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Avoiding Perennial Mind–Body Problems

Abstract: *Russell argued that we can't know what brains are really like behind our perceptions of them, so minds can conceivably reside in brains. Physicalist-leaning Russellians from Feigl to Strawson try to avoid physicalist and dualist issues with this Russellian idea. Strawson also tries to avoid emergentist issues through panpsychism. Yet critics feel that these Russellians don't really avoid these issues, but just recast them in new forms. For example, dualist issues arguably remain because it's hard to see how private pains or colours can reside in solid, grainy, publicly observable brains. Emergence issues arguably remain because panpsychism seems equally unclear as emergentism about how minds arise from brains. This paper revises Strawson and Feigl, while building on recent progress in defusing panpsychism's emergence issues. It tries to intelligibly formulate Russell's idea so as to avoid the perennial issues in Russellian and non-Russellian theories, without raising new issues of its own.*

1. Putting Minds in Brains Behind Appearances

1.1. Early Realist Views

The mind–body problem arguably arises because theories about how minds and brains are related are hard to decisively prove or refute, and equally hard to cogently defend so as to satisfy critics. These theories are perennially seen as problematic, even unintelligible. The result is obscurity and deadlock. This paper tries to avoid these theories with a realist approach in which minds reside in brain activity behind what is perceivable of it.

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To start with, John Locke (1690/1976, §2) argued in 1690 on realist and empiricist grounds that since we just perceive matter indirectly by sense organs, we ‘know not what’ the underlying ‘substance’ of matter really is. In this causal theory of perception, external objects are perceived indirectly by activities in sensory organs, while our inner thoughts are directly accessed.

Realist theories sometimes add the further idea that the underlying nature of matter may actually contain experiences (i.e. consciousness). This idea first appeared in Immanuel Kant’s second paralogism (1781/1965, a358): ‘the something which underlies the outer appearances... may... be at the same time the subject of our thoughts.’ Yet Kant didn’t endorse this idea.

But several later thinkers did endorse the idea that matter may have experiences behind what we perceive of it. The most influential was Bertrand Russell in *The Analysis of Matter* (1927/1954). In his causal theory of perception, gazing at the sun causes images of it in our brains (*ibid.*, pp. 197, 320). Such images are hidden from physiologists who examine our brains. Physiologists can only access their own images of this brain matter (*ibid.*, p. 320), not our images of the sun. Our images are thereby hidden behind what is perceivable of our brain matter.

Russell held other arguably physicalist views as his thought evolved. One was that mental causes are reducible to physical causes, while another was that the mental and physical aren’t distinguished ontologically, but epistemically in that we know the mental by direct acquaintance and the physical by inference (1948/1992, pp. 50, 245; see Wishon, forthcoming). Yet another was that physics reveals matter’s abstract, mathematical nature, but not its intrinsic nature, which may, for all we know, be experiential (Russell, 1927/1954, pp. 10, 320). This latter view helped spawn an important school of thought called ‘Russellian monism’.¹

¹ Russell said here that ‘Physics, in itself, is exceedingly abstract, and reveals only certain mathematical characteristics’ of matter, not its ‘intrinsic’ character (Russell, 1927/1954, p. 10). For all we know, the intrinsic may be like our perceptual experiences (*ibid.*, pp. 400f.). Indeed, in the case of sensations in our own brains, we have direct access to this intrinsic nature of matter (*ibid.*, p. 320). So the intrinsic can be experiential. Russell reputedly added that intrinsic characters ground the relations of physics so that the world isn’t just structure, but exists substantially (yet Stubenberg, forthcoming, argues that the only grounding Russell was interested in was grounding physics in perceptual evidence). These points are often used to specify Russellian monism (e.g. Alter and Nagasawa, 2012, §3; Pereboom, 2011, p. 89; Chalmers, 2003, §11).

Herbert Feigl's 'The "Mental" and the "Physical"' (1958) doesn't refer to Russell's intrinsic entities, yet it adopts other Russellian ideas above. To start with, it says that 'the physical sciences consist of knowledge-claims-by-description' (*ibid.*, p. 450). They describe external objects, yet how the objects relate to what we're acquainted with 'is left... open'. But, since I'm acquainted with my own qualia (conscious qualities), 'I happen to know (by acquaintance) what the neurophysiologist refers to when he talks about... my cerebral processes'. So 'private states known by direct acquaintance' are 'identifiable with the referents of certain neurophysiological terms' known by description (*ibid.*, p. 448). We thus have 'double knowledge' of ourselves involving scientific description of our bodies and direct acquaintance with our minds (*ibid.*, pp. 446ff.).

Dempsey (2004) powerfully defends this double-knowledge thesis and its parsimonious account of qualia which addresses explanatory gaps. Yet there's another aspect of Feigl worth noting. To start with, Feigl's account above of acquaintance, description, reference, and identity was widely misunderstood. He was irked by claims that his identity thesis tries to reduce minds to perceivable brain events (Feigl, 1958, p. 454), and his double-knowledge thesis amounts to a dual-aspect theory (*ibid.*, pp. 449, 453) with its 'unknowable' third entity exhibiting physical and mental aspects.

To avoid these confusions, Feigl used the simple causal theory of perception above. In this theory, we know grey matter only by its effects on our eyes, instruments, etc., so we can't access its hidden, underlying nature. This nature could thus be conscious behind these sensory appearances for all we know (e.g. our images of bright stop-lights at night could be the hidden, underlying nature of the perceivable grey matter in our visual pathways).

