarily singular, unitary, and determinate answer to "how many?" questions regarding subjects of experience. This may seem counterintuitive because of the conceptual relationship between subjectivity and phenomenal consciousness. Phenomenal consciousness is thought to be uniquely, intrinsically, and irreducible "first-personal" in structure. But what does this actually amount to? And does it really entail that there should be a unitary, singular fact of the matter when it comes to counting subjects? I will argue that it needn't.

2. The Partial Unity Account of Split-Brain Consciousness

Abstract
A great deal of split-brain literature suggests that post-surgery, a split-brain patient now has two concurrent "streams" of conscious experience, localized to each brain hemisphere. However, most split-brain patients still have some degree of neural connectedness between the cortical hemispheres. It would stand to reason that some cortical representations are interhemispherically integrated, and some are not. If interhemispheric integration corresponds to conscious unity, then this would imply that a callosotomy may not cleanly "split" one subject of experience into two. One alternative is the partial unity account, which allows for the total unity of an organism's phenomenal experience to come in degrees. In this chapter, I will explain the partial unity picture, then respond to conceptual and empirical issues with the account. I will engage chiefly with the objections raised against partial unity by Timothy Bayne (who endorses a one-stream "switch model" of split-brain consciousness) and Elizabeth Schechter (who endorses a version of a "two-streams" view). Though the evidence does not (as of yet) establish beyond doubt that partial unity is definitely true, it does not rule it out either. I argue that it should be taken seriously as a genuine contender with distinct advantages over "two-streams" pictures. Partial unity represents a viable alternative hypothesis regarding the structure of split-brain consciousness, and it is important not to rule it out when attempting interpretations of patient behavior.

The partial unity account of split-brain consciousness holds that in some cases, transitivity fails between concurrent experiential parts of the same conscious subject. This means that one and the same subject can be having two concurrent experiences E_1 and E_2 which are each phenomenally unified with a third experience, E_3, yet not unified with each other. As with any view on the structure of split-brain consciousness, the partial unity account has many *prima facie* advantages while at the same time bringing counterintuitive implications. Its very coherence is on shaky ground. Both Schechter and Bayne admit that the partial unity account is not (at least not technically) *logically* incoherent, but at the same time there are conceptual reasons to be wary of it as the model for split-brain consciousness, and the empirical evidence does not seem to settle the matter one way or the other.

I want to take the partial unity model seriously as a genuine contender with the two-streams model when it comes to accounting for the structure of split-brain consciousness. In this chapter, I will first explain the account in Section 2.1, using patient D.H. as an illustrative example. This is

because patient D.H. is largely taken to be a person whose commissurotomy resulted in a perceptual split for touch, but not vision. So, according to one interpretation, D.H. has a unified visual field, but a disunified tactile field. This may seem fairly straightforward, but the confusion issues when we consider the integration *between* the visual field and the tactile field(s). If there is nothing disrupting the between-modality sense integration, then all the phenomenal tokens within the visual field will be unified with all the phenomenal tokens within the tactile field - and yet, not all of the phenomenal tokens within the tactile field would be unified with all the other phenomenal tokens within the tactile field (meaning that, consistent with the partial unity interpretation, the phenomenal unity relation is not transitive). If we conceive of sensory fields as "spaces" which subsume their contents, as Bayne does, then this makes no sense. It is also difficult to imagine what it might be like to be a subject like this.

The position that the partial unity account simply *doesn't make sense* is a tempting one to hold. However, Bayne and Schechter both admit that the view is not *technically* logically incoherent. At the same time, I think it does run counter to their respective characterizations of what it means for two phenomenal states to be unified. So, after introducing patient D.H., I will discuss the conceptual issues underlying partial unity in Section 2.2. This section will have three primary parts. First, I will explain the conception of mindedness which I think makes partial unity feel unpalatable: the intuitive idea of a "mind's eye" which accesses a "phenomenological arena" which is structured like space. Bayne (the primary focus of the second part of this section) uses the phrase "phenomenal field" instead of "phenomenological arena," and his picture is one that seems to rule out partial unity (though he claims not to rule it out on conceptual grounds, for reasons I explain). In the third part, I will focus on Elizabeth Schechter's model for the

individuation of phenomenal tokens as well as her argument for the conceivability of partial unity, which I mostly endorse.

Though difficult to demarcate conceptual from empirical when it comes to this issue, it is important to canvass and refute alleged empirical reasons for rejecting partial unity, if my aim is to establish it as a genuine contender. This will be the primary goal in Section 2.3. I will begin with an in-depth case study analysis of patient J.W. Bayne cites a study involving this patient in his alleged refutation of the partial unity model. I will explain this study and discuss why, though it does not establish the partial unity model as true, it certainly does not rule it out either. I will also discuss other research with J.W. that leaves room to suppose there is some degree of rudimentary information sharing between his cortical hemispheres. Demonstrating conscious integration between the cortical hemispheres is crucial (according to both Bayne and Schechter) if one wants to defend a partial unity account. Though I will not provide definitive proof that establishes beyond a shadow of a doubt that J.W. has direct interhemispheric integration, I argue that he might - it has not been ruled out, and there is something to be gained from remaining open to the possibility.

After discussing J.W. at length, I will turn to Schechter's discussion of the "objection from subcortical structures" against her model of split-brain consciousness. Though I press on her framing of the problem, I will grant it for the time being. She discusses five arenas of alleged remaining unity in split-brain patients, but I will focus on the unity of affect. In short, when you show an emotionally laden image to the right hemisphere, it *seems* as though the whole patient feels the emotion (they giggle, or blush, or report feeling anxious without knowing the cause). In refuting the partial unity model, both Bayne and Schechter interpret this as "priming" - each hemisphere is separately primed to represent a similar emotional state, but this does not mean that

there is a single phenomenal token that straddles the hemispheres. I concede that this is a viable interpretive hypothesis. However, there are alternative explanations available as well that have not been ruled out.

My conclusion in this chapter is relatively modest. I do not claim to establish partial unity as the definitively true and correct model for split-brain consciousness. I do, however, strongly contend that we should not rule it out. When projecting into the inner life of a split-brain patient, I argue we should be open to multiple frameworks for interpreting and understanding their experience, including the framework provided by the partial unity model.[22] I will illustrate with a final case study on patient P.S.

2.1 Patient D.H.

To illustrate the core ideas behind partial unity, let us consider the story of patient D.H. He had no severe neurologic or health issues until he was 10 years old, at which time he contracted herpes encephalitis. "The disease resulted in diffuse damage to the right hemisphere, and during his illness, he underwent an emergency craniotomy in which a portion of the right anterior temporal lobe was removed" (Risse, LeDoux, Springer, Wilson, & Gazzaniga, 1978, p. 25). As a result of this surgery, he began having seizures, and they were getting worse. As a result of these neurological problems, doctors suspected, his personality even started to change - "He was irritable, moody, careless, violent, and unmanageable at school and at home. He had formerly been very popular, a good student, and a fine athlete" (Wilson et al., 1977, p. 709). When he was 15 years old, on July 18, 1975, he underwent a callosotomy procedure to hopefully stop these seizures

[22] In my next chapter, I will be discussing how my defense of partial unity fits with my somewhat "deflationary" answer to the "how many minds" question. This is why I need not establish that partial unity is definitively correct - just that it has not been ruled out. I do not think we necessarily have to pick between the partial unity model and the two-streams model, so I am not interested in providing a knockdown objection proving two-streams false.

from continuing to spread and cause further brain damage. Initially after the surgery, he exhibited some left-side neglect to the point of paralysis and also showed signs of flat affect. He even seemed to be "aware of the competition between his right and left hands: 'They want to do opposite things.' This, too, subsided, and he was discharged on July 20 feeling well" (Wilson et al., 1977, p. 709). His story is told as one of success for the callosotomy procedure, since he exhibited marked improvements. Researchers state that "He returned to school, where his parents claimed he had become a 'model' student. His personality underwent a remarkable reversion to his former kindness, cooperation, and concentration" (Wilson et al., 1977, p. 709).[23]

D.H. was patient number nine for Dr. Wilson and colleagues. His surgery was performed a year and a half after C.E.'s (patient 8), who died 12 days postoperatively. During this year and a half, the team strategized about how to improve the safety of the procedure, and they decided to stop sectioning the anterior commissure (Reeves & O'Leary, 1985). So, for patient D.H., only the corpus callosum and underlying hippocampal commissure were severed, while the anterior commissure was spared. This is important because though its cortical connections do not seem (on average) to be as extensive as the corpus callosum's, the anterior commissure does allow for some information to be integrated across the cortical hemispheres of the brain. In fact, D.H.'s case was one of a few different similar cases that enabled researchers to study the functional relevance of the anterior commissure (Risse et al., 1978). Testing D.H. and four other callosotomized patients for interhemispheric transfer, researchers found that four out of the five patients demonstrated "complete visual transfer" (26) across hemispheres. They conclude that (Risse et al., 1978, p. 29):

[23] After he was doing better, D.H. began playing football and unfortunately suffered a blow to the head that caused him to lose consciousness. When he regained consciousness, he "had three generalized tonic-clonic seizures, which he had never experienced before, and three partial spells lasting for a few seconds, described as a sense of 'fading'" (Wilson et al., 1977, p. 709). He continued to have a "partial motor-sensory seizure of the left arm without loss of consciousness about once a month," but continued to show affective and cognitive improvement overall.

> The anterior commissure thus seems to be capable of mediating multimodal interhemispheric transfer. The extent to which these functions may develop in the absence of an acute neuropathological stimulus is not known. However, the sensory functions we have described are consistent with the normal anatomical projections of the anterior commissure. The absence of tactile transfer in the present cases further supports this functional-anatomical correlation, since somatosensory processing is not believed to involve the projection field of the anterior commissure.

To simplify, the primary takeaway is that according to study findings, it seemed to be the case that "D.H. was tactually split but not visually split" (Gazzaniga & LeDoux, 1978, p. 10). This is a helpful test case for conceptualizing what partial unity amounts to (and, further, if it turns out that *all* or at least *many* split-brain patients are likely to have *some* degree of interhemispheric transfer, then the partial unity account could generalize to other patients besides D.H. as well).

2.1.1 D.H. as an Illustration of Partial Unity

Supposing it is true that D.H. is tactually split but not visually split,[24] imagine that he is sitting at a desk with his left hand on his lap and his right hand holding a pencil, while looking at a poster on the wall. Since he is split for touch but not vision, he has a single integrated visual field and yet the tactile information from his left hand and right hand are not integrated with one another. If the tactile feeling of his left hand on his lap is E_1 and the tactile feeling of his right hand holding the pencil is E_2, while the visual experience of the poster is E_3, then D.H. is an example of partial unity if E_1 and E_2 are each unified with E_3, but not unified with one another. D.H. could in principle have a phenomenal experience at a single moment wherein: his left hand is phenomenally unified with his visual field (there would be a conjoint phenomenology between his feeling his left hand on his lap while looking at the poster), and likewise with his right hand (such that there would be

[24] In reality, it is probably more complicated. Some visual information may be transferred via the anterior commissure, but it is likely not so extensive as to establish a singular and wholly unified "visual field." Vision is a very complex sensory modality with vast cortical connections. So, this is an oversimplification, used for illustrative purposes to demonstrate the basic idea behind partial unity.

a conjoint phenomenology between his feeling his right hand holding his pencil while looking at the poster), but his left hand is not phenomenally unified with his right hand (there is not a conjoint phenomenology between his feeling his left hand on his lap while holding his pencil). This is an instance of partial unity because within a single subject (at the very least, within a single organism) there are two experiential parts (the left-hand tactile experience and the right-hand tactile experience) that are unified with a third phenomenal state (the visual field) but not unified with each other.

One advantage of the partial unity account is that it allows for a conception of the unity of consciousness that can come in *degrees*, to an extent. In a hypothetical organism with *completely* unified consciousness, perhaps all of the experiential states they are undergoing at a time are always phenomenally unified with each other, and for them there is no transitivity failure. According to the partial unity account, it is possible for this kind of complete unity to break down without cleanly splitting one mind into two discrete ones. As Lockwood, one of the first recorded proponents of what can be called a "partial unity" account put it (Lockwood, 1989, p. 89):

> Then again, what do proponents of the two-minds theory imagine would be the correct description of patients in whom the corpus callosum was gradually severed, one fibre at a time, always while the patients were fully conscious, over a period of several hours, days, months or years? Do they think that at some point in what was essentially a continuous process, a fully unified consciousness would instantaneously turn into two wholly distinct ones? This hardly seems plausible...
>
> …Is there, then, after all, some way of matching up the spectrum of physiological possibilities - that is to say, degrees of neural connectedness of the two hemispheres - with a corresponding spectrum of possibilities at the level of consciousness?

He then argued that there is, and it involves denying the transitivity principle. He further argues that transitivity fails not only for patients like D.H., who had intact commissures, but for *all* split-brain patients (and perhaps for many non-split-brain persons, too), because of the kinds of conscious experiences that may be grounded in subcortical structures and thus remain unified in

the split-brain. Schechter directly discusses the "objection from subcortical structures" against the two-streams model in Chapter 5 of her book, so we will return to this with greater depth in due course (see Section 2.3.2).

One issue with the partial unity account, however, is that it is difficult to imagine what it might be like to be a patient like D.H., or whether this is even the right question. Does that mean that the partial unity interpretation is incoherent? Or, to put it less strongly, does it mean partial unity should be shrouded in suspicion? I argue no on both counts.

2.2 Part I: On the Conceptual Coherence of Partial Unity

For the most part, it seems to me that the supposed incoherence of the partial unity account rests more on a kind of intuition rather than argument. To many, it just *feels* impossible that one and the same subject of experience could be in two experiences simultaneously without there being some sort of relation between these experiences (that is there to be experienced by the subject, should they attend to the matter). When analyzing the imagined scenario of patient D.H. in Section 2.1.1, it may feel more natural to imagine that D.H. is two subjects: one subject who feels his left hand together with his visual field, and one subject who feels his right hand together with his visual field. I think the reason this feels more natural is not because we are naturally predisposed to assume a transitivity principle, but rather because imagining any disunity within a single subject of experience is difficult or impossible.

Logically, this difficulty in imagining what it might be like to be a partially unified subject should not rule this model out. Why should within-subject disunity be ruled out as conceptually impossible? Why should our imaginative capacities limit possibility space? Even those who deny that partial unity is *correct* usually admit that it is not *technically* incoherent. But this is only a

technicality. In reality, when the evidence seems consistent with both the partial unity and the two-streams account, many may simply prefer the two-streams account. It may be *strange* to think of two streams of consciousness inside one organism, but it does not run afoul of our very notion of what it means to be a subject of experience in the first place. Imagining that there is no clear number of coherent "streams" of experience to be individuated at all is much more difficult.

Perhaps the brute intuition underlying the felt incoherence of partial unity comes from this intuitive or pre-theoretic idea of what it is to be a subject of experience, which is often based upon the introspective view. Even Lockwood, who is often credited with advocating for something like a partial unity account,[25] admits that he doubts its coherence, writing (Lockwood 1993):

> I must confess, however, that, in spite of having defended it in print, I am still by no means wholly persuaded that the concept of a merely weakly unified consciousness really does make sense. Like Nagel (1979, pp. 160,163), I am still unable to project myself into the position of a subject with a partially unified and partially disunified consciousness. So, as for what it is like to *be* such a weakly unified subject, I don't really have a clear conception…

As Lockwood suggests here, and as others have echoed, the difficulty with imagining what it is like to be a partially unified subject is the major barrier to its coherence. I think that this point actually runs deeper than the limits of our own imaginative capacities. There are many experiences one cannot personally imagine that do not necessarily strike one as nonsensical for that reason. When a nonhuman animal has a sensory faculty that humans do not have (e.g. the classic echolocation example), we do not question whether its subjective experience really could include that faculty.

No, the issue is not simply that *we* (or, I) cannot *imagine* what it might be like to be a subject with a partially unified experience. The issue is that it seems in-principle *unimaginable*,

[25] Though, as he notes, others have advocated for it before him, such as Trevarthen (1974).

for any subject of experience. It seems impossible to lay before one's mind's eye a partially unified experience. But why? In my view, it is because of an intuitive idea of the nature of mental space, which I will explain in Section 2.2.1. Bayne's view of the unity relation as subsumptive fits well with this. I will explain this account, as well as Bayne's argument for the weak inconceivability of Partial Unity in Section 2.2.2. Finally, I will explain Schechter's alternative mereology of conscious experience in Section 2.2.3, while also going over her characterization of how to distinguish the two-streams (or duality) model from the partial unity account.

2.2.1 The "Phenomenological Arena"

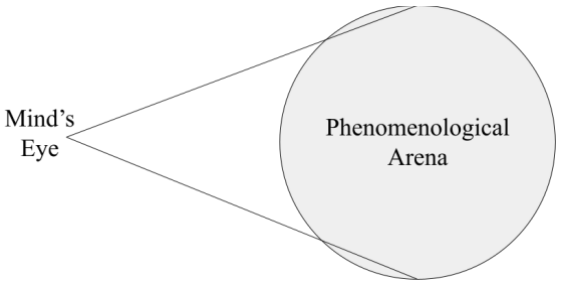
When Nagel introduced the philosophical community to the split-brain case in his 1971 article, he framed partial unity as one of the five interpretative options that attributes to the patients a whole number of minds. Specifically, partial unity can be categorized as Nagel's option (4), which states that patients "have one mind, whose contents derive from both hemispheres and are rather peculiar and dissociated" (Nagel 1971 p. 403). He does not seem to think that this option is quite sensible, for it violates basic assumptions about our concept of a person. He states (p. 407):

> Roughly, we assume that a single mind has sufficiently immediate access to its conscious states so that, for elements of experience or other mental events occurring simultaneously or in close temporal proximity, the mind which is their subject can also experience the simpler *relations* between them if it attends to the matter. Thus, we assume that when a single person has two visual impressions, he can usually also experience the sameness or difference of their coloration, shape, size, the relation of their position and movement within his visual field, and so forth. The same can be said of cross-modal connections. The experiences of a single person are thought to take place in an *experientially* connected domain, so that the relations among experiences can be substantially captured in experiences of those relations.

In other words, it is difficult to conceive of a single experiencer whose experiential contents are not unified. This difficulty makes sense! When we introspect upon our experience, laying it before our mind's eye, of course it is hard to imagine that we could be simultaneously undergoing two

experiences which fail to be unified. But the contents of introspection are a biased sample of conscious happenings. If we take these contents to exhaust the contents of consciousness, then it seems like all the conscious events you are undergoing should be phenomenally unified. Further, they should be comparatively unified - you should be able to lay them side by side, comparing them in terms of sameness and difference.[26] Nagel is gesturing at a very important intuition, which I think underlies a lot of the difficulties with interpreting partial unity.[27]

I think this intuition is linked to the very natural inclination to think that subjects of experience have a kind of "phenomenological arena"[28] upon which the introspective gaze (or "mind's eye") looks. The phenomenological arena (or phenomenal field, as Bayne calls it) is structured like space - like a cartesian plane in geometry. Any two points on a Cartesian Plane are related to one another - they exist in the same space, and they can be connected by a line. Similarly, in experiential space, perhaps any two experiences of the same subject bear this type of structural relation with one another. At the very least, the fact that two experiential parts are experienced by the same subject makes it such that these experiential parts are connected. Very roughly, the intuition is that experience is structured something like this:



[26] Note that Nagel here says we can only *usually* experience sameness and difference between conscious tokens, not always or as a matter of conceptual necessity. This is important, because if it is only *usually* the case that we are able to compare concurrent phenomenal tokens, then counterexamples may be rare, but certainly not impossible. Due to the difficulty of imagining what it is like to be a subject like this, though, I think there is a tendency to reify the structure of conscious experience imputed by Nagel's quote, which implies that this unified feature should be necessary.

[27] In fact, further than just being applicable to split-brain cases, I think this intuition underlies much of the difficulties with accounting for consciousness itself naturalistically, but we'll leave that for another day.

[28] I got the "phenomenological arena" locution from Cheng (2014) who got it from Johnston (2010).

If E_1 and E_2 are experiences of the same person, then they would fall within that person's phenomenological arena. That person then would necessarily also be able to have an experience of "E_1 and E_2" (experience of a relation) that captures not only their experience of "E_1" and their experience of "E_2", but also their being related to one another and experienced as such (relations among experiences). E_1 and E_2 are experiential parts, and the person (or mind's eye, or subject) experiencing them cannot experience both without being able to experience their relation, because to experience something means it falls within one's phenomenological arena (which, again, is structured like a space).

To put it in terms from the previous chapter, the intuition seems to imply that subject unity should entail both phenomenal unity and comparative unity which are both transitive. If I am a single conscious being, then it seems all the experiential parts of my total phenomenal experience should be such that I experience them together and experience their relations. According to the simplified picture of the structure of consciousness above, any two states experienced by the same subject exist in the same phenomenological arena. This makes them phenomenally unified because they are necessarily felt together by the same subject. On this picture, phenomenal unity also seems to entail comparative unity, because the subject would be experiencing E_1 and E_2 on the same experiential plane, and thus in theory be able to lay them side by side, introspectively accessing both experiential parts at once as well as their relation. The **strong** version of this intuition is that not only are subjects of experience *usually* able to experientially access relations among their experiential parts, but that this is *necessarily* the case - all the experiences undergone by a single subject of experience are *related to one another* and *experienced as such*.

This simplified picture of the structure of consciousness is enough for some purposes, but it can lead us astray. It results in a picture according to which partial unity is actually *inconceivable*,

and I stand by the contention that partial unity should not be ruled out on conceptual grounds. It is an empirical question of whether there are, in fact, cases of an experiencing subject[29] being in two experiential states at once without experiencing their relation (and whether such possibilities are the exception or the rule).

2.2.2 Bayne on Weak Inconceivability

Recall that the plausibility of partial unity interpretations of the split-brain (and other) cases rests on whether the phenomenal unity relation is transitive. Bayne notes that we can clearly imagine failures of transitivity for sets of *sequential* experiences, "but it is far less plausible to suppose that transitivity can fail for sets of *simultaneous* experiences" (Bayne, 2010, p. 37). Part of the reason this seems implausible, if we do not want to presuppose a conceptual connection between subject unity and phenomenal unity, is because it is difficult to imagine what it would be like to be a subject with a partially unified experience. More specifically, it is difficult (perhaps impossible) to *project* ourselves into a perspective like this. Bayne calls this the "projectability argument" and he formalizes it thusly (Bayne, 2010, p. 39):

> (1) If partial unity were possible then there would be something distinctive it is like to be a partially unified subject - there would be such a thing as a partially unified phenomenal perspective.
> (2) We are unable to project ourselves into a partially unified phenomenal perspective.
> (3) If there were such a thing as a partially unified phenomenal perspective then we should be able to project ourselves into it.
> (C) Thus, partial unity is impossible.

In my view, though I understand the intuitive pull behind this line of reasoning, I ultimately think that all three of these premises are open to question, and the argument does not satisfactorily

[29] Depending on how we stipulate our use of the term "subject" here, we may get different answers to the question.

establish the impossibility of partial unity. Though he put this argument forward for consideration, Bayne would agree with me that it fails.[30] He writes that "Premise (3) could be defended only if there were reason to think that our projective abilities limn the space of phenomenal possibility, and there isn't. (In fact, there is good reason to think that our projective capacities extend to only a very small region of that space.)" (Bayne, 2010, p. 42-43). I think this is exactly correct. Even though Bayne explicitly states this, the difficulty in imagining what it might be like to be a subject with a partially unified experience continues to influence his thinking.

Rejecting the projectability argument against the possibility of partial unity, Bayne turns to a conceivability argument. His first step is to distinguish *strong* from *weak* inconceivability: "A scenario is strongly inconceivable for S when S seems to see that it is impossible, whereas a scenario is weakly inconceivable for S when S cannot see that it is possible" (Bayne, 2010, p. 43). He only thinks that partial unity is *weakly* inconceivable, so while still *technically* a live option for split-brain interpretation, it is "one that is surrounded by a significant degree of suspicion" (Bayne, 2010, p. 44).

Consistent with this aim, he does consider the partial unity model of split-brain consciousness, also using patient D.H. as an example. Given the evidence of integration between D.H.'s cortical hemispheres, it seems plausible to suppose that "each of his visual experiences is unified with both his left-hand tactile experience and with his right-hand tactile experience, even though those experiences are not unified with each other" (Bayne, 2010, p. 207) - a clear example

[30] Although I think my own concerns extend beyond his. I have difficulty conceptualizing the notion of "phenomenal perspective" at play, as well as concerns about the "we" and "ourselves" in (2) - for me, a good deal of this debate concerns the fundamental question "What am I?" If I am an organism, I see no reason to accept (2), for I could *already be* in a partially unified phenomenal perspective. But it seems to me Bayne thinks, though subjects are countable on the same schema as organisms, they are not identical with them. And something specific seems to be going on with the term "phenomenal perspective." Lockwood uses the "phenomenal perspective" locution as well, but the situation he describes in which transitivity fails is not one of a single phenomenal perspective, but two (or more) partially overlapping ones (Lockwood, 1989, p. 90-95).

of partial unity. However, he argues that the advocate of the partial unity interpretation needs to be able to show that there *really is* interhemispheric integration going on here (i.e. that the behavioral evidence demonstrating it cannot be explained another way) *and* that "the integration in question is conscious" (Bayne, 2010, p. 207). It is possible to produce behavioral responses that seem integrated in a split-brain patient even without involving interhemispheric integration.

Bayne ultimately thinks that there is not sufficient empirical support for the partial unity account of split-brain consciousness, although "the deepest challenges facing the partial unity model are not empirical but conceptual" (Bayne, 2010, p. 209). The force behind the conceptual problems with the partial unity account comes from the intuition that "It seems to be central to our notion of a phenomenal perspective that phenomenal unity cannot fragment in the way that partial unity would require" (Bayne, 2010, p. 209). Since he only takes partial unity to be *weakly inconceivable*, the conceptual issues with it may be able to be overridden if there were *strong* empirical support for it, but in his view, there is not. I think there is room to push back here on both counts.[31] If we can find even *one* case in which the empirical evidence for partial unity seems strong, the argumentative weight of any *conceptual* issues with the proposal is lost. I am interested in the precise nature of the conceptual revision that may be necessary if we take partial unity to be a *genuine* interpretation of (at least some) cases, rather than an abstract/theoretical possibility (that even if not *technically* incoherent, still does not feel natural enough to be taken seriously). We will return to his empirical case against partial unity in Part II (Section 2.3).

First, there is still more to say about Bayne's conceptual points. He claims that partial unity is not technically incoherent, but his mereological account of the structure of conscious experience

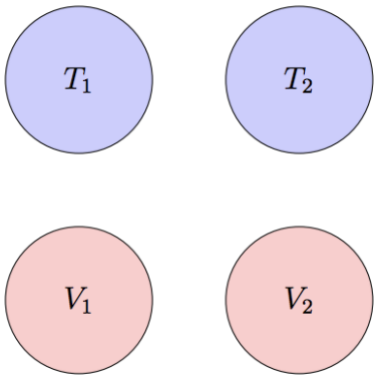
[31] And it is important to note that they are not wholly divorceable - interpretations of empirical results can plainly be influenced by preconceptions about the nature of mindedness. While doing said interpretations, it is important to look into the details of each particular patient's history and each particular study's design.

really does seem to rule out the partial unity model. This may affect his interpretation of empirical data.

2.2.2.1 Bayne's Mereology of Conscious Experience

For Bayne, phenomenal unity is subsumptive; when two states are phenomenally unified with one another, they are subsumed under a "total conscious state" or phenomenal field. In his mereological model of conscious experience, phenomenal unity is a matter of co-subsumption (Bayne, 2010, p. 20). This goes hand in hand with his *tripartite* account for the individuation of phenomenal tokens, according to which "experiences are to be individuated in terms of subjects of experience, times, and phenomenal properties" (Bayne, 2010, p. 24).

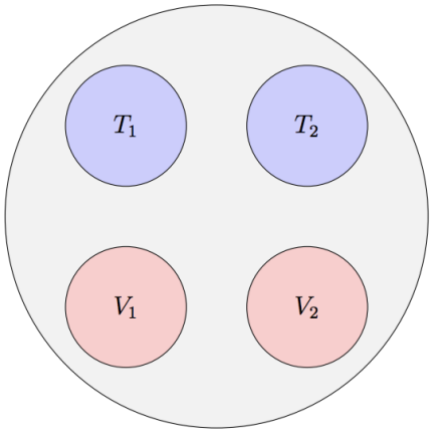
Let us illustrate what Bayne's mereological account has to say about the unity of a patient like D.H. both before and after surgery. Suppose that, before surgery D.H. is undergoing an experience with at least 4 experiential parts:



(a.)

In the above figure (a.) suppose that the top two circles (T_1 and T_2) represent two distinct tactile contents, such as a different object in the left hand and the right hand. The bottom circles (V_1 and V_2) represent two distinct visual contents located in the left vs right visual field.

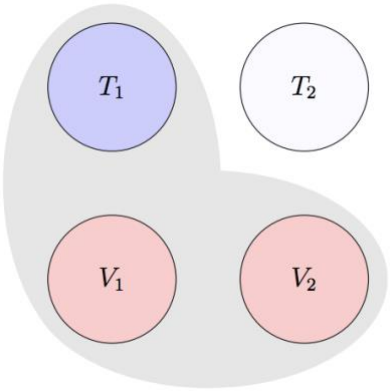
Before the procedure, all of these experiential parts (we can suppose) would be integrated as well as phenomenally unified. How should we imagine this integration to be structured? On Bayne's subsumptive account, as mentioned, phenomenally unified states are subsumed under a "total" phenomenal state.



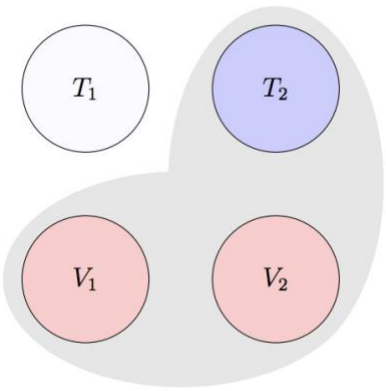
(b.)
The Subsumptive Model

According to this model, each of the experiential parts is subsumed underneath an experiential whole or "total experience." This seems to be Bayne's framework for the structure of the unity relation in typical subjects. What is the structure of D.H.'s consciousness *after* the tactile split, on Bayne's mereological account taken alongside his switch model?

Assuming the visual field really does remain integrated in D.H., V_1 and V_2 should continue to be subsumed under a single phenomenal field. However, T_1 and T_2 should not be, supposing that D.H. is tactually split. Further, there should only be one phenomenal total state occurring at a single time. So, it seems the subsumptive mereology combined with the switch model in patient D.H. would imply that the structure of his consciousness rapidly switches back and forth between (c.) and (d.), where T_1 and T_2 are never simultaneously conscious:



(c.)



(d.)

This subsumptive mereological account leaves no room for partial unity or degrees of unity - either a mental state is subsumed under a subject's total phenomenal experience or it is not. Bayne's switch model allows him to make sense of hemispheric de-integration without ever having to accept two conscious contents which are simultaneously experienced by the same conscious subject but not unified with one another.[32]

Again, even though Bayne claims that partial unity is technically coherent, his model does not have any room for making sense of partial unity. And there are deeper underlying conceptual reasons he turns to this model. His conception of phenomenal consciousness involves something intrinsically perspectival. He writes: "Phenomenal consciousness — and only phenomenal consciousness — brings with it an experiential perspective or point of view. There is something that it is like for me to be me, and — I presume — there is something that it is like for you to be you. An account of consciousness is nothing more nor less than an account of what is involved in having such a point of view" (Bayne, 2010, p. 5).

[32] If one could provide definitive empirical proof that T_1 and T_2 are simultaneously experienced for DH, Bayne's switch model would be out the window, but his mereological model of conscious experience would not necessarily be. He could maintain the subsumptive model for conscious unity and the *subject* version of the unity thesis, simply holding that DH is now two subjects. His *organismic* version of the unity thesis, however, would be thwarted, if such proof were available.

This, to me, begins to get at the root of the issue. To have phenomenal consciousness is to have a *point of view* on the world, for Bayne, and on many intuitive conceptions of consciousness. Phenomenal consciousness is *perspectival* in an important sense. The perspectival nature of phenomenal consciousness means that experiences are *experienced by* a subject and, again, that subject accesses some sort of experiential "field-of-view."[33] I think that this rough way of looking at things, if taken too seriously, has the potential to rule out partial unity at the ground level. There is unity built-in to many natural ways of thinking about experience. I think we need to be aware of and vigilant against our natural inclination to think of subjects of experience in this way if we want to take the partial unity model seriously.

2.2.3 Co-consciousness and the conceivability of Partial Unity

Schechter aims to give an objective characterization of the structure of conscious experience while maintaining the intuitive characterization of two conscious states as phenomenally unified when they are experienced together (Hurley, 1998; Schechter, 2010, 2012, 2014, 2015). She prefers the phrase "co-consciousness" over "phenomenal unity." The co-consciousness relation refers to a relation *in virtue of which* two conscious experiences E_1 and E_2 have their felt unity relation. So, the primary difference between Schechter and Bayne is that the former views the relation as a connection that is had between states, in virtue of which they are "felt together," while the latter views the relation as the phenomenal unity or "felt together-ness" in virtue of which states are connected. The latter requires a subsumptive conscious state for conscious unity.

[33] In my view, though, there is no inherent contradiction in supposing that there can be radically fragmented conscious experiences, with no fact of the matter of how many "points of view" the organism has. The only difficulty is with imaginatively occupying a perspective like this. But to imaginatively occupy an experience is only to reconstruct it before your mind's eye. Perhaps not all kinds of phenomenal experiences are or can be reconstructed before one's mind's eye - we should not take this to mean that experiences like this cannot be lived and felt.

Schechter also critiques the way in which Bayne individuates conscious tokens (Schechter, 2012). Bayne endorses a tripartite account, according to which conscious tokens are individuated by their subject, time of occurrence, and felt phenomenal character. Schechter contrasts this with a vehicular account, according to which there is some physical or functional property of a conscious token which is essential to its identity (Schechter, 2012, p.12). So, for Bayne, phenomenal unity must itself also be a felt feature of experience, characterized only by how it feels from the inside. His subsumptive account of phenomenal unity goes hand in hand with his subjective characterization of conscious experience.

In sketching out a "preliminary defense" of a partial unity model (PUM) of split-brain consciousness, Schechter first distinguishes it from the unity model (UM) and the conscious duality model (CDM). The primary distinction that renders the PUM unique is that it "drops the transitivity assumption, allowing that a single experience may be co-conscious with others that are not co-conscious with each other" (Schechter, 2014, p. 351). This is distinct from a version of partial unity that might hold that *some* unity relations (among, for example, those sketched in Section 1.1.1) hold interhemispherically for a split-brain patient and some do not. Instead, she wants to consider partial unity as the idea that "conscious unity relations hold between *some* experiences, but not between others" (Schechter, 2014, p. 351). The PUM may seem initially attractive, she notes, because: it offers a "middle ground" between the UM and the CDM, it allows a clear parallel between the neurophysiological basis of consciousness and its structure, and it allows for a large degree of sensitivity to the specifics of each individual case. However, she also points out that it has received little philosophical attention, noting two key challenges: the *inconceivability* challenge (the idea that the PUM implies the possibility of an *unimaginable* conscious structure) and the *indeterminacy* challenge (the idea that there is nothing clear that can

be pointed to that would make it the case that PUM is true) (Hurley, 1998; Schechter, 2014). She thinks the two objections are intimately related, as she states (Schechter, 2014, p. 353):

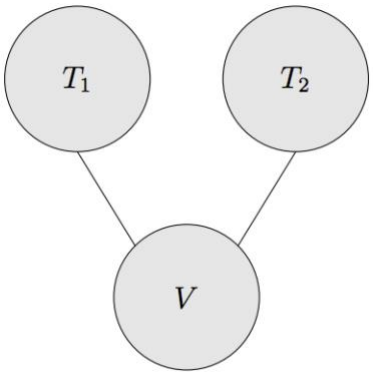
> The inconceivability objection is rooted in the fact that there is nothing *subjectively* available to a subject that makes her consciousness partially unified as opposed to dual; the indeterminacy challenge adds that there is nothing *objective* that would make it partially unified either. Taken together, these concerns may even imply that there is no such thing as a partial unity model of consciousness.

She addresses these objections and discusses why the PUM is still a live option as a model for split-brain consciousness. This is important, because this makes it an *empirical* question whether the co-consciousness relation is, or must be, transitive.

As regards the inconceivability objection, she first points out that a partially unified consciousness is "sequentially if not simultaneously imaginable" (Schechter, 2014, p. 357). This goes along with Lockwood's characterization - he thinks that co-consciousness is not necessarily transitive, but defines a *phenomenal perspective* as being "composed of all and only the members of some set of experiences, such that every experience in the set is co-conscious with every other" (Lockwood, 1989, p. 92). Failure of transitivity then implies that phenomenal perspectives can *overlap* such that one and the same token experience can be a member of multiple such sets. He writes (Lockwood, 1989, p. 92):

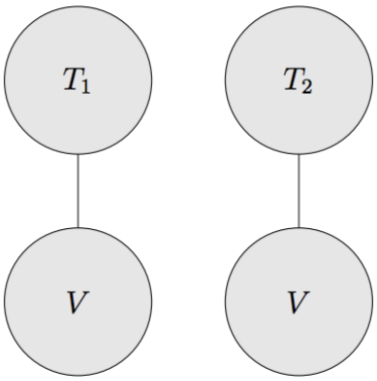
> So, in the simplest case, all that is required to imagine a given state of awareness of a commissurotomy patient is to imagine each of his current, overlapping phenomenal perspectives in turn. *Pace* Nagel, just two acts of 'projecting ourselves into the mental life' of a commissurotomy patient will suffice; it is no more problematic to imagine what it is like to be these patients, on the present view, than it is on Sperry's, according to which there are two completely separate streams of consciousness.

Schechter seems to agree when she states that "the inconceivability objection should face the PUM and the CDM equally" (Schechter, 2014, p. 357).[34] She explains with the aid of figures like (i) and (ii) below. If these figures represent, for example, the structure of patient DH's consciousness for the partial unity vs. two-streams account, the difference is whether there are *two* phenomenal tokens for DH's visual field experience(s) (with duplicate contents) or one. If we individuate phenomenal tokens in such a way that we can count two phenomenal tokens for his visual field experience, then transitivity does not fail.



(i) Partial unity

[34] I am skeptical about Lockwood's reasoning in the passage above. I think it is possible that there is "something it is like" to be the patient *as a whole* even if there is no singular fully unified "phenomenal perspective" (in his sense of the term, where phenomenal perspectives are just defined as a set of co-conscious tokens) into which we can project and imaginatively *capture* that "what it is like." Perhaps I am using the "what-it's-like" locution differently here, more loosely. I like much of Lockwood's analysis, but in my view, we have not exhausted the phenomenal landscape of a partially unified consciousness by projecting into it twice. Here I may be aligning closer to Nagel's interpretation than Lockwood's - there may be no whole number of times we can imaginatively project into a split-brain person's consciousness to capture the structure of their phenomenal landscape (the idea being that we *can* do it once, and we can do it twice, but neither is by itself, nor are they combined, the end of the story).



(ii) Conscious duality with duplication

Given either structure, (i) or (ii), one simultaneous act of projection would not be enough to capture what it is like to be patient D.H. This is only typically taken to be a conceptual problem for the PUM though, and not the CDM - why? Schechter rightly points out that this has to do with how we count conscious *subjects* in relation to counting sets of co-conscious states. We naturally interpret the CDM as not only postulating two streams of consciousness, but also two *subjects of experience*, such that it is not surprising that two acts of projection are necessary to imagine what it might be like to be such an organism. As she writes (Schechter, 2014, p. 358):

> There must at least be two *subjective perspectives* in the conscious duality case because the co-consciousness relation is itself one that appeals to falling within such a perspective. (Think about the origins of this "what it's like" talk!; Nagel, 1974).[35] An experience is conscious if and only if it falls within some phenomenal perspective or other; two experiences are co-conscious if and only if they fall within the same phenomenal perspective, if there is some perspective that "includes" them both.

So, if there is a one-to-one relationship between subjects of experience and phenomenal perspectives, then there are two subjects in the CDM, and if there is not, then there could be one subject whose experience is not imaginable via a single simultaneous act of projection. The

[35] This parenthetical was indeed in the original quote by Schechter, I did not add it. Although just a brief aside here, I was extremely intrigued by the idea that "what it's like" talk has particular implications for how to count subjective perspectives. I will say more about "what it's like" talk in Chapter 4.

situation might seem more complicated when it comes to the PUM, which has often been interpreted as attributing to a *single* subject a partially/weakly unified consciousness, but Schechter argues the same reasoning applies. If a phenomenal perspective contains the set of experiential tokens that are all simultaneously co-conscious with one another, then the patient represented by structure (i) has two phenomenal perspectives. If subjects of experience stand in a one to one relationship with phenomenal perspectives, then there are (at least) two subjects here, also (making it not surprising that it should require two acts of projection).

How do we even distinguish between the models then? Well, as mentioned, the models will require different individuation conditions for token experiences (Schechter, 2014, p. 360):

> Because streams of consciousness are strongly unified, according to the CDM, an experience's token identity may depend upon the phenomenal perspective that it falls within (or contributes to). The PUM foregoes this dependence: there can be multiple phenomenal perspectives associated with the same stream of consciousness, and a single experience can fall within multiple phenomenal perspectives.

Given the distinction between the structures represented in (i) and (ii), the question is whether the visual field experiential part that is co-conscious with his left-hand experiential part is *one and the same* experiential part that is co-conscious with his right-hand experiential part, despite the fact that the left and right hand experiential parts do not fall within a singular phenomenal perspective. There is nothing subjectively, from the inside, that would tell us the token identity of an experiential part that falls within our phenomenal perspective is the same as one that falls within another subject's phenomenal perspective. So, the force of the inconceivability argument has been dealt with, but what about the indeterminacy objection - is there anything that can be appealed to in order to adequately distinguish between the models empirically and give evidence for the PUM over the CDM?

In response to the indeterminacy objection, Schechter offers two points. First, it is possible that a more fully worked out theory in the science of consciousness could give a clearer framework for the individuation of conscious tokens such that "one experiential token or two" becomes an empirical question. Since this does not exist yet, she also points out that the indeterminacy objection is *equally* forceful against the CDM as it is the PUM, and so it cannot be used to uniquely rule out the PUM. Here she is primarily responding to Hurley, who thinks the indeterminacy objection is uniquely fatal for the PUM. This might be the case for versions of the CDM without content-duplication, since they do not rely on stipulations about token individuation for experiential parts, but Schechter thinks that most versions of the CDM (at least for the split-brain) will eventually have to posit *some* duplication of contents. Hurley thinks the CDM-duplication model still gets around the objection because it offers "a *constraint* according to which a partially unified consciousness is impossible" (i.e. the transitivity principle) (Schechter, 2014, p. 366). Without a similar constraint, the PUM must posit a partially unified consciousness merely as a matter of stipulation. But Schechter argues the PUM advocate could rely on a different constraint (Schechter, 2014, p. 367):

> For the PUM, the individuating role is played by the *nonduplication constraint*. This constraint might say simply that, at any moment in time, an animal cannot have multiple experiences with the same content.

She concludes that there is no *principled* reason to suppose that PUM is incoherent or implausible. It is at least *possible* that there should be "determinate cases of partially unified consciousness" (Schechter, 2014, p. 368). But she has also shown how these questions, while empirically relevant, are highly conceptual and theoretical in nature. She also goes on to write a book length defense of a duality model, so even though partial unity is *possible* in her view, it is not the view she ends up defending.