This simple idea enabled Feigl to avoid the confusions above (*ibid.*, pp. 449, 453). His identity thesis doesn't reduce minds to the perceivable grey matter of neuroscience, instead it identifies minds with *what reflects light* into our eyes to indirectly cause our perceptions of grey matter (*ibid.*, pp. 451f.). Since the underlying nature of brains is hidden this way, it can be mental. So there's 'no longer an unbridgeable gulf' barring mind–brain identity (*ibid.*, pp. 448, 451f.).

Feigl said that this avoids dual-aspect theory too, for minds are just events in brains. Minds are hidden behind appearances in the brain's underlying reality, so 'the reality' denoted by neural terms is mental in nature (*ibid.*, pp. 453f.; see §2.3 below). But these replies to critics weren't entirely clear until Feigl shifted from his theories of

acquaintance, description, reference, etc. to his simple theory of how minds exist in brains behind what we perceive of them (*ibid.*, pp. 451–4).

This approach compliments Dempsey’s important account of Feigl’s insights. It does so by focusing on Feigl’s simple idea that *minds are hidden in brains behind appearances*.

1.2. A Simplified Realism

This simple idea of Feigl’s is important because it’s a relatively uncluttered synthesis of indirect realism and mind–body identity. It may help avoid perennial mind–body issues. But it still faces its own issues. How can unified, intangible, private minds be identical to discrete, tangible, publicly observed neurons? He just partly answers this. Similarly, how can the smooth, continuous areas of colour in visual images be grainy neurons? Also does mind–body identity yield physicalism or idealism? How do experiences emerge in brains, and at what level? Do experiences exist outside brains? I’ll rework Feigl now to address such issues.

My identity theory starts by stripping Feigl’s theory to his simple idea above that experience is hidden in the brain behind what we perceive of it by reflected light, instruments, eyes, etc. I take this to mean, for example, that we can observe pain-circuit activity only by its effects on instruments like EEGs, so the activity’s underlying nature behind these observations can be pain, for all we know. This pain literally exists in the circuits and exerts electrical forces that EEGs detect (see §3.1, §3.3 below). Neuroscientists can’t object here, for they just detect this electrochemical activity indirectly by instruments, etc., so its underlying nature is up for grabs.

This approach fits mounting evidence that minds are tied to neuro-electrical activity. First, there’s evidence that the brain’s elusive binding mechanism is its electromagnetic (EM) field. This field explains how myriad neural activities can bind into unified, conscious mental activity, and it does so without the serious problems in synchrony, attention, and other proposed binding mechanisms (McFadden, 2013; Jones, forthcoming a). Second, there’s evidence that this field helps create our various qualia, including our pains (Jones, 2013; forthcoming b). Third, there’s striking evidence recently that this field actually affects brain operations and helps guide attentive activity (e.g. Anastassiou and Koch, 2015). All this can fill crucial gaps in Feigl and Strawson’s theories about how minds emerge

along with brain activity (§2.2, §3.1 below). The resulting view joins realism to field theories of mind. It's called 'realist field theory' below. Its claim (here and elsewhere) is that the mind is a neural EM field which binds and guides the brain's activities.

If treating pains as electrochemical forces still sounds strange, consider how pains and other sensory images seem to resemble force fields. Both seem to be intangible and incorporeal, unlike brain matter. Both seem to arise from brains, and perhaps even reach across space in smooth, continuous, field-like forms, unlike grainy neurons. Both seem to be unified wholes, unlike discrete neurons. Sensory images even seem to be isomorphic with electrical activity in neural maps. Also pain seems to make us cringe and bristle in force-like ways. Of course, pains are privately experienced, while force fields are publicly detected. However, if fields have a hidden nature behind what is publicly perceived of them, then this hidden nature may be private too, we'll see. (Additional arguments along these various lines are in §3.3.) So pains may conceivably be the underlying nature of electrochemical activity. Sceptics shouldn't forget that this activity is just detectable indirectly by instruments, so its underlying nature is unknowable. This leaves no grounds for claims that this underlying nature can't conceivably be pain.

This realist field theory is still Russellian in that it adopts Russell's important claim that our minds reside in our brains, hidden from the outer senses of others. However, it doesn't refer to Russell's contrasts of intrinsic/extrinsic or acquaintance/inference, nor to Russellian monist ideas of grounding. (Some of these terms, especially 'intrinsic', are notoriously hard to define.) Instead experiences are simply neuroelectrochemical activity behind what we observe of it.

This contrasts with Russellian theories in additional ways. Russellians disagree, for example, on how minds emerge from brains. Stoljar (2006, pp. 174ff.) says we don't know enough about what is behind appearances to answer such questions (§3.1 below). Arguably, Russellians thus render physical reality and mind–body causality mysterious. To avoid mystery, my simple theory above will be supplemented with additional assumptions. One is that what exists behind appearances is matter-energy evolving through space-time. While none of these assumptions will be verifiable, together they may help make mind–body ontology and causality more intelligible. They may thus be justifiable as Kantian regulative ideas (1781/1965, a141, b706ff.), that aren't verifiable or provable, yet help in pragmatic ways to (e.g.) make psychology coherent by avoiding mind–body issues

(see §2.1–3.3). This is my reply to a crucial question in Stubenberg (1997): why adopt Feigl’s mind–body identity when evidence just supports their correlation?

Realist field theory will offer an alternative to other Russellian views, including those perhaps compatible with Feigl (neutral monism, emergentism, phenomenal concept strategy, etc.). They can involve rather obscure ideas and perhaps even intelligibility issues. This alternative may be useful here, for theories of mind are hard to decisively prove or refute. Their cogency may rest instead on how clearly and simply they explain minds.

The argument below is that Feigl’s and Strawson’s ideas can be reworked to avoid their issues — and that this can also avoid the perennial issues in Russellian and non-Russellian theories of mind. We’ll start with how Feigl helped avoid the issues in mainstream dualism, and in mainstream physicalism based on both reductionism and multiple realization. We’ll also look at how realist field theory lends help here. The aim isn’t to *debate* any of these numerous issues, but just to list them, then try to avoid them. Even readers who dismiss the issues facing their own pet theories below may still agree that the alternative proposed here deserves airing as a new theory of mind.

2. Avoiding Physicalist and Dualist Issues

2.1. Reductionist Issues

Feigl showed how to avoid or defuse the issues in physicalism arising from reductionism. Reductive physicalists try to fully explain experience in the more basic terms of neuroscience. This faces issues in the form of conceivability, knowledge, and explanatory arguments. These point to an epistemic gap between the mental and physical involving what we can conceive, know, and explain about qualia. An ontological gap is then inferred, and qualia are said to exist non-physically. For example, explanatory arguments say that subjective, qualitative experience isn’t explainable by objective, quantifiable physical science, so qualia are non-physical. Again, the aim isn’t to debate these issues (though see §3.1 on *a posteriori* replies), but just to avoid them.

Feigl (1958, p. 448) defused the explanatory gap by showing how it doesn’t involve an ontological gap. That is, subjective, qualitative experience can be the underlying nature of brain events, even though this experience isn’t explainable by physical science. While it’s

arguably unintelligible here to reduce consciousness (which isn't perceivable in brains) to perceivable brain events, this criticism isn't effective against identifying consciousness with the underlying nature of brain events. For we can't know what brains are like behind what is perceived of them.²

Feigl (1963) also dealt with rough versions of conceivability and knowledge arguments (pp. 231, 257f.) — again by referring to the brain's underlying nature (e.g. *ibid.*, pp. 257ff.). Maxwell (1978) and Chalmers (2003) later refined this approach. Conceivability arguments basically say that it's always conceivable that a zombie world can exist where qualia don't accompany physical events. So it's metaphysically possible that God could have created a zombie world if he wished (or so it's argued). This shows that purely physical accounts can't distinguish between zombie worlds and our world where qualia exist. So physicalism is false, for counter to its claims, physical accounts are incomplete. Chalmers (2003, p. 37) replies that zombies aren't conceivable if we treat qualia as the underlying nature of physical activity (as Feigl does). For then pain necessarily accompanies this activity (as Maxwell, 1978, pp. 392ff. also notes). We just think zombies are conceivable because we overlook this underlying nature. This is the 'loophole' in conceivability arguments, and realist field theory endorses it.

Stoljar (2001, §3) uses a similar Feiglian-like tactic to deal with knowledge arguments. Knowledge arguments say that if a scientist learns all about the science of colour vision yet only experiences colour later, then at that time the scientist gets new knowledge that's beyond physical science, that is, not physical. But Stoljar replies that this new knowledge of what colour experience is like is physical knowledge — it's about the brain's underlying nature beyond what scientists perceive.

Stubenberg (1997) and Dempsey (2004) also give strong replies to these arguments. Realist field theory replies to these arguments with Feigl's simple idea that minds exist in brains behind appearances, so

² Similarly, Maxwell (1978, pp. 392–6) noted that anti-physicalist arguments based on mind–brain gulfs assume that (a) science shows us the brain's nature, (b) introspection shows us the mind's nature, and (c) both show that minds and brains are too different to be identical. He added that reductionists wrongly defend physicalism by rejecting (b), yet Russellians rightly defend physicalism by rejecting (a) on grounds that science doesn't reveal the brain's underlying nature — so brain events could conceivably be conscious.

(once again) the gaps above don't involve ontological gaps. Our main difference here is terminological. Feigl (1969) saw himself as a reductionist, in that the mental is reduced to the underlying nature of the neural. But this reductive talk invites confusion (recall §1.1). So I stress that I'm not reducing experience to the perceivable and more basic entities of neuroscience, as in intertheoretic reduction. I don't identify experience with neuroscience's perceivable entities, but with their underlying nature. Also I treat experience as basic in itself — it's not assimilated to anything else (see §3.1). (Both panpsychist and non-panpsychist neo-Feiglans may be on equal footing here, yet elsewhere the former may avoid issues in the latter.)

Finally, Dempsey (2004) notes that mind–brain gaps have sometimes been used to reject physicalism in somewhat different terms than above. Yet realist field theory offers replies to these arguments too. For example, (1) Ewing (1962) argued that throbbing pain radically differs in appearance from any neural activities. In reply, this difference is still compatible with pain existing in brains behind what we perceive of them. (2) Nagel (1974) argued that neuroscience's objective accounts of brains don't explain the mind's subjective nature, so we're left with an epistemic asymmetry. Again, this is compatible with minds existing in brains behind what we perceive of them. Here the mind's subjectivity arises from its privacy — it can't be publicly and objectively observed — and this privacy is in turn explained by the mind being hidden in brains behind what is objectively observed of them (see §2.3). (3) Huxley (1866) felt that the appearance of minds from neural tissue is just as brute and inexplicable as the appearance of the genie from Aladdin's lamp. In reply, this emergence can be explained in panpsychist terms (see §2.2, §3.1).