Enough about the conceptual concerns with the partial unity model. The core issue, really, is that it feels hard to imagine what it would be like to be a partially unified subject - but again, if pressed, I think most theorists would agree that this "felt incoherence" is not enough to rule the model out. If an empirical case can be made that transitivity can and does sometimes fail for simultaneous states of conscious experience, then any felt incoherence is moot.

2.3 Part II: The Empirical Case for Partial Unity

There is a difficulty with establishing as a matter-of-fact that partial unity is the correct model. After all, take patient D.H. from Section 2.1 above. If partial unity is true at all, it would seem true for him, someone split for touch but not vision, but this is not so obvious. Even if they accept that D.H. is tactually split but not visually split (which they may not), proponents of within-subject unity could simply move to a defense that D.H. is two subjects accessing the same visual field (or accessing distinct but duplicated phenomenal tokens), rather than one subject with fragmented experience. However, this is the tactic of neither Bayne nor Schechter. Each attempts to defend their respective view by showing that there in fact is *not* significant between-hemisphere integration for most split-brain patients. If we can show that there is, in fact, significant between-hemisphere integration in most (or even some) split-brain patients, the case for partial unity seems strong.

In this section, I will be canvassing selected empirical evidence for and against the partial unity model. I have two primary takeaway points. First, I do not agree that proof of *direct* interhemispheric interaction is actually necessary in order to defend something like the partial unity account. All that is necessary is to show that there is/are some phenomenal state(s) experienced by the patient *as a whole*, rather than being experienced by the respective

hemispheres. However, I do think that there often is evidence of direct interhemispheric interaction (or at least no clear evidence against it), so it is not entirely necessary to refute Schechter or Bayne's overall framings of the problem in order to refute their respective solutions to it.

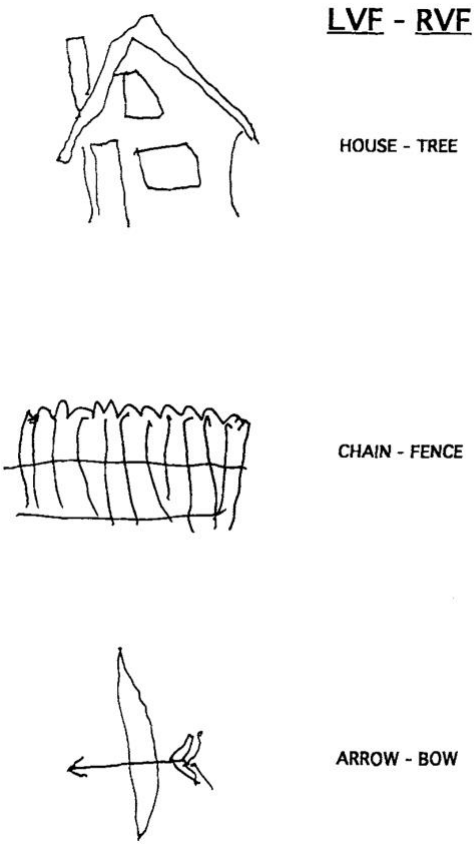
2.3.1 Patient J.W.: Integration, or not?

Bayne cites a study that involved patient J.W., a right-handed male. At 13 years old, J.W. began to experience absence seizures, but was not treated for them. He went in for neurological evaluations after he had a major motor seizure at 19 years old, during which visit doctors performed an EEG which showed irregular spike waves during sleep with a right anterior temporal prominence. He was monitored and hospitalized regularly for the next seven years and eventually underwent a "two-stage microneurosurgical section of his corpus callosum over the summer and fall of 1979" (Gazzaniga, Nass, Reeves, & Roberts, 1984, p. 131). From examinations after both his first and second stage of surgery, he seemed to demonstrate the capacity to understand language in the right hemisphere, but not to produce it (for the time being).

J.W. was 40 years old at the time of the relevant study, meaning the study was done over 10 years after his initial surgeries. In the study, researchers wanted to test whether cases of seeming interhemispheric transfer really occur due to cortical integration, or if there is some other explanation. J.W. was presented with a word pair (with one word displayed to the LVF and one to the RVF) and asked to draw a representation of the word(s) he saw with a single hand, with or without visual feedback. They ran the experiment in multiple stages, and the first stage did seem to suggest interhemispheric transfer of information - J.W. sometimes seemed able to draw images that formed the composite of the words presented to both visual fields. As an example, see Figure 2.1, and notice that J.W.'s left hand drew a bow and arrow, even though only "Arrow" was flashed to his LVF. He also drew a *house*, which makes sense given that he saw "House" flashed to his

LVF, and a *fence*, which represents the word flashed to his RVF (LH). How could his left hand have been able to draw depictions of words his RH should not have had access to?

Figure 2.1: Examples of Drawings done by J.W.'s left hand during Experiment 1, with visual feedback (Kingstone & Gazzaniga, 1995)



According to the *subcortical integration hypothesis*, J.W. was able to draw a fence with his left hand (even though his right hemisphere did not directly perceive the word "fence") because of interhemispheric transfer. According to this hypothesis, J.W. (like D.H.) would be not entirely perceptually split for the visual modality - the cortical hemispheres may have some method of information transfer outside the corpus callosum that allows them to share information about visual representations.

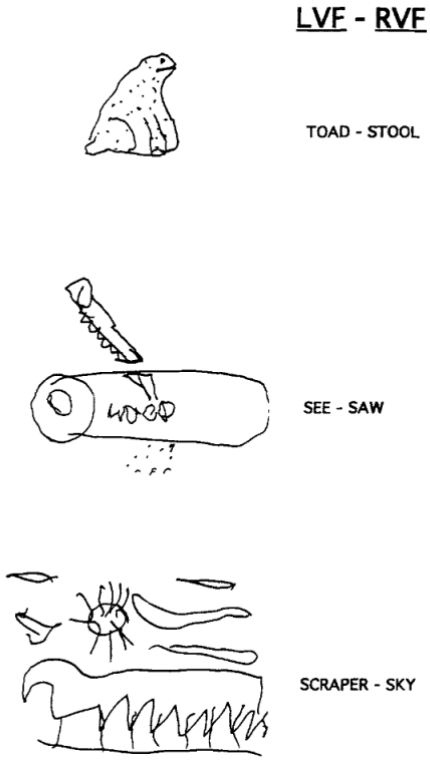
Kingstone & Gazzaniga go on to challenge that picture. They think that there is some other explanation for J.W.'s left hand being able to draw a fence. One possibility is that there is some *external* method by which the left hemisphere is able to clue the left hand in as to what to draw. After all, this study took place so long after J.W.'s initial surgery, it is not out of bounds to assume that his hemispheres, even if they are two independent agents and subjects, have developed intricate and seamless modes of wordlessly communicating with one another via subtle signals.[36] This would explain why the frequency of the left hand drawing the item presented to the RVF decreases (from 31% to 24%) in the "no feedback" condition, as shown in the below table. Another possibility is that the LH was sometimes able to seize control of the left hand as it drew. The data represented in the table do not establish clearly whether the subcortical integration hypothesis is true or false. Whether or not there is visual feedback, sometimes J.W.'s left hand is able to draw what was presented to the RVF and sometimes it is not. This does suggest that there is not one clearly unified "visual field" available to the patient as a whole and both his respective hemispheres. At the same time, the door seems open that there is *some* kind of transfer going on, visual or otherwise. Kingstone & Gazzaniga's further iterations of the experiment are an attempt to gain some more clarity.

[36] You can see a version of this kind of communication, though not so subtle, in a YouTube video with a patient Joe (who seems to be patient J.W., based on similarity to the face in Turk et. al 2002) - notice the moment of realization at 3:55 - "Oh, phone" - as if saying "of course!" - Joe seems to be used to gleaning messages from his left hand. (See: Recent Interview with Gazzaniga and split brain patient 'Joe')

Percentages and Cell Frequencies of Pictures That Depict the Word Presented in the Visual Field That Was Ipsilateral, Contralateral, or Ipsilateral and Contralateral to the Drawing Hand (from Kingstone & Gazzaniga 1995, p. 323)

Hand/field relation	Left hand		Right hand	
	No feedback	Feedback	No feedback	Feedback
Ipsilated	**57**	**24**	**86**	**63**
	(21/37)	(11/45)	(42/49)	(32/51)
Contralateral	**24**	**31**	**0**	**4**
	(9/37)	(14/45)	(0/49)	(2/51)
Ipsilateral + contralateral	**19**	**44**	**14**	**33**
	(7/37)	(20/45)	(7/49)	(17/51)

Figure 2.2: Examples of Drawings done by J.W.'s left hand during Experiment 2, with visual feedback (Kingstone & Gazzaniga, 1995)



In the second stage of the study, Kingstone and Gazzaniga created word pairs that were meant to be "conceptually ambiguous (e.g., the words *toad* and *stool* may be drawn as a toad sitting on a stool or as a single emergent object - a mushroom)" (Kingstone & Gazzaniga, 1995, p. 325). They wanted to see whether, in the instances like shown in the first stage of the experiment where his left hand seemed to be able to draw a *composite* of both words, he would be more or less likely to go with the *literal* combination of the word pairs or the corresponding emergent object.

The examples of pictures drawn by J.W. shown in Figure 2.2 are meant to represent samples of each represented category - situations in which J.W. drew (with his left hand) the word presented to his LVF (top image), RVF (middle image), and both (bottom image). However, instead of drawing a skyscraper, i.e. some kind of large building, J.W. drew a sky and a "scraper" looking object. In fact, he *never* drew the emergent object suggested by the combination of displayed words, but always combined them literally, when he combined them at all. In addition, his *right* hand (not pictured) only drew objects that represented words displayed in the RVF (to LH), never the contralateral visual field. Finally, in Experiment 3, they retested J.W. on the word pairs from Experiment 2, but this time they displayed both words in the pair on the same side of the screen. This was to test whether either hand *ever* drew emergent objects from word pairs, even if both words were displayed ipsilaterally. They found that the *left hand* (LVF, RH) very rarely drew *either* the composite or emergent object, instead drawing a single word out of the pair. The *right hand* (RVF, LH) mostly drew the emergent object from the word pair.

From these results, the researchers concluded that the subcortical integration hypothesis was not the best explanation of the data. Instead, they thought that the results "provide a remarkable demonstration of the disconnected hemispheres rapidly switching control of a single response arm-hand" (Kingstone & Gazzaniga, 1995, p. 327). The alternative to the subcortical integration model

they suggest is the "peripheral integration" model, according to which "the only time LVF and RVF word information would be integrated is on the sheet of paper in the drawing itself" (Kingstone & Gazzaniga, 1995, p. 324). J.W., like D.H., did not have his anterior commissure split - perhaps these results call for an alternative interpretation of the aforementioned study demonstrating visual transfer across the anterior commissure, as well. In that study, D.H., J.Kn., S.P., and D.S. were all able to verbally name objects presented to their left visual field (right hemisphere) (Risse et al., 1978). The researchers there had concluded that there was visual transfer across the anterior commissure, but could there be another explanation? Could the right hemisphere have gained rudimentary linguistic capabilities? Could the right hemisphere, even without language, have been able to engage in some kind of cross-cueing mechanism undetected by the researchers?

Bayne argues that to truly provide an empirical case for partial unity, these possibilities must be addressed. We must take pains to show that what *looks*, behaviorally, like inter-hemispheric integration, *actually is*. Further, he thinks that even if we *can* show that there is inter-hemispheric integration in some cases, we must be able to provide evidence for it being *conscious*. This is because even if information is integrated across the hemispheres, it does not necessarily mean that there are simultaneous phenomenal experiences that "straddle" both hemispheres.

The study involving J.W. and his drawings was fairly simple, but it paints a complicated picture. If there is one takeaway from studying split-brain patients, it is that understanding consciousness and its unities through empirical research is *difficult*. Rarely is there a black-and-white abundantly clear result that accords with intuition. Bayne cites the study, I think, because he likes the researchers' conclusion that the results suggest rapid switching between which cortical

hemisphere is controlling the response arm. If true, this would fit very nicely with his switch model. However, I do not think that this study disproves the partial unity model.

To begin with, Kingstone & Gazzaniga were concerned with testing a very specific hypothesis in designing their study. That hypothesis concerned whether or not there was transfer of abstract lexical information across the cortical hemispheres in a callosotomized patient (J.W. in particular) via subcortical pathways. They were not here concerned with the question of direct visual transfer (or else they would have been displaying pictures rather than words). They were also not directly concerned with the question of what it is like to be patient J.W., or what it is like to be his respective hemispheres. It is difficult to study subjective experience and its structure experimentally, and we must take care in our interpretation of such from studies that were designed to operationalize objective facts about a subject population's abilities.

One of the most compelling findings in their study was that emergent objects were *never* drawn in Experiment 2. Neither the left hand nor the right hand was ever able to draw a picture that combined the words presented to both visual fields in a way that suggested cortical transfer. Literal combinations do not suggest cortical transfer, according to the researchers, because these can easily be explained by shifting control of the response arm. I think the researchers are right to suggest that "evidence for *subcortical* transfer of *higher order* information is not compelling" in this particular patient at this particular time (Kingstone & Gazzaniga 1995 p. 321, emphasis mine). But *higher order* information need not be transferred subcortically for there to be interhemispheric transfer in patient J.W. - if *any* perceptual input (or experiential state of any kind) can be shared between LH and RH, we would have enough to show a transitivity failure.

Suppose the researchers' conclusion is correct, and J.W.'s responses in this study were explained by a shifting in the hemisphere controlling the responding hand. Bayne would interpret

this result in line with his switch model, arguing that whichever hemisphere is currently controlling the responding hand is also currently responsible for J.W.'s conscious experience. A two-streams advocate would argue that both hemispheres could simultaneously be conscious, so when control of the response hand switches, nothing necessarily changes about the structure of experience - rather, J.W. has two concurrent streams of experience, localized to each respective hemisphere, and only one hemisphere at a time is able to control J.W.'s response hand. Both of these pictures are consistent with the data, but they do not exhaust the possibility space. Perhaps dividing up J.W.'s experiential field into two discrete streams is overly simplistic. It is difficult to avoid, since many of the researchers who study him speak about him using this sort of language, and because if my suspicion is right, the information shared between his cortical hemispheres may be quite rudimentary - not something that would be easy to demonstrate knowledge of via a spoken word or a picture. It is possible, for example, that his cortical hemispheres are able to share information about basic features of each visual hemifield, such as object-presence or orientation. Something like this may not be clearly evident in a study that requires reading a word, identifying the object represented by the word, and crafting a pictorial representation of said object (or composite object).

Consider an example from another study performed with patient J.W., also involving Dr. Gazzaniga (Gazzaniga et. al 1996). The study was exploring the possibility that in the fourteen years since his surgery, either J.W.'s right hemisphere had gained language capabilities itself, or it had gained the ability to express itself via the left hemisphere's language system. An image of a race track with two cars racing, one flipped car, and one grandstand behind the track was displayed to J.W.'s right hemisphere, and he responded with the following dialogue (Gazzaniga et. al 1996, p. 1258):

> J.W.: Looked like something moving like a vehicle or something or somebody running or something like that
>
> Researcher: Did it look like one thing or…
>
> J.W.: At least one. It was centred on one. Maybe there was something in the background
>
> Researcher: If you had to guess what it was, what would you guess?
>
> J.W.: Either somebody running, or, a curved picture. Looked like coming around a corner almost… someone running. Maybe it was a track. It was hard to tell.

Here, J.W. seems correctly able to identify many features of a complex scene, even if he demonstrates marked uncertainty and some errors in particulars. The first feature he notices has to do with motion. It does not seem that there is one clear and distinct mental representation of the image that both hemispheres have access to, or else the verbal identifications would have a higher degree of accuracy. However, this dialogue does not accord perfectly with a two-streams model either. These models can give us one way to *describe* the phenomenal landscape of J.W. as he observes this image, but they may miss something important. Features like motion, object-presence, or location indexing may be communicable across the AC, whereas specifics about object identity are not. Even if a patient does have two "streams" of experience housed in each hemisphere, this does not rule out the possibility that they also have a "stream" of experience that straddles both hemispheres but is not as specific or detailed. "Streams" are not so metaphysically determinate that they must be counted in only one way.

I think the best way to make sense of the above dialogue is to suppose some degree of information transfer. Though the visual depiction was displayed to the RH, I believe it likely that both LH and RH "saw" some rudimentary features of the scene, thus exhibiting some degree of unity in the patient. This is why J.W. is able to describe *some* features of the scene. If there was

no information transfer and his language is being produced by LH, then we would predict LH to report seeing nothing. If there was no information transfer and his language was being produced by an RH that had learned language, we would predict a little bit more accuracy and/or confidence.

On one interpretation, J.W.'s speech patterns here are coming from *both* LH and RH. RH may be able to name basic object features it sees ("moving," "vehicle," "curved," "corner," "track") - but it cannot weave these object features together into a narrative or full verbal report, so the left hemisphere fills in the gaps. Gazzaniga's theory of a left hemisphere "interpreter" module fits nicely with this interpretation. I think it has merit. However, in testing J.W. more in the same study, the researchers found further evidence for some degree of interhemispheric interaction. This came in the form of matching performance - J.W. was not perfect by any means, but he was able to move beyond chance in matching certain stimuli as "same" or "different." Gazzaniga dismisses this, writing "Whatever mechanism might be responsible for interhemispheric interactions, the system is inefficient and marginal. Taken together, we believe the evidence for a right-hemisphere speech capacity is compelling" (Gazzaniga et. al 1996, 1260). At the same time, the model explaining the dialogue above with reference to a speaking right hemisphere would not be inconsistent with a model according to which there is some degree of information transfer. Both can be true.

I do concede that the evidence that supports interhemispheric transfer in J.W. is only weak. However, I also think that this is to be expected - if there is some degree of incomplete interhemispheric transfer, it would be difficult to clearly and cleanly detect. *Some* evidence, even if weak, that the hemispheres are able to share information is enough, I believe, to take the partial unity model very seriously. We at the very least must not rule it out as an available interpretation. While it is difficult to gather direct evidence proving partial unity is *definitely true*, it is also

difficult to prove it definitely false. We usually must rely on argument by inference to the best explanation, but what seems like the best explanation is inherently colored by the natural conceptual tendencies I canvassed in Part 1. Also recall that in order for transitivity to fail there only needs to be *one single* percept that remains unified in a split-brain patient.[37] I am not shifting the burden of proof, nor claiming indeterminacy, but merely claiming that the evidence needed to show such a thing need not be overwhelmingly strong. It also need not (necessarily) involve visual space. Any remaining unity in olfaction, gustation, affect, nociception, proprioception, et cetera, would also be enough to solidify partial unity as a genuine contender in the space of split-brain interpretations.

2.3.2 Noncortical Structures and Unity

In Chapter 5 of her book, Schechter discusses what she calls the "Objection from Sub-Cortical Structures" against the two-minds interpretation of the split-brain case. Throughout this discussion, and its associated appendices, she canvasses empirical reasons for thinking that some unity remains in the phenomenal life of a split-brain patient. In particular, she discusses "the five psychic domains that have most often been claimed to remain unified: ambient vision, semantic association, affect and emotion, attention, and motor control" (Schechter 2018 p. 111). Ultimately, she is going to claim that this evidence is not enough to establish that there is sufficient direct interhemispheric interaction to constitute a proper refutation of her 2-thinkers account.

[37] Conversely, all that would be needed for transitivity to fail in a typical *non*-split patient would be for *one single percept* to *not* be integrated with all the rest. Must we suppose that an intact corpus callosum is constantly always sharing every single piece of information each respective hemisphere has access to? Might this seem a bit redundant, a potential waste of precious energetic resources?

Before getting into the details of some of her conclusions based on the empirical literature she canvasses, I would like to press a bit on her framing of the problem itself. She says that (Schechter 2018 p. 108):

> To constitute an objection to the 2-thinkers account, the objection from sub-cortical structures should show at least one and ideally two specific things. At a minimum, the objection should show that R's mental activities interact with L's substantially directly, rather than mainly in the way that multiple minds characteristically interact, that is, via paired re/action and sensation/perception. Ideally, the objection would also show that R and L do not separately but also together meet the architecture assumptions, as S; that is, it would show that RH and LH mental activities interact, interhemispherically, in the ways we would expect the mental states of a single mind to interact - for instance, with LH percepts leading to the formation of RH perceptual beliefs in just the way that they lead to LH perceptual beliefs.

So, Schechter thinks that if we cannot show that there is direct, interhemispheric interaction between the activities of the left and right cortical hemispheres, then the 2-thinkers account stands firm against the objection from sub-cortical structures. Without direct interhemispheric interaction, we must have two sets of perceptual and cognitive states. She admits these two sets of mental happenings may not be completely discrete, but without interhemispheric transfer, they are separate enough to support the 2-thinkers account.

I have hesitations about this framing of the problem. One issue I have is this assumption that consciousness itself is somehow "housed" in the cortical hemispheres. We have to assume this in order to think that the only way to argue that there is a sense in which a split-brain patient remains a singular experiencing subject is to show that the cortical hemispheres interact directly. What if there indeed were no interhemispheric transfer enabled by the remaining sub-cortical structures? Could these structures still have experiential relevance? In a split-brain patient, even one with a total callosotomy, there remains a basal ganglia, amygdala, thalamus, hypothalamus, brainstem, cerebellum, and spinal cord (not to mention an entire body) that have not been severed.

Might these structures enable us to continue speaking of a single experiencing organism, even if that single experiencing organism does have cortical hemispheres which process information separately from one another?[38]

This contention may be controversial, and I do not want my defense of the possibility of partially unified phenomenal experience to entirely depend upon acceptance of a contentious supposition that an organism's conscious experience of the world extends beyond the representational capacities of the cortical hemispheres. If some representations *are* integrated interhemispherically, then we would not need to go this far in order to make a case for partial unity.

2.3.3 Unified Affect

One common case for partial unity (even in patients with a total commissurotomy) involves the unity of affect - cases in which the *whole patient* seems to simultaneously feel *one and the same* emotion, even if only one hemisphere has knowledge of its cause. Lockwood explains (Lockwood, 1989, p. 89):

> One widely cited experiment that has been performed on commissurotomy patients of both sexes involves projecting the picture of a naked person of the opposite sex on to a part of the retina that projects only to the right hemisphere, and which is thus inaccessible to the speech centers. Typically, the subject blushes and is visibly embarrassed, but is unable to say why. Nevertheless, it is clear that the whole subject experiences some emotional reaction. One male subject remarked: 'Wow, that's some machine you've got there!'

[38] What about anencephalic newborns, born without most of their brain? If we think there is something it is like to be them, then that is further evidence that not all conscious experience is "in" the cortical hemispheres. I do not know what it would be like to have sensory input that is not processed by a neocortex. I am not sure how much argument I can provide in favor of this brute intuition that if an organism is alive and able to breathe, there is something it is like to be that organism. It is possible this comes down to a broader understanding of what is meant by talk of "what it's like," which I will delve into in Chapter 4. There is some possibility for a phenomenal landscape, however primitive and un-formed. Even if the lights are off and nobody's home - if there is no internal "subject" accessing the experiences of that organism and integrating them into a coherent awareness - I am inclined to think in many cases that the possibility for some form of phenomenal character remains.

Lockwood postulated that token emotional experiences are not necessarily localizable to the cortical hemispheres, so the question of interhemispheric integration does not even need to come up. Both Bayne and Schechter, on the other hand, seem to be operating on the common assumption that the contents of consciousness are "housed" in the cortical hemispheres. In cases in which both hemispheres seem to access the same emotion, Bayne would argue this is not due to integration and does not involve one and the same phenomenal token "straddling" the hemispheres.

In his book *Brain Fiction*, a philosophical analysis of the phenomenon called confabulation, William Hirstein discusses a study in which a split-brain patient (V.P.) was shown a violent scene to the right hemisphere only (Hirstein, 2005, p. 154). This elicited an emotional reaction in the patient, and the following verbal report when asked what she saw: "I don't really know what I saw. I think just a white flash. Maybe some trees, red trees like in the fall. I don't know why, but I feel kind of scared. I feel jumpy. I don't like this room, or maybe it's you getting me nervous" (Gazzaniga, 1992, p. 126). Since the emotional system has subcortical connections, Gazzaniga's interpretation is that the image caused a system-wide emotional fear response, and the left hemisphere, lacking access to the clear cause of this response, confabulated a reason for it using whatever was available in the patient's immediate surroundings.

According to Gazzaniga's interpretation, it is the *whole patient* which feels the fear - it is just that her left hemisphere lacks access to *why* she is feeling that fear. If this is right, it would be a great example of a partially unified experience. The visual token that represents the violent scene is not unified with the tokens available to the speaking part of V.P.'s brain, but both are unified with the system-wide emotional state of "fear."[39]

[39] Her verbal report is interesting, and to me not clearly confabulatory, since the patient does indeed correctly claim that she does not know why she is feeling fear. She postulates that it might be due to the researchers' presence, but does not claim this as if it is obviously or apparently true to her, as is the case in many confabulatory reports. Her

When discussing this and similar cases, Bayne objects that it may not be best explained by both hemispheres simultaneously representing one and the same conscious emotion. Perhaps the subcortical mediation of affect merely primes each hemisphere to represent a state of similar emotional valence. He writes, "Rather than suppose that the patient had a single experience of negative affect that bridged his two hemispheres, perhaps a right hemisphere state of negative affect merely primed a similar state in his left hemisphere" (Bayne 2010 p. 208). Priming interpretations are available, and difficult to rule out empirically. Any time it seems as though the whole organism is experiencing one and the same emotion, one could respond that, no, it just seems this way because the separate emotional states represented in each cortical hemisphere are caused by the same subcortical mechanism.

Schechter responds similarly by invoking "priming" explanations of seeming affective unity. She would argue that the unity of the autonomic nervous system is confounding - if one's heart rate increases, both hemispheres would be able to access that information, but that would not imply that cortical integration were taking place. Both hemispheres simply occupy the same body, much the same way as you and I may occupy the same space or feel the same warmth if we are sitting by the same campfire. That would not mean that your experience of the campfire's warmth was phenomenally unified with mine. Our experiences just may seem similar due to having a common source. She also notes the difficulty gaining direct evidence that RH is even experiencing

uncertainty as to the cause of her emotion makes me wonder how she would react if she were informed of it, and told about the image that had just been presented to her. How would it feel to know that your emotions could be caused by stimuli that *some part* of you has access to, but that you somehow are not able to directly introspect on with the same part of yourself that has language capability? Well, even in a person with an intact corpus callosum, this sentence is true. Our emotions are often caused by things other than what we may want to consciously attribute them to (e.g., we may ask ourselves: am I feeling this feeling because of what that person said to me, or is it hormones, or hunger or tiredness or some other internal or external environmental trigger that I am not picking up on?). This case feels different from the typical case, since for an external observer, the cause is so obvious because it is a single picture that only the right hemisphere has access to - but I think it is just a visual example of something that, generalized to other modalities or modes of experience, we all may experience often.

the same emotion reported by LH. Sure, the patient may blush or laugh to express a feeling, but since RH can often not report verbally on what it is feeling, how do we know?

When there is a system-wide response that evokes discussion of affect, like fear, anxiety, arousal, etc., it is difficult not to be question-begging in one's interpretation of what it means. Schechter thinks the autonomic portions of an emotion are a confound; since both hemispheres occupy the same body, we cannot conclude that a single phenomenal token straddles the two hemispheres, as opposed to distinct phenomenal tokens in each respective hemisphere, which are both able to pick up on the system-wide "fear" response, despite otherwise differential perceptual input. On my view, the unity of the autonomic system of a singular organism reads less like a confound and more like further reason to suppose that there *is* some sense in which a patient may have a singular experience, even in a total commissurotomy.

2.3.4 Patient P.S.

Patient P.S. was born premature, then began having right-sided seizures when he was just 20 months old. The seizures continued, and he exhibited hyperactivity, disruptive behavior, and absences. At age 6, his EEG appeared "normal," but he soon began increasing right sided partial seizures. At the same time, "The only physical abnormality was impaired ability to recognize objects placed in his right hand, and sensorineural hearing loss" (Wilson et. al, 1977, p. 710). By the time he was 14, these seizures were occurring approximately 10 times every month. Wilson and colleagues recorded that "Between seizures, his hyperactive, disruptive, and often violent behavior continued. Then the partial motor seizures began to occur on his left side as well" (p. 711). Anticonvulsant medications ceased to be effective for him, and he was admitted in December of 1975 to undergo a "Complete extraventricular division of the corpus callosum" (p. 711).

After his surgery, he "Showed all the characteristics of an acute disconnection syndrome" such as mutism, left-sided immobility, left-sided visual neglect, and "alternating periods of stupor and alertness" (p. 711). The doctors wrote that "By the second week after surgery he was able to walk, eat, and dress himself. The acute disconnection syndrome subsided, but the most outstanding characteristic of the postoperative course was a regression to infantile behavior. He was querulous and demanded constant attention. He shouted constantly until someone sat with him, when he would talk rationally" (p. 711). The surgery was seen as a success. He was soon recorded as open, friendly, and hyperactive with improved cognitive abilities, said to be "no longer a burden at home" (712). After postoperative monitoring over many years, doctors reported that his seizure frequency decreased to one per month and he was deemed to be "capable of working" (Reeves & O'Leary 1985, p. 272-4).

2.3.4.1 Visual Transfer (or Lack Thereof) in P.S.

P.S. is an interesting case because even though only his corpus callosum was severed and not his anterior commissure, he is still touted as a prime example of a candidate to whom the "two-minds" approach applies. One reason this is the case is because of a study that was done by Gazzaniga and colleagues attempting to discern the extent of interhemispheric transfer in five split-brain patients (D.H., P.S., J.Kn., D.S., and S.P.). Researchers surmise that "The absence of transfer in P.S. is most readily accounted for by the fact that this patient suffered a unilateral temporal lesion at a very early age. This lesion may have disrupted or prevented the establishment of normal functional interhemispheric connections between the visual areas of the temporal lobes" (Gazzaniga & LeDoux, 1978, p. 21).

In this study, stimuli were presented to patients in either visual field (while fixating on a dot in the center of the screen) for 100-150 msec and then were simply asked to report on what they saw. P.S.'s performance is summarized as follows (Risse et. al 1978 p. 26-7):

> Unlike D.H., this patient was unable to offer a verbal report of any stimulus presented in the left visual field. When pressed for a response on these trials, he insisted that he saw nothing, or sometimes would report a "flash of light", or a "blue flash" which described the background light visible in the right visual field. When given the opportunity to respond nonverbally however, he was nearly always correct in pointing to the object which matched the left visual field stimulus. Performance was equally good when he was required to retrieve the match tactually with the left hand. In fact, his left hand was twice as accurate in retrieving the appropriate object as his right, when the stimuli were flashed to the right and left hemispheres respectively. When required to use the ipsilateral hand-hemisphere combination, his responses fell to chance and below. The patient, who is normally cooperative and friendly toward the experimenters, became notably irritated when asked to perform "crossed" responses. On one trial in which the stimulus was flashed to the left hemisphere and he was told to use his left hand, he said, "Boy, I'm going to kick you in the ass", and then seemed embarrassed by his outburst." (27)

When objects were presented to his left visual field (LVF), associated with the right hemisphere (RH), he had a 0% accuracy rate in naming those objects, but an 80% success rate in matching them and in retrieving that object tactually. Since he was unable to name objects presented to the right hemisphere, but able to retrieve them in other ways, researchers took this to mean that the visual information was in fact gleaned by some part of the patient's processing system, but not communicated with the verbal portion of his brain. In other words, visual information was not transferred from the right to the left hemisphere in P.S. during this study. Because the other four patients in this study were able to name objects presented to either hemisphere with a high degree of accuracy, the researchers surmise that the function of the anterior commissure (intact in all five patients) is to integrate visual information between the hemispheres, but that this function did not develop normally in patient P.S. due to early neural trauma.

2.3.4.2 P.S. in Dialogue

Michael Gazzaniga brings up patient P.S. in his defense of his framework that posits a left hemisphere "interpreter" module. He thinks when the right hemisphere gains rudimentary language, the left hemisphere interpreter (responsible for inferring causation and filling in perceptual or rational gaps) is forced to come up with "on the fly" confabulatory explanations for what just came out of their mouth. In a study, Gazzaniga's team had shown a Radio Flyer wagon to patient P.S.'s left visual field, and the patient said the word toy aloud (Gazzaniga took it to be his right hemisphere speaking, since his left hemisphere had presumably not seen the image). The following dialogue ensues, as the patient tries to explain the word that he had uttered (Gazzaniga, 2011, p. 101):

> Experimenter: Why does *toy* come to mind?
>
> P.S.: I don't know, the only thing that comes to mind. The first thing that bangs into my head.
>
> Experimenter: Does it kind of look like a toy?
>
> P.S.: Yeah, that is what it feels like. It is almost like an inner sense tells you.
>
> Experimenter: How often do you go with an inner sense and how often do you go with what things look like?
>
> P.S.: If I can't really tell what something looks like first thing, if I say what it is first thing, then I just go with that . . . the first thing that pops into my mind.

It is difficult to know for sure what is happening with patient P.S. here. Gazzaniga's interpretation is that the right hemisphere saw a wagon and uttered the word toy. The left hemisphere saw nothing, but heard this utterance, and had to explain it somehow, so it went with a mysterious "inner sense" having communicated some type of toy-like information. One interesting thing about this interpretation is that despite the left hemisphere not having been the source of the utterance on Gazzaniga's account, it takes itself to be such and offers its explanation on this basis. Patient P.S.

did not say something like, “I don’t know. In fact I don’t even think I said that. The words came out of my mouth, but I didn’t speak them, it was like someone else took control of my mouth for a minute.” Perhaps the brain is just built to take ownership of whatever it is that comes out of our mouth (by a mechanism which can go haywire, e.g. in schizophrenic delusions of control), even if we were not aware of the intention to speak prior to being aware of hearing our own voice.

This is not the only possible interpretation of the dialogue, it is just the one that cohered the best with Gazzaniga’s overall framework. It is at least possible that the word “toy” did originate in the left hemisphere, even though the radio flyer was flashed to the left visual field. (After all, if the right hemisphere was naming what it saw, why would it not have said “wagon”?) Perhaps there was some internal informational communication between the hemispheres about the presence of an object and its category, but not its identity, allowing the left hemisphere to retrieve the word “toy” but nothing with greater specificity. This interpretation would allow us to take the dialogue (still assumed to have been spoken by the left hemisphere) at face value - perhaps what was experienced by the speaker was some sort of mysterious inner communication of a toy-like presence, without visual integration that made the appearance as of a Radio Flyer wagon clear to the same neural networks responsible for language generation. This would be consistent with Pinto, et. al’s finding that even in a full callosotomy, both hemispheres may sometimes have access to the presence (but not identity) of objects in either visual hemifield (Pinto et al., 2017). Even though the LH did not *see* the radio flyer wagon, they sensed a toy to some degree. The visual or pictorial representation of the wagon, on this interpretation, would not be interhemispherically unified, *but* it could still be an instance of partial unity if some (non-pictorial but still sensory) representation of a “toy” was unified across both hemispheres.

In another set of studies designed to elicit confabulatory responses by patient P.S., Gazzaniga and colleagues would flash commands to the right hemisphere. Since the right hemisphere is perfectly capable of initiating action, the subject would obey the commands - but be unable to verbally explain why they were doing the actions: "When P.S. was asked, 'Why are you doing that?,' the verbal system of the left hemisphere was faced with the cognitive problem of explaining a discrete overt movement carried out for reasons truly unknown to it. In trial after trial, when questioned, the left hemisphere proved extremely adept at immediately attributing cause to the action" (Gazzaniga, LeDoux, & Wilson, 1977, p. 1146). For example, if you flashed the word "walk" to the right hemisphere, the patient may get up from his chair. Ask him why, and he says something about needing to get a drink, making no mention that he is following a command.

Since P.S. cannot verbally report on the contents of the command, the first intuition may be to say that it only registered subconsciously. But this interpretation seems to rest on a presupposition that the right hemisphere is not capable of registering stimuli consciously. Even when one's right hemisphere is entirely nonverbal, this is not reason enough to deny consciousness to it. Instead, we can recognize that the stimuli presented to the right hemisphere and acted upon are registered consciously - they do have experiential contents. But these contents are not integrated with the patient's verbal reporting system. This makes logical sense, and yet may strike one as utterly mysterious due to the difficulty of projecting oneself into an experience that is structured like this.

The two-streams account explains experimental data by personifying each individual hemisphere and attributing conscious awareness and intention to it. In the scenario where a wagon was displayed to the right hemisphere, a two-streams interpretation would say that the right hemisphere saw a wagon, and the left hemisphere saw nothing. The right hemisphere took control

of P.S.'s vocal cords to utter the word "toy," and upon hearing this utterance, the left hemisphere took ownership of this utterance and was left to explain it via some mysterious inner sense.

This picture is coherent and clear, and I understand the attraction to it, but I believe the reality of the situation is much more complicated. What is the nature of the mental representation of the wagon formed by the right hemisphere? How much information about that representation is able to be shared with the left hemisphere across the anterior commissure? Does the information sharing create a new, distinct and separate representation in the LH, or is there a single mental representation of the wagon or some of its properties that "straddles" the hemispheres? What is it like to be P.S.'s right hemisphere processing the information about this wagon? What is it like to be P.S.'s left hemisphere which seems to report an "inner sense" communicating object-presence of something "toy"-like? What is it like to be P.S. as a whole, with multiple overlapping perceptual streams processing his environment in tandem, without the ability to integrate every stream into one coherent one?[40] My assertion is that at the very least we must *continue asking* the latter question, whereas a strong commitment to a two-streams model implies that the only relevant questions about "what-it's-likeness" should be directed to LH and RH separately.

2.4 Conclusion

This assertion, admittedly, is relatively modest. In this chapter, my aim was to establish at the very least that partial unity is a live option. It is conceptually coherent, and I argue it has not been empirically refuted, despite attempts to do so. Absence of evidence to reject a claim, however, is not evidence to accept it - what positive evidence do we have for the partial unity account? For

[40] Again, these holistic questions about "what it's like" that target whole subjects or organisms may involve an idiosyncratic understanding of the meaning of language of what it is like, which I will explicate in Chapter 4.

one thing, I think a model that allows for transitivity failures makes the most sense when we consider the underlying neurobiology. Since the physical connection between cerebral hemispheres is a matter of degree, not absolute, I think it makes sense to suppose that the corresponding structure of conscious experience should be so as well. The partial unity account is advantageous in that it allows for degrees of unity amongst an organism's conscious experience(s).

To show beyond a shadow of a doubt that there is a transitivity failure in any given split-brain patient, we would ideally need to demonstrate that there can simultaneously be a token experience grounded in LH, which is not unified with another token experience grounded in RH, while at the same time there is a token experience that straddles the two cortical hemispheres. This is difficult to prove beyond reasonable doubt, partly because it depends on the way in which one individuates phenomenal tokens. The same empirical data (e.g. J.W.'s ability to draw a fence with his left hand even though his right hemisphere did not see "fence") can be explained multiple ways. I intend to insert partially unified interpretations into these conversations. I think that doing so allows for a greater degree of sensitivity to the context dependence of patient stimulus response.

Our interpretation of empirical data should not be bound by a conceptual predilection to be able to assign every percept to a clear and distinct phenomenal stream of experience. As I will explain in the subsequent chapter, once we open ourselves up to the partial unity approach, we no longer are required to determinately count a specific whole number of streams that a split-brain patient can be said to have. At the same time, we are not doomed to indeterminacy. I contend that we can still make sense of the (potentially partially unified) inner life (or lives) of a split-brain patient without determinately counting their experience into some whole number of streams.

3. Is There a Fact of the Matter?

Abstract
In this chapter I provide further defense to the idea that there need not be a single fact of the matter about how many subjects of experience an organism is. There may be some facts about the structure of phenomenal states that an organism is undergoing at any given time, but these facts do not necessarily fix the number of experiencing subjects they should be counted as. It is often expedient to count an experiencing organism as a single subject, but in some contexts other counting-schema may be appropriate as well. The idea that "counting subjects" questions are not tracking a single metaphysical fact also allows for the possibility of using *multiple* counting schemata, simultaneously. In other words, when it comes to the split-brain case, the two-streams and the partial unity account may not be mutually exclusive.

3.1 Introduction

In the previous chapter, I provided a defense of the partial unity account of split-brain consciousness (at least showing that it is a live option that has not been ruled out). This account is often interpreted as saying that a split-brain patient is a single subject of experience, who experiences a partially unified consciousness.[41] If this is right, then arguing for "partial unity" sure sounds like arguing that there is a determinate, fact-of-the-matter answer to the "how many minds" question. However, this is not my position. In this chapter, I intend to clarify my actual position on the nature of the "fact of the matter" when it comes to split-brain consciousness.

The reason I endorse the partial unity account, or at least want to keep it on the table, is because it allows for the conceptual possibility of experiential transitivity failures. My remaining open to this conceptual possibility does *not* commit me to a "one mind" answer to the "how many minds" question. Even if factually true that a split-brain person can enjoy experiences whose unity relations are not transitive, this simple fact does not fix the number of experiencing subjects they can/should be counted as. In fact, in many cases, there is *no* fact that fixes the number of

[41] This is not the only way to interpret partial unity. Barry Dainton, at one point, describes partial unity as "two partly overlapping streams" (Dainton, 2000, p. 101).

experiencing subjects an organism should be counted as. There need not be one determinately true and correct way to count the number of minds in any experiencing organism. I defended partial unity because I do think there are some "facts of the matter" about the structure of experience for an experiencing organism, however I do *not* think that this entails there is a "fact of the matter" about how many subjects there are.

I think it is usually reasonable[42] to count any experiencing organism as one experiencing subject, even if its experiential contents are not wholly integrated.[43] But counting is purpose-relative, and depending on the purpose for which we are counting subjects of experience, counting an experiencing organism as "one" may not always be sufficient. One purpose of "how many minds?" questions has to do with acts of imaginative projection - how many times do I need to "project" myself into the "inner life" of an organism in order to imagine what it is like to be them? We may sometimes find it more useful, or it may provide additional information, to project twice (once for each hemisphere) or more (e.g. once for each sense modality). In this chapter I will discuss the purpose-relativity of individuation in general, and how this connects to mindedness and the subject of experience. I will then canvass and respond to a selection of objections regarding the deflationary attitude toward counting subjects. Finally, I will introduce patient L.B. in order to illustrate how a deflationary approach toward counting subjects can be useful for making sense of empirical data.

[42] Usually, in all the cases I have encountered - but I do not hold this to be a necessary truth, I can certainly *imagine* an organism for whom this condition does not hold.

[43] In this sense, I agree with Bayne's organismic construal of the Unity Thesis (explicated in Section 1.3), if the phenomenal unity relation is nothing substantial, but merely a relation among states of the same experiencing being (even if they are not experienced as related, or representationally integrated). If phenomenal unity is construed this way, Bayne's UT is true, but trivial. If phenomenal unity entails representational integration, then Bayne's UT is false, because certainly it is possible for an experiencing organism to enjoy unintegrated experiences, even without looking at split-brains (e.g. frogs! - See Section 4.2.1).

3.2 What are we Doing When we are Counting Subjects?

I argue that there is not always a fact of the matter about the number of "subjects of experience" in an experiencing organism. But what *is* a subject of experience? This is not an easy question to answer. Put simply, a subject of experience is whatever it is that is the bearer of the relevant mental properties. Where there is experience, there is a subject of experience, if experiences are conceived of as mental states with properties borne by their subject. Every state, presumably, with the "conscious" property - the property of being "like" something - is supposed to be "like something" *for* some subject (see Chapter 4). Any organism who is conceived of as an organism with conscious states seems to have a whole host of these.

Galen Strawson distinguishes between three distinct conceptions of the "subject" of experience.[44] According to what he calls "the *thick* whole-creature conception dominant in present-day analytic philosophy and experimental psychology," subjects can simply be identified with organisms (Strawson, 2003, p. 283). It would then be *organisms* for whom things are "like" something. In everyday parlance and for everyday experience, this conception seems to work for us. When we ask what it is like to be a bat, i.e. what it is like to undergo sensations a bat typically undergoes, we do not necessarily need to invoke some special concept of the Subject. We can at least *ask* what it is like for a *bat*, the literal organism, to undergo these sensations. But it begs the question to rely on this conception when we are attempting to count subjects: it would simply be trivial, according to this conception, that a split-brain patient should be counted as one subject (nobody tries to argue that a commissurotomy divides the *organism* into two). There certainly may be cases where the question "how many organisms?" may come up - but these would not

[44] Making these distinctions is philosophically useful, even though Strawson also points out that "there's a primordial respect in which one knows what a subject of experience is simply in being one" (Strawson, 2017, p. 1).

necessarily illustrate anything special about subjectivity. The original purpose behind the project of counting *subjects* seems to be lost if one relies wholly on an organismic conception of a subject.

When we ask "how many subjects" in the split-brain, we want to know something like how many streams of experience there are, or how many "subjective perspectives." Strawson's second conception of the subject may be closer to this (though still not, perhaps, identical). He specifies "the *traditional inner* conception" as the one "according to which a subject of experience is an inner thing or presence of some sort" (Strawson, 2003, p. 283). To give a sense of this conception of the subject as an inner presence, he cites Trefil who notices "...a self that looks out at the world from somewhere inside my skull…." (Trefil, 1997, p. 181). This is one of the senses of "subject" we sometimes seem to intend to refer to using the first-person pronoun. "I" am the one that sees through my eyes, thinks my thoughts, and speaks from my mouth. "I" am the one who is the subject of my own experience(s). "I" am the one who occupies my own experiential perspective.[45] I am not sure about the ontological status of subjects when conceived of in this way, but the concept itself does not commit one to a particular ontology; one can, for example, think of this kind of subject as an abstraction rather than a *literal* "inner thing or presence."

Strawson takes issue with both of the above conceptions, and he wants to introduce a notion of the subject according to which it is conceptually necessary that the subject of experience is currently *having* experience in order for it to exist (the subject is inseparable from the experience it is the subject *of*). He calls this "the *thin* conception according to which a subject of experience does not and cannot exist at any given time unless it is having experience at that time" (Strawson,

[45] I do not think this is the sense of subject that Schechter intends to use in her argument for her two-minds view. When she talks about a "thinker" she is not intending to refer to a literal inner "self" which does my thinking for me, but rather a system in which thoughts occur with certain properties (so counting minds for the most part comes down to system-individuation). See, for example, her section entitled "Thinkers as Thinking Systems" (Schechter, 2018, p. 88)

2003, p. 283). This notion of the subject is called thin because it is meant to be the barest version possible that still satisfies the idea that all experience is experience *for* some subject. If our aim is to count subjects in the thin sense, they will be counted in the same way that experiences are counted, for each experience automatically comes along with its subject and vice versa. As I also do not think there is always a determinate fact of the matter regarding how experiential tokens should be carved and counted, this conception of the subject also leaves open metaphysical indeterminacy in terms of "counting" subjects.

If we are functionalists about mind and mental states, then counting experiential subjects involves the individuation of conscious mental states based on their causal profiles. This project in and of itself is purpose-relative. Even supposing it could be done determinately, we would then have a collection of mental states with conscious properties, M_1, M_2, … , M_N, each borne by a subject, S_1, S_2, …, S_N. Then, our project would be to delineate which of these subjects were the "same" subject. If N=3, but S_1=S_3, then we will have finished our project, concluding that there are two subjects. But given the vast complexity of the mental life in an actual experiencing organism, I suspect that N would number in the millions, and the "same subject" relation would not always be as clear cut as one may think - in certain cases it may even be metaphysically indeterminate, especially absent a particular context. So, I think we have good reason to be wary of a determinate answer to "how many subjects of experience" questions, in the split-brain in particular. I will expand on this position for the remainder of this section, then respond to potential objections in the subsequent ones.

3.2.1 Individuating Functional Realizers

William Lycan, in a response piece to Schechter's book, calls us to "remember that in metaphysics generally, questions of individuation are often (I would say nearly always) purpose-relative"

(Lycan, 2022, p. 166). Because of this, "how many?" questions require further contextualization (at the very least) before they have factual answers. First, there may be ambiguities in what I am targeting to be counted (the relevant kind) and in what domain. If I point to a six-pack and say "how many?" I need to clarify how many *what* - beer bottles? Six packs? Molecules? Once I clarify what I am counting, I also need to clarify the domain over which I am counting them - how many beer bottles *in that six-pack*? In the store? On earth right now? In this town from the years of 1952-1981?

Once these ambiguities have been clarified, my "how many?" question seems to have a factual answer. But depending on the things being counted, even the nature of that thing may not always prescribe one single clear individuation schema that enables a determinate, factual answer regarding how many of the things there are. Lycan brings up an example (from Shoemaker, 1984) using the word "building." Suppose Alpha and Beta begin as two distinct buildings, and a walkway is put up connecting them that increases in size/substantialness until a point at which Alpha and Beta are reasonably considered as parts of a single building, rather than two distinct buildings. At some point in the middle of this construction process, it may genuinely be indeterminate whether there is one building or two. We (or building administration) may have to choose a point at which to make this call. And the call may be purpose-relative, made in different ways for the purposes of solving different problems. If I am on the 32nd floor of Alpha looking out the window to you in the 32nd floor of Beta, I may intuitively think of waving to you in the neighboring building, whereas if we are located on the ground floor walkway, I may intuitively think of us as occupying the same building. In one context I may count the building(s) as two, in another I may count them as one, and in neither have I necessarily made a mistake. So, "even if 'building' is generally a sortal predicate, that does not establish a fact of the matter" (Lycan, 2022, p. 166).

Does the prospect of counting "minds" fare any better? It seems not. If we are functionalists about mind, then counting minds involves the project of individuating the functional realizers of mental properties. But Lycan rightly notes that "There is no determinate rule for individuating functional realizers" (167). Considering that the brain is in many ways a redundant system, the very same functional property can be simultaneously realized by multiple subsystems. If this is true, then he states that "assuming the truth of functionalism, there should be no factual answer to the question of how many minds there are in a normal person's head" (Lycan, 2022, p. 167).[46] It makes sense to count normal persons as having one mind for practical purposes, but there is not necessarily a metaphysical fact that would prevent us from counting them as having two or perhaps more minds, depending on our purposes and how finely we want to carve things up. This seems straightforward when we consider counting minds as a project we undergo from the third-person, external perspective, but it gets messy when we consider that the very reason we expect to be able to count minds in the first place is because of the intuition that we can do so from the subjective, inner perspective on ourselves. The strong desire to apply that same conception to split-brain cases is what makes them mysterious. I will return to these broader points in the "Responses to Objections" section.

In fact, Lycan agrees with Schechter's conclusion that there are two minds in real split-brain patients. He just does not think we should take it for granted that there is a metaphysical fact of the matter when it comes to these questions of counting. There are no factual answers to counting questions absent a context and a purpose for asking them. Even *with* this context,

[46] Lycan suggests that this is actually a significant *objection* to functionalism, since it is an implication that seems counterintuitive.

metaphysical indeterminacy can linger.[47] I intend to take Lycan's point one step further, to say that metaphysical indeterminacy not only *can*, but *does* obtain when it comes to at least some split-brain patients. There are at least some patients for whom there is genuinely no fact of the matter regarding how many "streams" of experience they have, and how many "subjects" of experience they are.[48]

3.2.2 Counting Subjects in Partially Unified Organisms

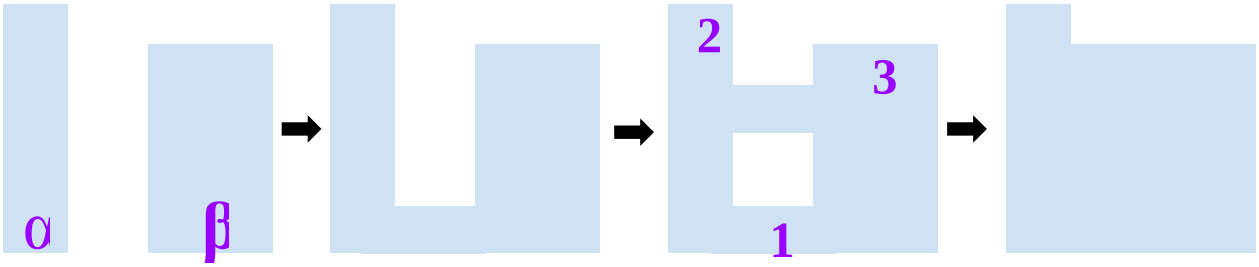
The existence of remaining interhemispheric integration post-surgery is not peripheral to the overall point about counting subjects. If it really were the case that all commissurotomies resulted in two distinct perceptual streams which processed information as separately as you and I do, then I agree that it would probably make sense to refer to split-brain patients as having two distinct minds (whatever the ontological status of a "subject of experience," and whatever individuation conditions we give for the functional realizers of mental states). However, the situation is not as straightforward as this. Even *if* the brain *were* cut cleanly in half, bodily "cohabitation" could be mentally relevant - not to mention that the hemispheres share the same perceptual organs. However, the brain is *not* cut cleanly in half, in any of these patients. There are remaining neural structures that make it reasonable to suppose that the patient as a whole still enjoys at least some experiences that do not have the dissociative properties paradigmatic of the split-brain studies.

[47] Again, as Schechter admits, individual split-brain patients may fall on a spectrum when it comes to their degrees of "two-mindedness." Perhaps some such patients do very clearly have two minds for all purposes. Perhaps some have two minds for some purposes, but not others. Perhaps, for some, even with a fixed purpose, it is genuinely indeterminate metaphysically whether they have one mind or two. How should we understand *these* types of cases? Is Nagel right that this very possibility raises doubts "concerning the prospect for major discoveries about the neurophysiological basis of mind" (Nagel, 1971, p. 396)?

[48] For the record, Schechter agrees with me on this point. Concerning patient N.G., for example, she thinks that there is enough interhemispheric interaction such that she cannot clearly be said to have two minds, but that she does not exactly have one either - "Her case is simply too intermediate to give any further answer to the 'how many minds?' question" (Schechter, 2022, p. 192).

Partially unified organisms can be provisionally counted as a matter of course - it may be useful to refer to them as one, or two, depending on context - but counting the number of subjects of experience in a partially unified organism is not a matter of determinate fact.

Consider again Shoemaker's example from the vagueness literature of the two buildings Alpha and Beta, which are initially separate buildings, connected by walkways with increasing substantialness until what was once reasonably considered as two buildings is now reasonably considered as one:



For simplicity's sake, let us suppose this transformation takes place in four discrete stages. In stage 1, Alpha and Beta are two distinct buildings, and at stage 4, there is now one single composite building. In the intermediate stages, especially at stage 3, there may be no fact of the matter about how many buildings there are. We might say there is one building which is partly disjointed, or that there are two buildings which are partly connected. The way in which we would choose to talk about this depends on our purposes and our use of the term "building."

Notice that this indeterminacy regarding "one building or two?" can connect to a potential transitivity failure for the "same building" relation. If we are eating lunch at a cafe in the middle of the ground floor during stage 3 (location 1), it seems we are in the same building. Then, I go to my office on the top floor of Alpha (location 2), and you go to your office on the top floor of Beta (location 3). Depending on the purpose of counting "buildings," and the nature of the "same

building" relation, it is arguable that now we are in different buildings. But we are both still in the same building in which we ate lunch. If we carved things up this way, then the "same building" relationship (call it "$=_{SB}$") is not transitive: Location 1 $=_{SB}$ Location 2, Location 1 $=_{SB}$ Location 3, but Location 2 $\neq_{SB}$ Location 3. Further, if we zoom out and look at the structure of the building(s) as a whole, we do not need to give a factual answer to "one building or two."[49]

The allowance for partial unity in the split-brain case creates a structurally similar situation there. There are unity relations among experiential parts, to be sure - I am not denying that. And if it were the case that after the surgery, we now had two distinct sets of maximally unified experiential tokens, then counting subjects would just mean drawing lines around these maximally unified sets. But given that this is not the case, we can still draw lines and count subjects, but we should recognize that doing so is provisional rather than marking some determinate and factual state of affairs.

I was trying to think about how to explain the relationship between transitivity failures and counting questions, and whether it is true that the former throws doubt on the latter, so I went on a walk. While on my walk, I noticed that there were clear and determinate boundary lines between the squares of pavement on the sidewalk. These clear and determinate boundary lines made it easy to count pavement squares. If something can be individuated as a matter of fact, then it can be counted as a matter of fact. But how does this connect to transitivity? Well, notice that because of these clear and determinate boundary lines between the squares of pavement, the "same square" relationship has to be transitive. If I picked any set of points within the same square of pavement, they would all share the relationship of being on that same square ($=_{SS}$). It would be impossible to

[49] We do not even *need* to give factual answers to whether two locations are the "same building," since for some purposes Location 2 $\neq_{SB}$ Location 3 and for others it may be the case that Location 2 $=_{SB}$ Location 3. Notice, however, that even if the latter could be done it would not fix the answer to the question of how many buildings there are. For some purposes, there would be one, and for others there would be two.

locate three points on the pavement p_1, p_2 and p_3 for which $p_1 =_{SS} p_2$, $p_2 =_{SS} p_3$, and $p_1 \neq_{SS} p_3$. Spatial relationships are like this. Where there are clear and distinct boundary lines between spaces, there will be a transitive "same space" relation (ordinary vagueness can even be set aside for this discussion, as it is not our issue). So, if there is a "same space" relation (which the phenomenal unity relation could be conceived of as) that is *not* transitive, it stands to reason that such a relation exists in a realm for which there are *not* clear and distinct boundary lines between "spaces." Phenomenal spaces (or phenomenal fields) are not like the squares on the sidewalk, and the lines drawn between phenomenal spaces are not lines carved into stone. It is common practice to illustrate phenomenal space using a circle. The subject of experience might be thought of like the center point of the circle (because wherever a circle exists, it has a center point - you cannot have one without the other). Partial unity is often modeled using multiple partly overlapping circles, simply drawing lines around the sets of totally unified experiences. Transitivity failures can be pictorially represented this way, but they also can indicate that the "boundary lines" drawn around the circles are not determinate. [50]

As far as I can gather, Schechter does not disagree that the conscious unity relationship is not (at least not necessarily) transitive. As she writes (Schechter, 2022, p. 191):

> … I did not reject the partial unity account of split-brain consciousness in the book. All I argue is that even if conscious unity is *not* a transitive relation between experiences, belonging to the same phenomenal perspective is. It may be perfectly possible for E1 and E3 to both be unified with E2 while neither is unified with each other. That is, it may be possible for there to be something it is like to undergo E1

[50] An even clearer picture for indeterminacy would result if the phenomenal unity relation were not only intransitive, but itself indeterminate (even if indeterminate due to vagueness around the edges). Dainton considers and rejects (not based on argument, but intuition) the idea that phenomenal unity could itself be indeterminate. He writes: "Could it be indeterminate as to whether e_1 is experienced with e_2? An appealing initial intuition is that if the existence or non-existence of an individual experience is all-or-nothing, the same applies to relationships of co-consciousness. If e_2 exists at this moment, it is either co-conscious with that ensemble of co-conscious experience I now identify as mine, or it is not; there is no half-way house. Since I can see no way to defend this intuition, I will leave the issue here" (Dainton, 2000, p. 89). For the record, I do not share his intuition here. I do not think that either the having of an experience *nor* its co-consciousness with another experience are "all-or-nothing" affairs. I do not have a way to defend my opposing intuitions, so I will leave it there.

> and E2, and something it is like to undergo E2 and E3, and nothing it is like to undergo E1 and E3. But this is just to say that there is no single phenomenal perspective encompassing both E1 and E3.

The result of transitivity failures for the conscious unity relation, according to her picture, is that phenomenal perspectives can overlap. Depending on the extent of overlap, I think she also agrees that it *sometimes* may be reasonable to count these patients as one. I do not take Schechter to be my primary target in defending the possibility of indeterminacy. In counting subjects, she is doing a careful project of system-individuation, and while I may disagree with her on some specifics and be more open to indeterminacy than she, I do not think her entire theory rests on a confusion about the subject. Perhaps what I am targeting is instead an intuition that is all too natural to hold. If subjects of experience are the literal "inner eyes" that occupy the perspective(s) of experiencing organisms, it would seem that counting them should be a matter of determinate fact. But it is not, and those of us still beholden to this traditional conception of the subject need to grapple with that fact.

3.2.3 Purpose(s) of Counting

Since individuation is purpose-relative, it may be helpful to identify *why* we want to be able to count minds and/or subjects of experience. What do we expect to be able to *do* with our counting schema? Further, once we identify this purpose, is it the kind of thing that fixes singular answers to our counting questions, or does it allow for metaphysical indeterminacy?

Since I am most interested in the experiential landscape of a split-brain patient, I want to focus on counting minds qua *subjects of experience*. Conceiving of experience phenomenally, a subject of experience is a being for which summative "what-it's-likeness" questions apply. This *can* include organisms as a whole but can also potentially include their parts (see Chapter 4 for more on types of "what-it's-likeness" questions).

In other words, one purpose of counting minds in the split-brain case is to enable us to better understand their experiential landscape. If I am going to attempt to understand "what it is like" to be a split-brain patient by projecting myself into their subjective perspective(s) of the world, how many times ought I to do this? Should I do it once, projecting myself into the organism as a whole, asking what it is like to be that organism and/or person? Should I do it twice, projecting myself into each respective hemisphere, asking what it is like to be LH and separately what it is like to be RH? Should I do it more times than that, perhaps projecting myself separately into each modality? For someone like D.H. who is split for touch but not vision, should I project myself once into his visual field and twice into his tactile field(s)?

Given the nature of the specific types of "how many minds" questions I want to ask and answer, it should be clear why they do not necessitate a singular, factual answer. Multiple frameworks for counting may be "correct" simultaneously, in the sense that they are useful for understanding the "phenomenal landscape" of the case. This does not mean that they are "correct" in the sense that they reflect a singular metaphysical reality. We needn't even suppose that there is a singular "metaphysical reality" that dictates the one correct way to carve up and individuate minded beings. There are standards of appropriateness, to be sure - some counting schema will decidedly not be useful for any purpose. I think that at least in the split-brain case, however, both one-mind and two-minds approaches can be simultaneously accurate and useful.

3.3 Responses to Objections

So far, most of the people I have spoken with about the idea that there is actually no fact of the matter about counting minds have seemed relatively open to it. So, perhaps my imagined target that still harbors Cartesian intuitions about indivisibility and about an "inner eye" has already been

quashed, and we can all go home. Maybe it is not so radical, after all, that subjects are not the kinds of things we should expect to be able to determinately count in whole numbers. But I expect I will be met with some resistance, so in this section I have tried to anticipate a few reactions to this "deflationary" approach toward counting subjects.

3.3.1 Indetermin*able*, or Indetermin*ate*?

This can be construed as an objection, or perhaps just a request for further clarification, which I have gotten in previous iterations of this project. My interlocutor asks, "are you *really, really* saying that the answer is *indeterminate*? Or, maybe, do you just mean that the answer is *indeterminable*, from our perspective?"[51] Maybe it is just that we do not know enough, yet, about how conscious experience is generated by physical processes. Maybe a completed cognitive science could give us the definitive answer as to which split-brain patients now harbored two subjective perspectives, and which continue to harbor one - and that would settle that. Or, maybe such a "completed cognitive science" is a pipe dream, and we will *never* be able to say *with certainty* "how many" experiencing subjects some split-brain patients are - but still, this is merely a limit on our knowledge. It doesn't mean there is no *fact* of the matter - right?

I will put the point another way. It might not be so novel to say that there are no *perspective independent* (or maybe - perspectivally neutral) factual answers to "how many minds?" questions. "Of course!" some might say - "but that is exactly what is at issue in the first place - perspective. When it comes to questions of mind, there *is* a privileged perspective from which to attribute subjectivity and from which to count minds - the *inner*, subjective perspective." Some might argue that it is not only due to an incomplete cognitive science, but also due to epistemic asymmetries

[51] I am thinking specifically of when Mandy Long asked me this question during a writing group meeting.

between the first and third person that I am not able to say as a matter of determinate fact how many minds a split-brain patient has. So, it is not that there is *no* fact of the matter, it is that the fact of the matter is unknowable (or at the very least, unknown) from *my* perspective.

I accept that it could be possible that a future, more completed cognitive science could give us a clearer picture as to whether a split-brain patient should be counted as one or two subjects (or perhaps more). I have my suspicions that both counting-schema still may be useful in many cases, but perhaps there are more objective facts here that could be gleaned. The second, stronger framing of the question got me thinking about a thought experiment. It would not be enough to imagine that we are in a future world with a completed cognitive science, or that we are superintelligent aliens, able to take an objective, "bird's-eye" view on every single neural process instantiated in every single moment and across time in a particular split-brain patient. I would argue that such a birds-eye view still may not fix a fact of the matter about how many experiencing subjects there are (though I could be shown to be wrong here). Even if true, though, this would not satisfy the stronger version of this objection. I am not sure anything would satisfy it, and one's reaction to the following thought experiment largely depends on one's individual intuitions rather than argument, so do with it what you will.

Imagine that instead of a "bird's eye" objective view of all the states of affairs in the universe from the third-person perspective, there could be something like a "god's eye" perspective which not only sees all the movements of all molecules in the universe at each and every level of explanation, but also feels every feeling, from the inside. If such a perspective were possible, my objector might say that this ultra-omniscient being would, of necessity, be able to count the number of subjects in the split-brain organism. While they *might* be able to, I would argue that this is not necessary. Clear and distinct delineations between subjects and subjective

perspectives would *not* be necessary for a "god's eye" perspective to be able to feel each and every phenomenal state in each and every moment *from* the inside. I do think this runs afoul of some conceptions of the Subject of experience, so I leave it upon my reader to run this thought experiment themselves and report back about their results.

So, I am trying to argue that there are some cases in which it is indetermin*ate* how many subjects of experience there are in an experiencing organism. The claim is not just that I do not (even cannot) know from my perspective how many subjects some split-brain patients are. It is that there is literally no determinate fact about how many subjects some split-brain patients are.

3.3.2 "There *is* a fact of the matter - I *most definitely* have one mind!"

Again, there seems to be a privileged perspective from which subjects can be counted – the inner, subjective perspective, from which I count myself, for example, as one. Ipso facto, so the objector goes, there *are* determinate, factual answers about "how many minds" questions.

First, I do not doubt that there are often cases in which one very much should go along with standard practice and ascribe a single experiencing mind to a single organism. I am all for treating you as though you are a single subject of experience and doing the same for myself. And even if it were determinately correct that you are, this would not necessarily affect my thesis. I think there is not *necessarily* a determinate, factual answer to "how many minds?" questions, but that does not entail that there may not also often be one. I do, however, think that at the very least it makes sense to doubt the claim that "I have one (fully unified?) mind" and to question whether it is true as a matter of fact, or simply provisionally accepted because it makes pragmatic sense to go about the world behaving as if it were true.

But *how* can it make sense to doubt the claim that "I have one mind," or, maybe, "I am one subject of experience"? This depends on what you mean by "I." First, note that a split-brain patient

may assert the very same sentence, with the very same level of introspective confidence that you have when you assert it. And both of you might be right if by "I" you just mean "whatever subject of experience is associated with the generation of this particular sentence" (in thought or in language). I do not think that this is what most people mean when they utter "I". To put it briefly, I agree with Strawson when he writes "...that 'I' is not univocal."[52] He goes on to say (Strawson, 2003, p. 286):

> We move naturally between conceiving of ourselves primarily as a human being and primarily as some sort of persisting inner subject (we do not, of course, naturally conceive of ourselves as a thin subject). Sometimes we mean to refer to the one, sometimes to the other; sometimes our semantic intention hovers between both, sometimes it embraces both. (286)

Conceiving of myself as subject, there is a sense in which I am singular, and a sense in which I would be right to say I am one. There may be other introspective mechanisms inside my body that are not fully integrated with the introspective mechanisms that "I" access through the same part of myself which generates my conscious thought and verbal reports on my experience, but if "I" am just the subject of experience attached to whatever mental states "I" am aware of, then this possibility does not threaten my singularity. Conceiving of myself as organism, there is also a sense in which I am singular, so that I am correct in my assertion of my own oneness. But I often conceive of myself as both simultaneously. "I" qua organism may contain multitudes, or uncountable numbers of "subjects of experience," again where subjects of experience are conceived in the most basic sense - bearers of mental properties. If not all of these mental properties are unified, then it may not make sense to say they belong to the "same subject" if by subject I mean something other than organism. But "I" (qua organism) may not be cleanly divided up into *two* subjects, either.

[52] Lycan argues that "person" is paronymous, having many very closely related meanings (Lycan, 2022, p. 162).

To put my response to this objection simply, I think the sentence "I have one mind" is itself confused, unless one clarifies what one means by "I" (and by "mind," for that matter) - there are some senses in which it may be trivially true, some senses in which it may be substantively true or substantively false, and some senses in which it may be neither true nor false because there is no fact of the matter about how many whole numbers of minds "you" have.[53]

3.3.3 Is the Approach "Defeatist"?

There is some sense in which a "no fact of the matter" approach toward counting subjects of experience may be thought to declare the domain of experience to be an inscrutable chaotic mess that cannot be made sense of. Schechter expresses this thought when she writes that "A more basic concern about the deflationary position is that it may discourage us from taking a hard and detailed look at the empirical literature" and that it is "not a very inspiring place to start" (Schechter, 2018, p. 21).

She rightly points out that this is not a critique of deflationism as a position, but rather concerns about the methodology of a further pursuit of it. As such, my response is brief. I think that starting with an assumption of metaphysical indeterminacy about counting subjects, rather than closing us off to empirical literature, instead creates space for us to interpret that literature with a higher degree of openness. We do not *need* to settle on a single determinate answer to (nor do we really even need to ask) "come on, really, one mind or two?" - this does not mean that we do not want to know about the nature of the patients' subjective experience(s)! But again, I do not think this minor disagreement with Schechter seems like a disagreement with much (if any)

[53] I say neither true nor false rather than plainly false because that is what I mean. According to some conception of "I" it may not be determinately *true* that "I have one mind," but that does not automatically mean that it is determinately *false*.

philosophical substance. I agree with most of the substance of what she argues, and I do think there is a lot to be learned about the experiential life of a split-brain patient by observing data through the lens of her two-minds approach. I simply do not think that this is the end of the story, or that it is fixed as a matter of determinate fact that every patient with a sectioned corpus callosum is cleanly split into two distinct subjects. I daresay she would probably agree with me there.

3.3.4 How Can We Make Sense of the Mental Life Without Countable Subjects?

This objection is a continuation of the previous one - I have said that my approach is not defeatist, and that we can still make sense of the experiential life of split-brain patients without even the *expectation* of determinately counting some whole number subjects of experience they are. But *how*? C*an* we even escape the inclination to view experiencing beings under the lens of whole-number-countable subjective perspectives? Schechter writes (Schechter, 2022, p. 193):

> As I say in Chapter 1, though, I am somewhat sceptical that it is possible to *operate*, in the psychological domain, without thinking of a split-brain subject as being some determinate number of thinkers. My suspicion is that if I don't explicitly offer a way of thinking about split-brain subjects as having two minds, then the reader will inevitably default to thinking of them as having one mind apiece (I myself tend to do this with N.G.). And if we cannot help but conceptualize a split-brain subject as some determinate number of thinkers, then it seems preferable to explicitly articulate and defend such a conceptualization.

The importance of whole number-countability to our conception of experiencing subjects is a point that I do not take lightly. This echoes Thomas Nagel's point in his article on the split-brain case, when he wrote: "It is the idea of a *single* person, a single subject of experience and action,

that is in difficulties" (Nagel, 1971, p. 396).[54] I agree that speaking about people in mentalistic and agentive terms requires talking about them in terms of some whole number of subjects.[55] We could discard all forms of this talk, but I think Schechter is right that it can sometimes be useful to interpret split-brain data by talking about what R and L "saw" or "intended." This can help paint a clearer picture than merely talking about what was shown to the left visual field or what the left hand did.[56] I do think that talking about many split-brain patients as a being with two minds is helpful and expedient in many circumstances, and even helps us to understand the phenomenal life of that person more clearly. What I am suggesting, however, is that we should not take such talk to be reflective of a factually determinate metaphysical state of affairs wherein there literally are two subjects of experience or centers of consciousness.

So, in response to this objection, I can say that we can be pluralists about counting subjects. If we do not take our answers to "how many minds?" questions to reflect metaphysical fact, then we can be more open to using the answers as a tool for understanding the subjective experience of that organism, without necessarily being bound by that counting schema. Recognizing the indeterminacy of the number of subjects in an organism can, I think, help us maintain a form of attentive openness that allows us to interpret empirical data in a new light. In the next section, I will illustrate my pluralism about "how many minds?" questions through a case study, looking at patient L.B.

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[54] Schechter does the important work of distinguishing the "person" from the subject of experience.

[55] The question was once raised to me (by a colleague, Nate Sheff) during a talk – why even go the "useful fiction" route? How is it useful? Why not discard "subject talk" entirely? The following comments have this question in mind.

[56] Sometimes it may even make sense to model their divergences as interpersonal conflict, as in the case of P.O.V. choosing what to wear. She finds better success not getting thwarted by her left hand if she verbalizes what she is going to pick out, out loud - this can be modeled as the two parts of herself improving their communication with one another! I agree that this is often a good way to model many behaviors and perceptions of split-brain persons, *however*, I do not necessarily think the usefulness of this modeling always entails that there are definitely *two* subjects in all the ways that matter experientially.

3.4 Case Study: Patient L.B.

L.B. was born on the 15th of May, 1952. He began having seizures when he was three and a half, and they continued to worsen, until eventually he was having a seizure every week and became a candidate for a complete cerebral commissurotomy. He had his operation on the 1st of April, 1965 when he was twelve, almost thirteen (Bogen & Vogel, 1975, p. 236). There is a good deal of evidence on patient L.B., and he is one of the patients Schechter specifically thinks the two-minds view applies to, so he is a great candidate for a case study. Since he was still a child when he had his operation, it is very possible that his brain had a greater degree of adaptability than other split-brain patients. Bogen & Vogel point out that, as is typical for split-brain individuals, L.B. does exhibit left hand anomia, i.e., the inability to verbally name objects placed into the left hand. They write (Bogen & Vogel, 1975, p. 236):

> He definitely has an anomia in the left hand: he called a rubber band a "bobbypin". When given a paperclip in the left hand he was quite unable to tell what it was. When a pencil clip was put in his left hand he thought for some time and said, "Oh, is this a pencil or something, it seems as if it is a pencil, is it cylindrical?". With all of these objects, he rapidly and correctly named the object when it was placed into his right hand.

They also note that he is better than their average commissurotomy patient in naming and/or pointing to stimuli presented to the left-half visual field, though still distinguishable from the general population. One interesting everyday tidbit about L.B. was that he "reads the split-brain literature and has studied his own brain MRI; his talking left hemisphere has a great deal of indirect information about his own right hemisphere" (Bogen, 1999, p. 498). By discussing some studies done on patient L.B., I will illustrate how we can still work to interpret empirical results without the assumption that "how many minds?" questions have factual answers.

3.4.1 Study 1: Apparent Motion Across the Midline

Most human beings, with intact commissures, experience an illusion called “apparent motion,” in which two lights flashed in rapid succession are perceived as a single object in motion, rather than two objects in succession. This is why flip books work, and why films can take place in “frames,” and yet still seem to involve fluid motion (rather than appearing as a rapid staccato of individual frames). Do split-brain patients, specifically L.B., experience this illusion? What about when the two lights that are flashed are in opposite visual fields, such that one of the lights is flashed to the left visual field (LVF) and one to the right visual field (RVF) and, accordingly, each light is likely processed by a different hemisphere? The first study I will examine explores questions related to these (Ramachandran et al., 1986).

V.S. Ramachandran and colleagues tested three commissurotomy patients: L.B., A.A., and N.G. In their study design, they first displayed two spots across the midline to each patient. The two spots “jumped from either left to right (L-R) or right to left (R-L), or the two spots appeared simultaneously” (Ramachandran et al., 1986, p. 358). Then, with two different trials each using a different response hand, the subject was instructed to point to a picture card (displayed in the visual field appropriate for that response hand) that indicated whether the apparent motion was from right to left, left to right, or whether the dots were simultaneous. In this portion of the study, L.B.’s performance was perfect - “He was 100% accurate on all 60 trials, 30 with each hand” (Ramachandran et al., 1986, p. 358). To control for eye movements, they had a researcher watching the subjects and discarding any trials in which the eyes deviated from the central fixation point. As a further control, they did another trial where the dots were separated by a greater distance, and still L.B. achieved 100% accuracy.

Since the original question was about the apparent motion illusion, and not judgments of temporal succession, how can the researchers verify whether this illusion was actually experienced? One strategy is to simply ask the patients. When they did so, they write that "all three replied unhesitatingly that they had seen the dot 'move' or 'jump' rather than merely change location" (Ramachandran et al., 1986, p. 359).[57] They also ran another trial in which they continuously increased the interval between stimuli presentation, until there was a subjective report of "a transition from seeing movement to seeing simple temporal succession" (Ramachandran et al., 1986, p. 359). Running this test, they found something else interesting. They write (p. 359):

> Interestingly, for the horizontal sequence, when the ISI[58] was too long, they often reported seeing only a single spot flashing on and off and their ability to discriminate temporal order actually deteriorated even though they had more time available. It was almost as though one could switch from a single conscious individual to two individuals by simply increasing the ISI!

In other words, fascinatingly, the subject was easily able to say whether the dots were simultaneous or successive (and in which direction) when they were not separated very much *in time*, and when they were perceived as a single object in motion rather than two objects presented successively. When the time window got large enough that the apparent motion illusion no longer applied, subjects seemed to lose this ability to perceive the dot on the other side of the midline from the response hand.

The mechanism postulated by the researchers that explains this effect is that, perhaps, the "apparent motion" effect is mediated by what they call the "second visual system," which is "phylogenetically older" and "may be adequate for mediating motion perception but not for stereopsis and 'form' perception" (Ramachandran et al., 1986, p. 359). Perhaps this system does

[57] In other words, they did not describe what they saw as a dot in one location, followed by a subsequent dot in another location – they described what they saw using words that imply a perception of motion such as "moving" and "jumping."
[58] ISI here means "inter-stimulus interval," the time between the successive dots.

not rely on forebrain commissures, which is why the subjects were able to identify the direction of apparent motion but not able to report seeing a second dot when the apparent motion illusion no longer applied due to the greater temporal interval.

In my view, we need not interpret these results by ascribing to L.B. a determinate number of minds. I can understand the impulse to do so: if we describe what happened in this study in purely objective, third-person terms, we seem to be missing something. We can talk about what his left or right hand pointed to, but if we simply leave it at that, then we have not said anything about the structure of his actual experience of the world. If we want to talk about the experience of the patient in first-personal terms, in terms of what was experienced or perceived, who is the subject: the left hemisphere, the right hemisphere, or the patient as a whole? Again, my argument is *not* that these frameworks are not useful for thinking about the case. Rather, since I do not take them to reflect metaphysical facts about how many literal inner subjects there are, I can be pluralist about how many "first-personal" stories should be told to capture the experiential life of patient L.B. in this study.

For example, the first iteration of the study, in which both of L.B.'s hands are able to point to the correct picture on 100% of trials, indicates that there is a sense in which we can refer to the experiential life of the subject as a whole. In this trial, I think it would make perfect sense to talk about L.B., as a whole, perceiving the apparent motion illusion. Alternatively, we could alternate who we are ascribing first-person perceptions to depending on the responding hand (or hemisphere). Or, we could say that the left hemisphere and the right hemisphere both perceive the apparent motion illusion in this trial. When the ISI was increased, it now may become more expedient to refer to the patient in terms of two subjects, because continuing to refer to him as one in this context could get confusing, since he does not report seeing the dot in the LVF, but some

part of him does seem able to indicate that it saw it. We could speak about him as one disunified subject, or two subjects, depending on our goals here. These ways of talking can help us understand more about the experiential life of patient L.B. in these contexts, but it does not literally mean that there is a rapid switching back and forth between him being one subject and him being two. After all, even during the apparent motion illusion trials, if we would have put a static image on one half of visual space, presumably L.B. as a whole would not have seen the static image even if L.B. as a whole did see the apparent motion across the midline. L.B. may be, at the very same moment, reasonably considered as both one and two subjects, without contradiction in my picture.

3.4.2 Study 2: Temporal Discrimination and Simultaneity Judgments

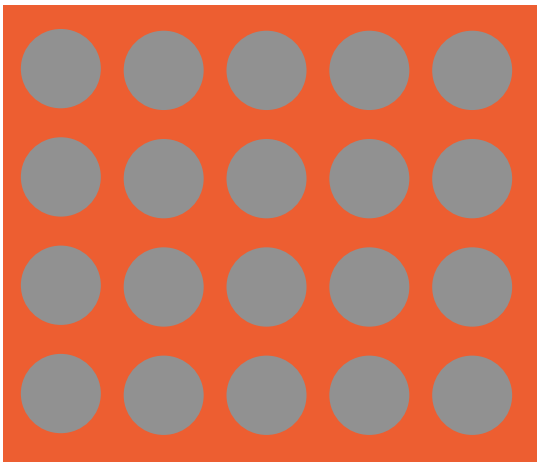
Ramachandran et. al's results above are intriguing, and the next study I will examine looks deeper into the extent of commissurotomy patients' ability to distinguish simultaneity from succession. What factors affect their ability to do so? One benefit of the current study is that the researchers included non-commissurotomized subjects, as well as an acallosal subject (i.e. someone born without a corpus callosum), as controls.

Forster and colleagues were particularly interested in whether varying the luminance of the presented lights would affect the subjects' ability to judge the lights as successive and/or simultaneous (Forster et al., 2000). Part of the reason they were interested in this was to test the idea that Ramachandran, et al. suggested above regarding the "second visual system" being used for judgments of simultaneity and succession absent a corpus callosum. If this hypothesis is correct, Forster et al. postulate, then "we would expect the discrimination to be especially impaired under equiluminance" due to the visual pathways thought typical for such conditions (Forster et al., 2000, p. 442). The basic research protocols were similar to those used by Ramachandran et al.

above: two discs were presented either simultaneously or in brief succession, to each subject (varying whether the discs were presented both in the LVF, RVF, or bilateral visual fields).

In Experiment 1, the discs were presented against a gray background and had four different luminance (or, brightness) conditions. As expected, the "normal" (non-callosotomy) controls were quickly and easily able to correctly identify whether the stimuli were successive or simultaneous in all conditions. L.B. did not identify temporal succession with that degree of accuracy, but he did perform "significantly above chance under all conditions of location and luminance" (Forster et al., 2000, p. 444). Overall, with both response hands, his accuracy was much higher for LVF stimuli than for RVF stimuli. His accuracy for bilateral stimuli was also very high. The researchers found "no significant main effects or interactions involving hand or luminance" for L.B.'s trial on the first three luminance conditions (Forster, et al., 2000, p. 444). In another run of the experiment with lower luminance conditions, they did find a statistical effect of the response hand. Overall, L.B. showed "a strong bias to respond 'successive' with RVF presentations, but the bias was more marked with the left hand (0.72) than with the right hand (0.59)" (Forster, et al., 2000, p. 444).

In Experiment 2, gray disks were presented against a yellow background which was equiluminant. Equiluminance refers to conditions in which the background and foreground objects have exactly the same brightness, and it is known to impair motion and edge detection. Approximating equiluminant conditions digitally is not perfect, since it depends on one's monitor settings and room lighting (in the experiment, they used low-level blue light), but here is my attempt to give you an idea of equiluminance conditions:



Subjects were asked to do the same task as in Experiment 1: respond (with a particular response hand, varied depending on trial) regarding whether the two disks were presented simultaneously or successively. Again, L.B.'s accuracy was not perfect, but was still well above chance overall. His lowest accuracy was, unsurprisingly, under the bilateral stimulus condition. They write that (p. 447):

> … discrimination was significantly above chance in the RVF when L.B. used his right hand but not when he used his left hand. The discrimination failed to rise significantly above chance with bilateral presentation for either hand, but was significantly above chance with LVF presentation for both hands.

The first part seems unsurprising, given that the right hand of a split-brain patient typically responds to RVF stimuli. But why could he correctly identify LVF-presented stimuli with *both* hands? And why did the researchers see a main effect of the response hand under the equiluminance conditions in Experiment 2, but in Experiment 1 it did not seem to matter which response hand was used?

These are interesting questions, and exploring their answers does not necessitate giving a single, determinate, and factual answer as to "how many minds" or "centers of consciousness" any given organism has. With this presupposition, a good amount of data calls for explaining away rather than explaining. If we see L.B. as a human being with definitively *two* centers of

consciousness, for example, we must find ways to *explain away* the ability of both hands to respond accurately in Experiment 1. Perhaps we could invoke cross-cueing explanations… but then it would seem odd that L.B. would not be able to employ the same methods in Experiment 2.

Alternatively, perhaps Ramachandran et al. in Study 1 were correct in attributing perception of apparent motion to the "second visual system," which does not depend on integration via the corpus callosum in order for its input to be processed by both cortical hemispheres. If this is right, then again as Forster et al. predict, the perception of apparent motion (specifically across the midline) would be impaired for split-brain patients for equiluminant conditions, which restrict the ability of this so-called "second visual system." L.B. could, conceivably, be perceptually split in some ways but not in others. If he is still able to detect apparent motion across the midline accurately in normal (non-equiluminant) conditions, then it does seem to make sense to speak as though it is L.B. who is perceiving this apparent motion, rather than speaking of his left and right hemispheres both separately perceiving it. But since there are other perceptual details, such as specific object features, or apparent motion when stimuli are equiluminant, that do seem "split," so it might make sense to speak about L.B.'s RH and his LH as the "things doing the perceiving" in these contexts.

On my view, we can be open to a plurality of ways for speaking about L.B.'s perceptual processing. I would argue this allows us to be *more* responsive to empirical evidence rather than less. There are many ways in which L.B.'s conscious experience might remain unified, and many ways in which it is most definitely not. To understand more deeply "what it is like" to be him, or to be his left hemisphere, or his right, it would be a worthy endeavor to undertake this project of elucidating all the ways in which his experience(s), at and across time, is and is not unified. That is, unfortunately, not the project of the current chapter - rather, I aim simply to show that

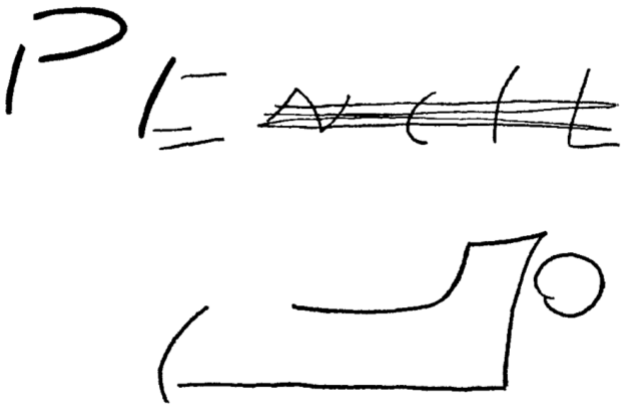
undertaking this project does not require settling a fact of the matter about how many "subjects" of experience he is, because there may not be such a fact of the matter to be settled in the first place.