2.2. Multiple Realization Issues

Feigl also avoided issues in physicalism that arise from attributing pain to multiple hardwares, both organic and non-organic. Some Russellians have sympathized with multiple realization, notably Chalmers (1996, chapters 6f., esp. p. 249) and Stoljar (2010, §6.6, §8.61; 2015a, §9). But Feigl (1958, p. 451) felt that androids wouldn't be like us 'unless they were made of the proteins that constitute the nervous systems' (*cf.* Stubenberg, 1997).

Proponents of multiple-attribution often say that pain is token identical with instances of sensory activity that share a certain

organization. This organized activity comes and goes in pain circuits, so pain ends up popping in and out of existence in non-conscious circuits. Critics see this emergence as akin to magic (see §3.1).

This organization can instead be abstracted from the circuits as a formal input–output structure (*cf.* Kim, 1996, p. 76). Here pain isn't identical to activity in circuits, yet somehow it's realized in multiple kinds of circuits, so they feel pain. This helps explain and make sense of the bare, logical relationship of pains supervening on bodies (Kim, 2000, pp. 9ff.). But claims that these abstract organizations are 'realized' in bodies raise similar intelligibility issues as Plato's obscure claims that his abstract forms are embodied in, or present in, the material world. (Both resemble claims by some Russellian monists that intrinsic phenomenal properties ground the abstract mathematical accounts of physics.)

Arguably, then, multiple realization ends up positing three entities — pain, matter, and organization — with obscure relations between each. (A prominent example is the 'non-reductive functionalism' of Chalmers, 1996, p. 249.) Relations of token identity, realization, and supervenience raise old issues involving emergence, embodiment, etc., while compounding them with new issues of overdetermination, necessary beings, etc.

Much like Feigl, I try to avoid these complex and arguably obscure ontologies. Pain isn't identical to, realized in, or emergent from a shared organization of multiple hardwares. Instead our pains are simply hidden in our neural pain detectors behind appearances. This type identity is supported by recent evidence that tissue damage is detected by quite specialized types of molecules in neural pain detectors (Basu and Pramod, 2005). In realist field theory, pain resides continuously in these molecules,³ but we experience fully conscious pain only when detectors fire together, for this unites their isolated pains and pools their consciousness (see §3.1).

While multiple realization is popular now, it's being empirically challenged by molecular biology (e.g. Bickle, 2003). This includes the growing evidence, just alluded to, that stimuli linked to pains, tastes,

³ Qualia would reside in these specialized molecules, e.g. in their elementary strings, etc. (see §3.1). Strings can have many qualia because they vibrate in many dimensions. Just a few of these primary qualia can fuse to form myriad secondary qualia (Jones, forthcoming b; 2010). String/qualia correlations can't be explained any better than charge/particle correlations in physics. But these aren't intelligibility issues: we just lack cosmologies today to explain them.

sounds, etc. are detected by *quite different*, specialized molecules in the electrically active sites of sensory detectors (Jones, 2010; forthcoming b). By contrast, competing claims that qualia are encoded in multiply realizable computations don't explain why qualia which are computed *quite similarly* (by cross-checking several simple detector outputs to reduce ambiguity) are actually experienced quite differently.

Future empirical investigation may help resolve this debate. The point above is just that multiple attribution raises various metaphysical issues that realist field theory can avoid. In the latter, minds exist in brains, everything exists in space, and there's no role for token identity, emergent consciousness, realization, supervenience, or weak mind-brain dependence relations.

2.3. Dualist Issues

Feigl not only avoided physicalist intelligibility issues, but also dualist intelligibility issues to a degree. Traditional dualists say that minds are immaterial and non-spatial, yet they interact with bodies. Critics ask how such minds can move our bodies. They add that this violates the causal closure of the physical. Some dualists resort to epiphenomenalism here. Critics feel that the latter is manifestly false, though its weakest point may be its emergentism (see §3.1). Other dualists treat causality as mere correlations of events, whether material or immaterial. Critics say that this renders causality inexplicable (§3.1). Some 'dualists' treat minds and bodies as dual aspects of an underlying substance. Critics feel that this just shifts causal issues to this mysterious third entity and its obscure aspect relationships. Finally, some dualists say that the mental and physical don't interact, but are harmonized by God. But critics wonder how this causality works and whether we can know it exists. These intelligibility issues don't refute dualism, but they do arguably raise questions about its cogency. Again, the aim isn't to debate these issues, but just to avoid them.

Feigl avoided dualist ontologies by treating minds as the brain's underlying nature (recall §1.1). He avoided dualist causality by treating basic causal laws as physical (Feigl, 1960/1970, p. 40). He also avoids issues in dualist Russellian theories, like Rosenberg (2004). In Rosenberg's dual-aspect theory, ontologically primitive higher individuals arise from lower individuals, and they interact — which violates the causal closure of the physical, as Chalmers (forthcoming, §5.1) argues.

Yet some still wonder if Feigl really avoided dualism, or just resurrected it in a new form. According to Chalmers (1996, p. 136), claims that minds are hidden in brains involve a dualism of hidden/accessible perspectives. But realist field theory explains these perspectives in purely physical terms: my neural EM field creates a unified consciousness whose qualia I can directly access; yet this field is too weak to unite consciousness between brains, so other people's qualia are hidden from me (I just indirectly detect them via EEGs that register the presence of a neural field). So no radically different perspectives threaten mind/brain identity. This isn't dualism, but physicalism in the long-standing sense that everything exists in physical space. This compliments Dempsey's insightful account of Feigl by clarifying how Feigl could avoid dual-aspect theory.

But Feigl faces another dualist challenge. Unless he can fully explain the mind's privacy, he can't escape dualism. Feigl (1969) said that minds are private (inaccessible to each other) because the circuits which unify experience in each brain are lacking between brains. But this privacy is just contingent, for artificial circuits may some day link brains. Feigl didn't cite another kind of privacy that is necessary: minds are hidden in brains, and this makes them inaccessible publicly (Feigl didn't explicitly link both points). This other kind of privacy is necessary because we can never access other minds by inspecting brains. Realist field theory avoids dualism by using both kinds of privacy. (It should be noted here that Strawson doesn't address privacy.)

So Feigl helps avoid the issues in mainstream dualism and physicalism — though realist field theory helps him here. But Feigl didn't avoid other mind–body issues. We'll now see whether realist field theory helps avoid these too.

3. Avoiding Other Issues

3.1. *Emergence Issues*

Again, the aim is to revise Feigl and Strawson in the hopes of avoiding perennial Russellian and non-Russellian issues. Various issues arise in explaining how experiences emerge from brain activity. Feigl says little about them, but Strawson says a lot.

One theory of emergence is emergentism, where experience arises from the organization of non-experiential matter in ways not derivable from a complete account of fundamental physics and its laws. It's

popular partly because it avoids reductions and fits multiple realization. But Strawson (2006a) sees it as unintelligible. While life forms can intelligibly emerge in virtue of self-replicating abilities in molecules, this ‘in-virtue-of’ relation is lacking if experience pops into existence from what lacks experience. He concludes that the latter is magic where anything goes — the concrete can even emerge from the abstract. This issue also faces panprotopsychism, where all things have proto-experiences, which aren’t actual experiences, but precursors to experiences that can collectively form minds.

Yet Strawson has his critics. (1) Stoljar (2006, pp. 174ff.) feels that we’re too ignorant of the underlying nature of the physical for Strawson to say that experience can’t arise from it in emergentist ways. But the upshot is that emergentism isn’t just irrefutable, but also mysterious, which echoes Strawson’s point. (2) Other Russellian physicalists counter Strawson with *a posteriori* strategies (see §3.2). Yet they often raise well-known intelligibility issues about whether future science can really explain qualia (e.g. Chalmers, 2006; Levine, 2006; Stoljar, 2015b). (3) Humeans can treat emergentist causality simply as regular correlations between events, instead of the productive causes Strawson attacks. But causality is still mysterious here, for the existence of these regular correlations is ultimately left inexplicable (see §3.3). These various issues won’t be pursued further here, for (once again) the aim is just to list them, not debate them.

The alternative to minds emerging from what lacks experience is that they emerge from simple (micro) forms of experience. This leads to panpsychism, where (according to Skrbina, 2005, §1.5) all things have a mind or a mind-like quality (sentience, experience, etc.). This view, as just defined, includes panexperientialism, where all things have experience. It may also include panqualityism (from Feigl, 1960/1970), where all things have sensory qualities like those we experience, though they needn’t be experienced by anyone (Chalmers, forthcoming, §6.5).

But Strawson and other panpsychists face their own emergence issues in explaining how microexperiences in molecules, atoms, etc. combine in brains to form *macroexperiences* like images and thoughts — as well as the *subjects* who apprehend them.

To start with, William James (1890, pp. 158–60) argued that, just as a statue or stone is an ‘aggregation’ of separate atoms with no inherent collective unity, so each of our experiences is actually ‘shut in its own skin’ and ‘windowless’, with no more collective unity than people’s separate minds. Experiences are thus inviolable, that is, they keep

their original identities and can't intelligibly fuse together — any more than our minds can. James didn't distinguish these experiences from the subjects that apprehend them, but his argument might be applied to both.

While this paper generally steers away from debating such issues, an exception will be made here on behalf of panpsychism, for much progress has been recently made in defusing the 'combination problem' above, which concerns whether macroexperiences and their subjects can emerge by combination. We'll start with the macroexperiences. Itay Shani (2010, §5f.) attacked James head-on by showing that fusion does actually occur in nature. For example, hydrogen and oxygen atoms fuse (via their electrical field) to form a water molecule with a new, unified identity that possesses polarity and the ability to dissolve salts. So there's no ground for James's claim that fusion is unintelligible from the start. We can't simply assume that microexperiences don't fuse in brains.

Indeed, various mechanisms from neuroscience can be adapted to explain how minimally conscious microexperiences in brains can intelligibly unite and fuse to form complex, fully conscious images, thoughts, and minds. Neuroelectrical activity is prominent here. For example, there's evidence that unified experience is tied to synchronized firing by neurons in unified lockstep (Singer, 2007). There's also mounting evidence that unified experience is linked to the brain's EM field, which reaches as a unified whole across discrete neurons (McFadden, 2013; Jones, forthcoming a).