3.4.3 Study 3: Right Hemisphere Language?

To change gears, let us look briefly at a study designed to test whether L.B.'s right hemisphere had language capabilities (Levy et al., 1971). Note that this study was done when L.B. was 17 years old, five years after his surgery, whereas the previously discussed studies were done much later. They subjected L.B. to a series of three tests, but I will focus on just the third one, as I am primarily interested in discussing what he drew. In the test, L.B. was presented with a household object, screened from view so that he had to identify the object tactually with his left hand. He was then asked to write the name of what he felt (also with his left hand). They found that (Levy et al., 1971, p. 53):

> It was consistently the case in these tests that only the first letter or two was correctly written. These letters were generally made by slow deliberate movements, with the pencil tightly grasped in the left hand. He would then either stop or, holding the pencil more naturally, add other incorrect letters. For example, he managed to print "E" when handed a cup and "S" when handed a spoon, but he could get no further.

In one trial, the object presented to L.B.'s left hand was a pipe. The researchers describe the mentioned slow, deliberate, tightly gripped pencil mode in which L.B. wrote the letters "PI." He then paused, his grip changed, he pressed down less firmly on the paper, and finished the word "PENCIL." Then, he "scratched out the last four letters and "stated vocally that he didn't know what the object was" (p. 54). Researchers asked if he could draw the object, and he drew the below image:



To me, this image is striking, as is the way the researchers describe L.B.'s changes as he produced this image. The readiest explanation seems to come from the lens of a two-minds approach, combined with the ability of both hemispheres to control the left hand as well as the ability of the hemispheres to glean certain fine-grained tactual information from both hands. It seems like what happened is that the right hemisphere felt a pipe, and upon being asked to write what it saw, set about the task and wrote "PI" (which, perhaps, is difficult for it, hence the concerted effort and unnatural grip). Then, it seems as though the left hemisphere seized control of the left hand. It seems possible that the left hemisphere could discriminate the marks that had been written so far, and it was making a "best guess" about how to complete the word. It is interesting that the left hemisphere seemed to have been able to discriminate what was written with the left hand, but not what was felt by it. It is unclear whether the left or the right hemisphere did the scratching out motion, since either would make sense. *Someone* seems to have recognized that they were not confident that "Pencil" was the correct answer. Presumably, it was his left hemisphere controlling the vocal apparatus when L.B. said that he didn't know what he saw, and then his right hemisphere controlling the left hand when it drew the picture that does seem to resemble a pipe.

The researchers took their results in this study, on the whole, to indicate that the right hemispheres of both patients they studied did indeed have "some capacity to express at least simple

language through control of the left hand" (Levy et al., 1971, p. 56). This corroborates a finding from another study on patient L.B., done one year post-operatively, whose researchers concluded that the "minor hemisphere perceives and comprehends both the written and spoken word" (Gazzaniga & Sperry, 1967, p. 147).[59] The evidence that L.B.'s right hemisphere is seemingly able to understand language is part of what makes him an attractive candidate for the two minds approach. If we rely wholly on the subjective reports on the nature of his experience that emanate from his vocal apparatus, we would be missing something about L.B.'s inner world. This is a statement that I definitely agree with. What I disagree with is the leap from claims like this to claims that L.B. is factually *two* subjects in all the ways that matter.

Suppose, for a minute, that we could devise a technological aid that would allow the right hemisphere to do what the left hemisphere does when it takes control of the vocal apparatus. In the actual world, when L.B. speaks, researchers are confident that they are hearing a report that is generated by his left hemisphere. Now imagine that they had some way of gleaning a report that they were *just* as confident was generated from the right hemisphere. What the two-minds view gets right, I think, is that in this imagined scenario, the right hemisphere would indeed have a different (perhaps a *very* different) story to tell than the one told from L.B.'s mouth. If we could do such a thing and hear such a story, the existence of two distinct *speakers* who report on two distinct *experiences* would seem like striking evidence of there being two minds. But remember that for our purposes, a "mind" is a subject of experience. In our imagined scenario, it might make sense to speak about L.B. as having two minds, since he reports on two different experiences. However, reporting on an experience is not all there is to having an experience. Certainly, not all beings capable of having an experience are also capable of reporting on it. Even in the hypothetical

[59] By "minor hemisphere" here they just mean the right hemisphere. They are operating according to a framework in which the left hemisphere is "dominant" - for most things, but especially language.

case, the two experiential stories that we may hear from L.B.'s left and right hemispheres still may not exhaust his experiential life.

Bringing it back to L.B.'s pipe drawing, it seems right to say that there are shifts in what neural network of L.B.'s is controlling his left hand when it is writing and drawing. This does not automatically entail that there are two subjective experiencers and/or two literal "centers" of consciousness.

3.5 Conclusion

In this chapter, I have discussed why I think that there need not be a fact of the matter about "how many minds" a split-brain patient has. I understand the impulse to think that questions of counting subjective experiencers should be absolute, since from the inside one seems able to count oneself so clearly and cleanly as "one" experiencer. If you do, I would not dare to argue that you are "wrong" in doing so. What I would question is *what it is* that you are counting when counting your self as one, and whether you think that such things must always, of necessity, be such that they are determinately countable in whole numbers. I have argued that they need not be.

When we are counting minds, in my view, we are asking how many subjects of experience an experiencing organism is. My argument is that in situations where that organism enjoys partially unified phenomenal states, there may be no factual way to carve them up into a determinate number of experiencing subjects. Further, I have argued that some split-brain patients (considered as organisms, at the very least) may enjoy partially unified phenomenal states. This means that we may, for some purposes, consider them to be one partly disunified subject, or two partly overlapping subjects (I have not ruled out that there may be other applicable counting schema as well). Supposing that they are either one or two may be useful for enabling acts of imaginative

projection in order to better understand their experiential life, but we need not expect that such suppositions track metaphysical reality.

In considering objections, one that I pay particular mind to is the idea that the approach is "defeatist," and that its methodology serves to steer us away from a careful look at empirical research since doing so cannot help us make sense of the experiential lives of these patients anyway. I strongly disagree with this attitude toward the deflationary approach; I think that viewing "counting" questions as purpose-relative (and often provisional) rather than viewing them as reflecting determinate metaphysical fact actually allows a greater degree of openness to interpret empirical results and their nuances. In this chapter, I attempted to illustrate this idea by exploring patient L.B. and his experiences of apparent motion across the midline as well as his right hemisphere language capabilities. Future work can, and should, do even more to explore the many dimensions along which his (and others') experiences are and are not unified in order to better understand his inner world, without automatically assuming that he (perhaps, anyone) should be cleanly countable as "one" or "two."

4. “What-it’s-Likeness” and the “Point of View”

Abstract
In this chapter I am interested in the conception of consciousness as “what-it’s-likeness” popularized by Nagel (1974). I would first like to clarify that for an organism’s mental states to have this feature, it does not entail that there is some *singular* and maximally unified “way it is like” to be that organism, nor that the organism has a single “point of view” on a single “phenomenal world.” Then I will clarify my usage of the “what it is like” locution. I think that “what is it like?” questions can be appropriately targeted, at minimum, to any experiencing subject (or often, organism). These questions may target some specific aspect of that subject or organism’s phenomenology, or a sum total either at a time or across time. One main reason one may have thought that conscious experience is intrinsically unified is because it is intrinsically perspectival, or linked with a “point of view.” When we talk about conscious states being “like something,” we mean like something *for* the subject - from the “inside.” This may lead us to believe that there is an essentially unified “inner observer” (or at the very least, a determinately countable whole number of inner observers) within every experiencing organism, but this would be a mistaken inference. I intend to retain the intuition that experience is intrinsically perspectival *without* the implication that experiencing subjects (and their corresponding experiential perspectives) are (necessarily and determinately) countable in whole numbers.

4.1 Introduction

Thomas Nagel, in his influential 1974 article, presents a conception of conscious experience according to which “the fact that an organism has conscious experience *at all* means, basically, that there is something it is like to *be* that organism” (Nagel 1974, p. 436). This particular point (as I interpret it) is deceptively simple, and difficult to argue with. Experience, at its core, has a felt phenomenology.

When I inquire as to what it is like to be a table, I am speaking metaphorically or perhaps even saying something nonsensical. A table does not have experience. It does not have an inner world. There is nothing it is like to be a table. But when I inquire as to what it is like to be you, or

a bat, or a frog, I *intend* to get at something real. Experiencing organisms do have inner worlds.[60] As he rightly points out, this becomes contentious the further we travel across the phylogenetic tree. When I inquire as to what it is like to be a bee, or an ant, or a worm, or a mollusk, or even a plant, one may challenge my questions as illegitimate (or, legitimate questions whose answers are that "there is nothing it is like") if one believes these types of creatures do not have an "inner world" at all.[61] This all feels fairly intuitive.

However, conceiving of consciousness as "what-it's-likeness" has implications for discussions of unity, so I intend to examine the notion that Nagel develops closely. I would like to be able to conceive of consciousness as what-it's-likeness broadly, without committing myself to a particular view of the structure of experience in an experiencing organism. I will first reflect on Nagel's use of the "what it is like" locution, aided by Kathleen Akins. Specifically, I am interested in whether conceiving of consciousness as "what-it's-likeness" entails that, necessarily, all conscious experience is intrinsically unified within an organism and/or subject of experience.

It certainly does not entail that conscious organisms necessarily enjoy experiences that are unified in some substantial way (such as by being representationally integrated into a single coherent world-picture). We can sensibly ask "what is it like to be a bat?" even if there is not *one*, singular and maximally specific, way in which it is like to occupy a bat's phenomenal perspective. This may amount to little more than asking what it is like to experience particular bat phenomenological feels, such as echolocation. After my general reflections on Nagel's usage of

[60] Inner *lives* may be a better, more neutral way to put it - but the point is *supposed* to be intuitive. Experience has a felt quality.

[61] We can raise the question about bats, too, despite Nagel's assertion that we all agree they definitely have experience. Kathleen Akins does so in her "What is it Like to be Boring and Myopic?" - she writes "So to attribute a point of view to the bat - a species-specific perspective from which to view the world - only imposes an ontology where there is little evidence that one exists" (Akins, 1993a, p. 151). Whether this means it is *like nothing* to be a bat depends on how one understands phenomenological experience. Could there still be some form of experience here, "even if the bat does not have a point of view in this strong sense, an experience *of the world*" (151)? Akins doubts the coherence of this question.

"what-it's-likeness" language, I will clarify my own usage of the phrase, and taxonomize a few different varieties of "what is it like?" questions that one can ask sensibly. Each of these questions has in common that it targets phenomenological feels, but my usage of the locution is intended to allow me to remain open regarding the extent to which the appropriate targets of these questions (subjects or organisms) enjoy intrinsically unified conscious contents.

Why might one have *thought* that conceiving of consciousness as "what-it's-likeness" presupposes unity? I think this is crucially connected to the fact that this conception connects experience to a *point-of-view*, and points of view do seem indivisible in an important sense that organisms do not. I will begin a preliminary investigation into the concept of a point of view or "perspective" in Section 4.4, specifically clarifying that many (perhaps most) usages of this language are metaphorical. Importantly, conceiving of consciousness as intrinsically perspectival also does not imply that there must *always* be substantial unity relations between the experiential parts of a single subject, either. We can speak about a "phenomenal perspective" without the metaphysical implication that there is a single (or even a countable number of) subject(s) for every experiencing organism. As I will discuss, some conceptions of a phenomenal perspective have *built-in* to them the ideas of intrinsic unity and countability, while mine does not. In the subsequent chapter, I will show how my understanding of "points of view" and "perspectives" can be put to use in interpreting scholarship on the philosopher Zhuāngzi and his epistemic perspectivism.

4.2 Nagel on What-it's-Likeness

Given that I do not think an organism's conscious experience is necessarily unified, it is important to understand "what-it's-likeness" in a way that does not presuppose unity (or even better, in a way that does not presuppose anything about phenomenological structure).

Does Nagel commit himself to a particular structure of the conscious experience for any organism? Perhaps, depending on how you interpret the specifics of some of his claims. He writes: "fundamentally an organism has conscious mental states if and only there is something that it is like to *be* that organism - something it is like *for* the organism" (Nagel 1974 p. 436). If we interpret this to mean only that experiencing organisms have an inner life, a felt phenomenology that is not exhausted by a third-person, reductive analysis of their workings, I am on board.[62] But there is another way to interpret this sentence. For there to be "something it is like *for* the organism," we might mean that the organism has some *single* phenomenal "point of view" (even, perhaps, on a *single* phenomenal world). This is different from having an(?) "inner world" or an "inner life" because these can be fragmented.[63] Some people think that in order for an organism to have "what-it's-likeness," the organism must have a point of view on a/the world. It is possible to conceive of this in a rather demanding way, such that any experiencing being must, of necessity, construct a unified internal representational model of their world in order to count as an experiencing being at all.

4.2.1 Must an Experiencing Organism Construct a Unified World-Picture?

The supposition is that experience requires some sort of substantial representational integration among the contents of an organism's mental states. Whether true or not, to me, these theoretical

[62] This may even be tautologous, as my advisor William Lycan helpfully pointed out. Part of the definition of "experience," for most, has to do with a mental state (such as a percept) that is *felt*. There would be a terminological dispute if someone were to use the term "experience" for all modes of sensing/perceiving, regardless of whether they are felt or not. Of course, there are also epistemic barriers to knowing which perceptual activities are genuinely regarded as having a "felt" character, so these kinds of disputes are not always *merely* terminological divergences.
[63] However, language here is not perfect. Language of "*an* inner world" does seem to come along with suppositions of unity too. I am not sure whether it is better than "something it's like" in this regard.

commitments would seem rather strong to be built into the *very meaning* of the phrase "what-it's-like."[64]

Consider that in Peter Godfrey-Smith's *Other Minds*, Godfrey-Smith discusses the fact that frogs do not integrate their experience into a singular representation.[65] He argues that this means the answer to "What does it feel like to be a frog perceiving the world in this situation?" is "...that it feels like *nothing*. There is no experience here because the machinery of vision in frogs is not doing the sorts of things it does in us that give rise to subjective experience" (Godfrey-Smith, 2016, pp. 89-90). I am not sure whether it is true or not that frogs do not integrate their percepts, but suppose that it is. In this case, my view would be that frogs may not have a singular, unified representation of the world, but that does not *automatically* mean they do not have experience. There could still be felt qualities to the representations created by their perceptual systems, even if those representations are not brought together into one coherent world-picture in and across time (as ours seem to be).[66]

To put the same point another way: if by "something it is like *for* the organism" Nagel means that the organism's experience must be in an important sense *singular* (for example, by being representationally integrated into one unified world-picture), then I disagree that having this

[64] Concerning this point, at least, I think that Daniel Stoljar would agree with me (Stoljar, 2016). Eric Lormand's piece "The Explanatory Stopgap" gives a helpful analysis of the concept of "what-it's-like" that is also definitely worth reading in this context (Lormand, 2004).

[65] Specifically, he writes: "...a frog does not have a unified representation of the world, and instead has a number of separate streams that handle different kinds of sensing…" (Godfrey-Smith, 2016, p. 89). He thinks subjective experience is only generated when percepts are integrated, saying that "The senses can do their basic work, and actions can be produced, with all this happening 'in silence' as far as the organism's experience is concerned. Then, at some stage in evolution, extra capacities appear that do give rise to subjective experience: the sensory streams are brought together, an 'internal model' of the world arises, and there's a recognition of time and self" (p. 90).

[66] As mentioned in footnote 2, Kathleen Akins (and others, I am sure) is not sure this idea about having "what-it's-likeness" without "a point of view on a world" is quite sensible. She discusses this further in her (1993b) - "A Bat without Qualities?" However, she does think that neurophysiology can give us a better look at "the bat's subjective state" and a "view of the bat's 'inner life'" (Akins 1993a p. 151). Are these issues terminological? If a bat has an inner life, is there something it is like? If you have sensory qualities without a central introspector or without higher-order awareness of those sensory qualities, do they contribute to your phenomenology?

should be necessary to count the organism as an experiencer. It is at least conceivable that there could be experiencing organisms without some *singular* "way it is like" to be them. There would still be "what-it's-likeness" in the sense that there is felt phenomenology undergone by the organism.[67] I would inject caution if one reads the idea of "something it's like" strongly such that there must be {a single, unified, and maximally specific[68] "way it is like" to be an experiencing organism, from the perspective of that organism itself} in order for that organism to count as one which has experience.

Kathleen Akins' distinction between two types of questions we can ask about bat-phenomenology is helpful here. She distinguishes between the question "what is it like to be a bat?" and the question "what is a bat's point of view?". Concerning the former, she writes (Akins 1993a p. 146):

> First, one can inquire about 'the very feel' of the bat's auditory[69] phenomenology, whatever it is like to be a bat in virtue of having a sonar system. This is a question which is neutral with respect to the issue of the bat's perceptions of the world: whether or not, for the bat, there *is* a world of objects and properties or, indeed, any world at all conceived of as distinct from the bat itself. Let this be the question "what is it like to be a bat?"

[67] Is there still "felt phenomenology" if it is not felt *for* some specific subject? I am okay *referring* to the phenomenology of a frog as felt *by* or for the frog. But the frog doesn't think about its experiences using the first-person pronoun, literally (obviously) or even metaphorically. There is no thought of "wow, I would really like to devour that fly right now. Yum, I love the taste of flies" - and yet, there is (conceivably) hungry, fly-percept, satisfaction-of-hunger (to use human experiential categories). We can learn something through telling the story of the frog as if it is structured first-personally, even if that is not its actual structure. It is a fiction if we tell the story of the frog's inner life using a first-person pronoun, even using a point-of-view/perspective on a world, but it is a fiction that helps to track something real (the inner states of the organism).

[68] The point about maximal specificity is peripheral to the present discussion, so has been relegated to a footnote. Of Martians, Nagel writes that "The structure of their own minds might make it impossible for them to succeed, but we know they would be wrong to conclude that there is not anything precise that it is like to be us…" (p. 440). He uses the term precise here and subsequently writes that the subjective character of our experience is "highly specific" (440). However, I see no reason to build maximal specificity into the very concept of what it is to have experience. There could be a "what it's like" to be an organism or to undergo a conscious mental event (i.e. a felt phenomenology) even if relatively vague and diffuse, it seems to me.

[69] As my advisor William Lycan helpfully notes, "auditory" here is poor word choice since it connotes sound-like phenomenology, whereas bat sonar sensations may be nothing at all, phenomenologically, like human perception of sound.

I take it that her first question has to do with the qualitative characteristics of specific sensations engendered by the bat's sonar sensory system (or, for that matter, any of their sensory systems). This first question does not require substantial representational integration within and between a bat's sensory systems in order to be made intelligible. It simply inquires as to the phenomenological feel of specific bat sensations.

These specific sensations, since they are felt for the bat, should be understood to *not only* have qualitative characteristics but also a phenomenal "what-it's-likeness."[70] So, while this first type of "what is it like?" question does not require that the organism construct a unified world-picture, it does require something more than just having sense organs that generate percepts. Those percepts must be, in some sense, felt.

4.2.2 Sensory Qualities vs. What-It's-Likeness Properties

"Sensory qualities" as a technical term can play different roles for different theorists - there is dispute over whether sensory qualities do have the (Nagelian) "what-it's-likeness" feature, or if there is the "sensory quality" of a percept, on the one hand, and the "what it is like" to actually *undergo* that perception, on the other (see, e.g. Lycan 2019).[71] The distinction between a sensory quality and a what-it's-like property is helpful because it captures the intuitive idea that an experiencing organism must not only generate percepts (or other mental states), but those mental states must be *felt*. The way Lycan explained it to me, "(Nagel)-w.i.l. properties require the

[70] See, e.g., Clark (1996) on sensory qualities - though I am not sure the question of the qualitative nature of the sonar system is entirely neutral with respect to the issue of the bat's perceptions of the world… that may depend on what one means by "perception" and what it means for a perception to be a perception *of* the (or a) world.

[71] Lycan, for example, distinguishes between a sensory quality and what it is like for a subject to undergo this sensory quality (leaving it open whether the latter is entirely determinate given the former, or if different subjects could have a different what-it's-likeness associated with the same sensory quality). On his view, first-order perceptual states represent sensory qualities. If the first-order state is a conscious one, then a subject is aware of it, and so the state has the property of being "like" something.

creature's awareness of its own mental states as such (at least a smidgen of that), which in turn requires at least a smidgen of introspective or internal-attending capacity" (Lycan, personal correspondence).

This means that in an experiencing organism, there is a mental state which a conscious subject is introspectively aware of, thereby giving the state this quality of having "what-it's-likeness" (again, having a "w.i.l. property" over and above a "sensory quality"). "What-it's-likeness" would be imbued upon that state when it is consciously accessed from the inside (e.g. introspectively).[72] Depending on one's account of introspection, "consciously accessing a mental state" via introspection may not be all that demanding (for example, introspection may be entirely passive). It also does not entail that all of the creature's mental states be *jointly* introspectable (or that they all exist on the same "phenomenal space").

4.2.3 "What-it's-Like" Properties as Properties of Specific Mental States

Nagel writes that "the essence of the belief that bats have experience is that there is something that it is like to be a bat" (Nagel 1974 p. 438). Instead of supposing that by "be a bat" Nagel means to occupy a fundamentally unified point of view on a single phenomenal world, we can interpret him more modestly. Perhaps Nagel is not talking about occupying a bat's point of view on all its sensations/experiences at once, but just a particular one. Instead of "something that it is like to be a bat" simpliciter, he might mean something more specific, like "something that it is like to be a bat experiencing a particular instance of echolocating." This reading of Nagel's version of "what-it's-like" is that there is something *particular* it is like *for* an **experiencing subject** to be in a

[72] If we read this literally, and this two-place relation is built into the very meaning of the term, I think I have gotten off the boat at some point. Again, the general idea of there being "something it is like" (from the inside) to be an experiencing organism? Depending on how we interpret that, as explained above, I am on board. I am also not entirely sure what "what it is like" to experience a particular conscious mental happening is always a two-place relation between a (literal) point of view and the contents it accesses.

specific mental state (when that state is a conscious one). On this common reading, Nagel's title was notoriously misleading, and he did not literally mean "what is it like to be a bat," because "what-it's-likeness" properties are not properties of bats as a whole, they are properties of mental states accessed/felt by subjects (or, bats).[73]

4.2.4 Akins on The Bat's "Point of View"

What if we want to know more than just the phenomenal character of specific sensations enabled by bat-like sensory systems? Akins' second formulation may be of some help here. Her second question about bat-phenomenology has to do directly with the view of the world enabled by these sensory systems and the representations the bat creates based on them:

> The second question is a direct query about the bat's *conscious perceptions of the world*: on the assumption that the bat's conceptual scheme includes an independently existing world of objects and properties, *how does the world, perceived by auditory means, seem to the bat?* In other words, one can ask about the bat's *species-specific perspective on a world*, one that the bat obtains through its sonar system. It is this latter question - a question that presupposes a certain conceptual ontology - that seems to best sit with Nagel's view that we can equate the bat's *subjective experience* with the bat's *point of view*. That is, if Nagel takes the problem of grasping a bat's acoustic phenomenology as the very same problem as that of understanding a bat's point of view, this seems to presuppose that there is *something on which* the phenomenology *is* a point of view. [...] Let this be the question, then "what is the bat's point of view?"

[73] It is not *just* the title that is misleading - he does use the language of the form "what it is like to be a S" throughout the article, not just in the title [e.g.: "The essence of the belief that bats have experience is that there is something that it is like to be a bat", "I want to know what it is like for a bat to be a bat" (439), "But we know they would be wrong to conclude that there is not anything precise that it is like to be us" (440), "We know what it is like to be us" (440), "Whatever may be the status of facts about what it is like to be a human being, or a bat, or a Martian, these appear to be facts that embody a particular point of view" (441), "For if the facts of experience - facts about what it is like for the experiencing organism - are accessible only from one point of view, then it is a mystery how the true character of experiences could be revealed in the physical operation of that organism" (442), "My point is rather that even to form a conception of what it is like to be a bat (and a fortiori to know what it is like to be a bat) one must take up the bat's point of view." (442)...]. I take it that we are meant to interpret his language of "what it is like to be a bat" to specifically mean "what it is like to undergo individual bat-like sensations (e.g. sonar) from the perspective of the bat."

She goes on to suggest that the latter question has a highly plausible answer according to which "*the bat may not have a point of view at all"* (Akins 1993a p. 147). When it comes to the former, more basic kind of "what is it like?" question, though she questions whether it makes sense as distinct from the latter, "...it does seem that, after having a good look at the available facts, we have come closer to understanding the bat's subjective state, and this regardless of whether such 'subjectivity' is consciously experienced by the bat or not" (Akins 1993a p. 151). She thinks that science can bring us closer to understanding the bat's "subjective world" or "inner life," contra Nagel. We have not achieved such an understanding yet, but "when the project came up short, it was unanswered questions about representational matters that were responsible" (Akins 1993a p. 154), rather than "problems about inaccessible subjective facts or the intrinsic properties of the bat's experiences or the phenomenological 'feel' of the bat's perceptions" (Akins 1993a p. 154).

Akins' distinction between two types of phenomenological questions is helpful for my purposes because I think both questions are worth asking, but I do *not* think the second question needs to have an answer in order for an organism to be an experiencer. For there to be "something it's like" to be an experiencing organism or to experience a phenomenological feel, it should not be *conceptually* necessary that one have a "point of view on the world" in some sort of ontologically loaded sense. I want to remain conceptually open to the possibility of "brute" phenomenology or "raw feels," that genuinely *feel* like something, but are not necessarily bound up into a unified world-picture. I do not intend my usage of "what it is like" to come along with the implication that all experiencing organisms have a *singular* point of view nor that they construct a singular world-picture (or even that they have a "stream" of consciousness). There are many different specific types of what-it's-likeness questions that I think are reasonable to ask, and

asking and answering these questions is part of how we do the project Akins does in her work on the bats (working toward understanding their subjective experience).

4.3 Ways of asking "What is it Like?"

On my own (broad) understanding of "what is it like?" questions, it is perfectly intelligible to ask "what it is like" to be a bat (or any other subject or organism). This question involves inquiring as to the aforementioned "'very feel' of the bat's auditory phenomenology," combined with the kinds of "feels" associated with whatever other sensory system the bat employs as it navigates its world. The question could reasonably involve an exploration of Akins' latter question, as well - "what is it like to be an X?" certainly involves exploring whether X constructs a world-picture, and asking what that world-picture might "look like" (metaphorically) from the inside. In this way, my "what is it like to be a bat?" question extends beyond the explanation Akins gives of that particular question. These "sum total" types of what-it's-likeness questions can appropriately target any organism or subject. As I discuss elsewhere in this dissertation, it is often *expedient* to treat organisms as subjects of experience, but this does not reflect a literal fact that organisms always enjoy a fully unified experience (see, for example, Chapters 2 and 3). Where there are subsystems of an organism whose phenomenal states are more internally unified than the organism as a whole, for example, it may be expedient to treat an organism as two (or more) subjects of experience. In Section 4.4.3 on the "phenomenal perspective" I will say a little more about what I think are appropriate targets of summative "what-it's-likeness" questions.

More specific types of what-it's-likeness questions are also available. For example, one might inquire as to what it would be like (phenomenologically) to have or lack a particular sense modality, or to have a particular body, or to experience a particular event or object. All what-it's-

likeness questions in the philosopher's sense must have in common that they intend to target phenomenological feels. A genuine answer to these questions is usually not available in language (though a future conceivable "brain transmission" communication system[74] may suffice to answer them).[75] I will categorize some examples of "what is it like?" questions, schematically organized in terms of "what it is like for X to experience Y," where Y is some experiential type category and X is some subject type category. I think all of the questions are legitimate and concern phenomenological feels. I think they are also ineffable in certain senses, although legitimate progress can be made in understanding inner worlds. Find the general schema for a few (not exhaustive) types of phenomenological "what it's likeness" questions in Table 1, and an example of a question from each category on the following page in Table 2.

Again: my kind of "what is it like?" question can be appropriately targeted, at minimum, to any experiencing subject (or often, organism) with an inner life. Exactly where the bounds of this lie are not built in to my usage of the locution. I take it we all agree that phenomenological "what-it's-likeness" questions can be appropriately targeted to other adult human beings,[76] and that these questions are not appropriately targeted toward inanimate objects (e.g. my pencil, keyboard). In between there are a whole host of interesting questions. How far across the phylogenetic tree can we ask these questions and explore some semblance of answers? There are also interesting questions about the mereology of who and what we can ask and answer "what is

[74] This may be controversial in some circles, but I think it is at least conceptually possible that a future technological device could allow a form of direct neural interface that allows for shared phenomenological-feels in a way that genuinely communicates what-it's-likeness properties. I do not know if this is *biologically* possible, and even if it were there would be epistemological concerns about how to determine whether there was genuinely shared phenomenology - but it is conceptually possible (in my view) that there *could* be. Lycan (2003) ponders something similar when he imagines hooking up his internal scanning mechanisms to someone else's first-order mental states.
[75] And also, as Nagel mentions, I agree that being with sufficiently similar perspective-types can communicate meaningfully about phenomenology.
[76] Infants, as well, for me, but there may be debate over exactly when phenomenology begins for the human organism (I also want my view to be consistent with the idea that this comes in degrees, rather than a lights on/lights off binary).

it like?" questions about. Could they be appropriately targeted toward *proper parts* of whole humans? I want to remain open to asking all kinds of phenomenological questions about what it is like, so I would like my usage of the locution to reflect this. I would also like my usage of the locution to reflect my conceptual openness to indeterminacy regarding "how many minds?" or "how many subjects of experience?" questions. None of what is here entails that experiencing organisms are identifiable with singular subjects, nor that there are determinate facts of the matter about "how many" subjects an experiencing organism is.

Table 1: General Form: Some Types of "What is it like for X to experience Y?" questions

What is it [or would it be] like...					
		For a *particular* Subject*...	**For a subject-type… e.g.**		
			species...	***modality...***	***Perspectival-type category***
- (sum total)		What is it like to be that particular subject? (may be asked synchronically or diachronically)	What is it like to be an organism of that species?	What is it like to experience that sense modality?	What is it like to be someone with this perspective-type?
World		What does(do) that particular subject's world(s) "look" like?	How do organisms of that species "see" the(their) world(s)?	What is it like to "see" (the) world(s) through this sense modality?	How do people with this perspective-type "see" and experience their world(s)?
Event		What was/is it like for that particular subject to experience that particular event?	What was/is it like for organisms of that species to experience that particular event?	What is it like to experience that particular event through that sense modality?	What is/was/would it be like to experience that particular event through this framework?
Event type		What was/is it like for that particular subject to experience that particular type of event?	What was/is it like for organisms of that species to experience that particular type of event?	What is it like to experience that type of event through that sense modality?	What is/was/would it be like to experience that event type through this framework?
Object		What was/is it like for that particular subject to experience that particular object?	What was/is it like for organisms of that species to experience that particular object?	What is it like to experience that object through that sense modality?	What is/was/would it be like to experience that particular object through this framework?
Object type	*uni-modal*	What was/is it like for that particular subject to experience that object-type with that particular sense modality?	What was/is it like for organisms of that species to experience that object-type with that particular sense modality?	What is it like to experience that object-type through that sense modality taken in isolation?	What is/was/would it be like to experience that object-type through this framework with particular modality M?
	multi-modal	What was/is it like for that particular subject to experience that object-type?	What was/is it like for organisms of that species to experience that object-type?	What is it like to experience that object-type through that sense modality among a backdrop of this set of other modalities?	What is/was/would it be like to experience that object-type through this particular framework overall?

Emotion	What is it like for that particular subject to experience that emotion type?	Can organisms of that species experience that emotion type? What is it like for them?	Through which sense modalities is this emotion experienced? What does it feel like for each of them?	How does one's perspective influence how/whether this emotion is experienced? What is it like for those of perspective-type X to feel it?

Table 2: *Examples* of "What is it like for X to experience Y" questions

What is it [or would it be] like...				
	For a particular Subject...	*For a subject type...*		
		species...	**modality...**	**framework...**
- Overall	*What is it like to be me? (or that particular bat, etc.)*	*What is it like to be a bat?*	*What is it like to have experiences of sonar sensations?*	*What is it like to be congenitally blind?*
Worlds	*What worlds do I experience? If I have an inner world and I see an outer world, what are they like for me?*	*How does a bat see the world?*	*What would it be like to see the world with only olfaction?*	*How do nonlinguistic humans see the world?*
Event	*What was it like for me to experience waking up this morning?*	*What would it be like to be a frog experiencing a particular event of eating a fly?*	*What is it like to experience this song while sitting in this chair through its vibrations only?*	*What would it have been like to be an early human experiencing the event of discovering fire for the first time?*
Event type	*What is it like for me to experience waking up in general?*	*What is it like to be a lion chasing its prey?*	*What is it like to listen to a whale song with echolocation?*	*What would it be like to be a citizen of Ancient Greece during Socrates' trial?*
Object	*What is it like for me to experience this particular apple?*	*What would it be like for a cat to look at this painting?*	*What is it like to taste this apple?*	*What would it be like to be a Medieval peasant handed this iPhone?*
Object type: *uni-modal*	*What is it like for me to taste cilantro?*	*What is it like for bats to detect predators with sonar?*	*What is it like to taste cilantro?*	*What did early cave paintings look like visually to early humans?*
Object type: *multi-modal*	*What is it like for me to experience cilantro?*	*What is it like for bats to detect predators?*	*What is it like to smell a rose while in the background there's a hurricane?*	*What do grapheme-color synesthetes experience when they look at numbers?*
emotion	*What is it like for me to experience elation?*	*Can fish experience happiness? What is it like for them?*	*What is it like to, e.g., feel the interoceptive dimension of heartbreak?*	*Can narcissists experience grief? What is it like for them?*

4.4 Perspectives and Points-of-View

Again, there are many appropriate targets of summative "what-it's-likeness" questions, *including* (but not limited to) organisms - even if said organisms' states are not wholly unified. One reason this is important to clarify is because when we talk about what it is like to be a *bat* from the point

of view of the *bat* itself, it is all too easy to suppose that this talk implies the bat has *a* singular, literal "point of view," which would imply that all of the bat's phenomenal states are unified in an important, substantial way. I think we must be careful not to make this leap. In this section, my aim is to explore the concept of the "point of view," and the idea of "perspective." I intend to converge on a conception that does not entail that subjective perspectives are necessarily unified, nor whole-number countable as a matter of objective, determinate fact. Instead, the idea of a (first-personal) perspective, in my view, is that of a *tool* that aids in our ability to understand the inner life (or lives) of experiencing beings (regardless of its ontological status).

4.4.1 Nagel on the "Point of View"

For Nagel, a point of view is not a concrete particular, but a *type*. Facts about "what it is like" (he says "phenomenological facts") are facts that are accessible *from* points of view. He writes (p. 441-2):

> It is often possible to take up a point of view other than one's own, so the comprehension of such facts is not limited to one's own case. There is a sense in which phenomenological facts are perfectly objective: one person can know or say of another what the quality of the other's experience is. They are subjective, however, in the sense that even this objective ascription of experience is possible only for someone sufficiently similar to the object of ascription to be able to adopt his point of view - to understand the ascription in the first person as well as in the third, so to speak. The more different from oneself the other experiencer is, the less success one can expect with this enterprise. In our own case we occupy the relevant point of view, but we will have as much difficulty understanding our own experience properly if we approach it from another point of view as we would if we tried to understand the experience of another species without taking up *its* point of view.

So, it seems that points of view are species-specific and/or individually specific "positions" from which one perceives and experiences the world. The above quote seems to suggest that one can

"take up" points of view other than one's own, as long as those points of view are sufficiently similar to one's own. In a footnote, he then writes, "The distance between oneself and other persons and other species can fall anywhere on a continuum" (Nagel 1974 p. 442). I take this to mean that points of view can partake in similarity relations with one another. I agree with Nagel on these points - I use the language of "perspective" and specifically "perspective-type" similarly to how he seems to use "point of view" here. When "perspective" is used as a (count) noun, "perspective" and "point of view" seem interchangeable to me - both roughly equating to a (literal or metaphorical, concrete or abstract) "viewpoint."

It seems clear that the words "viewpoint" and "point of view" are taking on greater significance than what is directly and literally meant by these terms. Literally, in visual contexts, a "point of view" is a point (in space and/or time) from which one views something, taking into account relative size and location. If we take this literally, imagining the point of view of an ant just means imagining seeing everything from a point pretty low to the ground and having everything be much larger than you and higher up. It can be taken quite literally in the fields of photography and other visual arts. The "point of view" of a realist painting just refers to the location one's eyes would need to be located in order to see the scene as depicted. Because they assume a particular viewing location, one might argue that realist paintings are *perspectival* representations of a scene. Because of the way visual space works, it is difficult (perhaps impossible) to imagine any (literal, realist) representation of a scene that does not have this perspectival feature, the feature of being represented from a particular viewing point.

Again, language of "perspectives" and "points of view" in these contexts is roughly interchangeable. However, I have a preference for the language of "perspective," because I appreciate the ease of also talking about "perspective-types" and using the adjective

"perspectival." It is a loaded term, so before explaining my usage of the technical phrase "phenomenal perspective," I would like to reflect on the language of "perspective" more broadly.

4.4.2 Reflections on Perspective-Talk

We see the word "perspective" used in many domains: we talk, for example, about the "perspective" expressed in a textbook, a culture, or an ideology. The language of perspective is often used in a distinctly visual context, referring to the way in which things are seen. Sometimes a perspective seems to refer only to a specific spatiotemporal location that serves as a "point-of-view" or reference frame. For example, an artist may play with perspective by representing a visual space pictorially, imagining they are occupying different locations in the space or that they are different sizes. But this extends beyond visual contexts as well. When I ask questions like "I wonder what X looks like from S's perspective?" I may not literally mean to wonder at how X appears *visually* to S. S could be congenitally blind, and this question would still make sense - I would be asking how X *seems* to S, from the inside. So, we may also define perspective loosely as a way of seeing things, where "seeing" is not construed as a distinctly visual activity.[77]

I think the etymology of the term could be of some interest here. The earliest uses of the term are found in the late fourteenth century *perspectif* for "the science of optics." The Latin *perspectus* means "clearly perceived," and *perspicere* "inspect, look through, look closely at." Perspective here seems to delineate not what is *seen* but what is *seen through*. This makes sense since the prefix *per* typically means "through," and the root word *spect* means "see." Relating to a science of optics, "perspective" originally may have been meant to refer to a literal lens, but this

[77] You might say this would be a metaphorical usage of the verb "see," but I am not sure whether I would call it that or not. "I see" is often used in epistemic contexts to illustrate something like "understand" and whether or not one calls this a metaphor seems to me unimportant to the present contexts (and depending on one's view of the nature of metaphor). What is important is that "seeing," in the sense that perspectives are "seen through" is perception-*like* and extends beyond vision.

literal meaning seemed to transform through time. By the 1590s the use of "perspective" in the domain of art was popularized, bringing with it not just the terminology but a further integration of visual perspective into artistic representations.

I think the *concept* of a perspective existed long before this English term took on its current meaning, of course.[78] The reason I bring up these etymological points is because the terms we use can influence how we think and knowing their origin stories may lend clarity to our exploration. I think it makes perfect sense that the term we use for perspective has its origins in terms that were distinctly visual. Visual metaphors for mental activities are incredibly common (and perhaps misleading).[79] I further find it interesting that it seems even the distinctly visual notion of perspective had to be *discovered* - perhaps it was not immediately obvious thousands of years ago that our sensory experiences come from a perspective that is uniquely ours. It also makes sense that these types of discoveries went hand-in-hand with a developing science of optics. Playing with the transformations of light and color, a type of play made possible by physical lenses, might have made it easier to grasp the idea that our own sensory faculties perform transformations of light and color as well. The developing science of optics may have facilitated a conceptual leap toward understanding the eye as a kind of "lens" as well, and further extending this metaphor to the mind.

Perspective as used in art is also a mathematical concept. For example, Weisstein writes "Perspective is the art and mathematics of realistically depicting three-dimensional objects in a two-dimensional plane" (Weisstein, n.d.). When we talk about "putting things in perspective" we mean something like "scaling them appropriately" or cutting down their relative size and shape to

[78] I think, for example, that Zhuāngzi had a concept of perspective, and he was born around 369 B.C.
[79] Take the split-brain studies talked about at length in this dissertation, for example - a good deal of evidence that split-brain patients have two "streams" of experience comes from studies which attempt to show that the integration of visual information is disrupted in these patients. Even if this were correct, and there were two entirely distinct and discrete "streams" of visual processing going on in these patients, it would not necessarily entail that they were two distinct and discrete subjects of experience.

gain a better grasp of them as they actually are. We typically need a comparative scale to put things in perspective - a reference point to compare things to so that we know their relative size (literally or metaphorically). When a photographer employs "forced perspective," they are playing on this trick of scale to convince our mind that something is larger or smaller than it actually is.

The type of "perspective" that is at issue for consciousness studies is the type that is distinctly first-personal. Indeed, the first-personal nature of conscious experience as we know it is exactly the thing that makes it resistant to empirical analyses. The "explanatory gap" comes from our inability to bridge the chasm between the externally observable neural processes responsible for generating conscious experience, and the way that experience feels from[80] the inside (Levine 1983).[81] When it comes to questions of phenomenal consciousness and experiential unity, the idea of consciousness as being something perspectival may get in at the ground floor. Timothy Bayne, for example, in characterizing the notion of consciousness at issue for him, writes "Phenomenal consciousness — and only phenomenal consciousness — brings with it an experiential perspective or point of view" (Bayne, 2010, p. 5).[82] We seem to be left with a puzzle. The notion that is seemingly essential to our concept of consciousness is the very same notion that makes its empirical analysis seem difficult or impossible. I think, however, when speaking specifically about the *phenomenal* perspective, we need to be clear about what we mean - and in my understanding of the phrase, ontological commitments need not be built-in.

[80] Note the use of "from" here in this sentence - thanks to my advisor William Lycan for pointing this out in an early draft. We talk about what is seen or *from* a particular perspective (e.g. the subjective perspective, or a literal perspective like a particular location in space or time, or a metaphorical "location" like a cultural context).
[81] It is worth noting that this framing of the explanatory gap commits what Lycan calls the "stereoscopic fallacy" (Lycan, 1987, p. 76-77). Of *course* externally observable neural processes "look" different from the conscious experiences enabled by them; no clear implications about the status of materialism follow from that fact alone.
[82] In my view, Bayne's understanding of the way in which experience is intrinsically perspectival is conceptually intertwined with his underlying reasons for positing necessary unity for all conscious subjects.

4.4.3 The "Phenomenal Perspective"

In the literature on the unity of consciousness in split-brain patients, a good deal of work seems to be done by how one uses the phrases "phenomenal perspective," "experiential perspective," or "subjective perspective." For example, in Chapter 1, Section 1.4.1, I discussed Elizabeth Schechter's formalized argument for the two-minds view, which relied on a particular conception of the subjective perspective according to which there is a 1:1 ratio of subjects to their perspectives. To argue that a single subject can conceivably have *multiple* (or a non-countable number of) perspectives would, I think, be to use the word "perspective" (and/or the word "subject") differently from Schechter. In Chapter 2, Section 2.2.3, this was made clearer when I dug into how Lockwood and Schechter both seem to define the phenomenal perspective in terms of the co-consciousness relation.[83] Recall that (as previously quoted in Section 2.2.3) Lockwood defined a *phenomenal perspective* as being "composed of all and only the members of some set of experiences, such that every experience in the set is co-conscious with every other" (Lockwood, 1989, 92), while Schechter claimed that (Schechter, 2014, p. 358):

> There must at least be two *subjective perspectives* in the conscious duality case because the co-consciousness relation is itself one that appeals to falling within such a perspective. (Think about the origins of this "what it's like" talk!; Nagel, 1974). An experience is conscious if and only if it falls within some phenomenal perspective or other; two experiences are co-conscious if and only if they fall within the same phenomenal perspective, if there is some perspective that "includes" them both.