These mechanisms can be used to deal with panpsychism's combination problem, and related grain and binding problems.⁴ For example, see Seager (2010) and Jones (2013; forthcoming a,b). In the latter, these mechanisms are used to show how neurons that contribute blue and green qualia to the same spot in an image can pool and fuse the qualia in consciousness to form a turquoise spot in the image, and how such colours can assemble into various shapes.⁵ So colours aren't

⁴ The binding problem concerns how qualia, shapes, etc. unite in sensory images, and how mental activity in general is unified. The grain problem concerns how grainy, discrete neurons and molecules produce smooth, continuous images.

⁵ Here our qualia are identified with the underlying nature behind appearances of the brain's field. So this field's physical continuity gives continuity to the field's underlying conscious nature, allowing blue and green qualia to pool and fuse together as a unified whole (see Jones, forthcoming b). This isn't mere analogy: our consciousness and its unity literally exist as fields, as argued previously.

inviolable, as James said. Thus the combination problem isn't as intractable as the metaphysical issues we've covered. Instead it's more a matter of tractable empirical issues about how synchrony, fields, etc. unify brain activity. There's mounting evidence that synchrony and fields together play key roles here, McFadden (2013) and Jones (forthcoming a) argue. See Jones (2013) for an analysis of field theories and their potentials in these areas (they're too numerous and involved to explain here).

As noted above, panpsychism must show how subjects emerge too. But this is precluded by popular assumptions that (1) all experiences have subjects that apprehend or own them, and (2) subjects can't combine (e.g. Goff, 2009).⁶ However, many philosophers reject (1) — including Humeans, neutral monists, and Buddhists. Also it's hard to find any supporting arguments for (1). It may just be a hasty generalization from human experience. At any rate, it faces an empirical problem. In deep fatigue trances, attention and thought are turned off, and objects are just blankly stared at. Experience of coloured shapes still exists (unlike when consciousness is lost altogether). But there's no evidence for any subject apprehending the experience. So experiences can arguably exist without subjects, counter to (1).⁷ Assumption (2) also seems dubious.⁸ So panpsychists can reply to (1) and (2) that

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- 6 Goff (2009) argues that a special kind of zombie could conceivably exist that has micro-experiences with microsubjects, while lacking a macrosubject. So panpsychist claims that microevents combine to form macroevents seem problematic. But as Coleman (2012) notes, Goff assumes that microexperiences have subjects, and subjects can't combine. This is what enables Goff to argue that it's conceivable for zombies to lack macrosubjects. But, as noted below, it's hard to prove that experiences must have subjects. In fact, Coleman argues that some combination mechanisms can conceivably unite microexperiences that lack subjects, so as to form macroexperiences that do have subjects. Moreover, this can't occur without these macrosubjects arising. So Goff's panpsychist zombies aren't conceivable, and his argument fails.
- 7 This argument addresses psychological subjects who apprehend (recognize, evaluate, etc.) their experience. Yet other subjects may exist that just own their experience. Examples are Strawson's 'thin' subjects, which are indistinguishable from their experiences (2006b, p. 193). But, even if these thin subjects are credible, they don't thwart the aim above of defusing panpsychism's combination problem. Instead they offer an alternative way to defuse it. For, counter to (2), it's hard to prove thin subjects can't combine. After all, they're indistinguishable from their experiences, and (as argued above) experiences can combine. Generally, it's hard to prove that subjects can't combine if they simply own experiences — or lack introspectable psychological characteristics.
- 8 Assumption (2), that subjects can't combine, is also dubious. Connected brains may be mutually conscious, e.g. the conjoined brains of Tatiana and Krista Hogan may share some sensory experiences (see http://www.nytimes.com/2011/05/29/magazine/could-conjoined-twins-share-a-mind.html?_r=0). Possibly, connections between prefrontal

microexperiences exist without subjects, yet they combine to form minds with subjects. They offer various accounts of how this occurs.

So panpsychism's issues are arguably more tractable than the alternative issues raised by experience popping into existence from what lacks experience. Given this paper's aim of trying to avoid intractable mind–body issues, realist field theory is now cast in panpsychist terms as follows: experiences are hidden in all matter behind what we perceive of it, and in brains these experiences are unified neuro-electrically into minds. This is thus a mind–brain identity theory.

This further modifies Feigl's approach. He said little about emergence, though he rejected one form of panpsychism (Feigl, 1960/1970, pp. 38f.), and his inability to deal with the grain problem led him to consider emergentism (1969, p. 182; 1971, p. 307). The realist field theory above partly resembles Strawson's views on emergence, yet it differs from his ideas on the subject problem and pure panpsychism (see note 7 and §3.3 below) — and his lack of ideas on qualia combination and privacy. Realist field theory can also avoid emergence issues in other Russellian views — those based on emergentism or panprotopsyism (e.g. Chalmers, 1996; Stoljar, 2001; Rosenberg, 2004; Pereboom, 2011), or on neutral monist views where neutral elements are non-experiential (e.g. Russell, 1921, p. 124).

3.2. *Neutral Monist Issues*

Realist field theory can also avoid issues in neutral monism. In the latter, minds and bodies are constructed from elements that are neither mental nor physical, but neutral in character. This view originated in Mach, James, and Russell, yet it draws on Hume's view of minds and bodies as mere bundles of perceptions (impressions).