These conversations from previous chapters are relevant here because, for one thing, I agree with Schechter in the above quote that the origins of "what it's like" talk are deeply entangled with suppositions regarding the nature of the subjective perspective. What I have been emphasizing (ad

[83] And I mentioned Bayne, who does not conceive of phenomenal perspectives in terms of the *co-consciousness* relation specifically, but does have a conception of a phenomenal perspective that seems to come along with essential unity, as he writes that "It seems to be central to our notion of a phenomenal perspective that phenomenal unity cannot fragment in the way that partial unity would require" (Bayne, 2010, p. 209).

nauseam, perhaps) in this chapter, however, is that conceiving of consciousness in terms of what-it's-likeness does *not*, in fact, entail any substantive hypothesis about necessary unity relations amongst experiential parts. Recalling Chapter 3, Section 3.2 on Strawson's explication of various conceptions of the subject, we really only need the *thin* concept of a subject to conceive of conscious contents in subjective terms - there need not be any thick, whole-creature-level subject nor any traditional "inner" subject.

At the same time, when I reflect on the totality of my own conscious experience in a single moment from the inside, I do indeed seem to be reflecting on a whole, rather than individual experiential parts. The unity intuition explicated in Chapter 1 rests primarily on the felt unity *from* this introspective view. I take the contents of my introspective access to my experience that encapsulates the essence of "what it is like" to be me in this moment to be a paradigmatic example of a "phenomenal perspective," and *I* (considered as the subject experiencing these phenomenal contents) am a subject who is an appropriate target of summative, subject-oriented "what is it like?" questions like the examples in Section 4.3. My use of the language of a "phenomenal perspective" allows, though, for there to be disunified phenomenal contents within them, and therefore potentially comes apart from both Lockwood and Schechter's.

The stipulated definition of a phenomenal perspective according to which phenomenal perspectives are intrinsically unified (i.e. composed of a set of co-conscious states) makes sense as a way of talking. However, I think we are more likely to think of the co-conscious relation as a substantial relation of genuine unity between conscious states, in a way that requires representational integration. Given that I think organisms, even those without substantial representational integration, can potentially be appropriate targets of summative what-it's-like questions, I also think it makes sense to talk about their phenomenal perspective even if all of their

states are not unified. But again - this would be to use the terminology of "phenomenal perspective" differently from the aforementioned stipulative definitions. If one simply defines a phenomenal perspective such that they are unified and countable in whole numbers, we should also ask whether there are any such things in their sense of the word.

My answer is that there may be, but we should not expect there *always* to be, for any creature which has experience - in other words, sometimes these definitions would be useful and sometimes they would not be. If biology worked differently, they may even reflect reality (as directly as we should expect our models to). If it really were the case, for example, that severing the corpus callosum just split every perceptual and cognitive processing stream entirely, and that now there were two very clearly distinct (or only slightly overlapping) representational systems then okay, I would understand why it would be best to speak of two subjects, two phenomenal perspectives. If, hypothetically, there were a principled means by which phenomenal tokens could be individuated and carved into internally unified sets, that would be fine. It is not as a matter of principle for me that phenomenal perspectives do not exist or could *never* be counted in a principled way. I just do not think it biologically works in the way to where such principles would always result in a clear answer (maybe a "completed cognitive science" could prove me wrong).[84]

I think that the subject of experience and the phenomenal perspective can both be viewed as epistemic tools for understanding experience, though I prefer not to commit as to the underlying ontology of either. They are tools in that when performing acts of imaginative projection, we need something to aim to project ourselves into. When we ask holistic "what is it like" questions targeted toward subjects of experience, in my view, we aim to project into phenomenal perspectives.

[84] And I also think it is *really interesting* that there does seem to be a kind of human instinct or conceptual predilection to think of subjects in determinately countable whole numbers. I actually think that instinct has a place but my role in the debate at this time is to press against it (because though it has its place I think it also can limit our interpretations of data).

Further, it is not built in to the ground floor of the concept that there be necessarily held *substantial* unity relations[85] among the parts of a singular phenomenal perspective. There *should*, however, be some. For example, since the parts of your experience, now, and the parts of my experience, now share *no* co-consciousness relations or representational integrations, I do not think it is reasonable to consider you and I as a collective to have a singular phenomenal perspective in any sense of the term - there is not a phenomenological "w.i.l.-subject" type question that encompasses you and I as a collective.[86]

In brief, I see a conscious subject as a being for whom summative "what is it like?" questions apply, and the phenomenal contents that a subject experiences are the contents of their "phenomenal perspective." At the same time, for any experiencing organism, I do not think there is always and necessarily a determinate fact of the matter of how many "subjects" they are nor how many "phenomenal perspectives" they have. So, the answer to "which beings do summative 'what is it like?' questions apply to?" is context dependent, and not always a matter of determinate metaphysical fact. Organisms, typically, can be rightly *supposed* to be singular subjects of experience, but this does not entail that every phenomenal content undergone by every organism is always internally unified and/or integrated into a singular coherent world picture. Thus far, I have discussed various closely related terms - for clarity, see the below chart for a summary.

[85] The word "substantial" here is important, because simply by virtue of belonging to what is rightly called a single phenomenal perspective, there is a stipulative "belonging to the same phenomenal perspective" relation those experiences hold - but this relation need not be transitive since phenomenal perspectives can overlap, it itself can have vagueness around its edges, and further may not always involve a substantial *felt* unity, since two experiential parts can potentially be entirely disunified even if I might argue there is *some* sense in which we would not be wrong to consider them as parts of a single phenomenal perspective.

[86] Unless the person reading this is, perhaps, a future version of myself, or if you are reading this in a future context in which you and I have undergone some sort of neural fission scenario and are enjoying shared phenomenal contents. It is not out of the realm of possibility that there is a phenomenal perspective encompassing you and I, but the odds are highly, highly against it. What I am trying to say is that though my understanding of "phenomenal perspective" has some vagueness around the edges regarding who counts as an appropriate target of a "w.i.l.-subject" question, it is not "anything goes."

Term	*Rough definition*
Perspective	A perspective is a way of seeing things or a (metaphorical) "lens" through which "things" are "seen." This is rough, and vague, and this term is used in many different ways in many different contexts, but I am okay with that. Language is like that (as Lycan, 2013, p. 7 reminds me, "nearly every utterance contains elements that are to some degree metaphorical").
Point of view	A point of view is another way of talking about the perspective from which things are seen. It can refer to a literal viewing angle in visual space, but this is often a metaphor. "From my point of view…" // "From where I stand…" //
Viewpoint	The term "viewpoint" can be used synonymously with "perspective" *or* with "point of view." In everyday conversation people seem to use the sentences "My perspective is…" or "My point of view is…" or "My viewpoint is…" interchangeably. In some contexts, they may be used differently, though, so I cannot commit to them always being interchangeable. Viewpoint is almost always used to precede a "way of thinking" rather than a literal viewing angle, whereas POV often does refer to a literal viewing angle. In the domain of consciousness, "viewpoint" is not typically used, whereas POV and perspective seem to be used interchangeably. I prefer language of perspective because I find it to be more all-encompassing, and I appreciate that there is a corresponding adjective as well as the ease of talking about perspective-types.
Phenomenal perspective	A subject's *phenomenal perspective* includes their phenomenally conscious mental states. Lockwood defines a phenomenal perspective as a set of co-conscious tokens, but I do not - in my usage of the term, it is conceptually possible for a phenomenal perspective to contain disunified conscious contents. In these contexts, what makes it such that the disunified contents have a "same phenomenal perspective" relation, if they do not have a (substantial) "phenomenal unity" relation? It is contextual, and I do not give a hard and fast rule. There may be cases, for example, where the "same phenomenal perspective" relation applies because the disunified states are each separately unified with a whole host of states within the organism (just not with each other), such that it makes sense to imaginatively project into the phenomenal perspective of the organism as a whole. This is the point of the concept of a phenomenal perspective - it is *the thing we aim to project into when imaginatively projecting into the inner life of a conscious subject*. This is the closest to a definition I have given. I also argue there is not necessarily a fact of the matter about the number of phenomenal perspectives in a creature-conscious organism.
Perspectival	The adjective "perspectival" seems like a blanket term for anything related to perspective, typically to describe the way in which something is dependent on perspective or seen through a perspective. I do think that some have taken the fact that experience is intrinsically perspectival to suggest that subjects of experience should be countable, or that experience should be unified, but as I repeat (ad nauseam, it seems) in my Chapter 4, it doesn't mean any such thing.
Perspective-type	Perspectives can be related in terms of similarity and difference, so it should make sense that they can be categorized into types. Roughly I think that one's perspective-type (though it can be classified and grouped in a number of different ways) is related to the kinds of distinction-making and the types of experiential states available to one. Humans, generally, share a perspective-type because our biology grants us similar ways of making distinctions and classifying similarity and difference. Species membership is only one kind of perspectival type similarity - an important one, but there are others. A tetrachromat, for example, has a similar perspective-type to me by virtue of our similar physiology and the structure of our sense organs for the most part, but they will have distinction-making abilities that I don't have that may open the door to phenomenal characters they can access that I cannot. I think that even one's culture or ideology can affect one's perspective-type, not just physical sense organs.

4.4.4 On the Perspectival Nature of Experience

Again, part of the reason this discussion is so important is because experience is said to be *intrinsically* perspectival. I do not intend to argue against this claim. The perspectival nature of conscious experience is, indeed, fundamental. However, the claim that experience is intrinsically perspectival does not necessarily entail that subjective perspectives need to even be literal existent metaphysical entities, let alone ones that are always determinately countable in whole numbers.

For one thing, one might say that experience is perspectival in the sense that it always takes place through a perspective. Further, that perspective is the only lens through which facts about that experience can genuinely be known. If what-it's-likeness properties are properties of subjects (or creatures), and if experience is intrinsically perspectival, the reason I cannot know what it is like to be a particular bat, or know what it is like to be you, is because I am not that bat and I am not you. I do not occupy that bat's perspective and I do not occupy yours, I only occupy my own. I would have to actually be able to occupy your perspective in order to know facts about your experience. It seems this framework could simply identify subjects of experience with the perspectives they occupy, because simply by being me (if I am a conscious subject) I know what it is like to be me (at least, at a particular moment in time). However, notice that one does not necessarily need to make ontological commitments to utter sentences like this.

Experience is also perspectival in the sense that phenomenal contents are experienced under a particular perspectival mode of representation. Further, employing a particular perspectival mode of representing a sensation is the only way facts about what it is like to experience that sensation can be known. If what-it's-likeness properties are properties of sensations, and if experience is intrinsically perspectival, the reason I cannot know what it is like to undergo sensations that a bat experiences is because I do not have the same perspectival resources the bat

has. The bat has sensory faculties that are foreign to me, so I cannot represent its sensations in the same way that it does. There are facts about "what it is like to experience such-and-such particular sonar sensation," but these facts are inaccessible to me given that I lack a particular perspectival mode of representing them. I would have to actually *undergo* a sensation to know the fact about what it is like to undergo that sensation.[87] I can know what it is like to experience phenomenal "redness" because I have had red-like experiences, I have the sensory faculties that enable me to do so, so I have access to a particular perspectival mode of representing them to myself.

When I use "perspective" as a noun, I think of it as the thing one knows, perceives, or experiences *through*. I do not intend to presuppose anything ontologically loaded about a literal subject *occupying* a concrete, discrete and whole-number-countable perspective. It can still be helpful to think of experience as taking place *from* or *through* a perspective. This understanding of perspective can still be useful because, as I discussed in Section 4.4.3, it aids in our ability to engage in imaginative projection outward to other subjective perspectives (among other things). The only thing to be careful about here is to avoid reifying the subjective perspective into something that is a necessarily countable thing (See Section 3.3.4 for more on how we can still make sense of experience without literal countable subjective perspectives).[88]

When I use the adjective "perspectival" to describe experience, I may also mean that it employs representations which are themselves perspectival. The contents of my conscious experience in the here and now is grounded in particular perspectival representations. I have

[87] This is only the case if we really do conceive of such "acquaintances" as "facts," rather than, e.g., abilities (See Lycan (2003) for a discussion of Jackson's (1982) knowledge argument and how it relates to the issue of perspectival representation).

[88] Among other things, I worry that this reification rules out plausible modes of fragmentation and unity within and between perspectives. I do not deny that my introspectively accessible phenomenal world seems to take place through my, singular, whole-number-countable perspective - a perspective which is uniquely mine. But I do *not* think that all organisms who are phenomenally conscious necessarily have an introspective perspective with this structure. This may instead just be one mode of perspectivally representing mental contents.

particular sense organs located in particular spatiotemporal locations, and their inputs are processed by neural circuitry with a particular framework for interpreting them informed by my history.

The perspectival nature of experience does not require presupposing that perspectives be concrete things that are countable in whole numbers. At the same time, we can still hold on to what is fundamentally important about the intuition that experience is perspectival. Further, there is still a use for "perspective-talk," as long as we are not bringing metaphysical baggage into the picture. Regardless of whether such a thing as my singular and determinately individuatable "perspective" exists, it can certainly be helpful to *suppose* that there is one me and one way it is like to be me, and that I do have an overarching perspective that I take on my experience as a whole. It is enough to think of this as a mere supposition, though, a conceptual tool or even a metaphor.[89]

To summarize: when one says that experience is intrinsically perspectival one may mean that experience takes place literally *from* some unified, discrete, whole-number-countable "point of view" or "perspective" (e.g. that of a subject), *or* one may mean that experience employs representations that are themselves perspectival (e.g. coming from particular sensory modalities located at particular spatiotemporal locations employed by particular individuals of particular species membership). I think both understandings are useful, but we should take caution with the metaphysical import that the former may inspire. Viewing experience as taking place *from* a subjective viewpoint may be useful as a way of *talking*, but we must be careful about what we take this to mean. Should it be taken literally as if there is some (unified, concrete particular) *thing doing* the experiencing? There is a concrete particular thing, an organism, doing the experiencing,

[89] It just does not *seem* like only a conceptual tool at first, because in the human case it is a conceptual tool the human brain learns to employ at a very early age in order to organize and interpret information.

but there is not necessarily also a subject (in the traditional "inner" sense) that is able to be individuated and counted.

4.5 Conclusion

In this chapter, I have undergone an exploratory expedition into the locution of "what it is like" in the domain of consciousness studies, popularized by[90] Nagel (1974). I do think that the language of conscious events being "like something" for some conscious subject is indispensable, and crucial to our conception of conscious experience itself. However, we must tread with caution. It is far too easy to read into this notion that all conscious experiencers have an intrinsic unity, such that there must be some particular "thing" for which things *are* "like something." I urge, on the other hand, that a conception of consciousness as "what it is likeness" does *not* necessitate that there is a fundamental unity enjoyed by all experiencing beings. States of an organism can still have phenomenal character even if these conscious happenings do not converge into a singular and unified "phenomenal field." Even if states of (human) organisms are typically unified in a substantial way, there is nothing built into the concept of consciousness as what-it's-likeness that prevents phenomenal consciousness from fracturing without thereby splitting into two discrete streams.

I do not think that my understanding of "what-it's-likeness" necessarily diverges from Nagel's.[91] Necessary to his conception is that conscious contents have a phenomenal character that feels like something, for something or someone. He does not build into this notion a specific way

[90] Though not originating in - Brian Farrell, for example, wrote about the ineffable character of experience in his (1950), used language of "what it is like," and even used an example of bat sound perception and Martian experience (Farrell, 1950, p. 183).

[91] At least not as he explicitly states it in his (1974), but in his (1971), the idea of whole-number-countability does seem pretty fundamental to his conception of mindedness.

of carving up the "something" or "someone" for whom conscious events are considered to be "like" something, so one is not required to hold that such things can be always identified with organisms, or even that they are concrete particulars. At the same time, it still makes sense to ask a question like "what is it like to be (an) S," even without an antecedent guarantee that S enjoys a unitary phenomenal field. Answering holistic "what is it like" questions (i.e. the ones about subjects rather than specific sensations) requires canvassing the particular phenomenal character of the experience(s) undergone by that subject and their felt unity relation(s), which may or may not be complete.

Finally, I discussed the ideas of perspective and the point of view. Perspectives, in the domain of conscious experience, are like Nagelian "points of view" - metaphorically understandable in terms of "viewing points" for conscious experience. If we take this metaphor too far, it would seem as though subjects of experience *should* be countable - "how many phenomenal points of view does that organism have?" would seem like a good question with a determinate answer. Instead, as I have argued, it may have multiple good answers simultaneously, especially if that organism's phenomenal states are partially unified. So, as I discussed, the "phenomenal perspective," used as a noun, should be taken as metaphor which does not always reflect a countable metaphysical entity, but instead helps to track and enable imaginative projection into the whole(s) of an organism's conscious experience(s), generated by representations that are themselves *perspectival* in an important sense as well. In the following chapter, I will show how we can use this understanding of the nature of perspective to interpret the philosopher Zhuāngzi's doctrine that is sometimes called *perspectivism*.

5. Perspective, Metaphor, and the "First-Person": Zhuāngzi's *Debate by the River Hao*

Abstract
Intuitively, I experience the world through the lens of my perspective, and you experience it from yours. But in earlier chapters of this dissertation, I have put pressure on the idea that consciousness is necessarily structured through an intrinsically unified self-perspective. If it were, there should always be a fact-of-the-matter answer as to "how many" subjective perspectives an experiencing organism has, and I have argued there is not (using the split-brain as a test case). I have discussed that the intuitive idea of a "perspective" as a thing one occupies as one knows and perceives is a metaphor, and we can use the language of perspective without the metaphysical implications that perspectives are concrete entities which are countable in whole numbers. The philosopher Zhuāngzi utilizes perspectival metaphors, among other things, in crafting dialogues with rich philosophical takeaways. In this chapter, I will discuss Zhuāngzi's "perspectivism," his use of perspective, and his use of metaphor. I will then illustrate using the "Debate by the River Hao" passage. From this passage, we can glean core insights into Zhuāngzi's perspectivism, and even put him into dialogue with contemporary literature in philosophy of mind. Facts about experience are intrinsically perspectival for Zhuāngzi, but they are not *uniquely* so.

5.1 Introduction

Throughout this dissertation, I have been advocating for a picture according to which we need not expect to be able to "count" conscious subjects or "streams" of experience in whole numbers. I have also attempted to stress the fact that this does *not* amount to simply throwing up our hands and declaring that conscious experience, especially in atypical cases, is just an inscrutable chaotic mess that cannot be made sense of. We have tools for making sense of dynamic worlds with fluid boundaries already. One expert in the use of such tools is the philosopher Zhuang Zhou (or Zhuāngzi).[92] He recognized that the world itself is dynamic, without fixed and determinate

[92] There is much debate over the proper interpretive framework to make sense of the project in the text *Zhuāngzi*, but in my view this opacity is actually part of the picture! If there were one clear and determinate, objectively and factually correct way to interpret the *Zhuāngzi* and translate its meaning, then it wouldn't be *Zhuāngzi* at all. I am a

boundaries,[93] but so is language.[94] He is often hailed as an example of an epistemic *perspectivist* (Connolly, 2011; Sturgeon, 2015). Whether this claim is true or not, he certainly *uses* perspective in his stories and to make his points.[95]

The concept of perspective is an especially tricky one to nail down. It seems an important one to understand, however, especially for philosophers of mind and cognitive scientists. In this chapter, I will be using the concept of perspective to put contemporary philosophy of mind into dialogue with ideas in the *Zhuāngzi*. In Chapter 4, I underwent a general exploration of the word "perspective" in Section 4.4.2, and then specifically focused on the first-person perspective in the domain of conscious experience in Sections 4.4.3 and 4.4.4. I explained that conceiving of perspectives as countable things which are occupied by conscious subjects is useful as a way of talking, but we should not take it to metaphysically entail that perspectives are literal things which are determinately countable in whole numbers. Experience is "perspectival" also in the sense that it employs perspectival modes of representation; these perspectival *vehicles* are important to discussions of perspective in the context of sensation as well as conception. In both domains, we

pluralist about the "correct" meaning of the text here, just as I am a pluralist about the "correct" way to carve up the structure of experiential space for split-brain patients.

[93] For example: "We have already become one, so how can I say anything? But I have just said that we are one, so how can I not be saying something? The one and what I said about it make two, and two and the original one make three. If we go on this way, then even the cleverest mathematician, much less an ordinary man, can't tell where we'll end. If by moving from nonbeing to being, we get to three, how far will we get if we move from being to being? Better not to move but to let things be!

The Way has never known boundaries; speech has no constancy. But because of [the recognition of a] "this," there came to be boundaries. Let me tell you what the boundaries are. There is left, there is right, there are theories, there are debates, 13 there are divisions, there are discriminations, there are emulations, and there are contentions..." (Watson, 2013, p. 13)

[94] "Words are not just wind. Words have something to say. But if what they have to say is not fixed, then do they really say something? Or do they say nothing? People suppose that words are different from the peeps of baby birds, but is there any difference, or isn't there?" (Watson, 2013, p. 9)

[95] Examples abound. Take this one, from [2.9]: "There is nothing in the world bigger than the tip of an autumn hair, and Mount Tai is little. No one has lived longer than a dead child, and Pengzu died young. Heaven and earth were born at the same time I was, and the ten thousand things are one with me." (Watson, 2013 p. 13).

can talk about individual perspectives as well as type-similarities between individual perspectives, such as species membership.

Thinking of perspectives in terms of representational vehicles has an interesting application to Zhuāngzi and his notion of "perspective," which I will discuss in Section 5.2. One crucial debate concerns whether some perspectives are "better" than others for Zhuāngzi, and answering this question crucially depends on how one is interpreting the perspective-talk at issue. I advocate for a "perspective as method" approach to reading Zhuāngzi, which I explain in Section 5.2.1. Zhuāngzi utilizes shifts in perspective to make philosophical points about the nature of knowledge (among other things). While there is no objectively "better" and "worse" perspective if perspectives are conceived of as things we occupy, there are better and worse attitudes or methods one can take toward carving up the world. The "better" perspective is not a particular thing, it is a particular *way* of representing things that is flexible to contextual change and to carving things up differently.[96]

A strategy Zhuāngzi employs to communicate a plurality of meaning(s) in a single story is the use of metaphor. The tricky thing about using metaphors, especially for the purposes of

[96] I am grateful to Dorit Bar-On for pointing out that the notion of "perspective" at issue in this paragraph, even this chapter as a whole, seems quite distinct from the notion of perspective at issue in the previous chapter on consciousness as what-it's-likeness. Namely, I seem to have shifted from talking about the "subjective perspective" (the experiential domain) to the idea of perspectives as in the game of carving or categorizing the world (which is distinctly conceptual, and further, involves a two-place relation between what that perspective is a perspective *on* – a separation which seems to disappear in the domain of experience). While I recognize the distinction, I do not think that these two uses of "perspective" are as starkly divergent as they may seem. In Section 4.4.4 I discussed that experience is "perspectival" *not* in the sense that it is essentially structured through a unified self-perspective in all cases, but because it employs representational vehicles which are themselves perspectival (even one's *phenomenal* perspective is closely connected to the distinctions one is able to make, and this does not entail having full-blooded Concepts in the loaded sense). The sensory enterprise of "experiencing" and the cognitive enterprise of "thinking" *both* require (perspectival) vehicles of representation. In her article "Language, Concepts and Culture: Between Pluralism and Relativism," Bar-On gives us a way to think about conceptual schemes that is situated between what she calls the "hyper-realist" and the "constructivist" views (2004a, pp. 215-217). We do not have to think of conceptual schemes like literal glasses you can take on and off, while we can still keep the intuition that they filter. Perhaps we can apply a similar idea to the notion of perspective in the domain of sensation and experience as well, rendering it similarly unproblematic. I leave the project of fleshing out this idea more fully to future work.

translation and interpretation, is the difficulty with pinpointing their *precise* meaning. They *have* meaning, but saying exactly what *point* they are making philosophically can prove difficult, especially if our aim is precision and specificity. In fact, this difficulty may be part of what makes a metaphor a metaphor at all - "it cannot be paraphrased without remainder" (Chong, 2006, p. 371). The use of metaphor may make Zhuāngzi's writing seem vague and elusive, but he makes many legitimate philosophical points that can be put into dialogue with cross-cultural (and cross-temporal) thinkers. In Section 5.3, I will dive into his use of metaphor, using the Lakoff and Johnson approach to aid in cross-cultural interpretation. Their approach to metaphor pays special attention to our embodiment. Embodied humans share certain modes of perspectival representations, and these may be expressed using similar metaphorical structures across cultures and time periods.

Finally, in Section 5.4, I will bring everything together by illustrating Zhuāngzi's perspectivism and his use of metaphor through an in-depth analysis of the "Debate by the River Hao." I will begin this section with a review of literature on this passage, particularly focusing on the interpretations of Chad Hansen and Lea Cantor in sections 5.4.1 and 5.4.2, respectively (Hansen 2003, Cantor 2020). Hansen endorses a relativist reading of *Zhuāngzi*, and Cantor takes the passage to be highlighting the way in which our human perspective is species-specific. Both philosophers have important insights we can glean from Zhuāngzi's use of the story. I am a pluralist about the ultimately "correct" reading of *Zhuāngzi*, but if we apply the perspective-as-method approach to the passage, I think its meaning becomes clear. Zhuāngzi remarks on the joy of minnowfish *from his perspective*, situated above the river, on an equal plane with his friend Huizi. He does not claim to have "objective" knowledge about the joy of minnowfish, but neither does his perspectivism collapse into skepticism. He is able to represent things using the faculties

available to him, and he is able to speak from his perspective. Perspectives are not literal "things," with determinate boundary lines, which we occupy and which place in-principle limits on what kinds of things can be known. Instead, perspectives are the metaphorical "locations" from which we speak.

This usage of "perspective" utilizes features of the concept that I discussed in Chapter 4 - we can think about these "locations" as the standpoints from which an observer views the world, while recognizing this usage as at least partly metaphorical. These standpoints can, however, legitimately partake in similarity and difference relations with one another, because of overlap in the perspectival modes of representation available (for example, members of a similar species share a common perspective-type). Concepts of perspective can help inform our reading of *Zhuāngzi*, and vice versa. Whether or not Zhuāngzi is rightly called a "perspectivist," he incontrovertibly uses perspectival *tools* to make philosophical points. In the next section (Section 5.2), we will look at the notion of perspective at issue in the *Zhuāngzi,* and then in Section 5.3 we will specifically discuss his overall use of metaphor. Finally, we will apply these concepts to an analysis of the *Debate by the River Hao* in Section 5.4.

5.2 Zhuāngzi and Perspectives

Zhuāngzi is well known for playing with perspective throughout his writings. Hansen writes of his style as *philosophical fantasy*, in which he "seemingly dares us to say which voice is really his" (Hansen, 2000, p. 265). Can we glean a coherent picture of what epistemic perspectivism amounts to from the picture he paints? Attempts have been made. I think this project, regardless of whether it captures Zhuāngzi's "actual intended meaning," can bear fruit. Zhuāngzi can inspire ways of

questioning, conceiving, and of doing philosophy that can be translated and put into dialogue with modern thinkers in epistemology, metaphysics, philosophy of mind, and even cognitive science.

Fundamentally, we see the world through the lens of perspectives. This enables us to (but does not necessitate that we) carve the world up into "things" and object-categories and to make evaluative judgments.[97] As we *could* have done so otherwise, if we had a different perspective, it seems that no *single* perspective is authoritative in that it is able to construct some kind of "objective" world-picture. Zhuāngzi calls us to recognize this fact, by showing us diverse ways the world could have been carved up. Roger Eno discusses this in the introduction to his translation of the *Zhuāngzi,* saying (Eno, 2016, p. 5):

> Zhuangzi uses the tale of the Peng Bird, which opens his book, to attack ordinary confidence in basic categories of dimension. He considers the different ways the world appears to very large and very small beings, and the different perspectives on life of short and long lived species. Ordinary human life exists in arbitrary dimensions of size and duration. Why should we believe that the human perspective has any intrinsic validity, and why should we not wonder whether we could experience the world from other standpoints.

Throughout his writing he seems to emphasize the importance of the ability to shift perspectives. If we can recognize that our own idiosyncratic way of carving up the world is not authoritative, we should be able to shift our perspective when context calls for it, and not be bound to any one particular conceptual scheme. As Connolly writes, "While he believes that all knowledge is necessarily perspectival, he recommends a method of recognizing, developing, and inhabiting as many perspectives as possible as a means to an idealized state he calls *da zhi* 大知, or 'greater knowledge'" (Connolly, 2011, p. 488).

[97] You may be noticing at this point that there are a lot of similarities between the way I am talking about "perspective" and the way you may think about *concepts* (thank you to my reader Julian Schlöder for emphasizing this in their comments). Perspectives and concepts are indeed tightly interconnected. I will discuss a bit about this connection in Section 5.2.2.

Interpreting exactly what *da zhi* or "greater knowledge" amounts to is an important task for scholars of the *Zhuāngzi,* especially those interested in understanding just what to make of his version of perspectivism. One question is whether some perspectives or "perspective types" are indeed "better" (or more appropriate given a specific contextual use) than others. Are there better and worse distinctions to be made, and/or better and worse ways/modes through which these distinctions can be made? These epistemic questions also lead to metaphysical ones - are there distinctions or boundaries *in the world itself* that warrant individual perspectives to see things as distinct? Is there a "perspective of the Dao" or some theoretical way of carving up the world that is ultimately correct, even if the limited human perspective could never access this?

There are two primary ways to understand the distinction between lesser knowledge and greater knowledge to hint at answers to these questions. Both rely on the notion of "narrow" or "particular" perspectives, which make judgments based on their own particular time/place/conceptual scheme/etc. A narrow perspective is able to have "lesser knowledge" of what is contained within it. Someone with greater knowledge is able to shift back and forth *between* narrow perspectives at ease (e.g., based on contextual task demands). The contention is whether greater knowledge is *merely* this skill of "shifting," or if it also involves knowing something *in addition* to what is contained within narrow perspectives.[98] Both views in some ways involve a form of syncretism between narrow perspectives, it is just about whether you interpret that syncretism as an openness to moving between them, or as a higher-order knowledge about them and their relations. Regardless of which interpretation you go with, it is clear that Zhuāngzi seems

[98] This distinction was pointed out to me by Alexus McLeod in a seminar. He explained the latter view, that greater knowledge involves something *in addition* to shifts between perspectives, as perhaps the ability to *occupy* a "higher order" perspective that sees the relation between the lower-order perspectives. He argued that this was the interpretation called for in the *Huainanzi*'s root-branch structuralism, where knowledge of the root (*Dao*) entails knowledge of the branches because you automatically understand what grows from this root without having to know individual things or occupy individual perspectives.

to be calling for a *broadening* of our narrow perspectives, and to an *openness* regarding the possibility of carving things up differently.

Sturgeon distinguishes between two types of distinction-making to help the reader understand this point (Sturgeon, 2015). The first type is a kind of distinction that a perspective may make between things or types and further reify. This type is taken to be privileged, taken to describe things as they actually are, taken to mark a boundary that objectively exists in nature itself. This type of distinction making is like carving a line on a stone, such that once it is made it is taken to be the way the world is. Making distinctions in this way may close one off to seeing other forms of distinction making. Those confined only to singular narrow perspectives *only* do this type of distinction making, because they are confined to their mode of classifying similarity and difference. The second type of distinction making is where someone marks a line between things that one simultaneously understands as provisional. One recognizes that the line-drawn is not part of nature as it is, but a function of their perspective-type and their current goals. This type of distinction making is more like lines drawn in sand. One could wipe away these types of distinctions if contextual shifts called for it.

Sturgeon also explains how Zhuāngzi's epistemology allows for *improvements* in our epistemic situation by means of opening our perspective up to other potential ways of seeing the world. Hansen thinks this revelation amounts to a pluralism inspired by "Hui Shi's discovery of the infinitely many ways of clustering similarity and difference" (Hansen, 2000, p. 271).

Sturgeon further claims that even these improvements are relative, which is controversial. In fact, it highlights a key tension in interpreting the *Zhuāngzi*. It seems that there can be genuine improvement in our epistemic situation via opening up our perspective, but how can this be, if what it is for a perspective to be "more open" or "more closed" is itself a perspectival fact? Our

epistemic access to whether our perspective is open or closed is admittedly limited and perspectival. But these circles miss the point, I think, and result in full-scale relativism and skepticism that takes the wrong lesson out of the writings. There is a sense in which we may genuinely believe that there is no "better" and "worse" when it comes to perspective-type, in a way that gives us no reason to try to open our perspective, because our narrow perspective type is just as good as any other. But the claim that there are no "better" and "worse" narrow perspective types is, I think, instead supposed to function as a reason to *open up* our narrow perspective. It cannot and should not serve just as well as a reason to stay confined to it.

5.2.1 The "Perspective as Method" Approach

So, if it is true that there are no objectively "better" and "worse" perspectives, while also being true that there can be improvements in one's epistemic situation, how can we make sense of Zhuāngzi's theory and use of perspective? I think we can do so by returning to the aforementioned distinction between perspectives as "things we occupy" versus "tools we use" (or modes of representing). Zhuāngzi is only a "perspectivist" in my view in that he advocates for (and models) *using perspectival tools* to express truths. This does not require a definition of a perspective as an individuatable thing which we occupy, and within whose discrete borders our knowledge is confined.

Wong gives a picture of Zhuāngzi's methods that aligns with his picture. He says that Zhuāngzi's skeptical questioning allows a *method* of engagement. This method directs our attention to a present moment in a way that allows us to *pay attention* in ways we might not have been able to before – to notice things we might have missed – by questioning/abandoning preconceived notions (Wong, 2005).

I also agree with Hansen when he endorses pluralism about distinction-making, saying: "External similarity and difference cannot provide a realist justification for any *particular* way of dividing things into types. That is not because reality justifies no distinctions, but because it justifies *too many*. All the distinctions we can actually draw have *some* basis in reality. Any two things are similar from some point of view and different from some other point of view" (Hansen 2000, p. 270). He then writes "That there are infinitely many possible ways to classify things based on similarity and difference does not entail that none of them is correct. Far less does it entail that a specific one of them is correct, to wit, the one that makes no distinctions" (270). To this I agree and disagree, depending on which distinction-making type we are talking about. If we are just talking about ways of classifying similarity and difference, I agree, a perspective that has no frame for classifying similarity and difference and makes no distinctions is not most correct. But if distinctions are made in a way that is taken to be authoritative, classifying similarity and difference in a way that is deemed to reflect the world as it actually is, then yes, I think the perspective-type that makes none of these is better (it will be open to contextual shifting of its distinction-making framework if called for).

To summarize, I think the best interpretation of a Zhuāngist perspectivism is a "perspective as method" approach. Perspectives are metaphorically spoken about as the lenses through which we see and know the world. We do not literally occupy perspectives, rather, we represent the world using perspectival modes. Our recognition of the perspectival nature of our knowledge should not lead us to skepticism or total relativism, but to a genuine *openness* toward possibility space for other ways of knowing and being in the world. Zhuāngzi's perspectivism does not dictate just *what* we can and cannot know, it only tells us to be cognizant of the means through which we know it. A perspective, conceived of as a noun, is not a literal thing inside of which we are trapped. But

there also does seem to be a sense in which we are confined to our perspective - why? Because we only have access to certain perspectival modes of representing the world. Perspectives filter the knowledge and/or appearances that we are immediately acquainted with, perhaps irreducibly, but recognizing this fact is epistemic progress. The lines we draw within our perspectival frame can be seen as provisional, and capable of being in flux. One of the lines drawn in a perspectival frame is between the self and the other, delineating the bounds of the perspective itself - perhaps these too may be viewable as provisional.

5.2.2 (De)conceptualization and Cook Ding

I think of "perspectives" very broadly in the sense that they allow for distinction making - the same could be said of concepts. One's perspective-type is certainly tightly linked to the conceptual, perceptual, and sensory resources that one has access to. Conceptualization, in the context of Zhuāngzi scholarship, refers *specifically* to the cognitive activity of marking clear and determinate boundary lines between objects and object-categories. It is closely related to the process of 是非 (*shi fei*), roughly translated as "this/not-this." When we conceptualize via *shi fei* distinction-making, we not only create boundaries between things, but we do so in a certain way. The way conceptualization may be understood here is as a kind of valuation process which is taken to be authoritative. For example, to say a sentence is true or false, right or wrong, is to grant it value or disvalue. Also, if a sentence is taken to be true, we typically take this to be incompatible with that same sentence also being false. Finally, we take this judgment to be perspective-independent. This is like the "lines marked in stone" discussed in Section 5.2. Particular perspective-types may *only* be doing this mode of conceptualization. For them, Zhuāngzi would advocate for what is sometimes called a process of "deconceptualization."

The deconceptualization program can be illustrated metaphorically using the story of Cook Ding. Cook Ding is a butcher who undergoes a step-wise process in which his perceptions change as he improves his skill in ox-carving. In my view, one of the things that makes this metaphor so great is the use of "carving." Really, any skillful enterprise could have been used to illustrate the point here, but using the skill of carving really makes the metaphorical leap to what this story says about conceptualization so much more apparent. If we think of conceptualization metaphorically as "carving up the world," perhaps the goal should be for us to carve up the world in the way that Cook Ding carves up his oxen.

In the first stage, when he was carving an ox, "all [he] could see was the ox itself" (Eno, 2016, p. 3). The next stage in Cook Ding's trajectory was that "after three years [he] no longer saw the whole ox" (Eno, 2016, p. 3). In the final stage, as Zhuāngzi writes through Cook Ding's voice – "And now -- now I meet it with my spirit and don't look with my eyes. Perception and understanding have come to a stop and spirit moves where it wants. I go along with the natural makeup, strike in the big hollows, guide the knife through the big openings, and follow things as they are" (Eno, 2016, p. 3). Cook Ding no longer sees the ox as an ox nor does he see lines and shapes *as* lines and shapes – in fact he seems to "see" nothing at all, in the usual sense of seeing as identificatory. His "carving" is more fluid now, in direct response to the thing that is before him.

If the way Cook Ding is meant to carve the ox is analogous to the way we should carve up the world, this would mean we can still make distinctions in the moment in order to act and speak, but should not take these distinctions to be authoritative over and above their usefulness from a particular perspective in a particular circumstance. Persons who carve up the world in the way Cook Ding carves up his ox will not be "...trapped by discriminative concepts that fixate things into this or that, for their more fluid thinking is aware that such designations are always tentative,

appropriate only for particular situations and purposes" (Loy, 1996, p. 56). In my view, Cook Ding does not entirely *lose* "perspective" as he undergoes his trajectory which involves transcending discriminative concepts. Instead, his presence in the moment helps him to not be bound by presuppositions or categories, instead able to shift his perspective as needed while gaining mastery of a skill such that he can eventually respond directly to things as they are.

Again, perspectives and concepts are very tightly linked. However, particularly if we specify conception as being of the 是非 (*shi fei*) variety, not all perspectives are bound by conceptions. Even in the final stage, Cook Ding does still seem to have a perspective (in my sense of the term) – it is just that his perspective is not bound by evaluative judgments or object-categories.

5.3 Metaphor

How do you explain "what it is like" to see red to a person who is congenitally blind (or to Mary in her colorless room, cf. Jackson, 1982)? We may not be able to perfectly capture what-it's-likeness properties in language, but we also are not totally doomed in helping them participate in redness-talk. We *can* give the congenitally blind some sense of the feeling evoked when we see redness, even if we cannot show them redness itself - using metaphor. Redness is a loud trumpet, a low tone. Redness is a flushed face, a hot stove. Metaphor allows perspectival representations to be translated to others without the very same representational capacities. They allow us to communicate across perspectival lines. As a philosopher who employs perspectival tools to make moves in logical space, Zhuāngzi seems quite adept at the use of metaphor.

It is always difficult to interpret the meaning of a metaphor, but it is especially so when the writer of said metaphorical language is speaking a different language and from a different time

period. Even if we could properly translate the literal meaning of Zhuāngzi's stories (a big if), how are we to interpret the meanings of his metaphors?

5.3.1 The Lakoff/Johnson Approach

According to Lakoff and Johnson, metaphors have a systematic structure and govern much of our thought at an unconscious/preconscious level (Lakoff & Johnson, 1980). On their account, metaphors typically involve what is called "projection mapping" between a *source domain* and a *target domain*. This systematic mapping "allows us to understand one aspect of a concept in terms of another" (Lakoff & Johnson, 1980, p. 10). For example, if I say Juliet is the sun, I am pointing to an idea we both have concrete experience with (the sun; the source domain) in order to illustrate something about another idea or experience with which you may be unfamiliar (Juliet; the target domain). Slingerland argues that a deep understanding of certain preconceptual metaphorical structures can greatly aid in comparative work because they rely on source domains rooted in common *human* and *embodied* experiences of the world, which are not relative to time, place, or culture. He writes (Slingerland, 2004, p. 322):

> What we shall see when we examine the Zhuangzi from the perspective of metaphor theory is that conceptions of the self portrayed in this text are based on a relatively small set of interrelated conceptual metaphors, and that the metaphysics built into the Zhuangzi's classical Chinese metaphors resonates strongly with the (mostly unconscious) metaphysical assumptions built into the metaphors of modern American English. This should not surprise us, considering the claims of contemporary cognitive linguists that the metaphoric schemas making up the foundation of our abstract conceptual life are not arbitrarily created *ex nihilo*, but rather emerge from common human embodied experience and are conceptual, rather than merely linguistic, in nature.

If there is a distinctly human way of being in the world or making contact with the world, phenomenally and/or epistemically, this may provide grounds for a common source domain

between cultures and across times that has a systematic structure. As Slingerland writes, "Our primary and most highly structured experience is with the physical realm, and the patterns that we encounter and develop through the interaction of our bodies with the physical environment therefore serve as our most basic source domains" (Slingerland, 2004, p. 324). Our embodied experience shares structural commonalities by virtue of our shared feature of being human, and with the faculties this comes along with. As Cheng puts it (Cheng, 2014, p. 574):

> As far as certain basic sensorimotor structures and experiences of the two groups of people remain largely invariant, such as needing to move from A to B or possessing five sense organs to perceive things in the environment, a certain core set of metaphoric schémas that underlie their thinking and reasoning would be principally comparable.

This means that common human experiences that are embodied in space and time create structures that can underlie metaphors. This includes spatial metaphors. Humans across time have experiences of climbing mountains and undertaking journeys – moving in three-dimensional space. Allinson points out, rightly, that Zhuāngzi does indeed use metaphorical structures involving concepts like higher and lower (Allinson, 2015). Lakoff and Johnson call these types of metaphors orientational metaphors. They include examples such as: happy is up; sad is down, conscious is up; unconscious is down, health and life are up; sickness and death are down, having control of force is up; being subject to control or force is down, more is up; less is down, and others. For each directional metaphor, they include a physical basis, and if relevant, a social and/or cultural basis. As they explain (Lakoff & Johnson, 1980, p. 19):

> *In actuality we feel that no metaphor can ever be comprehended or even adequately represented independently of its experiential basis.* For example, MORE IS UP has a very different kind of experiential basis than HAPPY IS UP or RATIONAL IS UP. Though the concept UP is the same in all these metaphors, the experiences on which these UP metaphors are based are very different. It is not that there are many different UPs; rather, verticality enters our experience in many different ways and so gives rise to many different metaphors.

So, on this approach we have to understand the experiential basis of a metaphor in order to understand what it means. Some experiential bases may be embodied facts common to all or most humans, and some may be specific to individual or to time, culture, or place. Even the very same spatial structure (e.g. "above" and "below") may figure into multiple metaphorical schemas because our experiences with and in space take many different forms.

5.3.2 Zhuāngzi's use of Metaphor

Kim-chong Chong analyzed Zhuāngzi's use of metaphor when compared to two theoretical ways of answering a fundamental question: How do we explain the further meaning that seems left over when we try to paraphrase metaphorical meaning literally? The first explanation is that there is a meaningful remainder, with cognitive content, that nonetheless has a non-linguistic and/or non-conceptual form. Chong likens this approach to Allinson's analysis of metaphor in the Zhuāngzi *Inner Chapters*,[99] and also to the Lakoff/Johnson conception of metaphor (Lakoff & Johnson, 1980; Allinson, 1989, 2015). The alternative approach, that metaphors have no cognitive content (other than, perhaps, what can be directly paraphrased literally) is likened to the Davidsonian approach (Davidson, 1984).

Chong and Allinson have an interesting disagreement concerning the metaphorical structure of Zhuāngzi's thought - when Zhuāngzi uses spatial metaphor, is that which is "higher" also "superior"? Allinson thinks that in the Inner Chapters, Zhuāngzi is advocating for a form of

[99] The works on which our knowledge of Zhuāngzi is based were compiled after his death and divided into three sections. The first of these sections contains 7 Chapters, collectively called the *Inner Chapters*. According to their original editor Guo Xiang, this was the only section dated during the lifetime of the actual person Zhuāngzi, "hence possibly originating from Zhuāngzi himself" (Hansen, 2021). Whether the chapters themselves have an overarching philosophical theme, and what that theme amounts to, depends on who you ask (see Van Norden, 1996) - but the Inner Chapters are a crucial component of any Zhuāngzi scholarship.

transcendental awakening or freedom, and that "In order to transcend, one must go beyond or go above (spatial language). When referring to the transcendental, it is difficult to use language that avoids the use of elevation or height" (Allinson 2015 p. 270).[100] Chong thinks that "Allinson's interpretation of Zhuāngzi is a result of some non-propositional metaphorical structure in Allinson's *own* thought that maps values in spatially embodied terms of 'higher' and 'lower'" (Chong, 2006, p. 370). Allinson rejects the implication that he has failed to understand Zhuāngzi by imposing his own cognitive maps *onto* him. He points out that he certainly didn't invent the idea that "higher" and "lower" were important metaphorical structures for Zhuāngzi. As he writes (Allinson, 2015, p. 270):

> The present author's use of terms such as "higher" and "lower" were a result of reading Zhuangzi, especially in his opening lines when he both literally and metaphorically presents transformation in terms of a *lower* creature, a fish, transforming itself into a *higher* creature, a bird. Fish exist in a space below birds. Birds exist in a space *above* fish. A fish transforms itself from a creature that exists in a lower space to a creature that exists in a higher space. The framework is Zhuangzi's own. It is not imposed by the present author from a foreign milieu. There is no circumventing the fact that the sky is above the ocean. Zhuangzi did not begin his book by accident with the story of such a transformation.

However, Chong was never trying to say that Allinson imposed the ideas of "higher" and "lower" *themselves* onto Zhuāngzi's writing. He was saying that Allinson imposed his own *value* structure when it comes to "higher" and "lower" dichotomies, thus reading the story of *Peng* as a story of a transcendental awakening rather than a perspectival difference. Chong explains (Chong, 2006, p. 380):

> Zhuangzi does not prize the 'higher' or 'upper' end of the following dichotomies: ugly/beautiful, inferior/superior, lowly/high, old/new, crawling/flying, less/more developed, et cetera. It is not difficult to look for examples in the Zhuangzi to refute

[100] He also says: "The essential point is that certain views are held as superior to other views. *Peng*, the great bird who has risen from the fish, is greater than the petty-minded dove and cicada who mock his efforts" (Allinson, 2015, p. 273-4). This is controversial.

> the idea that Zhuangzi values the higher side of each of these dichotomies. The following example should suffice to make the point: in response to a question about where the *dao* resides, Zhuangzi answers that it is in the ant. When his interlocutor expresses amazement that it can be as low as that, Zhuangzi places it lower still, and this goes on until Zhuangzi says, "It is in the piss and shit!"[101]

This disagreement is fascinating because it shows how a tendency for a different interpretation of *specific* metaphors and metaphorical terms can correlate with a tendency for a different *general* account of the nature of metaphor in the Zhuāngzi. Allinson thinks that Zhuāngzi's metaphors contain cognitive content that is determinate in nature yet may be preconceptual. He presents Chong's view as a "multivalent" approach to Zhuāngzi's metaphors - the idea "that there is cognitive content, but that the content is indeterminate" (Allinson, 2015, p. 269). Allinson objects primarily because "an indeterminate content cannot be cognized" (Allinson, 2015, p. 269).

The particulars of this debate are somewhat peripheral to the present discussion, but there are parallels. To an outside reader, it seems as though the respective philosophers take on a particular view of the nature of metaphor in *Zhuāngzi* in part to defend their own preferred interpretations of the text. Allinson wants to read the Zhuāngzi as a whole, and passages like the

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[101] The passage he is referencing can be found in Burton Watson's translation (Watson, 2013, p. 182). It says:

Master Dongguo asked Zhuangzi, "This thing called the Way - where does it exist?"
Zhuangzi, said, "There's no place it doesn't exist."
"Come," said Master Dongguo, "you must be more specific!"
"It is in the ant."
"As low a thing as that?"
"It is in the panic grass."
"But that's lower still!"
"It is in the tiles and shards."
"How can it be so low?"
"It is in the piss and shit!"
Master Dongguo made no reply.

Allinson argues this passage is inauthentic, saying: "However, the "*dao* is in ants, piss and shit passage" appears in a later, inauthentic chapter. If a chapter is inauthentic, unless it can be clearly shown to be consistent with the message of the authentic, inner chapters, arguments taken from it cannot be said to represent the genuine view of Zhuangzi" (Allinson, 2015, p. 274).

butterfly dream, through the lens of transcendental awakening, which requires taking them to have cognitive content. Chong does not, and argues that for Zhuāngzi, "there is no transcendental state, but a state of 'clarity'" (Chong, 2006, p. 381). This clarity involves "the clarity of the heart-mind and its freedom from the fixity of distinctions (which is not to say that at a practical level, there are no distinctions), and an ontological vision of the oneness of all things" (Chong, 2006, p. 381). In practice, it is unclear (to this reader) how Chong's concept of "clarity" is distinguishable from Allinson's concept of "transcendent freedom." Perhaps the main difference is the use of the word "transcendent" which signifies a fixed value structure in which the state advocated for is "better" or "higher" ... But would Chong not also agree that a *clarified* state is indeed *better*, for Zhuāngzi, than a muddied one? How is achieving clarity *practically* distinct from what Allinson wants to call *awakening*? Regardless, their perceived disagreement leads them to different conceptions of Zhuāngzi's uses of metaphor.

I think that Chong is correct to point out that we should be careful about reading specific *value* claims into all of Zhuāngzi's spatial or orientational metaphors. Allinson is certainly right that Zhuāngzi uses metaphors about being "higher" and "lower" frequently, but I do not think that we have reason to think Zhuāngzi is implying that "higher" is "better" (epistemically or otherwise). To begin with, if we are using Lakoff & Johnson's approach to metaphor, we would need a common human *embodied* ground for thinking that higher is better. Even though in English we often use language like "above" and "below" to indicate superiority and inferiority, I do not see any experiential grounds for reading these metaphors into cross-cultural and cross-temporal

translations (unless we have independent reasons for doing so). There is not one generalizable schema for what spatial concepts like "up" and "above" are metaphors *for*.[102]

For an illustration of how this approach to metaphor and the above approach to perspectivism can affect our reading of Zhuāngzi's perspectivism, let us turn to the "Debate by the River Hao" passage.

5.4 The Debate by the River Hao

> 莊子與惠子遊於濠梁之上。
> 莊子曰：「儵魚出遊從容，是魚樂也。」
> 惠子曰：「子非魚，安知魚之樂？」
> 莊子曰：「子非我，安知我不知魚之樂？」
> 惠子曰：「我非子，固不知子矣；子固非魚也，子之不知魚之樂全矣。」
> 莊子曰：「請循其本。子曰『汝安知魚樂』云者，既已知吾知之而問我，我知之濠上也。」
>
> Zhuangzi and Huizi were strolling along the dam of the Hao River when Zhuangzi said, "See how the minnows come out and dart around where they please! That's what fish really enjoy!"
> Huizi said, "You're not a fish - how do you know what fish enjoy?"
> Zhuangzi said, "You're not I, so how do you know that I don't know what fish enjoy?"
> Huizi said, "I'm not you, so I certainly don't know what you know. On the other hand, you're certainly not a fish - so that still proves that you don't know what fish enjoy!"
> Zhuangzi said, "Let's go back to your original question, please. You asked me how I know what fish enjoy - so you already knew that I knew it when you asked the question. I know it by standing here beside the Hao."[103]

[102] From higher ground we certainly see "more," in terms of land area - but "more" land area is not necessarily epistemically superior. It may be better in the context of constructing a large-scale topographical map, for example, but other goals may render it epistemically advantageous to zoom in on a single blade of grass.
[103] Translating this dialogue between Zhuāngzi and Huìzi involves, at the same time, interpreting it. How you interpret the Zhuāngzi as a whole will likely affect how you are predisposed to interpret this particular passage, which inevitably colors how you are likely to translate it into English. Let us be cautious of that fact as we move forward, but I will begin with Burton Watson's translation (Watson, 2013, p. 137-8).

In the above dialogue, Zhuāngzi seems to remark on the joy of minnowfish. Why would he say such a thing? Is it really possible for a human to perceive fish-happiness, or to know anything about the thoughts, experiences, or states of another species? After all, Zhuāngzi is often referred to as an epistemic "perspectivist" (Connolly, 2011; Sturgeon, 2015). If you are a perspectivist, does that not mean that one can only know things from within one's own perspective, or at least their perspective-type? Wouldn't that mean it should be impossible for Zhuāngzi to even know the states of his friend Huizi, let alone to know the states of the entities of an entirely different species?

This is exactly the confusion about perspectivism that Zhuāngzi is clarifying in this passage. It is not that our perspective or perspective-type places in-principle limits on what kinds of things can be known. Rather, it calls our attention to the fact that when we do know things, we know them from a perspective. Perspectives are not *things* which we occupy and perceive the world through (even if we metaphorically speak in this way). Instead, I have been advocating for a "perspective-as-method" approach, according to which perspectives are *ways* of coming into contact with the/a world.[104] When Zhuāngzi says "I know it by standing here beside the Hao," it is a kind of metaphor for "I know it from my perspective."

The metaphorical nature of the phrase "I know it by standing here beside the Hao"[105] allows it to mean multiple things. As Lea Cantor points out, he stands on a plane that puts him and Huìzi equidistant from the fish below (Cantor 2020). She uses this to emphasize the species-specific nature of perspective, but I think the point can be made more broadly than that. Not only do we know from an epistemically unique, individualized/local perspective, but this individual-

[104] This dissertation has been arguing that we cannot always determinately count subjective perspectives in whole numbers, which is connected to the current claim that perspectives are not individuatable "things" in the first place.
[105] Burton Watson translates 上 (*shàng*) as "beside," but this is controversial. In a selection of four translations, 上 (*shàng*) was translated as: beside (Watson), above (Hansen), overlooking (Cantor), and over (Legge). This matters if we want to look at this passage under the lens of Lakoff and Johnson's approach to orientational metaphors.

perspective can share many different dimensions of type similarity with other perspectival modes. Zhuāngzi and Huìzi's epistemic perspectives are type-similar given that they are of the same species, but also in the dimensions of shared (literal) time and space and shared cultural background. Their perspectives have type-dissimilarities as well. Further, their activities share *structural* similarities with the activities of the fish - both are meandering, which is why Zhuāngzi seems to conclude that both are happy. His implied inference by analogy from this structural similarity is at least *justified* - and though it may be open to improvement by a substantial objection, Huìzi has not provided one.[106]

5.4.1 Hansen on Fish Happiness

Chad Hansen thinks that there is more going on in this passage than what may appear initially, as its "manifest image." One way to frame the dialogue is as a simple *miscommunication* between Huìzi (or Hui Shi), whose image is portrayed as the "logician" and Zhuāngzi, whose image is portrayed as the "mystic." But according to Hansen, they are not simply talking past one another nor engaging in verbal tricks. They are making legitimate moves in logical space, evincing an overarching positionalist Zhuāngist line of thought.

One of Hansen's crucial insights involves a potential ambiguity in the character 安 [ān], which Watson above translated as "how" in "how do you know?" Borrowing from Graham, Hansen thinks this particular use of 安 [ān] warrants a "where" or "from whence" translation instead. He writes (Hansen, 2003, p. 146):

> Graham postulated a crucial clue when he suggested that the rather rare use of an[where] in the question 'From whence do you know ...?' helps make sense of

[106] He is not claiming to have infallible knowledge that the fish themselves, if they somehow gained cognitive access to human categorization schema and emotion-types, would agree with his assessment of their current state of enjoyment. He is simply stating that from where he stands, these fish appear to be living in their bliss - no further justification is needed.

> Zhuangzi's final comment. It also links Zhuangzi's position in the dialogue to the perspectivalism that is one of the philosophical themes of the Zhuangzi

Hansen takes Graham's insight regarding the use of an[where] further to argue for an interpretation that flies in the face of what he calls the "manifest image" of the characters. It is not simply that Zhuāngzi is a mystic and Huìzi is a logician so they are coming at this from different angles and/or speaking different languages. In fact, Hansen thinks that Zhuāngzi *is* acting as a logician here, but he beats Huìzi at his own game. In this way, the dialogue speaks more about the genuine and substantive philosophical disagreements between the thinkers, rather than just painting a picture of who they were as people. Explaining this point, Hansen writes (Hansen, 2003, p. 148):

> Zhuangzi is the more skillful dialectician leading the intuitionist (Hui Shi) in a logical trap. The trap is a close relative of one that catches Hui Shi other places and the discussion reveals a common pattern of agreement and disagreement between these two ancient thinkers - they agree in their perspectival relativism and disagree on how to formulate its implications.

In other words, this dialogue is *not* a miscommunication nor is it mere verbal trickery. It is a genuine philosophical exposition on the implications of the perspectival relativism endorsed by both ancient thinkers. Hui Shi seems to think that it follows from his epistemic perspectivism that one's perspective-type places in-principle limits on what can be known, and he states these in-principle limits as a matter of objective fact. Zhuāngzi points out the errors in the logical moves being made here, and draws out a different implication from his perspectivism. Let us dig a bit deeper into Hansen's analysis of the passage to say more.

5.4.1.1 Translatory Remarks

Hansen translates the dialogue as follows (Hansen, 2003, p. 145):

> Z: See the (?)fish swimming freely about - this is fish happiness.
> H: You're not a fish. How (whence) do you know fish happiness?
> Z: You're not me; how (whence) do you know I don't know fish happiness?

> H: I'm not you so I certainly don't know you. You're certainly not fish and that's enough to say you don't know fish happiness.
> Z: Let's go back to the beginning. When you said 'how (whence) do you know fish happiness,' it was asking me already knowing I knew it. I knew it above the river.

There are a few important things about this translation, and he defends it via a textual analysis. From the first quote, one of the important ambiguities concerns the phrase he translates as "this is fish happiness" (which Watson translated as "That's what fish really enjoy!"). There are (at least) two types of ambiguity here. First involves the distinction between "this fish is happy" and "this is fish happiness." How we interpret this phrase, 是魚樂也 (*shì yú lè yě*), matters for how we interpret the rest of the dialogue, too. Hansen thinks that the first begets a reading of the dialogue in line with traditional "other minds" skepticism (can I really know these fish are happy?), whereas the second suggests a Nagelian brand of skepticism (can I really know fish happiness?). These seem like distinct questions – knowing *that* a fish is happy does not require knowing what fish happiness *feels* like. When we encounter ambiguities such as these in Zhuāngzi, I think it is best to remain neutral when possible. Unless there is a reason to preclude one interpretive option, I prefer to remain open to the possibility that Zhuāngzi even could have meant both at once (and if there is an English translation that preserves this potential ambiguity, all the better).

The second ambiguity concerns the character 樂, which Hansen refers to as le$^{\text{pleasure:happy}}$. He writes that this term "need not be read in the strongly subjective way that Western philosophers normally assign to our concept of 'pleasure' or 'happiness'" (Hansen, 2003, p. 149). He instead proposes an adverbial reading, suggesting that the fish are engaged in a pleasant mode of activity. Linguistically, it is not necessarily obvious that Zhuāngzi is making any type of claim about the inner life of a fish when he remarks on their happiness.

Hansen breaks down the sentence-part as: "ci$^{\text{this}}$ yu$^{\text{fish}}$ zhi$'^{\text{s}}$ le$^{\text{pleasure}}$? (This is fish-happiness)" (Hansen, 2003, p. 149). The possessive *zhi,* 之, does not actually appear in Zhuāngzi's

initial utterance in which he remarks on the happiness of the fish: 是魚樂也. The possessive marker is in the subsequent question asked by Huìzi though: 安知魚之樂, ān[How/fromwhere/whence] zhī[to know] yú[fish] zhī[ʼs] lè[joy/delight/happiness]. Zhuāngzi states that this is fish-happiness (or this is what the fish delights in), and Huìzi responds asking how (or from whence) Zhuāngzi knows the fish's happiness.

As Hansen points out, Huìzi's move here may seem to be a familiar one for philosophers playing modern language games. When "P" is asserted, it is a fair move in the language game to ask "How do you know that P?" This is where the use of *ān* is important - instead of the simple, familiar "How do you know?" Hansen thinks Huìzi is better interpreted as asking 'From whence do you know?' In this way, "The form of the challenge is perspectival. Implicitly, this form invites Zhuangzi to give a perspectival account of his point of view or route of access to the knowledge" (Hansen, 2003, p. 150). This makes sense because 安知魚之樂 follows 子非魚 (zi[you/master] fēi[is−not] yú[fish]). Since you are not a fish, how do/can you know the fish's delight? From what perspective? We can interpret this as a challenge (you couldn't possibly know!) *or* a genuine question – from what perspective do you know it?

It seems that Zhuāngzi's first response (Along the lines of "How do you know I do not know?") suggests the first interpretation of Huìzi's meaning. He could have stated *how* he knew, but instead he responds to Huìzi's implication that he does *not* know: "... he turns the discussion to the first-person standard presupposed in Hui Shi's challenge and its implied rejection of Zhuangzi's third person standard" (Hansen, 2003, p. 151). So, what is at issue here are standards of knowing and standards for making knowledge claims. Must you *be* a fish to be able to have warrant for a knowledge claim about the happiness of a fish? Again, this is a separate question

from whether you must be a fish to experience fish-like phenomenal states. Maybe not all knowledge claims, even those concerning emotion, require some kind of first-person access.

"If you are not me, how could you know what I know?" seems structurally similar to "If you are not a fish, how could you know what a fish feels?". They have different contents, though, so one might wonder as to whether Zhuāngzi's move here is legitimate. As Hansen rightly points out, "One is cognitive and the other affective. We might think it easier to know other people's cognitive states than their affective states" (Hansen, 2003, p. 152). But Huìzi does not take this distinction-making route in his response. His response clearly shows that he *was* relying on the "subjective standard for attributing knowledge" (p. 153) in asking his original question. Zhuāngzi's question convinced Huìzi to make a statement, which clarifies that he was never really asking Zhuāngzi *how* he know in the first place. Huìzi says:

> 我非子，(wǒ[I] fēi[is−not] zǐ[you/master])
> 固不知子矣；(gù[definitely] bù[not] zhī[to know] zǐ[you/master] yǐ[to be able])
> 子固非魚也，(zǐ[you/master] gù[definitely] fēi[is−not] yú[fish] yě)
> 子之不知魚之樂全矣。(zǐ[you/master] zhī[possessive] bù[not] zhī[to know] yú[fish] zhī[possessive] lè[happiness] quán[Completely/whole] yǐ[to be able])

Hansen translates this sentence as "I'm not you so I certainly don't know you. You're certainly not fish and that's enough to say you don't know fish happiness" and also, later, "Right! Not Being You, I Do not Know You; You, Not Being Fish do not Know Fish - That is the Whole of it!" (Hansen, 2003, p. 153). Here Huìzi assumes that Zhuāngzi's question had had the same intended implication that he *didn't* or even *couldn't* know the implicitly asserted claim. Here, Hansen points out that Huìzi commits himself to contradiction. He contradicts himself by using his standard to draw an inference about what Zhuāngzi knows, but this same standard prevents him from knowing it: "He needs inference from the principle to justify his claim that Zhuangzi does not know, but his principle rules out knowledge by inference" (p. 154). This is why the analysis that portrays the

dialogue as a playful miscommunication between a logician and a mystic is incorrect. Rather than refusing to acknowledge logic, Zhuāngzi is exposing the inconsistency of Huìzi's logic. Huìzi is "trapped by his persistent tendency of slipping from relativistic premises to absolutist conclusions that conflict with his relativism. He starts by being perspectival about joy, but slips into making an absolute claim about the standard of knowing it" (Hansen, 2003, p.154).

5.4.1.2 Hansen's Picture of Zhuāngzi's Relativism

By exposing a logical inconsistency implied by his subjective standard for knowledge attribution, Zhuāngzi forces Huìzi to accept "that we have other ways of knowing besides 'from the inside'" (Hansen, 2003, p. 155). When Zhuāngzi makes his final claim, he says that Huìzi, in asking him how he knew, already assumed that he did know. This is the part that may seem at first glance to be a clever verbal trick, but Hansen provides a compelling argument that this is not in fact what is going on. There is a philosophically substantial point being made here that a "verbal trickery" interpretation would entirely miss.

The issue has to do with the interpretation of perspectivism that leads to a subjective standard of knowing. Initially, Huìzi is portrayed as committed to a view according to which Zhuāngzi should not make assertions about the fish's happiness because he does not access that happiness from the first-person perspective – he is not a fish. But he treats his own knowing that Zhuāngzi does not know as firmly justified, as shown in the penultimate utterance, even though it does not rely on the same "inner-perspective" method - *he is not Zhuāngzi*. We can resolve the inconsistency if we allow that both *do* have knowledge about the "other" in question, even if they do not know the other's perspective from the inside. As Hansen says, "Zhuangzi knows the fish are happy and Hui Shi knows what Zhuangzi knows - what his state of knowledge is and

how/whence he got it. Allowing a third person perspective removes any puzzle" (Hansen, 2003, p. 157).

The dialogue would have gone differently if Huìzi really *had* been asking in good faith *how* Zhuāngzi knew the fish were happy, I think. But he hadn't been - he had been challenging whether Zhuāngzi even *could* know and whether his utterance was even appropriate to make or consistent with his perspectivism. Zhuāngzi's philosophical move was to ask questions in return that forced Huìzi to *state* this challenge directly rather than rhetorically, in a way that exposed a contradiction in his standards for knowledge attribution. Rather than reiterate the contradictory nature of Huìzi's standard, Zhuāngzi leaves it to be impressed upon the reader, and returns to the original question, behaving *as if* he really had been asking how.[107]

Hansen thinks that even though both Huìzi and Zhuāngzi were relativists about knowledge, they both draw different implications from their relativism. Fatally, Huìzi "appears to draw metaphysical or absolute conclusions from relativist premises" (Hansen, 2003, p. 159). Huìzi's perspectivism also appears to draw conclusions about a *correct* perspective (e.g. an inner perspective) for making certain claims. Zhuāngzi agrees that knowledge is perspectival, but all that means is that it comes from a perspective. We cannot necessarily make absolute factual or value-based judgments *outside* of our perspective, but that does not mean we cannot make claims about how we take things to be from where we stand. Hansen's overall picture that we can glean

[107] But again, if he really had been genuinely curious as to how Zhuāngzi had arrived at this judgment, I think there is probably more that could be said. If it had been a child asking rather than a logician, saying "Zhuāngzi, why are the fish happy? How do you know? Where do you see it?" I think he probably could have said more. By ostension he could point to the behaviors in the fish that caused the judgment, he could explain his background in fish life cycles that might justify why this current activity was one of pure leisure, like their own stroll by the river. I also wonder how Zhuāngzi would respond if someone were to challenge him not from a purely logical perspective but some kind of biological one. If instead of a logician challenging him on principle, or a child genuinely curious, what if it were a biopsychologist challenging him because they did not believe fish were the type of being to which an attribution of "happy" really applies? I hope Zhuāngzi would be open to a conversation about this. I do not think he is asserting in this passage that we do have some kind of infallible epistemic access to other minds. Like Hansen, I agree that he is just saying it is okay to make claims about them, from where we stand.

from the *fish happiness* passage is that "Perspectivalism, pluralism or relativism fosters only a mild scepticism inducing greater tolerance, but not the conclusion that I should abandon or refuse to express my natural, contextual judgements" (Hansen, 2003, p. 160).

5.4.2 Cantor on *Zhuāngzi* on "Happy Fish"

Lea Cantor has a slightly different take on the meaning of the passage. She states her thesis as the idea "that the central concern of the two philosophical personae in the passage relates to the issue of species-specific perspectives" (Cantor, 2020, p. 221). She agrees that Zhuāngzi's *positionality* in his final utterance is crucial to understanding the meaning of the dialogue. He knows the fish-joy *from where he stands*. For her, he knows it from a perspective that is inherently *human*. This knowledge is indeed perspectival, but Cantor wants to emphasize that Zhuāngzi's perspectivism does not imply the idea that any perspective is just as good as any other. She references her view as being in line with Connolly's interpretation of Zhuāngzi's perspectivism, which he claims "not only fails to underwrite radical skepticism but is practiced precisely for the sake of attaining a greater level of objectivity in our knowledge" (Connolly, 2011, p. 492). So, what is "Species Relativism," how does it fit into Zhuāngzi's epistemic framework, and how does Cantor argue for this position using the *Happy Fish* dialogue?

5.4.2.1 Textual Interpretation

Cantor modifies a translation from a chapter by Dirk Meyer on the Qiushui chapter of the *Zhuāngzi* (Meyer, 2015). Her translation is as follows (Cantor, 2020, p. 218-9):

> Zhuangzi and Huizi were strolling (*you* 遊) on the dam of the Hao River.
>
> Zhuangzi said, "How these minnows jump out of the water and play about (*you* 游) at their ease (*cong rong* 從容)! This is fish being happy (*le* 樂)!"

> Huizi said: "You, sir, are not a fish, how (*an* 安) do you know (*zhi* 知) what the happiness of fish is?"
>
> Zhuangzi replied: "You, sir, are not me, how (*an* 安) do you know (*zhi* 知) that I do not know (*bu zhi* 不知) what the happiness of fish is?"
>
> Huizi said: "I am not you, sir, so I inherently don't know you; but you, sir, are inherently no fish, and that you don't know (*bu zhi* 不知) what the happiness of fish is, is [now] fully [established]."
>
> Zhuangzi replied: "Let's return to the roots [of this conversation]. By asking "how (*an* 安) do you know (*zhi* 知) the happiness of fish," you already knew (*zhi* 知) that I know (*zhi* 知) it, and yet you asked me; I know (*zhi* 知) it by standing overlooking the Hao River."

She thinks that so far, interpreters of the passage have taken Zhuāngzi to be either playing a dialectical trick or committing himself to a theory of reality that rules out objective truth. She agrees with Hansen's contention that Zhuāngzi is making valid argumentative moves here, but she thinks that Hansen commits himself to an incorrect version of the second view. Her disagreement with Hansen runs deeper than this passage alone: they seem to have different conceptions of *dao* itself and its metaphysical implications. For now, let us focus on where they disagree when it comes to this passage.

Since Huìzi's initial challenge begins by stating that Zhuāngzi is not a fish, Cantor thinks the epistemic issue being flagged here is species specific. It is because he is not *a* fish that Huìzi questions how he can know a fish's happiness, to make no mention of whether he is that *particular* fish. If this is really a species-specific issue, there is already a contrast with Hansen's interpretation, for remember that on his account, Huìzi commits himself to a subjective "inner" perspective epistemic standard. Hansen's claim was that Zhuāngzi's response was challenging the subjective standard that Huìzi already committed himself to, but Huìzi's first question, even when interpreted

as a challenge rather than a genuine question, only commits him to a species-specific standard. Cantor follows Norman Teng in raising this objection to Hansen (Teng, 2006).

Cantor notes a translation issue that can be used to bolster the point, relating to the phrase 是魚樂也 [*shì yú lè yě*]. She notes that this sentence part *may* be translated as "such is the happiness of fish," but she prefers to take the *shì* as a *this* and reads the phrase as "this is fish being happy" (Cantor, 2020, p. 222). This is important because she thinks the topic under discussion is the *abstract* idea of 'fish happiness' (not necessarily something akin to the phenomenal feel of a particular fish who is happy now). Another interesting linguistic point she makes is a pun on the verb *yòu* (遊/游), used to refer both to the wandering of the travelers (Zhuāngzi and Huìzi) and the meandering of the minnowfish. She thinks this verbal pun relates to the fact that both groups appear to be at their leisure, in parallel, and these leisurely activities seem to be a source of happiness in each.

Huìzi's initial challenge to Zhuāngzi, according to Cantor, raises the issue not of relating to other individual subjective perspectives, but "accessing the experience of non-persons" (Cantor, 2020, p. 222). By the way he phrases his question, Cantor thinks he is doing two things. For one, he is (slightly) changing the subject – while Zhuāngzi was making an observation about *those fish there* being happy, Huìzi is operating at a level of abstraction, about the very idea of fish happiness. Additionally, she thinks his "initial objection already betrays his assumption that fish happiness has meaning beyond the human purview" (Cantor, 2020, p. 222). This is a great point. In asking how he knows fish-happiness, Huìzi does seem to suggest that our own human conception of "happiness" is at least *relevant* to the life of a fish, even if we cannot know whether and in what conditions it is applicable.

The follow-up by Zhuāngzi does seem to divert the topic away from the species-specific issue Cantor is interested in, back to the inner subjective perspective method of knowing. Zhuāngzi's question relies on the assumption "that if you are not x, you clearly don't know anything about the mental states of x" (Cantor, 2020, p. 223). This is questionable, but Huìzi accepts the assumption while also contradicting himself (claiming to know what Zhuāngzi knows, while at the same time claiming he is unable to know any such thing). Cantor seems to agree with Hansen's discussion of this portion of the dialogue. Inference is a different route to knowledge than the first-personal route, and Huìzi seems committed to the claim that the latter is the only acceptable one, while at the same time using that principle to make an inference.

Part of the reason Zhuāngzi diverts from the species-specific issue to the individual subjectivity issue, for Cantor, is to genuinely give Huìzi an opportunity to explain how (*ān*; from where) he knows it. Unlike Huìzi's question (which was more of a challenge to the very possibility of Zhuāngzi's knowing than a genuine inquiry into how he knows it), perhaps Zhuāngzi was legitimately inquiring as to the standpoint Huìzi was coming from. From what perspective, from *where* does it seem that Zhuāngzi does not know the happiness of the fish? Perhaps more could be said here - but Huìzi does not go this route of explaining his grounds or his standpoint. Instead, he agreed with what Zhuāngzi said *as if* it were to have been a non-question as Huìzi's was, and thereby commits himself to a contradiction. At this point, Cantor writes, "Zhuangzi is free to drop the person-specific issue of perspective, and return to the original issue, which, as I have been arguing, was the broader *species-specific* one: 'Let's return to the roots [of this conversation] ... ' " (Cantor, 2020, p. 224).

To bolster her argument that the *species-specific* perspectival divergence issue is the real root of this conversation, Cantor emphasizes the use of the verb *zhī* (知, "to know") for knowledge

"- the term which the *Zhuangzi* often associates with imperfect, inescapably human knowledge, which has no absolute claim to truth" (Cantor, 2020, p. 224). If there is an inherently *human* way of contact with and knowledge about the world, it does make sense to wonder about how this decidedly *human* way of knowing could come to have knowledge about states of *other* species (having never contacted the world through the lens of that perspective-type).

Cantor thinks that given the species-specific nature of perspective-types, it does make sense for Huìzi to point out that Zhuāngzi is not in fact a fish. It might even make sense for him to inquire as to how Zhuāngzi knows about the states of fish. She thinks Huìzi's mistake was making the definitive claim that Zhuāngzi *could not* know such a thing. This "assumes that there is such a thing as fish happiness outside the human-specific framework" (Cantor, 2020, p. 225). Zhuāngzi's emphasis on his positionality "above the river Hao" in his final claim is an ode to this human-level vantage point from which he, and his companion Huìzi, both speak - their shared species-specific perspective type is signified metaphorically by their shared vantage point 'above' the river Hao on a bridge (a man-made thing). When we recognize the metaphorical nature of his positional claim, as pointing out his distinctly *human* position for knowing, which Huìzi shares, Zhuāngzi's final claim may seem less evasive.

The dialogue, overall (on her picture), exposes an inherent anthropocentric bias in our way of conceiving the world - how do we even know the term "happiness" is *relevant* to the life of a fish, let alone whether they have it? We can only speak on it from our human perspective. Zhuāngzi understands this, as he grasps the positional nature of his utterances and judgments. Huìzi too recognizes that his views come from an inherently human perspective, thus his confusion at how Zhuāngzi took himself to be able to speak about the lives and states of the fish below. But it seems Huìzi took his skepticism both too far and not far enough. He took it too far because he seems to

think it should preclude anyone from even making statements about anything that falls outside the scope of their perspectival bounds. Clearly perspectivism does not prevent us from making judgments, we just must recognize the perspectival source of those judgments. His skepticism has not gone far enough because he has presupposed the anthropocentric bias that Cantor aptly points out. Outside the human purview, it is not even clear that "these fish are happy" would have *any* meaning or truth value (so it is not even clear just *what it is* he takes Zhuāngzi to be unable to know).

A final point I would like to address from Cantor's piece concerns her ideas about objectivity. Lingering in the background is her contention that Hansen's analysis precludes objectivity, whereas her analysis permits epistemic frameworks that can be more or less objective (in degrees). She cites Nagel's conception of "objective" that includes subjective facts (e.g., facts about what it is like to be individual conscious beings) in its total "objective" view of the world, and states that there are degrees to which one can abstract from one's specific spatiotemporal viewpoint and reference frame (Nagel, 1979). She writes that "Even if, as Nagel grants, it is difficult to envisage an 'end-point' to such a process, we can still achieve a *more objective* view of the world" (Cantor, 2020, p. 217). Her ideas about Zhuāngist epistemology leaving room for greater degrees of objectivity is a large motivation for her reading of the passage within a "Species Relativist" framework. Species relativism allows for some degree of objectivity, at least in the sense in which "it adequately accounts for an inherently human perspective on the world" (Cantor, 2020, p. 217).

She gestures at another sense of a greater degree of objectivity allowed by a human perspective on the world when she talks about how the "shared location which Zhuangzi and Huizi occupy together reflects that humans are in many respects on the same plane, and share a common

separation (figuratively, the dam) from non-humans (in this case, fish).” Is it relevant that this “plane” that they share is a level *above* that of the fish? Huìzi and Zhuāngzi share a species-specific perspective type, and she thinks “This shared lived experience allows for the possibility of making *more objective* claims about the fish’s happiness, even if such claims remain relative to a human framework” (Cantor, 2020, p. 227). In what sense specifically can claims about a fish’s happiness be *more* or *less* objective? Is Nagel’s idea about degrees of objectivity (construed of as degrees of abstraction from a *specific* frame of reference) compatible with Zhuāngzi-style perspectivism? How can our reading of the fish passage both inform and be informed by our overall picture of what the latter amounts to?

5.4.3 The Upshot

So what is the core message of the *Debate by the River Hao* dialogue? Let’s review. Hansen thinks that the foci of the dialogue are the different logical consequences of perspectivism/positionalism inferred by Huìzi and Zhuāngzi. Huìzi thinks that perspectivism entails that we can only know things which are directly accessible from our own perspective - the boundaries of what we can know are limited by the bounds of our subjective perspective. Zhuāngzi, according to Hansen, exposes an inherent contradiction in Huìzi’s thinking here, since in claiming to have knowledge of what Zhuāngzi cannot know while not being him, Huìzi relies on the ability to know by inference, not *just* by subjective acquaintance. It seems that Zhuāngzi’s version of perspectivism does not dictate what we can and cannot make claims-to-knowledge about, just that we should recognize the fact that all those claims to knowledge come from a perspective/position.

Cantor thinks that Hansen’s interpretation is *too* relativistic, since it leaves room for the idea not only that all knowledge comes from a perspective, but that all perspectives are equally valid. She also thinks that Hansen doesn’t get to the real root of the debate, which is the *species*-

specific nature of perspective. These two points are related because, as she claims, if the idea is that knowledge is relative to a species-specific frame for knowing, there is still room for objectivity. Although "Zhuangzi' s knowledge of fish happiness is avowedly *from a certain place*, and not absolute [...] there is still a sense in which this view is objective: namely, insofar as it adequately accounts for an inherently human perspective on the world" (Cantor, 2020, p. 216). Huìzi and Zhuāngzi share a common plane of *viewing* the fish, as well as a common epistemic human frame for knowing. This frame does presuppose an anthropocentric bias in its way of conceiving the world, but Cantor argues that this is inevitable. Even Huìzi's claim that we humans cannot know fish happiness from the human frame presupposes it, because it implies that there is a conceivable thing called "fish happiness" outside the human frame. Zhuāngzi does not fail to recognize his anthropocentric bias, but it does not condemn him to silentism. We can still speak about fish happiness – from the human perspective.

Cantor and Hansen seem to have many points of agreement. Both agree that the piece is not mere wordplay, but that it contains legitimate logical form. Both also agree that the piece demonstrates the Zhuāngist core *perspectivist* insight that all knowledge comes from a perspective. Hansen emphasizes the *individually specific* perspectival mode, whereas Cantor emphasizes a *species-specific* perspectival mode (which helps establish a shared frame between persons that allows for epistemic progress, even if human access to "absolute truth" is unattainable).

This disagreement unsurprisingly mirrors a more general debate on how to interpret Zhuāngzi's perspectivism and his ideas about "greater knowledge." Are some perspectives *better*, more epistemically privileged, or closer to truth than others? Some would say yes - there is a possibility for perspectival transcendence outside the narrow perspective of *lesser knowledge* to achieve *da zhi* or *greater knowledge*, and this is epistemically preferable. Others would say that

da zhi does not mean you occupy a preferable perspective, but that you have the skill of moving *between* narrow perspectives. Either way, there is at least a preferable type of epistemic agent – the one who is open to broadening (or transcending) his/her narrow perspective, or capable of shifting his/her narrow perspective as needed. Which option you go with may affect the lens through which you read Zhuāngzi as a whole, including how you interpret his use of metaphor. We discussed Allinson's preference to read *Zhuāngzi* as advocating transcendental awakening, leading him to defend the view that his metaphors have determinate cognitive content. Chong, on the other hand, thinks the key message is one of clarity of the heart-mind and the cessation of attachment to particular modes of distinction-making - this leads him to a multivalent approach to Zhuāngzi's use of metaphor.

5.4.3.1 I Know it Above the River?

A particularly relevant use of metaphor seems to take place in Zhuāngzi's final statement. When he explains *how*, or from where, he knows the happiness of the fish, he states: 我知之濠上也 (wǒ[I] zhì[know] zhī[it] Háo shàng[above] yē). Not all the translations we looked at had anything about being *above* the river Háo. But there is reason to think it could be included - the definition of 上 (*shàng*) in Paul Kroll's Classical Chinese dictionary is listed as: "on top, above; on high, higher; up," and even "superior in rank, status, or quality; supreme, best, highest" (Kroll, 2017, pp. 401-2). At first glance, it seems to be an orientational term with the same metaphorical connotations that the term "higher" or "above" has in modern English. But still, Chong is right to question whether Zhuāngzi *himself* would have meant to use *higher* to metaphorically signify some kind of superiority.

In the translations we have looked at, s*hàng* gets translated as: *beside* (Watson), *above* (Hansen), *overlooking* (Cantor), and *over* (Legge). There is enough to establish that Zhuāngzi was likely making a positional claim above the river Háo, but not enough to indicate anything about

the superiority of this plane of seeing/and or knowing. To use Lakoff and Johnson's embodied approach, I cannot find an experiential basis that would justify reading the metaphor this way. There is an experiential basis for recognizing a *difference* between viewing something from above, vs. viewing it on the same plane, vs. viewing it from below - but there is no experiential basis to suggest any of these viewing angles gets us closer to the truth about that thing. It is also enough to at least suggest, as Cantor pointed out, a *shared* plane of seeing and knowing between Zhuāngzi and Huìzi. When we stand at the same approximate location as someone else, we share a viewing angle with them, and see things (though not identically), in a similar way.

There does seem to be a good basis for Cantor's claim that there is a species-specific *way* of knowing that this passage speaks on. For not only does Zhuāngzi share a viewing angle with Huìzi - they also share in common their species membership, which they do not share with the fishes below them. This comes along with shared sensory apparati - shared modes of making contact with their world. Being of the same species means having similar modes of representation available, and thus similar perspectival ways of representing the same thing. Cantor emphasizes this similarity because the fish vs. human modes of contacting the world seem to be largely at issue in this piece. However, simply *being human* is not all that Zhuāngzi and Huìzi share in common which puts them on a shared epistemic plane. They also have a largely similar cultural upbringing, at least in some dimensions (being of the same time), which can potentially shape the way things are perceived. They seem to be of similar intelligence level, marking one another as epistemic equals (which is why, as Hansen points out, Zhuāngzi so greatly mourns Huìzi's death, as the solid intellectual companion that he was). They *also* share in common the current experience of taking a meandering stroll above the river, having their own leisurely time.

5.4.3.2 Knowing by Analogy

There is a way in which the activities of the minnow fish resemble the activities of Zhuāngzi and Huìzi themselves, taking their leisurely, meandering stroll. Cantor points this out when she references the pun on the verb *yóu*. This creates a clear structural parallel between what the two men are doing, which presumably makes them happy, and what the fish are doing. This structural parallel, combined with the positional perspective from which Zhuāngzi makes his final claim, may explain more of the substance behind how he "knows" the happiness of the fish even though he hasn't felt it from the inside. It also, in my view, explains how our knowledge of the states of other beings can improve, as we develop greater degrees of specificity with which our observational methods can track their activities and states.

The appropriate level of abstraction to observe a creature's activities and infer their states is a contentious question for a functionalist philosophy of mind. Zhuāngzi in fact may hint at a preliminary answer to this kind of question here. First, observe the state you are in, and the structural patterns it follows, to the degree of specificity you are able. Zhuāngzi does not know the activation patterns of his neural networks, he just knows he is taking a leisurely stroll, and is at ease and happy. By analogy, he can infer that another being who is engaged in a structurally similar leisurely activity is likely also at ease and happy. He needn't even make this inference consciously, he could simply see the happiness of the fish, but underlying that is a structural metaphor that relates his experience with happy activities to what he observes in the fish. But I do not think Zhuāngzi would necessarily commit himself to a behaviorist philosophy of mind. States that do not manifest in observable behavior can manifest other ways that may be hidden from the human purview. If we can improve our knowledge of the structural covariants of our own states, it stands to reason that we could extend this knowledge to other individuals or beings by analogy. In fact,

this sounds a lot like what someone skilled in active empathy would train themselves to be able to do.