Neutral elements are sometimes seen as non-mental (e.g. Russell, 1921, p. 124), often because they don't have minds or subjects to impart mentality to them. This faces Strawson's criticism in §3.1, for if elements are non-mental, how can the mental intelligibly be constructed from them? Alternatively, elements are treated as items of immediate experience. This makes them mental (Feigl, 1958), so it shifts from neutral to mental monism (Stubenberg, 1997).

areas might allow subjects to coordinate their thoughts and integrate decisions. With other connections, one subject might control others by manipulating memories, attitudes, etc. In such ways, subjects might fuse to varying degrees.

Erik Banks (2014, pp. 146ff., 162–8) replies to Strawson’s criticism by arguing that qualia needn’t be constructed from (and composed of) neutral elements in neutral monism. Instead qualia can appear fully formed as the elements are configured in brains. This non-compositional emergence (where some properties of a whole aren’t deducible from, or present in, its constituent parts) isn’t threatened by Strawson, Banks says. For emergence in physics isn’t always compositional, counter to Strawson’s assumptions (e.g. magnetic fields don’t arise from electric fields compositionally). So instead of precluding non-compositional emergence on *a priori* grounds (like Strawson), we should investigate *a posteriori* which configurations correlate with qualia.

This is a sophisticated *a posteriori* reply to Strawson. But critics may say that correlations aren’t explanations. They may also ask where the qualia come from. They don’t come from out of the configurations, instead they pop into existence alongside configurations as their ‘manifestations’. Critics may feel that this is inexplicable, just as Strawson says — or at least deeply obscure. Banks isn’t without replies (see his interesting chapter 5), but these topics can’t be pursued further here. Again, the aim is to list issues, not debate them.

Neutral monism arguably faces these issues above. But it also arguably has considerable complexity and obscurity, for it says (for example) that neutral elements assemble into physical and mental manifestations with extrinsic and intrinsic characters as bundles of perspectives. The identity theory above avoids all this — minds are simply brain activities behind appearances. (Nor are substances bundles of perceptions — they’re what underlie perceptions.) This is important, for both theories are hard to decisively prove or refute, so their cogency may rest instead on how clearly and simply they explain minds and brains.

3.3. *Idealist Issues*

Realist field theory can also avoid idealism’s issues. Idealists reverse the reduction of minds to bodies above by saying that bodies just exist in the form of perceptions in the mind (or spirit). So what causes us to perceive an outer world that isn’t really there? Empirically-minded idealists can’t reply, for they stick to perceptions. Other idealists reply in spiritual ways not everyone accepts. Idealists also have trouble explaining why minds correlate so tightly with the brains we perceive.

Realist field theory treats elementary particles as nothing but experiences, which might initially seem like idealism, where everything is mental. (Feigl is also construed as an idealist by, for example, Stubenberg, 1997, and Borst, 1970.) Realist field theory treats elementary particles as nothing but experiences because the alternative is that particles have properties that are both experiential (qualia) and non-experiential (forces, motions, etc.), as in Strawson (2006a; but *cf.* 2006b). This is a dualism of radically different experiential and non-experiential properties with problematic interactions between them. It may even risk that non-conscious sensory activity creates conscious sensations.

So each elementary particle (each being simple and without parts) is seen as nothing but experience. In this ‘pure panpsychism’, experience isn’t (as Strawson said) a property whose existence depends on the particle. Instead experience is the independently existing substance, in Locke’s sense,⁹ that the particle wholly consists of behind appearances (Jones, 2010). This experience thus occupies the particle’s space and exerts its force fields.

This may sound strange, but it just fills in what physics is silent about. Physics doesn’t say what particles and their forces are like behind perceptions of them, yet the identity theory above ends up saying that, behind what we perceive of them, particles and their forces are nothing but elementary experiences that occupy space, exert forces, and unite in neuroelectrical activity to form minds. So matter, energy, and consciousness are the same fundamental substance. This matter-energy-consciousness can be simply called ‘conscious energy’, given matter-energy equivalence. This is an exceedingly simple ontology, for this conscious energy is all that exists.

This accounts for all the properties we attribute to matter-energy. Since the underlying nature of matter is experience, this experience has properties like size, shape, motion, spin, etc. Since the underlying nature of fields (electromagnetic, gravitational, Higgs, etc.) is experience, this experience has properties like weight, solidity, charge, mass, etc. These properties aren’t just appearances of underlying reality, for

⁹ Two senses of ‘substance’ actually obtain here: (a) the underlying nature of matter behind appearances (as in Locke’s *Essay*, 1690/1971, §2); and (b) an enduring, fundamental thing (or event) that exists independently (as in Aristotle’s *Categories*, 2003, 2a13). Note that treating experience as an underlying, fundamental substance means that it’s not an emergent property of brains. It depends on brains for its unity and organization, but not its existence.

they actually belong to experience that occupies space and exerts forces in this reality. Again, this just fills in what physics is silent about: what particles and their fields are like behind what instruments detect. They're conscious energy.

This approach avoids issues raised by causal reductionism, where causality is reduced to, for example, regular successions of perceivable events in certain conditions. This reductionism can't ultimately explain why these successions exist (e.g. why currents regularly move compass needles). The causal realism above avoids this obscurity about causality by treating causes as forces (e.g. electromagnetism) that underlie perceivable successions (e.g. by pushing needles).