5.4.3.3 Knowing the Inner States of Other Minds and Other Species?

I have been speaking *as if* it is okay to think of the term translated as "happiness" as something that correlates to the notion of an "inner state," though I recognize Hansen's point of skepticism about whether it was meant this way or meant to be read as a verbal usage. The character 樂 (*lè*) is listed in the dictionary as "merry, blithe; delighted; gleeful; (en)joy(ment); take pleasure in, delight in ..." (Kroll, 2017, p. 578). Whether this is meant verbally or no, I think it is reasonable to suppose that there at least *could* be something experiential going on here, relating to the felt qualities of the activities the fish are engaged in. This would explain Huìzi's skepticism about Zhuāngzi's ability to know. So, is there a way to put Zhuāngzi into dialogue with forms of skepticism about the minds of other individuals and other species?

One takeaway, if we read 樂 (*lè*) experientially, is that Zhuāngzi's perspectivism extends to experiential claims (perhaps those both of self and of other, though the former is not addressed here). I know facts about the world, and facts about experience, from where I stand (because "above the river" can be read metaphorically as "from my perspective"). My perspective may have a species-specific type, and Cantor is right to point this out, but I think she should recognize that there is also an individually-specific way to refer to my perspective. If we don't read Zhuāngzi as committing himself to one or the other, then we could read him as speaking both about traditional "other minds" skepticism as well as Nagelian-style species-specific skepticism.

While Zhuāngzi's perspectivism fully dissolves neither of these skeptical worries, it may help to dilute both - to make them seem less mysterious. Nagel's issue is that facts about experience are inextricably and uniquely subjective in nature. The difference between a subjective and an

objective fact is, for him, the degree of its attachment to a *particular* point of view. Experiential facts are supposed to be special, and uniquely irreducible, unlike facts about the physical world, for which a reductive account can be given that includes facts which can be accessed (and remain the facts that they are) from a variety of points-of-view. Nagel writes (Nagel, 1974, p. 437):

> It is impossible to exclude the phenomenological features of experience from a reduction in the same way that one excludes the phenomenal features of an ordinary substance from a physical or chemical reduction of it - namely, by explaining them as effects on the minds of human observers. If physicalism is to be defended, the phenomenological features must themselves be given a physical account. But when we examine their subjective character it seems that such a result is impossible. The reason is that every subjective phenomenon is essentially connected with a single point of view, and it seems inevitable that an objective, physical theory will abandon that point of view

He goes on to illustrate this with his bat example. We can only *imagine* what it is like to be a bat via extrapolation from our own case, and this "extrapolation must be incompletable" (Nagel, 1974, p. 439). At best, even if I did develop the ability to echolocate and to have bat-like experiences, it could only tell me what it would be like for *me* to be a bat, from my perspective, not from the perspective of the bat. This is supposed to be unique regarding facts about what-it's-likeness. I can know facts about substances in the physical world from many perspectives, but experiential facts seem only knowable from *particular* perspectives.

Zhuāngzi's perspectivism would not dispute that facts about experience are perspectival. The dispute, I think, would be whether they are *uniquely* so. Reductive explanations in other domains also "leave something out" if they fail to take notice of perspective. On this framework, all facts and all knowledge claims come from a perspective irreducibly (this is not a special feature only for experiential facts). Claims about subjective experience are not special in that they are intrinsically perspectival- but this isn't because they are not. It is because all claims are. So, the

problem for naturalistically grounding experience is *not* that we fail to give an account of consciousness that divorces it from perspective; the problem is that we *expect* to be able to. Even facts within the domain of the physical sciences are "perspectival" in an important sense. We may fail to notice this because of the systematization of these sciences - the operationalization and mathematization of the structures they posit and observe. This makes their conceptual structures more *public* such that they are accessible from multiple *individual*/localized (human) perspectives. We are part of the same world, and there is perspectival overlap when we are able to point to the same physical thing and call it by the same name. The same kind of perspective overlap in the experiential domain is not, in principle, impossible.

Zhuāngzi is not saying he can actually *feel* the happiness of the fish from the perspective of the fish. He points to it and names it from *his own* perspective only. He does the same when he points to tables and chairs - he sees them, and knows of their existence, from where he stands. Why call it happiness? Why call them tables and chairs? These are good and possibly interesting questions, but unless you give me a reason why I should *not* call things by the names they appear to me as based on the structures I perceive, then I am going to continue doing so. Knowledge begins by speaking from my perspective, and improves by broadening and/or shifting my perspective.[108]

[108] Issues of proper naming were very philosophically important in Ancient China. Hansen even discusses this focus on naming to argue that there was no concept of truth in Early Han thought (Hansen 1985), but my disagreement with this particular point is not relevant here. Especially relevant is the piping of earth/ piping of Heaven passage in the beginning of chapter 2. Ziqi states "Now I have lost myself. Do you understand that? You hear the piping of men, but you haven't heard the piping of earth. Or if you've heard the piping of earth, you haven't heard the piping of Heaven!" (Watson, 2013, p. 7). For an interesting analysis of the first-person pronoun in this passage see Ming, 2016. Some of the later Mohists took on anti-naming positions, but on Graham's interpretation, Zhuāngzi avoids this (Hansen, 2021; Graham, 1969). His take on Zhuāngzi aligns with mine. We can name things from where we stand, and this may be justified without being "authoritative" in some objective sense. Human language may be a natural sound like the pipings of heaven, but follows different structural patterns, and is distinct from mere wind.

5.5 Conclusion

The fascinating thing about the *Zhuāngzi i*s that regardless of which passage you choose to subject to translatory analysis, you will find that a simple, localized analysis of that particular passage outside the context of the work as a whole is hard to come by. On its own, the *Debate by the River Hao* just seems to be a fun story about two friends (who are both intelligent but who think differently) on a nice walk. Lurking under the surface are deep and rich questions regarding how to interpret Zhuāngzi's perspectivism, his use of metaphorical structures, and even connections to the metaphysics of mind. Epistemological, linguistic, and metaphysical ideas all dance together as one in this short dialogue, and the reader is free to view it from above, skim the surface, or dive right in. Regardless of the depth of our analysis, the *point* of the story also informs a word of caution for interpreters. I am not Zhuāngzi - how can I know what Zhuāngzi meant? I know it from where I stand - from my perspective. It is not authoritative by any means, but I cannot help but speak from it.

I am sympathetic to Chong's multivalent approach to Zhuāngzi's metaphor because I often think there are *multiple* correct meanings one can draw (without implying a full-scale relativism where anything goes). Allinson objects that "an indeterminate content cannot be cognized," (Allinson, 2015, p. 269), but I think in performing interpretive analyses, we create something determinate that *can* be directly cognized. Zhuāngzi is just giving us a structured possibility space for creating meaning, rather than a single localized conceptual point in that space. There *are* wrong ways to pull out that meaning, but there are multiple right ways. For example, if you are epistemically arrogant, thinking that your automatic judgments represent absolute truth, then Zhuāngzi's perspectivism should give you a message of intellectual humility. You should read the target passage as one of skepticism – "I know it *from where I stand*" should evoke caution about

the limits of your knowing. If you are overly skeptical, thinking that your automatic judgments have no warrant and you should be silent, then you should read the target passage more permissively – "*I know it* from where I stand" should inspire confidence that the words you speak and the judgments you make from your own perspective do have worth in being spoken.

Either way, it is clear that this passage does represent a core perspectivist insight in Zhuāngzi's epistemology. Hansen's takeaway, that "Perspectivalism, pluralism or relativism fosters only a mild scepticism inducing greater tolerance, but not the conclusion that I should abandon or refuse to express my natural, contextual judgements" (Hansen, 2003, p. 160), is correct. Though Cantor objects to implications she draws from Hansen's relativism, she doesn't object to the *practical* point he draws out from this passage, about contextual judgments being appropriately expressible. She just gives us further insight regarding the particular *ways* in which these judgments are contextual, and she is also right to do so. They are contextual not only in that they represent my unique and idiosyncratic perspective on the world, but they also come from wider contexts which are not unique to the individual, such as his/her species type. I think she is right to point this out - there are levels (from more local to more global) when it comes to perspective-type. Allowing for some contextual features of my *particular* perspective to be shared with others does allow for a greater ability to conceive of epistemic progress. To the extent that a full-scale relativistic framework prevents any conception of epistemic progress, and thereby any reason to broaden one's local/narrow perspective (or even to recognize the role that this perspective makes in one's judgments), it will be found wanting.

This discussion is not peripheral to the project of this dissertation as a whole.[109] Zhuāngzi gives us a framework for thinking about carving up the world by making distinctions which are determined by our perspective, but our perspective is not set in stone. This calls us to remember that the lines drawn from our own perspective are provisional. We may count something as two for some purposes, one for others - there is no contradiction here. My approach to the split-brain case is also a pluralist position which aligns particularly well with Zhuāngzi's epistemology. From a particular perspective, in a particular position with particular goals, it may make sense to count the split-brain patient as two subjects. *However*, we should not assume that a particular counting schema represents determinate metaphysical fact, *especially* in these cases (considering the vast amount of evidence suggesting that some unity remains within the patient).

The idea that there is no "privileged" perspective from which objective truths can be uttered means that even the "subjective inner standard of knowing" (that Hansen talks about) only represents a particular mode of representation. If we read the fish-joy passage through the lens of the perspective-as-method approach (along with understanding the distinction between perspectives as *things* vs. embodying perspectival representations), we can run with Cantor's idea of species-specific perspectives, and take it even further. Yes, there is a distinctly human way of being in the world. By being human, we share embodiment features, and so our experience shares certain commonalities that allow us to represent the world in a similar way. There are also individually specific ways of being in the world, and different ways in which these perspective-types themselves can be related in terms of similarity and difference.

[109] For one thing, the extent to which my own thinking about this project is informed by the *Zhuāngzi* (and my interpretation of its epistemology) is so monumental that it would feel rather intellectually dishonest to not include some exegetical work on it here.

The *Zhuāngzi* makes epistemic, linguistic, practical, and metaphysical points simultaneously, in my view, using metaphor and shifts in perspective to do so. Contemporary philosophers can benefit from engaging with the framework he illustrates and employs for sense making. I will close this chapter with a brief comment on the passage of the butterfly dream.

> 昔者莊周夢為胡蝶。栩栩然胡蝶也。自喻適志與。不知周也。俄然覺。則蘧蘧然周也。不知周之夢為胡蝶與。胡蝶之夢為周與。周與胡蝶。則必有分矣。此之謂物化。
>
> Once, Zhuang Zhou dreamt as if he was a butterfly, happily fluttering about as butterflies do. Understanding it was satisfying its own goals, there was not knowledge of Zhou. Presently, there was awakening. And suddenly there was Zhou. Not knowing: was it Zhou's dream as of being a butterfly? A butterfly's dream as of being Zhou? Between Zhou and a butterfly… There must be a distinction. This is what is called the *Transformation of Things*.[110]

The butterfly dream passage may inspire skeptical questioning on some readings - indeed, perhaps the most radical skeptical question available to me: How do I know I am *me*? How do I know it is truly *me* occupying my perspective, or that it is *my* perspective I occupy?[111] Do these questions even make sense?[112] If there is some great awakening upon which I transcend my perspective entirely, am I still me - or does the butterfly no longer exist after Zhou wakes up?

[110] This translation is clunky because it is my own, done as part of a hobby translation/reading group with colleagues (see Van Norden 2019). A more "official" translation would be Burton Watson's: "Once Zhuang Zhou dreamed he was a butterfly, a butterfly flitting and fluttering around, happy with himself and doing as he pleased. He didn't know he was Zhuang Zhou. Suddenly he woke up, and there he was, solid and unmistakable Zhuang Zhou. But he didn't know if he were Zhuang Zhou who had dreamed he was a butterfly or a butterfly dreaming he was Zhuang Zhou. Between Zhuang Zhou and a butterfly, there must be some distinction! This is called the Transformation of Things" (p. 18).

[111] Kai-Yuan Cheng's analysis of the butterfly dream passage asks us to focus on its themes regarding the self. She emphasizes the notion of "self" as a "center" of a phenomenological "arena," claiming that this intuitive concept transcends time period and culture and is a fundamental part of human experience. But Zhuāngzi's reflections, according to Cheng, led him to accept that the idea of a "True Ruler" is an illusion (Cheng, 2014, p. 577). If it is only contingently true that I am me in my dreams, the question of the "real identity" of the thing at the center is a non-question; it is also conceptually coherent that I am not me now. If there was a real thing at the center, context wouldn't be able to shift its identity.

[112] Perhaps we can still meaningfully use language to refer to the "center" of our phenomenological arena (read: the subject of experience), even if there is no literal thing situated thusly.

6. The Craniopagus Case: Sensation Sharing and the "First-Person" Perspective

Abstract
Krista and Tatiana Hogan are craniopagus twins who share a unique neural connection between their brains. This results in a never-before-documented ability for the girls to share sensations with one another and even to have motor control over one another's limbs. In a typical case, it seems that an experiencing subject can both *feel* and *introspect on* only mental states that originate in their *own* body and/or brain. The typical case also involves what seems like a stark epistemic asymmetry between self and other when it comes to knowing experiential states. Considering the atypical structure of their consciously experienced world(s), the twins can be used to put pressure on philosophical presuppositions about the nature of mind and first-person access.

6.1 Introduction

When I talk about my own experience, I can talk about it "from the inside" – I can speak on my experience from a perspective that you cannot. I can use the first-person pronoun "I" to refer to myself not only as object but as *subject*. I, and only I, am the subject of the experiences I am undergoing. One of the unity relationships between these experiences is that they are all being undergone by *me* (this is "subject unity").

Introspection is one of the tools I have for learning about my own experience. I can only introspect on my *own* experiences directly, so if I want to learn about the experiences of another (e.g., you), I have to employ other methods. I have to listen to the verbal reports on your experience that you make (perhaps grounded in introspection), observe your behavior, and (if possible), pay attention to the inner workings of your body and brain. But I do not know about your experience the way that *you* do, from the inside.

Indeed, I cannot introspect on your experiences - but *what if I could*? What if I could feel what you feel, the way you feel it, from the inside? What if I didn't need to observe and analyze your behavior and your verbal reports to know what you were thinking and feeling? Is this even

conceptually possible? Would it count as knowing *from the inside* if external observation was not necessary for me to access your sensations? Or, since it would be *me* accessing them, would I still conceptually count as knowing from the "outside"? What's the metaphysical status of our notion of subjectivity conceived of as an inner/outer divide?

We can ponder from the armchair about these questions all day long, but since it is available to us, perhaps we should use a real-life example. That is, an example of a pair of persons who seem able to access one another's mental states "from the inside" (at least, from the inside of the skull). I am referring to Krista and Tatiana Hogan, a pair of craniopagus (conjoined at the head) twins who share a neural connection that enables them to have some degree of sharing of sensations, thoughts, and motor control. In what follows, I will canvass some publicly available information about the extent of their connection and use it to motivate philosophical questions about the nature of mindedness and about the epistemic status of the first-person perspective.

In Section 6.2, I will overview the case. This will involve discussing the general features of the girls' condition, the neurophysical details of their neural link in the context of the typical functioning of their connected brain regions, and behavioral observations gleaned from the twins. The latter will include evidence for the extent of their sensation sharing, behavioral coordination, and use of the first-person pronoun. I will then, in Section 6.3, transition to an overview of some philosophical questions inspired by the case. One of these such questions involves the epistemic status of first-personally grounded reports of experience, which I turn to in Section 6.4. Here I will discuss some literature on "Immunity to Error Through Misidentification" as well as Langland-Hassan's (2015) argument that Krista and Tatiana can be coherently used as a potential counterexample to the thesis that self-reports of experience grounded in introspection are immune to this particular kind of error. In other words, he thinks the twins motivate the possibility of

introspecting an experience, undergoing its felt phenomenology, self-attributing it, and being in error due to *misidentifying* oneself as the subject of this experience. I reject his argument because the possibility for *mis*identification requires the making of an identification in the first place, and even the girls do not need identificatory capacities to self-report experiences based on felt phenomenology. If there is any identification (thus possible misidentification) going on here, it has to do with who is the *owner* of the experience.

Finally, in Section 6.5, I will offer my own account of some things that philosophers of mind can learn from an analysis of Krista and Tatiana's neural connection. I think the language we use to describe situations of sensation-sharing can help lend clarity to our conceptions of phenomenal consciousness and the first-person perspective. I also think that progress in understanding this case, as well as the mind-brain connection more generally, does not require (and may even be distracted by) metaphysical pursuits like Langland-Hassan's which intend to provide frameworks for determinately counting phenomenal tokens in whole numbers. When we get into the details of how something as simple as a single gustatory experience of ketchup is processed on multiple levels, we can see that even *with* a more thorough understanding of the girls' neural connection, there could still be a multiplicity of coherent ways to carve up phenomenal tokens. We can use this language in pursuit of an attempt to more thoroughly empathize with lived experiences that seem structurally divergent from what we are used to, but we should not take it to reflect metaphysical fact in a way that binds our thinking.

The same goes for the relationship between introspection and phenomenal consciousness. Introspection is one method by which I can learn about my own experiences, but (a.) there are other perspectival modes I can use to learn about my own experience and (b.) it is not a conceptual truth that introspection of my experiences is something that *only I* can do. If we presuppose too

tight of a *conceptual* connection between the contents of the first-personal introspective gaze and phenomenally conscious contents in general, it may cause us to miss something.

6.2 About the Case

Craniopagus twins are very rare - about one in every 2.5 million births involve twins born joined at the head, and of these only a quarter survive past birth. Even rarer still is the particular type of neurological connection shared between Krista and Tatiana Hogan, who were born in October of 2006.[113] Krista and Tatiana are linked by a *neural bridge* between their respective thalami - the thalamus is known as the "sensory relay center" of the brain. Because of this unique connection that allows them to share sensations and even control each other's limbs, popular science articles have gone as far as to question whether these girls in fact share a single *mind* (Dominus, 2011).

Could this be true? Is it even conceptually coherent to imagine two persons with a single mind (or two minds with shared contents)? If we accepted Schechter's conceptual divorcement of "minds" and "persons" inspired by the split-brain case, in which she argues that a *single* person can be said to have *two* minds, then the reverse should also be at least conceptually possible - a *single* mind shared by *two* persons (Schechter, 2018). If it really is conceptually possible, is it also biologically plausible or even actual in this particular case? In my view, we needn't settle on single determinate answers to "how many minds" questions simply because there may in fact *be* no metaphysical fact of the matter about how many subjects of experience are accessing a multimodal and multidimensional phenomenal world, whose parts are unified in some ways and not in others. We need to *suppose* that any organism (or group of organisms!) involves a whole-number

[113] Unfortunately, the girls were under a media contract at the time I contacted them to request an interview, so I was unable to speak with them personally. Out of respect, I did query whether it was okay to use their names for research purposes and was told this would not be a problem, as long as I did not write anything blatantly false about them.

countable number of subjective perspectives in order to project *ourselves* into those perspectives to imagine what it might be like to see the world through the lens of those perspectives, but undertaking this project does not require settling on a metaphysical fact. It requires *openness* to possibility spaces for structures and modes of experiencing the world, and attentiveness to those worlds.

To begin to imagine what it might be like to be a person like Krista, or like Tatiana, or (perhaps) what it might be like to be the twins as a whole, we should begin by paying close attention to the data available to us.

Krista and Tatiana Hogan, age 11[114]

6.2.1 Neurophysical Details

Due to the unique nature of the particular brain structure found in the girls, it is not well understood *exactly* how it works. Neuroimaging shows "what looks like an attenuated line stretching between two organs, a piece of anatomy their neurosurgeon, Douglas Cochrane of British Columbia Children's Hospital, has called a thalamic bridge, because he believes it links the thalamus of one

[114] (For image source, see: *Inseparable: Ten Years Joined at The Head*, 2017)

girl to the thalamus of her sister" (Dominus, 2011). When the girls were newborns and the thalamic bridge was discovered, not much was known about what effects it might have (other than that it would make separating the twins likely impossible without significant risk to their lives). It seems their doctor suspected that it might have important implications, as Jane Armstrong explains in her article written just seven weeks after the twins' birth (Armstrong, 2006):

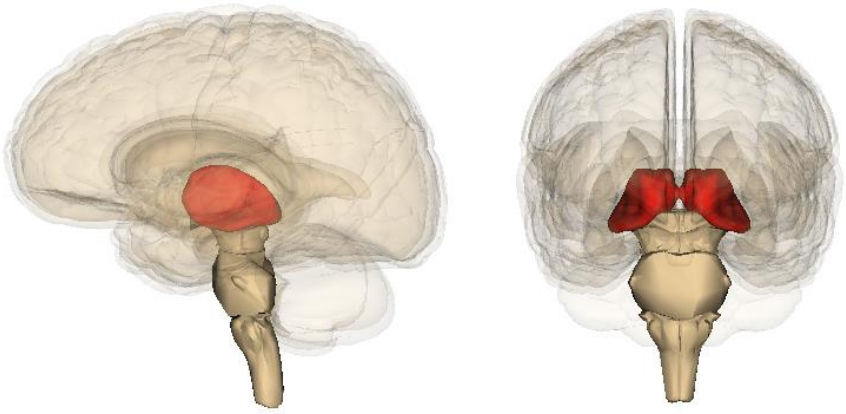
> Dr. Cochrane used the analogy of a traffic maze to describe the web of connected brain tissue shared by the girls. "It [the connecting tissue] is sort of the No. 1 highway that brings information to the surface of the brain, then delivers it down through the more basic functions and through the spinal cord," Dr. Cochrane said. "So it's likely that there's important wiring, so to speak, in that bridge," he added.

Given the thalamus' reputation as a "sensory relay center," in hindsight it may come as no surprise that the girls ended up able to share some sensations and motor control. How do these abilities fit with what we seem to know about thalamic functioning?

6.2.1.1 What Does a Thalamus Usually Do?

The thalamus, shown in Figure 6.1, "is composed of 20-odd large nuclei, each of which projects to a specific area of the cerebral cortex" (Kolb & Whishaw, 2009). These nuclei receive input from systems which gather sensory information such as vision, audition, touch, pressure, pain and temperature. In turn, they send projections to the appropriate cortical regions for processing visual, auditory, and somatosensory information. Some thalamic nuclei both *receive from* and *project to* cortical areas, and some thalamic nuclei receive their input from "other forebrain and brainstem regions" (Kolb & Whishaw, 2009, p. 69). In short, the thalamus really does seem to behave like an information superhighway of sorts, receiving information from many different regions and relaying that information back out toward the cortex. In the girls' case, when a thalamic nucleus receives neural input, perhaps it can use the thalamic bridge to project that information to cortical regions of *either* twin (or both).

Figure 6.1: Human Thalami[115]



Thalamic nuclei have also been proposed to be critically important for a neuroanatomical approach to understanding the generation of consciousness. Antonio Damasio, for example, thinks that multisensory integration is crucial for understanding conscious awareness, recognition, and recall, but explaining integration does not require positing an "integrator" or "interpretative module" that somehow translates sensory information into some kind of amodal code. He advocated for a systems-level approach to problems of conception and of consciousness, emphasizing a capacity for metarepresentational integration - the ability for a neural model not only to represent the world, but to represent *itself*. Anatomically, he posited a *convergence-zone* framework wherein there are various convergence zones in the brain that are sensitive to temporal contexts enabling simultaneous firing in response to sensory input and sequential firing in response to motor input (Damasio, 1989). Some thalamic nuclei may play the role of a convergence zone, making them critical for consciousness. Patricia Churchland explains part of his justification for this theory, that "Small lesions to the brainstem tegmentum, hypothalamus, posterior cingulate, or the intralaminar

[115] Image source: https://commons.wikimedia.org/wiki/File:Thalamus image.png

nuclei [of the thalamus] result in coma or persistent vegetative state" (Churchland, 2002, p. 168). In his words (Damasio, 1994, p. 162):

> Convergence zones operate as "third-party" brokers by means of the reciprocal feedforward and feedback connections they maintain with their sources of input. The players in my proposed arrangement are an explicit representation of the causative entity; an explicit representation of the current body state; and a third-party representation. In other words, the brain activity that signals a certain entity and transiently forms a topographically organized representation in the appropriate early sensory cortices; the brain activity that signals body-state changes and transiently forms a topographically organized representation in early somatosensory cortices; and a representation, located in a convergence zone, that receives signals from those first two sites of brain activity, by feedforward neural connections. This third-party representation preserves the order of the onset of brain activity, and in addition maintains activity and attentional focus by means of feedback connections to the two sites of brain activity. Signals among the three players lock the ensemble in relatively synchronous activity, for a brief period. In all likelihood, this process requires cortical and subcortical structures, namely those in the thalamus.

His model relates to interpreting Krista and Tatiana's anatomy (and how it relates to possible structural changes in their conscious experience(s) of the world) because it allows for at least a *possibility* of synchronous time-locking *between* the brains of the girls due to their thalamic connection. The systems level self-representationalist approach may allow for interesting and highly context sensitive interpretations of behavioral data.

Proponents of the global workspace theory of consciousness have also highlighted the importance of the thalamus (Baars, 2005). According to this theory, what it is for a representation to be conscious is for it to be broadly accessible to a wide range of systems in the brain compared to a non-conscious representation - and "the thalamus, with its vast cortical projections, [Baars] suggested, is the mechanism for bulletin-board broadcasting" (Churchland, 2002, p. 159). These projections to the cortex play an excitatory role, "maintaining it in an 'up' state of sustained activity" (Dehaene, 2014, p. 171).

If the global workspace theory is the right way to think about consciousness and its role to neural circuitry, and the thalamus really plays the role of "broadcaster" as suggested, what would that imply for how to interpret a thalamic bridge? First, it may depend on where specifically the thalamic bridge was located, what specific thalamic nuclei it connected, and what type of information was able to travel across it. A major question might be whether the thalamic connection establishes a *shared* global workspace between the two cortices, *or* if it allows for information transfer between *two distinct* global workspaces. If we think of cortical networks as the bulletin-board and thalamic nuclei as the broadcasters to this board, then the latter view seems preferable. This would mean that each girl has her own distinct conscious experience of the world and her self, they are just able to communicate internally about sensory information and motor control. But it is not altogether clear what brain regions get to count as part of the "workspace" in global workspace theory, since it is the *networks* (including thalamocortical networks) that are functionally relevant. If there is a sense in which their cortices also share a global workspace, then there may be a sense in which the girls also share a mind. Although, according to Christof Koch, the thalamus likely plays a role at least in establishing background conditions for conscious experience, but it is contentious to assign it to the role of a neural correlate of consciousness (NCC) (Koch, Massimini, Boly, & Tononi, 2016).

Because of the brain's plasticity, as well as limitations on current knowledge and observational abilities, only so much can be done to speculate at what function a thalamic connection between craniopagus twins might perform. Even if we had all the information about exactly which thalamic nuclei were connected, we could still only make educated guesses about behavioral implications, let alone phenomenological ones. Next let us examine some of the information we can glean from behavioral observation.

6.2.2 Behavioral Observations

From birth, the girls already were very clearly two distinct persons with their own personalities and idiosyncrasies (whether they are one or two *people* seems noncontentious).[116] Armstrong notes in December of 2006, "Krista cries more than Tatiana and demands more attention from her mother and nurses at the health centre, where the tiny pair have lived since they were delivered by cesarean section seven weeks ago" (Armstrong, 2006). Their mother, Felicia Simms, reports their differing personalities in Susan Dominus' article, saying that "Tatiana is more lighthearted, that Krista is 'more of the bully' - that she is moved to scratch or hit Tatiana in frustration more often than the reverse" (Dominus, 2011). Physiologically, the girls seemed relatively healthy and vascularly symmetrical, "Although Tatiana does bear more of the burden of pumping blood for their two bodies" (Dominus, 2011).

6.2.2.1 Evidence for Shared Sensation

Within the first few years of their life, Simms began to suspect that the girls could share some sensations. One twin might cry when it was the other twin's body who got hurt, or one twin would giggle when it was the other twin who was being tickled - "a pacifier in one mouth seemed to sooth both crying babies" (Dominus, 2011). Dominus explains an unpublished study by Dr. Cochrane when the girls were only two, in which EEG measurements showed responses in *both* girls' visual

[116] We might be able to *theoretically* imagine a single person who has two faces and can speak out of two mouths, but it absolutely runs counter to intuition to encounter two faces in the real world and even entertain the possibility that they might be one person (particularly when they identify as two). In this case, it seems obvious - they have two bodies, two brains, two sets of fully functioning organs, two names. Cooking up thought experiments in which conjoined twins are rightly considerable as one person, metaphysically/morally/legally, is interesting but irrelevant here. In fact, Dominus says that "To the family, questions about whether the girls are two or one are so absurd as to be insulting. They are 'two normal little girls who happen to go through life sharing a bubble,' Simms said" (Dominus, 2011).

cortices when a light was flashed into only one of their eyes (Squair, 2012). When they began to gain use of language, their ability to share sensations was even more clear. Dominus recounts one experience she had with the then four-year-old twins (Dominus, 2011):

> Suddenly the girls sat up again, with renewed energy, and Krista reached for a cup with a straw in the corner of the crib. "I am drinking really, really, really, really fast," she announced and started to power-slurp her juice, her face screwed up with the effort. Tatiana was, as always, sitting beside her but not looking at her, and suddenly her eyes went wide. She put her hand right below her sternum, and then she uttered one small word that suggested a world of possibility: "Whoa!"

It seems here that Tatiana could *feel* Krista drinking her juice, as if the juice was going into her own stomach. This suggests that the twins are able to share (at least some) tactile and/or sensory information. Dominus discusses putting this hypothesis to the test by asking one twin to name, without looking, exactly where on the other twin's body she was being touched. Usually, she could do it. Another experience Dominus shares that demonstrates evidence of tactile-sensation sharing involves what happened when Simms once put a thermometer in Krista's mouth (Dominus, 2011):

> Almost immediately, Tatiana got a distant look in her eyes. 'Not in mouth' she said, sounding angry. Then she was quiet, and her focus seemed to tack hard. Her tongue, visible in her half-open mouth, was moving in an unusual way. I wondered if I was imagining something. But Rosa, her 8-year-old sister, noticed it, too.

Here it seems that again, Tatiana could *feel* a thermometer as if it was being placed in her own mouth, and her tongue even reacted as if it were.

It also seems as if the girls are able to share *visual* information. Though long suspected, Dominus recounts an event with their neurologist, Hukin, who was testing their ability to name colors. "She put a red crayon in front of Tatiana, a purple one in front of Krista, then asked them to name the color. 'Blue,' Tatiana said. 'Red,' Krista said" (Dominus, 2011). Their grandmother suggested that the explanation wasn't that the girls simply didn't know their colors, but rather that they were switching them. Then Hukin put a turkey in Tatiana's line of sight where Krista could

not see, asked Krista what it was, and Krista said "robin." This may not be exactly the correct answer, but it seems she had some way to know that there was some sort of bird in Tatiana's hand, despite her inability to see it with her *own* eyes. Perhaps she could see it through Tatiana's eyes?

Similar (informal) tests have been performed that seem to demonstrate the same result. In a video recording, you can see a situation in which "Their mother covers Krista's eyes and holds a plush pony in front of Tatiana. She then asks Krista what she is holding and Krista replies, 'pony'" (Squair, 2012). This fits with narratives from their family in their daily life. For example, it is sometimes difficult for the girls to sit in such a way that both their eyes are able to see the T.V. screen - but the twin who (one might think) is not able to see has always seemed just as likely to react to and laugh at on-screen events than the girl whose eyes are pointed at it. The family has long suspected that the girls are able to "tune in" and "tune out" to seeing out of each other's eyes.

In addition to tactile and visual sensations, the girls also seem to share *gustatory* information. Tatiana seems to be able to taste the food Krista puts in her mouth, almost as if it is being placed in her own mouth. For example, "Krista likes ketchup, and Tatiana does not, something the family discovered when Tatiana tried to scrape the condiment off her own tongue, even when she was not eating it" (Dominus, 2011). Dominus recounts an experience she had with the girls at a restaurant once, after a long and harrowing day when the girls were presumably tired, and Tatiana's ability to taste Krista's food elicited a strong reaction:

> Someone ordered them chicken fingers, and Krista took a bite. Suddenly, Tatiana made a face. 'It's too yucky,' she said, starting to cry. The mayhem level went up a notch, and Tatiana crawled under the table, wailing, as Krista was trying to pull her back up by the force of her neck. Krista tried to put the chicken finger directly into Tatiana's mouth. 'Krista likes it!' she said. 'It's yummy!' Tatiana spit the food out, crying: 'Let me hide! Let me hide!' She covered her mouth with her hand." ... "I am getting out of here!" Tatiana sobbed. "Let me alone."

This story is interesting not only because it provides more anecdotal evidence that the girls are able to share taste sensations, but it also provides a window in to some of the difficulties of being conjoined and of being subject to sensations that don't even originate in your own body. Tatiana's plea at the end is a bit heartbreaking - we can all presumably understand the desire to simply be *left alone* every once in a while, but these girls do not get that opportunity. As their mother explains to them, they are "stuck."

6.2.2.2 Behavioral Coordination

Because of their "stuck" state, the girls have no choice but to figure out how to work together to accomplish their goals. Although sometimes this may be difficult for them and they do argue and fight, they often coordinate their activities for mutual benefit. Sometimes this coordination seems seamless to onlookers. Dominus notes that "they frequently move in near synchrony, mirroring each other's gestures" (Dominus, 2011). She observes simple tasks being performed with a silent coordination likely learned through experience - for example, working as one to drag the bench over to the bathroom when they needed to wash their hands.

Even when one of them has a more specific goal, it seems she is able to communicate it wordlessly - whether that be through a neural link, or through behavioral cues the girls have learned in time. For example, "The family says that the girls often get up silently and suddenly walk over to, say, a sippy cup, which Tatiana then immediately hands to Krista, who drinks from it." Dominus ponders at whether events like this are due to silent (external) communication (the way a close friend or spouse may be able to hand you the salt before you ask for it at the dinner table), or silent *internal* communication - perhaps Tatiana thought "I am thirsty" and communicated that thought through the neural link to Krista, or perhaps Krista could feel the sensation of thirst *itself* and

recognize that it was originating in Tatiana's body. Their mother "believes they have a private logic for determining whose turn it is to decide their whereabouts" (Dominus, 2011).

In many ways, the spectrum on which the day-to-day coordination of the girls' activities falls seems no different from that of any two humans who are trying to work together to achieve a goal. Sometimes they argue and fight for dominance when they cannot agree on where to go next. Dominus notes that "On the rare occasions when the girls do fight, it's painful to watch: they reach their fingers into each other's mouths and eyes, scratching, slapping, hands simultaneously flying to their own cheeks to soothe the pain." Sometimes they reach agreement and/or mutually beneficial compromise that enables them to work peacefully together toward a goal. *Sometimes*, at least according to Dominus' observations (which should likely be taken with a grain of salt) it seems less like two individuals compromising, and more like one individual calling the shots and dragging the other along for the ride. She observes this latter phenomenon at bedtime. She writes (Dominus, 2011):

> It seemed to me that at bedtime, the two girls were more like one than when they first arose, as if the labors of the day steadily eroded whatever barriers separated them. Sometimes Krista, the physically stronger of the two, seemed to morph between my eyes, no longer one of two, but instead, a sturdy girl carrying around an elaborate appendage she considered part of herself.

If I did have the chance to gather more information about the day-to-day lives of the girls, I would be curious about their sleep cycles. Are their sleep cycles synchronized? Can one girl be in REM sleep while the other is in deep sleep? Can one twin be awake while the other sleeps? Or, is the part of their thalamus that is connected part of the same neural circuit that modulates sleep and wakefulness? A split-brain patient, for example, does not sleep "one hemisphere at a time" like a dolphin does. This may provide important clues as to the structure of their background conscious

experience of the world. The only evidence I have on this front is a single sentence from Dominus' article: "They sighed simultaneously. Soon Krista was asleep; an instant later Tatiana was as well."

6.2.2.3 Use of the First-Person Pronoun

A final category of evidence I would like to examine concerns the way in which the girls think of and refer to themselves and their conditions. Given the limited number of primary sources written on the girls, most of this information also comes from Dominus' piece.

On one occasion, the girls each were holding a single piece of paper, when Krista uttered "I have two pieces of paper." Dominus responded, asking "you have two pieces of paper?" and the girls responded, in unison: "Yeah." This seems, perhaps, odd to an observer - why would she not have said "*I* have one piece of paper" *or* "*We* have two pieces of paper"? But although they do often use "I" to refer to themselves as separate individuals, it seems like they also used "I" to sometimes refer to themselves as a collective. Dominus notes the lack of their use of "we" when she writes (Dominus, 2011):

> Although each girl often used 'I' when she spoke, I never heard either say 'we,' for all their collaboration. It was as if even they seemed confused by how to think of themselves, with the right language perhaps eluding them at this stage of development, under these unusual circumstances - or maybe not existing at all. 'It's like they are one and two people at the same time,' said Feinberg, the professor of psychiatry and neurology at Albert Einstein College of Medicine. What pronoun captures that?

On another occasion Dominus documented, the first-person pronoun was used to refer to each girl individually. In this context, it was because the girls were talking about what they were wearing (Dominus, 2011):

> "I am in gray," [Krista] said. "And I am in pink," Tatiana said. Something about the clear distinction may have just rung some bell in Krista's mind. She looked at her mother. "I am just me," she said. The sentiment - assertive and profound - was hardly out of her mouth before her sister echoed her. "I am just me," Tatiana said.

Unlike the piece of paper case, where Krista's "I" claim seemed to make reference to what both she and Tatiana were holding, here Krista's "I" claim seems to make a distinction between herself and her sister. Krista is in gray, *not* in pink. Tatiana is in pink, *not* in gray. This culminates with them solidifying this distinction, each by uttering "I am just me." Sometimes, uttering a claim like "I am just me" seems tautological, but here it seems to carry extra meaning. There is a substantive claim to be made about whether *I* (perhaps, qua speaker of this sentence? subjective experiencer? agent?) refers to the same entity as *me* (perhaps, qua embodied organism?).

Based on the use documented in the article, "me" seems more clearly to refer to Krista and to Tatiana *separately* whereas "I" can sometimes be in flux about the exact referent. Another example in which "me" was used involved a time when Dominus tickled Tatiana's foot when Krista was looking away, and then "Krista spoke: 'now do me,' she said." Dominus found it interesting that, despite the shared sensation that likely meant Krista had already *felt* the tickle (after all, as she wasn't looking, feeling it was likely how she had known that Tatiana had just been tickled), Krista still wanted it done to her, too. Dominus speculates as to why, wondering, "Had she felt the sensation but wanted the emotional experience of knowing that she, too, was receiving that kind of playful attention?"

Another use of "I" not only shows a conceptual separation between the girls' self-identities, but also provides another window in to their feelings about being attached to one another. At least on this occasion, it seems the girls had different feelings about their state of being "stuck," at least as evinced by their facial expressions and the tones of their voices. Dominus recounts (Dominus, 2011):

> 'I am stuck' Krista told me one afternoon... She tapped the portion of the head that she shares with her sister. And does she like being stuck? 'I love I am stuck,' she said. She smiled. She had the dreamy look of someone romantically infatuated. 'I love my lovely sissy,' she said. Later that day, Tatiana announced the same thing,

> but she sounded more distressed, confused. 'I am stuck,' she said, a querulous look on her face. She was a girl sending a message in a bottle, or from a bottle, searching for some answer to the essential question of her mysterious, still-forming mind.

The limited evidence available suggests to me that, at least most of the time, the girls think of themselves as separate individuals (albeit ones who are stuck together). Dominus, at least, wants to leave room for the possibility that there are also times when they think of themselves as one. More evidence would be needed to establish this than the one time she notes of Krista claiming to have two pieces of paper, but having actually spent time with the girls' Dominus' speculations do carry some weight. She queries (Dominus, 2011):

> But do they think of themselves as one when they speak in unison, as they often do, if only in short phrases? When their voices joined together, I sometimes felt a shift - to me, they became one complicated being who happened to have two sets of vocal chords, no less plausible a concept than each of us having two eyes. Then, just as quickly, the girls' distinct minds would make their respective presences felt: Tatiana smiled at me while her sister fixated on the television, or Krista alone responded with a 'Yeah?' to the call of her name.

6.2.2.4 General Abilities

In a teaser article for a documentary made about the girls from birth to their tenth birthday, there is a more updated summary of the unique abilities the girls have. The author of the article wrote (*Inseparable: Ten Years Joined at the Head*, 2017):

> Neurological studies have stunned the doctors. Tatiana can see out of both of Krista's eyes, while Krista can only see out of one of Tatiana's. They also share the senses of touch and taste and the connection even extends to motor control. Tatiana controls 3 arms and a leg, while Krista controls 3 legs and an arm.
>
> Amazingly, the girls say they also know one another's thoughts without needing to speak. "We talk in our heads" is how they describe it.
>
> Despite their unique connection, the twins remain two distinct people. Tatiana is talkative, outgoing and high-strung, while Krista is quieter, more relaxed and loves to joke. But she has a temper and can be aggressive if she doesn't get her way.

Their mother explains more about the ability to control each other's limbs in a video clip. She says: "But it can be, kind of turned off, I guess you could say? Like, they can choose when they want to do it and when they don't want to do it." This fits with the previously stated idea that the girls could learn to 'tune in' and 'tune out' of experiencing sensations from their twin's body. It seems the same may be true for their control of their twin's limbs. More observation would be needed to say anything concrete about this "tuning" ability.

It is also fascinating that this article suggests an ability to hear one another's inner speech. If the girls are able to "talk in their heads," one wonders about the scope of this ability. Again, the issue of control seems important - can each twin choose whether to "broadcast" and/or whether to "receive" a thought or inner speech episode to/from her twin? What is the precise neural mechanism for this kind of broadcasting, and could understanding it more deeply pave the way for future "mindreading" or "neural linking" technologies?

6.3 Philosophical Questions

This case is of interest for philosophers because it raises fascinating questions about the nature of mind and "first-person" access. One thing that seems special about experience, something that has been said to render it uniquely resistant to reductive or materialist explanation, is the way in which experiential facts (e.g., facts about what-it's-likeness) are only knowable *from the inside* - from the perspective of the experiencing being.

Given that Krista can access sensations originating in Tatiana's sense organs, how can we conceptualize this? There are (at least) two questions. First requires a clarification on what it means to have *ownership* of a sensation and/or mental state. If Krista sees a pony out of Tatiana's eye, is it that Krista is accessing (at least part of) *Tatiana's* visual experience? Or, is it that *Krista's* visual

experience includes information from Tatiana's eye? This relates to Langland-Hassan's discussion of the "one-token" vs "two-token" views we will discuss in the next section - is there one experiential token, accessed by two individuals? Or two experiential tokens (Langland-Hassan, 2015)?

The second, related, question concerns the distinction between an "inner" vs. an "outer" perspective. What does it really mean to see/feel/experience a mental state *from the inside*? If we conceptualize Tatiana as accessing/experiencing Krista's mental states (i.e., if we assume a "one-token" scenario), then should we think of her as accessing/experiencing them from the *inside* or from the *outside*? What does this distinction amount to? She does seem to access them from the inside of the *skull*, but does she access them from a distinct subjective perspective? Is that enough to say she accesses them from the outside? How do we individuate subjective perspectives? Would "inverted-qualia" types of skepticism still be possible between the girls, in the same way that they are for you and I? Can Krista know whether her experiential tokens have similar or different phenomenal character than Tatiana's?

The character of the philosophical questions raised by the case are multidimensional. There are metaphysical dimensions – what is a mind? How are minds individuated? What type of boundaries exist between minds when they are linked? There are also linguistic dimensions - given that each girl can speak from her own mouth, we take it for granted (rightly so) that she speaks from her own perspective. What is the referent of each girls' "I" thoughts and statements? Finally, there are epistemological dimensions. The possibility for shared-sensation could, for example, raise skeptical worries that we hadn't seen before. I take it for granted that *I* am *me* and that the sensations *I* directly access (by feeling them) are *mine*. But is it at least conceptually possible that I could access a sensation that is *not* my own? The way things appear to me seems to have a kind

of epistemic infallibility - I feel sure that things appear *such and such*, and I feel certain that they appear this way to *me*. Where does this epistemic certainty come from? Is it warranted? Could it be mistaken?