This causal realism also avoids epiphenomenalism and supervenience, for the underlying nature of all causality is conscious (Jones, forthcoming a; *cf.* Dempsey and Shani, 2009). If we choose, for example, which foods taste best, our choices involve quale comparisons that transcend neurophysiological principles. In realist field theory, these experiences are part of the field that binds brain activities into a unified, effective form, and helps guide brain activity (§1.2). So while experience, itself, isn't emergent (§3.1), its causality brings emergent dynamics to brains. Yet the physical remains causally closed in the long-standing sense of 'physical' where all events occur in physical space.

This view partly resembles Eddington (1928), where science's contact with atoms is just indirect (by reading instruments), so for all we know 'the stuff of the universe is mind-stuff' right down to atoms. Yet while he's widely construed as an idealist, realist field theory is physicalist. To be sure, everything is just experience, yet matter isn't reduced to perceptions in minds (or manifestations of a spirit) as in idealism. Instead matter consists of microexperiences that would exist even if minds didn't (nor must matter's existence depend on any spiritual being in this physicalism). Microexperiences are physical (in the longest-standing sense) because they occupy space, exert forces, and are the real nature of the matter-energy in physics.¹⁰

¹⁰ The rationale for this physicalism is that it avoids perennial mind-body problems in reductionism, etc. But this pragmatic rationale isn't easily applied to higher questions about whether everything comes from a larger consciousness (e.g. a conscious creator of the universe that we can pray to, or an underlying oceanic consciousness that we can commune with). In this rarified realm, physicalist reasoning becomes quite limited.

This realist field theory avoids not only idealism, but also its issues. Why minds and brains are correlated so tightly isn't an issue, for microexperiences are unified by the brain's electrical circuitry to form minds. What causes us to perceive an outer world isn't an issue either, for the world actually exists outside us.

3.4. *Strawson's Issues*

Realist field theory has been compared extensively to Feigl's theory above, but its comparison to Strawson's theory needs more clarification now. This field theory resembles Strawson's recent total acceptance of pure panpsychism, where matter and energy are experiential (forthcoming, §4). His path to this view is an important development in contemporary philosophy. It offers an important alternative to emergentism. Yet he hasn't addressed crucial issues of what makes experiences private (§2.3 above), how microexperiences combine to form macroexperiences (§3.1), and how psychological subjects arise (note 7).

Strawson's critics (in his 2006b anthology) thus often say that he replaces emergentism's problems with his own emergence problems. His panpsychism thus arguably just offers one more problematic theory of mind. His emergence problems are linked to neuroscience's binding problems concerning how separate neuronal processes bind to form unified, conscious percepts. Now, as already noted, realist field theory offers ways of dealing with these problems. It relies here on experimental evidence that neural fields help unify consciousness and guide neural operations (§3.1). In this way, realist field theory tries to show how panpsychism can avoid the issues in other theories of mind without raising new issues (concerning emergence) of its own.

4. Conclusion

4.1. *A Clear, Simple Physicalism*

Feigl's and Strawson's views about minds residing in brains behind appearances have been revised here into a simple ontology in which matter, energy, and experience are the same fundamental substance. Behind what we perceive of them, particles and their fields are nothing but elementary experiences that occupy space and exert forces. The brain's field unifies its neurons, molecules, etc. to form the mind. Pain is thus electrical activity in nociceptors behind what EEGs show. Pain exerts the force that EEGs detect (like a physical

‘ghost’ in the machine). This fills in what physics is silent about: what particles and fields are like, hidden behind perceptions of them.

If this seems strange, consider how neuroelectricity resembles pains, colours, itches, etc. Both arguably arise from grainy neural networks as smooth, continuous fields reaching across space. Pain images are even isomorphic with neuroelectricity in neural maps. Also pain arguably makes us cringe, bristle, etc. in force-like ways. Of course, images are unified, intangible, and private, while neurons are discrete, tangible, and publicly observable. But neurons’ fields are unified and continuous just like images. Also, neurons are tangible and solid due to their atoms’ fields (EM, Higgs, etc.), which can be conscious, as just noted. Finally, images can be hidden from public view behind what is perceivable of neurons, which helps account for their privacy.

This theory avoids the perennial issues in theories of mind, both Russellian and non-Russellian. It avoids dualist causal issues, for all causality occurs in physical space, and (in this long-standing sense) is physically closed. It avoids reductionism and its issues, for it intelligibly shows how minds can reside in brains, which defuses the gaps facing reductions of minds to perceivable neural activity. It avoids issues in token identity, realization, etc., for it’s based on type identity. It avoids neutral monism’s obscure neutral entities and their manifestations, for minds are simply brain activity behind appearances. It avoids panprotopsychism and emergentism, where minds pop into existence from what lacks experience, for minds emerge from micro-experiences. While its panpsychism raises its own emergence issues, they’re tractable empirical issues, not the intractable metaphysical issues just listed.

This avoids the shortcomings in Feigl’s and Strawson’s views. For example, neither fully shows how private, intangible qualia can arise from brain events. So they may just resurrect dualist and emergence issues. The theory above avoids both issues.

The mind–body problem arises because theories of mind are hard to decisively prove or refute, and equally hard to clearly understand and cogently defend so as to satisfy critics. The result is deadlock and intelligibility issues. A virtue of the theory above is that it may offer new ways to avoid these perennial intelligibility issues with a clear, simple mind–body identity. Even readers who dismiss the issues above facing their own pet theories may still agree that the alternative theory proposed here (realist field theory) deserves airing as a new theory of mind.

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