6.4 First-Person Authority and Immunity to Error through Misidentification

As Wittgenstein put it, when you say you are in pain, "To ask 'are you sure it's *you* who have pains?' would be nonsensical" (1969, p. 67). I could be wrong about what it is that is painful, what caused my pain, or even whether it is really pain that I am experiencing, but I seem unable to be wrong that it is *me* experiencing the pain. Is this a conceptual truth, essential to our notions of subjectivity and personhood? Or, can we conceive of a creature who has access to experiences other than her own, and so can be mistaken about the subject of the mental states she self ascribes?

There are a few different ways to analyze the kind of errors I am immune to when I make a claim like "I am in pain." One is to say that "I-ascriptions" – claims about mental states oneself is in – seem to have *guaranteed referential success*. They are guaranteed to refer to the person making the ascription (Bar-On, 2004b). For Wittgenstein, the logical impossibility of "I-ascriptions" to fail to refer meant that "I," when used as subject, is in fact not a referential device at all. This *no reference* view puts forward the idea that "I" cannot *fail* to refer simply because "I" does *not* refer (if it did refer, there would need to be some *object* that is referred to, and the possibility for error would creep back in) (Wittgenstein, 1969; Anscombe, 1962).

Others have argued that "I-ascriptions" do make *reference* to oneself as the subject of the experience one is in, but they do so without necessarily *identifying* oneself as that subject –

identification is not necessary for successful reference (Shoemaker, 1968; Evans, 1982).[117] If an I-ascription does not involve an identification, this is one way for it to be "immune to error through misidentification," or IEM for short (Shoemaker, 1968) This does not preclude avowals from being mistaken, but it precludes them from being mistaken due to the agent *misidentifying* herself as the subject of her experience. Roughly, a sentence of the form "a is F" involves an identification when I have some reason to believe that *something* is F over and above my reason to believe that some particular thing, a, is F.[118] If a defeater is presented to the effect that a is not in fact F, and my original belief that a is F involved an identification, the defeater would not necessarily affect my justification for the belief that something is F. In the case of pain, Shoemaker writes "it cannot happen that I am mistaken in saying 'I feel pain' because, although I do know of someone that feels pain, I am mistaken in thinking that person to be myself" (Shoemaker, 1968, p. 8).

Beliefs formed on the basis of introspective grounds are often taken to be IEM. If introspection is my only ground for coming to some belief that "I am in M," intuitively it is difficult to imagine that these grounds are enough to give me knowledge that *someone* is in M, but not that it is me. As Pryor says, in defense of such a view, "One can't be introspectively aware of a pain without thereby *feeling* that pain, oneself" (Pryor, 1999, p. 283). Whether this is right depends crucially on what kind of activity introspection actually is. If it is correct, though, it seems to motivate what Peter Langland-Hassan calls the "Introspective Immunity Thesis," which states:

[117] There are many potential reasons one may prefer a view that holds that "I" can genuinely refer. One reason is to preserve intuitively viable inferences, such as an onlooker's ability to infer from my utterance that "I am in pain" to the claim that "JS is in pain." Evans also notes that we should expect avowals to be subject to the "Generality Constraint," which says that to think a thought of the form "a is F" requires the cognitive capacity to think "something is F" thoughts as well as "a is something" thoughts, and on Anscombe's picture I-ascriptions do not have the logical form to be subject to this constraint (Evans, 1982).

[118] I am indebted to Dorit Bar-On for introducing me to the notion of avowals and IEM in a seminar on self-knowledge, which inspired me to philosophically analyze the epistemic status of the avowals of craniopagus twins. My framing of these ideas is heavily influenced by her and her work. In particular, I have here framed identificatory capacities in terms of *reasons*, rather than evidence, which is due to her contribution to the literature (see, for example: Bar-On, 2004b; Bar-On & Johnson, 2019).

when introspection is the ground for a first person self-ascription of a mental state, that ascription is IEM (Langland-Hassan, 2015).

The twins' case, and thought experiments inspired by it, may put pressure on some of these intuitions. If Tatiana makes an utterance like "I am tasting ketchup," when there is no ketchup on her tongue, is she mistaken? If there is *any* sense in which she is, could it even be conceptually coherent to imagine that she is mistaken due to *misidentifying herself* as the subject of the experience she takes herself to be in?

When Tatiana attempts to remove the nonexistent ketchup from her own tongue, there is *some* kind of error. She could have misidentified her own tongue as the source of her gustatory-ketchup-like sensations, when really it was her sister's tongue. But it is hard to imagine that she is mistaken about the fact that *she* is *experiencing* gustatory-ketchup-like sensations.

Langland-Hassan wants to argue that there *is*, in fact, a coherent interpretation of the craniopagus case in which one individual can be said to become aware of a mental state M by introspection, yet err by misidentification in judging "I am in M." Let us turn to his account and argument next.

6.4.1 Langland-Hassan's *Introspective Misidentification*

Langland-Hassan considers the case in which Krista is looking the other way and her eyes are covered by her mother's hands, and successfully reports on what is in front of Tatiana's eyes (a toy pony). It is important to note that he does not take his analysis to necessarily detail what actually happens in this particular case, as more research would need to be done in order to elucidate precisely the way in which each twin gains her knowledge of the other twin's sensory states. Instead, he co-opts the real-world example to build a counterexample to the introspective immunity thesis, arguing that it is at least possible that Krista could have direct, introspective

access to Tatiana's visual experience v, judge that "I am in v," "and be wrong for the sole reason that she has misidentified the owner of the state (her sister) as herself" (Langland-Hassan, 2015, p. 1746).

His aim is clearly stated as "to describe a plausible case where a person uses introspection to judge, e.g. 'I am having a visual experience as of an *x*,' and is mistaken for the sole reason that he has misidentified the subject of the experience" (Langland-Hassan, 2015, p. 1741). Note that he only aims to describe a case that is *plausible* and at least *logically*, perhaps nomologically, possible. His analysis details and argues for the possibility of a case in which an agent, Krista, self-ascribes "I am in v," where v is a visual experience as of x, her belief is grounded in introspection, and yet Krista is not in v – Tatiana is. Most of his discussion defends the claim that introspection of a state is not sufficient for ownership of that state.

I agree with him that Krista and Tatiana motivate a possibility for thought experiments in which one could self-ascribe a mental state based in introspection and be wrong about *whose* it is. Though Krista and Tatiana themselves seem to have a pretty good capacity to distinguish which twin's sense organs are the cause of their current experience (given their ability to tune in and out), it at least seems conceptually possible that they could sometimes be mistaken about whose visual field they are looking through (or whose tongue has ketchup on it). It is reasonable to extend this to a possibility of being mistaken about the *owner* of a mental state one self ascribes. After all, if one could possibly have perceptions grounded in sense organs that are not one's own, it makes sense to say that one might *think* the resultant mental states are their own when really they are not. Introspectively accessing and feeling a state (even from the inside) may, as Langland-Hassan argues, not be enough for having *ownership* of that state, but could it be enough for being its *subject*?

6.4.1.1 Ownership vs Subjecthood

I think Langland-Hassan does not seem to consider this possible distinction between owning a mental state and being its subject, even though it is crucially important here. To see what I mean, consider again the Wittgensteinian puzzle. Suppose I say, "I am in pain," meaning that I am currently experiencing pain-like sensations. There seem to be two questions one could ask me - one doubting whether I am really the subject of the pain, one doubting whether I am really the owner. The former question would be something like, "Are you sure it's *you* who is experiencing pain-like sensations?" whereas the latter would be something like, "Are you sure they are *your* pain-like sensations you are experiencing?"

Usually this distinction may not matter, since we take it for granted that we usually experience only (perhaps even all of?) our own sensations. So usually, neither of these questions would be appropriate. But the latter question is at least *sensible*. I have no way to gather evidence for or against the first. The same evidence that suggests I am experiencing pain-like sensations also suggests that I am the one who is experiencing it because the only evidence is the sensation itself. Unless I am in a situation where I have reason to believe that my brain is receiving sense-data from someone else's body, I am likely to answer the latter question in the affirmative. But there is a way to provide a defeater for my taking ownership of my sensation, that doesn't defeat the fact that I experienced this sensation subjectively - so I agree with Langland-Hassan that not all introspectively grounded claims to *ownership* of a sensation are IEM. But if we recognize a distinction between being the subject of a state and being its owner, then he has not necessarily shown that avowals are not IEM in the sense that they could potentially misidentify oneself as the subject of the experience. The whole point behind claiming avowals to be IEM in this way was that there is no *identifying* oneself as the subject of an experience in the first place, so there can be

no *mis*identifying here. We do not see an experience or sensation, in abstraction, separately from ourselves and then come to judge ourselves as the subject of that experience. Simply having the experience is enough to make claims to being its subject.

Langland-Hassan's analysis concerns only whether the mental state one twin is introspectively accessing occurs within her own "mind" (a question that he distinguishes from whether she is the subject of the experience). Since he concludes the answer is no, he admits that if what we mean by having an experience allows for "... an experience that does not occur within one's mind, then, yes, she is having the experience" (Langland-Hassan, 2015, p. 1753). But wait... if he is willing to admit that she is *having* the experience (despite it not occurring in her own mind) then he was unsuccessful in his original aims, because she has actually *not* misidentified the subject of experience, only the owner of the mental state. Conversely, if we do *not* allow for this possibility "then, no, she is not having the experience - even though she is introspectively aware of it and it contributes to her phenomenology" (p. 1753). This latter alternative seems rather radical, since he takes it that Krista's introspective awareness of a visual state is phenomenologically the same as Tatiana's awareness of the same token state (p. 1753). For him to argue that she is not actually undergoing the experience would require completely divorcing undergone experience from felt phenomenology. This will be incompatible with any position that defines or individuates experiences by virtue of felt phenomenology.

The girls do, however, motivate a (still interesting) possible kind of thought experiment in which one and the same experiential token has two distinct subjects. If Krista introspects Tatiana's experience, and feels its felt phenomenology for herself (from her perspective), perhaps we can conceive of Krista having subjective access to an experience that is not her own, and if you have subjective access to an experience then you are its subject. This is abnormal - usually a single

token experience has a single subject. Should we then instead conceive of this situation as consisting in two experiential tokens?

6.4.1.2 One Experiential Token or Two?

Like the project of "counting minds," I think counting experiential tokens is mostly a matter of how to conveniently carve things up in order to make sense of them for some purpose. I see no reason to think there is a metaphysical fact of the matter about whether there are one or two experiential tokens in a thought experiment. It still may be important sometimes to have conceptions that allow us to think more clearly about a case.

For example, consider the case of gustation. This case is interesting since the girls' differing preferences come into play. How are we to determine if there is one "experiential token" of "ketchup-like sensation" or two, in the moment when Krista ingests the ketchup and Tatiana attempts to spit it out? Can we even determine whether what each girl experiences is the same or different phenomenologically? Krista enjoys the experience, and Tatiana does not - is this enough to say they experience distinct phenomenologies? Not necessarily. Maybe they each experience a phenomenologically identical character (for that experiential part) but it takes on a positive valence for Krista and a negative valence for Tatiana. You may argue that the valence taken on by a sensation is *part* of its phenomenology, in which you'd argue for different phenomenal characters experienced by each girl. I am not sure how we would settle between these two different ways of talking.

Both also are consistent with either one token or two token approaches to individuating the experiential part. If you think each girl experiences phenomenologically identical ketchup-ness, you could say this means they have one shared or jointly accessed token, or you could say that the

fact that they *each* experience it means there are two tokens (phenomenological duplicates). If you think each girl has a phenomenologically distinct ketchup-ness sensation, you could say there is one experiential token, accessed from two perspectives, and this dual perspectival access changes the phenomenal character of the same token experience as accessed by each girl... *or* you could say there are two experiential tokens, each with a distinct phenomenology, both caused by the ketchup on Krista's tongue.

But all Langland-Hassan wants to establish for the sake of his argument is that a one-token account is at least a *logically* coherent way to think of a case of shared sensation. This is fine. As long as we are being consistent. He writes (Langland-Hassan, 2015, p. 1745):

> Returning to the twins, a first step in that direction is to suppose that there is only one token (OT) experience *v* (as of a toy pony) between them, and that they are both introspectively aware of it. Call this the OT scenario. In OT, *v* is realized by patterns of activity within Tatiana's visual cortex. However, the thalamic link allows for direct causal contact between v and introspective processes realized in Krista's brain. In this way, Krista is able to be introspectively aware of *v*, and to thereby judge that Tatiana sees a doll (other sensorimotor cues make it evident to Krista that her own eyes are closed).

And then, to clarify how he intends to move from the OT scenario to the counterexample to Introspective Immunity (Langland-Hassan, 2015, p. 1746):

> The OT scenario as so far described offers a first ingredient to challenging Introspective Immunity. It is a case where one person (Krista) is introspectively aware of a token mental state that does not occur within her own *brain*. My argument will be that this also may be a scenario where v does not occur within Krista's *mind*. If that is right, then, in a moment of distraction, or given confusing perceptual cues, Krista might become introspectively aware of *v* and erroneously self-ascribe it. That is, she might judge, through introspection, "I am having a visual experience as of a doll," and be wrong for the sole reason that she has misidentified the owner of the state (her sister) as herself.

6.4.1.3 Felt Phenomenology without Ownership?

I have already explained where I think his argument falls short - Krista may misattribute herself as being the owner and/or source of the experience whose felt phenomenology she is undergoing, but

as long as she is undergoing its felt phenomenology, I want to argue there is still a sense in which she would be right to call herself a subject of that experience. It still might seem odd to suppose that one could feel the phenomenology of a state that is not one's own, though.

To make the case for this possibility, Langland-Hassan supposes a "distinct existences" view of introspection. This means that the first order visual state, *v*, "and the state or process by which one ordinarily becomes introspectively aware of such a state," (Langland-Hassan, 2015, p. 1746) are *distinct* entities. This allows for the possibility that there is a *single* token first-order visual state that both Krista and Tatiana are able to introspectively access.

The next step is for him to prove that there is a coherent scenario in which ownership of the first-order mental state is localized to a single twin. What does it mean to have ownership of a mental state? And what is the connection between owning a mental state and being able to introspect on it? Clearly, he wants to establish that the ability to introspect a state is not sufficient for owning it, since he thinks we could in principle have an ability to introspect mental states other than our own. He explores and refutes the idea that introspecting a state is sufficient for owning it because, while intuitively plausible, this idea actually commits us to what he thinks is a rather radical thesis - "It suggests that introspection has the power to transform a mental state that otherwise would not have been a part of one's mind into a proper part of *oneself*" (Langland-Hassan, 2015, p. 1748). While it might *typically* hold that we can introspect only on states of our own mind, this isn't because our introspecting on them *makes* it such that they are our own.

If introspection doesn't make it such that a mental state is *mine*, what does? Properly taking ownership of a mental state is a multifaceted phenomenon that in my view cannot be reduced to a singular dimension. Langland-Hassan proposes, however, that a potentially sufficient condition on

a mental state occurring within one's own mind is that it occurs within one's own brain, offering (Langland-Hassan, 2015, p. 1749):

> *Brain Based*: if mental state *m* is realized in *S*'s brain and has at least some causal and inferential interaction with *S*'s other mental states, then *m* occurs in *S*'s mind.

One could probably turn to science fiction or technological possibility space to cook up potential counterexamples to such a sufficiency condition on ownership (perhaps... could an alien in principle devise a technology that used *my* brain to think for *their* mind?). But there is also a concern about the individuation of brains and of mental states. The possibility of connected brains raises the question *how* to delineate precise boundaries between brains on a principled level, and also raises the possibility of mental states that are distributed across multiple brains.

This is another problem with Langland-Hassan's analysis. He considers the One-Token view (in which Tatiana's brain has a single mental token, which both Tatiana and Krista introspect) and a Two-Token view (in which Tatiana's brain has a mental token which Krista's brain creates a copy of). What he fails to consider is that even in a typical case, token mental states are likely distributed across systems, rarely (if ever) localizable to a single determinate point in the brain (in spatial and even temporal dimensions). Given this, it seems like an oversight not to consider the possibility that there is a single mental token that is distributed across both twins' brains in a situation of sensation-sharing.

6.4.2 *Mis*identification Requires Identification

So what is the upshot when it comes to immunity to error through misidentification in situations of sensation sharing? Langland-Hassan argued there was an interpretation according to which the twins motivate a possible counterexample to introspective immunity: one twin could learn of another twin's sensation via introspection, *misidentify* herself as the subject of that experience, so

err in self-ascribing it. My worry with his analysis was that at best, it only showed a possible misidentification of who was the *owner* of the experience a subject was undergoing, but not a misidentification of its subject. This is because simply by undergoing an experience you already are its subject, and do not have to perform an identification of yourself as such.

A self-ascription of a mental state based on a shared sensation of the form "I am in *v*" is only in error in the situation he argues for *if* in making that ascription one intends not only to make the claim that one is undergoing v-like sensation, but if one further intends the implication that it is *one's own* v-like sensations, generated exclusively by one's own sense organs which communicate first and foremost to one's own brain. In other words, if Krista *thought* she was seeing a pony out of her own eyes (when really, she was seeing one out of Krista's eyes) she'd be mistaken if she said or implied that she was the one seeing it. But, crucially for IEM, she wouldn't be mistaken about the *subject* of the experience she took herself to be having. She would not have reason for believing that *someone* is having the visual experience as of a toy pony over and above her reason for believing that it is *her* having the experience. She might, however, have reason to believe that *someone* is perceiving a toy pony over and above her reason for believing that it is *her* perceiving a pony out of her own eyes.

Counterexamples to IEM in which one self-ascribes a mental state when one's only basis for making that self-ascription is *having* the mental state, and one mistakenly identifies one's *self* as its subject, are only possible if you think there is a plausible situation in which someone performs such an identification in the first place. The girls' case opens up interesting types of epistemic error because identifications need to be made that don't need to be made in the usual case - I don't usually need to identify *whose* eyes I am seeing out of, simply by seeing out of them I know it is my own eyes. But you might see how there is an implicit identification going on here

- if I am seeing a tree, I identify my own eyes as the one's doing the seeing, even if this identification doesn't happen consciously. But there can be no such parallel when it comes to identifying my own *self* as the *subject* of the experience I am having. Even if there is *no such thing* as a subject I have not erred *through misidentification* in ascribing an experience to my self qua subject because I have not performed an identification in the first place. The evidence I have for "there is a visual experience" is the same evidence I have for "I am having a visual experience" – the experience itself. This doesn't mean one cannot be in error about the latter thing - but if one is, one has no further reason to believe the former thing. That is what makes it IEM. This is a linguistic point, and it is not touched by Langland-Hassan's considerations of metaphysical possibility space.[119]

6.5 Implications

In my view, we definitely have a lot to learn about neuroanatomy by developing our understanding of how a thalamic bridge functions and what roles it can play. Conceptually, the girls' case can be used as a test case for applying our conceptions of the relationship between phenomenal consciousness and the first-person perspective. We can also examine some possible structures of their neural processing, to see whether potential ambiguities on its precise nature can be mapped to phenomenological ambiguities as well. Some may further wonder whether this case, among other things, could inspire a new era of communication - a future where words are unnecessary, because brains can be directly linked. Let us look at some of these issues in turn.

[119] Liang, et. al disagree that Wittgenstein's point is primarily a conceptual/linguistic one, and they think that it should be subject to empirical analysis (Liang, Chang, Chen, Huang, & Lee, 2015). I think this is great, and there is more to be said empirically about experiential *ownership*. However, being the *subject* of a self-ascribed experience plays a different linguistic role than identifying as the person whose (in the ownership sense) experience it is.

6.5.1 Phenomenal Consciousness and the First-Person Perspective

In my view, we do not need to argue for a single correct way of carving up mental tokens in order to interpret the case without running into conceptual puzzles. Since each twin has a fluent grasp of language and is able to self-ascribe "I-thoughts" and individual preferences, it seems clear that each girl has her own unique epistemic perspective on the world.[120] A separate question to be asked is whether each twin has her own unique *phenomenal* perspective on the world; given their ability to share sensations, one may wonder at the possibility of a shared *phenomenal world* (or two partially overlapping phenomenal worlds) that both twins are able to access experientially.

In Chapter 3, I expressed skepticism regarding the ability to determinately count subjective/phenomenal perspectives in whole numbers. The ability to do so would be implied by a view that takes phenomenal consciousness and the first-person perspective to be something like two sides of one conceptual coin. There is a notion embedded in some ways of thinking about the world that says wherever you have phenomenal consciousness, you have a self perspective from which it is experienced and by which it is centered and organized. I think that cases become clearer if we are able to understand *that there is* a distinction between the first-person perspective from which we access conscious experiences, and the contents of phenomenal consciousness itself - even if we do not know the precise *nature* of that distinction (from our perspective).

Having the language to talk about these things separately can allow a clearer picture of the case because phenomenal fields may not always be the kinds of thing that have precise borderlines between them (which are presumed in questions of counting). In the split-brain, there seems to be a single phenomenal field that is only partially fragmented, so it is simultaneously countable as

[120] These things (language, self-ascription of "I" thoughts, and individual preferences) are not *necessary* for the attribution of a perspective to a being, they are *strong* evidence of it, if not a sufficient condition.

one and as two. Neither schema for counting captures the full metaphysical picture, but both are simultaneously useful for developing a framework for understanding the experience(s) of the patient.

In conjoined brains, instead of partial fragmentation we have partial unification. Depending, perhaps, on the specific moment of interest and the extent of said unification, there could be times at which it is reasonable to ask "what-it's-likeness" questions about Krista *and* Tatiana, as a collective. This would not make them one person or one subject of experience - it simply falls out of the fact of their shared phenomenal space. And still, even in these moments of a single phenomenal world (when the girls are sharing as many sensations in a single moment as they can), they still each have their own *perspective* on the world (even *if* that perspective identifies itself with the phenomenal space of the collective, as in cases where the first-person pronoun seemed to be used to refer to the collective). They each may take a perspective on the same phenomenal contents.

6.5.1.1 A Possible Neural Story

When Krista (or anyone else, for that matter) ingests ketchup, it begins its processing chain (at least) as soon as it hits her tongue, where taste buds already begin to filter, process, and differentiate compounds. Before it can be sent to the brain, gustatory information must be *transduced*, which depends on multiple mechanisms depending on the receptor that is activated by the specific taste type being processed. For example, "sweet-tasting compounds such as sucrose [binding] to apically located receptors stimulates an adenyl cyclase-cAMP second messenger pathway that closes basolateral potassium channels, leading to depolarization of the taste receptor

cell" (Haines, 2013, p. 321).[121] Each taste bud contains 40-100 taste cells, including receptor cells that are specialized to perform transductions of gustatory input in the categories which form our experiences of sweet, salty, sour, bitter, and umami.

After the information is transduced by the receptor cells, it travels through cranial nerves VII (Facial), IX (glossopharyngeal) and X (vagus), primarily terminating in the solitary nucleus of the brainstem. Here, there are "second-order taste neurons," whose axons "ascend in association with the ipsilateral central tegmental tract and terminate in the parvicellular division of the ventral posteromedial nucleus of the thalamus (VPMpc)." From here, axons project to cortical regions such as "the frontal operculum and anterior insular cortex and in the rostral extension of Brodmann area 3b." Apparently, this pathway from the solitary nucleus to the VPMpc to the cortex "is responsible for the discriminative aspects of taste and, in contrast to other sensory pathways, is exclusively ipsilateral" (Haines, 2013, p. 322). This is all taking place at a temporal scale of microseconds.

Presumably, in the girls' case there is a branching point when the information reaches the VPMpc, a nucleus of the thalamus. This thalamic nucleus, perhaps, contains axons which project to the cortical regions of *both* girls instead of just one. Another possibility is that the information is relayed first through the other twin's thalamus, if the thalamic bridge contains axons which project to and terminate in the thalamic nuclei of the other twin's brain. This option seems more surprising, because while some thalamic nuclei typically project to other thalamic nuclei, the VPM is not one of them. It is one of many dubbed "relay nuclei" of the thalamus, having a "position in

[121] Philosophically, it is relevant to point out on the simple basis that there is *a lot going on* chemically even before any information makes it to the thalamus of either girl and gets projected to cortical regions. At what point along this processing chain does the information "become conscious"? I do not think it useful nor necessary to think of consciousness in these kinds of "finish line" terms, which is another reason I am hesitant to embark on the project of precisely individuating "phenomenal tokens."

a modality-specific pathway linking one particular source to one particular destination" (Haines, 2013, p. 205). Given that the efferent projections from this nucleus typically terminate in cortical regions, it seems likely that Krista's thalamus, upon receiving the gustatory input from the taste buds, projects that information both to Krista and to Tatiana's cortex directly - but it is also possible that Krista's thalamus projects that information to Krista's cortex and Tatiana's thalamus, which then in turn projects it to Tatiana's cortex. This mechanism could even work differently in a modality specific manner, which is relevant because considerable processing does take place in the thalamus. It seems clear that when the girls share sensory input, it is processed by two distinct cortical networks, but it is less clear whether it is processed by one or two distinct thalamic nuclei (although, given either option, there are two *thalamocortical* networks processing the information that came from only *one* twin's sense organ).

There is likely little to no temporal difference between when each girl is able to react verbally or through consciously guided action to the experience of the taste of ketchup (though there would be a temporal difference if Krista ingested something that activated a gustatory *reflex* response, which does not need to be filtered through the brain first). Given that Tatiana attempts to scrape the ketchup off her own tongue, perhaps her cortical regions receive the information from Krista's solitary nucleus in the *same way* that they receive it from her own. Although, given reports that the girls are developing a greater ability to "tune in" and "tune out" to one another's sensations and motor control, it seems likely that there is some way the system has to discriminate the source of its input.

6.5.1.2 What Does This *Mean* About Consciousness?

So where along this processing chain is the "phenomenal token" Langland-Hassan speaks about? Where is the *feeling* of the taste of ketchup, at what point along the processing chain does it become

conscious, and is there one of those points in the girls' case or two? Unfortunately, these are the wrong questions. I think these questions are not reflective of the true nature of phenomenal consciousness and an attempt to answer them is actually a distraction from an attempt to understand the situation in its full complexity (see, e.g. Dennett & Kinsbourne 1992).

There is something it is like to taste ketchup - there are phenomenal qualities associated with the stimulus-response chain here. Whatever those phenomenal qualities, and however we carve them up, Krista seems to be pleased by them and Tatiana does not. This is enough to speculate with reasonable confidence that each girl has her own perspective on the taste of ketchup, but not necessarily enough to say that each girl is tasting a different ketchup or experiencing a unique phenomenal character. It is possible they are, but it is also possible they are not, and it is possible that both are true simultaneously, depending on one's criteria for sameness.

6.5.2 An Aside on Neural Linking

An exploratory foray into the Hogan twins and the questions they raise for philosophers of mind would be incomplete without at least a cursory look into what their case says about the technological prospects for neural linking. Since the girls are able to directly share sensations, and according to their testimony, even share thoughts, perhaps advancement in our understanding of the coding of neural information could lead to a possible future in which one does not need to be born connected to someone else to share sensations and thoughts so intimately in this way. Attempts to create a technology that allows for direct brain-to-brain interfaces may already be underway, according to reports about things like *Neuralink*.

This would certainly be an impressive feat - and I am all for anything that inspires further research into understanding more about how the brain codes thoughts, feelings, and reasoning. I can see why learning of the possibility of a thalamic bridge would make one think that a

generalized technology that could link *any* two brains may not be too far out of reach - but I would like to inject just a small dose of skepticism into this idea.

You see, it is no small or peripheral fact that the girls' brains have been connected *for life*. This means the connections and pathways within and between the girls' thalami and cortices have had a *lifetime* to prune themselves and to learn to organize and interpret the signals available in the organismic system that is the twins' bodies. If there were some science fiction scenario in which I could reroute the exact neural signals that Tatiana's thalamus usually relays to Krista's brain and relay it to mine instead, there's *no telling* what would happen. I may have a seizure, I may experience nothing, I may experience chaotic input, I may access some kind of garbled version of the sensation or thought that was intended to be transmitted... It would not be like plugging in a flash drive to a laptop instead of to a desktop, where the hardware and mode of presentation may differ, but the information conveyed remains the same. Here, the information is not a separate entity from the hardware which realizes it.[122] There is not *necessarily* some kind of "universal neural language" or translation system that could be created to *decode* my thoughts and then *encode* them into a format that makes sense to *your* brain. The girls' connection may not even operate via an encoding-decoding system, because they have developed over the long-term to share neural signals directly. Their brains also have an interest in learning to interpret all the information available to them, from either body, since they have no choice but to move around in the world as one.

[122] I expressed similar skepticism for a pop article about memory download (Salisbury & Schneider, 2017).

6.6 Conclusion

We are often guided by introspective analyses of concepts, *especially* when those concepts involve the felt character of conscious experience, which we can only access "from the inside," as it were. Introspective analyses of the structure of our own conscious experience may lead us to form certain conclusions about the structure of conscious experience *in general*. For example, it seems all (and only) the experiences that I can access from my unique inner perspective are my own. This may lead me to the supposition that *all* conscious subjects have inner access *only* to experiences that are rightly called their *own*. It also seems as though the conscious contents I access in any given moment enjoy a kind of internal unity relation with one another - if I can introspectively access content *A*, and I can introspectively access content *B*, it seems difficult to imagine my not being able to introspectively access something like the conjunction of these contents *A and B.* This may lead me to the supposition that *all* conscious subjects enjoy conscious contents which are phenomenally unified with one another, and that phenomenal unity is transitive. It also seems difficult to imagine, introspectively, me (qua conscious subject) being anything other than *one* thing. I have a perspective and it is whole and numerically singular - there is no sense to be made of its (of *my*) being one-half, or two. This may lead me to the supposition that *wherever* there is experience, there is a subject of experience, which is numerically singular and whole-number countable.

In my larger project, I intend to put pressure on these suppositions that are generated from introspective analyses of conscious experience. I am optimistic for a future in which cognitive neuroscience can be blended smoothly with experiential phenomenology (and I think a successful undertaking of this project requires a degree of *attentive openness* that may not be possible if you are bound by preconceptions of what experience *must* be like based on how it is like for you). This

project does not require explanatory reduction of the latter to the former, but rather a mutual compatibility between questions about "what-it's-likeness" and questions about information processing in the body and brain. Philosophers of mind deeply want to understand the nature of mind, and just *how* it can be that these 3 pounds of soggy flesh encased in my skull somehow acts in concert with my bodily systems, a neurochemical cocktail, to generate this multidimensional and technicolor phenomenal *world* that I find myself in. We look at the brain, and then we look at experience, and we feel *struck* by the explanatory divergence between the two modes of thinking about consciousness. Merging the two may feel like a project that may never be completed or *made sense of* without remainder in the simple, clean way we would like it to be.

My role here is not to solve this metaphysical problem once and for all - to show that *this* is the way experience ought to be conceptualized, *this* is how perspectives and phenomenal spaces ought to be counted, *here* is how we should carve things up. I am interested in *what-it's-likeness* - I am interested in learning more about what it is like to be me, or a bat, or a bug, or you, or a split-brain patient, or a craniopagus twin. This means learning about experience from perspectives other than the introspective one. The operations of the physical brain are one of many tools we have to aid us in this project. There is an attentional shift that happens when you examine neural data through the lens of using it to aid empathetic thinking and feeling. This attentional shift can help guide your inquiry, focus your gaze, and motivate you to ask the right questions (even if we are never quite done asking them, never quite finished with the project of improving our ability to empathize).

With all this in mind, what do philosophers stand to gain from thinking about what the world might be like for Krista and Tatiana Hogan? For one, properly empathizing with their perspectives on the world lends credence to my doubt of the aforementioned suppositions about

consciousness. As I have argued here (agreeing with Langland-Hassan), the girls seem to directly access through introspection experiences that are not their own. While I argued (contra Langland-Hassan) they still may be the *subject* of these experiences that do not belong to them, this still leads to the interesting result that it is possible to have two distinct subjects of the same experience. The relationship between subjects and experiential contents is not necessarily a one to one relationship as it may seem. To oversimplify, we might be able to think of the girls as having *two distinct subjective perspectives* on contents that exist in the space of a single phenomenal field, or two partially overlapping phenomenal fields.

But this is not the end of the story, as I emphasized that we should not be overly distracted by the metaphysical questions of counting. We should absolutely give credence to first-person subjective reports of experience that come from the mouths of the girls themselves, which leads us to this conclusion that there are two subjective perspectives. But how do we *count* subjective perspectives in a principled way - since presumably not all entities with a subjective perspective have a mouth with which to tell us they do (in a way that we can understand)? I may not be able to answer this question, but what I *can* say is that we should remain open to the fact that "two" is not necessarily the end of the story here (nor is "one" necessarily the end of the story for a typical, non-craniopagus brain). So, while we should give credence to verbal reports based on introspection in our quest to learn about what-it's-likeness, we also have other sources of information that can guide us in this journey, such as behavioral and brain data.

Using brain data to aid in a project seeking a better understanding of an organism's conscious experience considered as "what it is like" can involve multiple modes of exploration, and undertaking even small portions of this project helps to further motivate my claim that we should not be bound by a singular counting-schema as metaphysical fact. Even (what might be

countable as) a *single* dimension (e.g. sweetness) of (what might be countable as) a *single* sense-modality (e.g. gustation) involves a vast concert of discriminative capacities and neural network communication at multiple levels. There is no single event or moment in neural processing that makes events, states, or sensations such that they are conscious. Every bit of processing is potentially relevant to felt phenomenology, which is part of why this project of active empathy may never be completed (there is always more to learn, more levels of detail or interactions to analyze). This should not be confused with a view that says progress cannot be made.

Krista and Tatiana are just two little girls with their own unique sets of challenges and strengths. We may find their situation fascinating (and it is) because of its uniqueness, and the way it may challenge intuitions we had about the privacy of the mental. But in fact, every brain (or set of brains) has a unique history and structure, and each poses new information and a new frame with which we can build our skills of interpretation. This is *always* fascinating - the thalamus *itself* is fascinating, so of course a thalamic bridge would be as well. The main difference between the "Krista and Tatiana" pair and the "You and I" pair (or any other two experiencing subjects with brains that are not connected) is that they have a way to directly communicate with one another that does not involve observation nor natural language (necessarily). They can access *each other's* experiences through a perspective (the introspective one) that *most of us* can only use to access our *own* experiences. If this shows us anything philosophically interesting, it is that experience, like anything else, is perspectival - known from a perspective. But it is a biological fact, not a conceptual one, that makes one's introspective perspective privileged and unique in its ability to know one's own experience.

Concluding Remarks

In this dissertation, my goal was to subject the idea that consciousness is intrinsically "unified" to critical scrutiny. My primary test case came from the so-called "split-brain" studies. If the two-minds interpretation of the split-brain case is correct, then they violate the intuitive idea that organisms and subjects of experience are usually countable on the same scheme. This would also violate a thesis that asserts that, necessarily, all the conscious states of an experiencing organism are phenomenally unified. While *strange*, the idea of two minds within one body is certainly readily conceivable. However, what I wanted to explore in this dissertation was whether these cases could serve to challenge our conceptions of unified consciousness in an *even more fundamental* way. One thing that is mysterious about these cases, sparking the high degree of philosophical attention they have received, is that the two minds view does not seem to fit quite perfectly - and yet, neither does a view that ascribes to them one mind. What if there are *neither* precisely one *nor* precisely two "subjects of experience" in these cases? Why might this have seemed so difficult to imagine, and what follows for our concepts and theories of conscious experience if it is true?

The reason, in my view, this seemed difficult to imagine is because the furnishings of our imagination regarding the structure of conscious experience come from a particular kind of introspective perspective. Introspecting on my experience at any given moment, its contents all seem clearly unified in a substantial way. I seem to be one experiencing subject who access a fully unified "field of phenomenal view." Extending this idea beyond the present moment, we can all understand the locution of consciousness being a *stream* – these unified moments are woven together as time flows forward and *I* (qua conscious subject) have a sense of singularity or *wholeness* both at and across time.

The view of consciousness that we get from the introspective perspective is not wholly erroneous and has important uses. It may lead us to believe, however, that subjective experience is always the kind of thing that comes prepackaged into atomic wholes (such as these aforementioned "fields" or "streams") which are discrete and countable. I think legitimate progress can be made if we recognize the limits of the project of determinately counting these atomic whole numbers of "subjects." What originally, intuitively and/or introspectively, seemed like a singular phenomenal stream, upon closer inspection seems better thought of as a multimodal and multidimensional web of relations between innumerable types of experiential states. The project of counting streams *can* be helpful in some senses, but also can be never-ending, and can potentially mislead us. The project of counting, if done with the aim of tracking metaphysical reality, will in my view take us further from our goal rather than closer. Even the most complicated model I could create for the structure of phenomenal space in my head would still be a model, and the number of composing and/or experienced streams the model posited would just be *one* posit for understanding the phenomenal space of my experience.

Beyond "Counting Minds:" Radical Empathy

I have argued that counting "minds" and "phenomenal perspectives" is not a matter of settling determinate metaphysical facts, but rather fixing a frame by which acts of imaginative projection can take place in order to ask and answer the summative types of "what it's likeness" questions I introduced in Chapter 4. But why do we *care* about the acts of imaginative projection that enable us to ask and answer questions about what it's like? I think that one reason we (or at least, I) care about these questions is because of an instinct to empathize with perspectives that diverge from

one's own. I have removed most mentions of "empathy" from this dissertation because of its moral connotations, but in future work I am interested to go in these directions.

This is because in my view, there *are* moral dimensions to the way we talk about consciousness as what-it's-likeness - the same goes for the way we talk about the necessary unity of the self or subject of experience. Daniel Dennett writes, "There might even be good reasons - moral reasons - for trying to preserve the myth of selves as brain-pearls, particular concrete, countable things rather than abstractions, and for refusing to countenance the possibility of quasi-selves, semi-selves, transitional selves. But that is surely the correct way to understand the phenomena of split-brains" (Dennett, 1991, p. 425). He is right that "counting subjects" questions have moral dimensions, but in my view these moral dimensions do not commit us to a metaphysical picture. The conception of selves as abstractions rather than concrete particulars does not make their phenomenal worlds any less morally relevant. In fact, I think this fictionalist approach to the self can aid in the moral project, because it can open up our modes of empathetic questioning to include multiple counting schema simultaneously, recognizing that we can learn something from each of them while none of them give us a full and complete picture.

If the notion of a numerically singular "subjective perspective" is a useful fiction, we need not expect a determinate answer to questions like "how many minds exist within the skull of a split-brain patient?". We can consider a split-brain patient, as well as ourselves, to be both one and many without contradiction. Because of the indeterminacy of metaphysical questions of "counting," perhaps that the focus should shift away from these. Another option is to move toward a multidisciplinary and integrative practice aimed toward improving the possibility for empathizing with atypical modes and structures of experience. Perhaps philosophers of mind who are interested in understanding the phenomenal landscape of atypical cases like the split-brain

(perhaps in order to better understand how conscious experience and its structure connects to brain function) should shift their focus from the metaphysical project of counting minds and toward the phenomenological project of practicing radical empathy.

I use the term *radical* empathy specifically because it is a useful concept for empathizing with perspective-types that vastly diverge from one's own (see Radcliffe, 2012; Zahavi, 2010; Stein, 1989). Radical empathy allows us to appreciate possible differences between the experiences of self and other that we may not have been able to appreciate otherwise. The first step to engage in radical empathy is to recognize that engaging in empathy involves a presupposition of a shared world, such that one can direct one's attention to the nature of the shared-world one is presupposing, and to appreciate the fact that there is a "variable sense of belonging to a shared world" (Ratcliffe, 2012, p. 479). Ratcliffe wants to emphasize that the very sense of belonging to a shared experientially accessible "world" with a present "other" is a phenomenological achievement. The world of experience has a structure and basic facts about this structure may be taken for granted and presumed to remain constant between experiencers. Adopting what he calls the "phenomenological stance" in order to engage in radical empathy involves *re-directing our attention to a new space of possibilities*: shifting our perspective.

Relatedly, we may need to shift our perspective in order to understand cases like the split brain without counting them into a determinate, whole number of internally unified subjective perspectives. I think that this perspectival shift will do *more* for us than simply allow us to resolve the conceptual puzzle that seems to arise when confronted with atypical cases. Engaging with phenomenal worlds in a radically empathetic way may allow us to understand others' experiences better and it may even allow us to understand *ourselves* better. Taking the phenomenological stance involves paying a certain kind of *attention*. I would be greatly interested, in future work, to supplant this notion aided by María

Lugones' discussion of "World"-Traveling, and Marilyn Frye's distinction between arrogant and loving perception (Lugones, 1987; Frye, 2000).

How Considerations of Unity can Inform Theories of Consciousness

Finally, I think considerations about conscious unity can help inform future research on the nature of consciousness. In particular, the neuroscience of consciousness should be able to simultaneously respect the perspectival nature of conscious awareness, while at the same time not assuming that the reportable contents of the introspective gaze exhaust the character of a conscious organism's inner life. Additionally, theories of consciousness should be consonant with the possibility that conscious experience can fragment without dissociating into discrete streams, as I have suggested in this dissertation. I would be interested to undertake future work exploring the connection between various theories of consciousness (such as Global Workspace Theory,[123] Illusionism,[124] Integrated Information Theory,[125] Representationalism,[126] Inner Sense Theory,[127] and Higher-

[123] The Global Workspace Theory of consciousness (GWT) is a functionalist approach that aims to use the idea of a global workspace architecture to understand the functional role of consciousness (Baars, 1983, 2005) (See also: Newell, 1990; Baars, 2017; Izhikevich & Edelman, 2008). One candidate for the neural substrate of global broadcasting involves the oscillatory synchrony (or resonance) of neural populations in particular frequency ranges (Baars, Franklin, & Ramsoy, 2013). Thalamocortical networks are purported to mediate this synchrony within each hemisphere, and synchrony *between* hemispheres is potentially enabled by the corpus callosum (Steriade, 2006). More about the precise nature and mechanism underlying neural resonance would be needed for an exact answer to what the global workspace theory implies about the possibility for conscious disunities.

[124] Illusionism, as its name suggests, is the view that consciousness (in particular, phenomenal consciousness, construed as what-it's-likeness) is illusory (See Frankish, 2017). Frankish does not deny that conscious organisms have an "inner life," though - our inner life comes from a kind of introspective self-awareness. According to Nicole Marinsek and Michael Gazzaniga, who specifically considered this question of how the illusionist would explain split-brain consciousness, both hemispheres do have introspective capabilities - this form of illusionism would be consonant with a kind of "two minds" approach (Marinsek & Gazzaniga, 2016).

[125] The information integration theory (IIT) proposes that phenomenal consciousness is real and in fact measurable in terms of information integration (Tononi, 2004, 2012, 2017; Tononi, Boly, Massimini, & Koch, 2016). Tononi, its primary proponent, believes that minds should be countable in whole numbers (see, for example, Tononi, 2017, p. 250).

[126] There are many varieties of representationalism (see: Lycan, 2019; Kriegel, 2009; Tye, 2003; Dretske, 2003; Seager & Bourget, 2017).

[127] See Lycan, 1996.

Order Thought Theory[128]) and their implications for: the connection between consciousness and introspection, and the idea of conscious unity.

[128] See: Rosenthal, 2004; Carruthers, 2017; Lau & Rosenthal, 2011; Brown, Lau, & LeDoux, 2019; Carruthers, 2010; Rosenthal, 2011.

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