

What Combination Problem?

Barbara Gail Montero

(Draft—comments very welcome)

Forthcoming in an Oxford University Press anthology on Panpsychism,
edited by Godehard Brüntrup

That I may understand whatever
Binds the world's innermost core together
Goethe's Faust, line 382

It would seem that one reason to be a panpsychist—that is, one reason to think that conscious experience more or less pervades the universe—is that panpsychism obviates the need to bridge what some see as the yawning gap between the conscious and the nonconscious: no need to derive mind from brute matter, no need to explain how nonconscious particles give rise to conscious beings, no need to account for the experience of ecstasy in terms of the unfeeling, dreary activations of the orbitofrontal and anterior cingulate cortex. According to the panpsychist, mind is part of the basic fabric of the universe and as such, bridge building engineers are unnecessary. For those who are convinced that we shall never explain consciousness in terms of nonconscious goings on, panpsychism, then, would seem a good way to go.

But although panpsychism certainly precludes the demand for an explanation of the conscious in terms of the nonconscious, might panpsychists need to accomplish a different, though perhaps just as arduous engineering feat? According to Danniell Stoljar, Philip Goff, and others, panpsychists need bridges as much as physicalists do since it is no easier to account for how consciousness arises from microconscious phenomena than for how it arises out of microphysical, nonconscious phenomena. This is because although panpsychism, in their eyes, requires experiences at the micro-level to combine into human-level experience, “experiences don’t sum,” as Goff (2006) puts it, or as Sam Coleman (2012) paraphrases Goff’s view, “you can stack them, but you cannot pool them.”

The difficulty of summing experiences is referred to as “the combination problem,” and here I suggest that this difficulty, as typically conceived of by Goff, Coleman and others, is really not so difficult after all—subjects, in fact, can pool—but more importantly I shall argue that the problem is ill-conceived. Goff and Coleman seem to think that it is incumbent on the panpsychist to show how minds can pool at one level—like how the antifreeze might pool under your car if you’ve sprung a leak—however I shall argue that panpsychists should understand the combination of microminds not as involving the type of pooling that leads simply to the formation of larger wholes but rather in line with the relations we find in the world between higher and lower levels of organization: the relationship between microminds and macro-human-level minds is analogous to the relation between atoms and molecules or macromolecules and organelles or even populations and communities. It is along these lines, the panpsychist ought to hold, that the world’s inner most core, in Goethe’s phraseology, ultimately gives rise to human consciousness.

The Combination Problem

William James (1890/1950) presented what is now seen as the classic argument for the view that minds do not combine and thus that panpsychism offers no advantage over physicalism

when it comes to bridging the explanatory gap between mind and matter (for discussion see, for example, Coleman, 2012; Shani, 2010; Chalmers, this volume). According to James, individual minds, no matter how close in proximity, never form a group mind. We may, as he puts it, “talk of the ‘spirit of the age,’ and the ‘sentiment of the people,’” but such talk, he thinks, is not to be taken literally; for on his view, “private minds do not agglomerate into a higher compound mind” (p.160). If individual minds do not agglomerate, the argument goes, it is just as difficult to see how micro-minds could combine to form a human mind as it is to see how microphysical particles could do so. Hence, the engineering costs for the panpsychist are seen, on this account, as high—perhaps impossibly high.

A thought experiment presented by Ned Block (1980), which was originally aimed at discrediting functional accounts of mentality, is interpreted by Daniel Stoljar (2006) as making a similar point. Block asks us to imagine that incredibly small aliens have, for reasons known only to them, decided to duplicate the exact functional description of our elementary particles by flying around in hordes of particle-sized space ships. Even though the aliens at the controls are conscious, according to Stoljar, this does not make it any easier to see how the human-like entities that are realized by this odd alien-spaceship arrangement are conscious. Hence, according to Stoljar, “it seems just as hard to see how one experiential truth can entail another as it is to see how a nonexperiential truth can entail an experiential truth” (p. 120).

Chalmers (this volume) tells us that there are really (at least) three distinct combination problems: the “subject combination problem,” which is the problem of how to combine subjects of experience, the “quality combination problem,” which is the problem of how microqualities combine to form macroqualities, and the “structural combination problem,” which is the problem of how the structure of the microexperiential yields macroexperiential structure, where structure can be thought of, roughly, not as the microexperiential and macroexperiential entities themselves but rather as the set of relations that such entities instantiate (for example, not the electron, itself, but rather the property that electron has of repelling or attracting other electrons). And according to Chalmers, it is incumbent upon anyone proposing a solution to the combination problem to indicate which of these variations is being addressed. This, I shall do, even though, as a methodological principle, it would seem at least sometimes advisable to disregard prescriptions for divvying up the philosophical terrain. Agreement on the central questions certainly may make philosophy more like what Kuhn spoke of as normal science, where researchers converge on the basic problems and work within a shared conceptual framework. Yet as I see things, progress in philosophy—or if not progress, then at least exciting developments—are made precisely by those who categorize the issues in entirely new terms.¹ Before the Kantian revolution, for example, part of the philosophical problem space was thought to include the question of where to find causal relations in the world. Progress (or, again, at least exciting developments) occurred when Kant, rather than addressing the standard question, reconceptualized the terrain. So it is almost with regret that I comply with Chalmers’ injunction and focus on the first topic on the list: the subject combination problem. But it is only *almost* with regret since I do think that the idea that subjects can’t combine (though thought to be a strong impediment to panpsychism) is undermotivated. Besides, not everyone can be a Kant.

The Purported Preclusion of Perspectival Pooling

¹ This may be true, as Kuhn saw it, in the sciences as well, but I see it as especially pertinent to philosophical inquiry since what is philosophy, if not exciting?

According to Coleman, both the James combination problem and the Block/Stojar thought experiment assume that the panpsychist's fundamental constituents, what he refers to as "ultimates" are subjects of experience, and subjects, as he sees it, do not combine: "little minds assembled do not pool into a corporate mind" and if the panpsychist is forced to start with subjects as her ultimates, our conviction that subjects do not pool "would appear an effective *reductio* of panpsychism." The panpsychist, Coleman thinks, is then left with two options: either reject the view that subjects are at the world's innermost core or reject the idea that subjects can't pool. He takes the first option by removing subjects from the panpsychist's fundamental ontology. But is it impossible for subjects to pool?

Coleman thinks that it is: "our notion of a mind," he tells us, "like our notion of a subject is precisely the notion of a discrete, essentially inviolable sphere of conscious-experiential goings-on. My mind is separate from your mind, is separate from her mind, and so on." What is at issue here is not simply that subjects are thought of as discrete, for Coleman readily admits that discrete things can combine. Discrete hydrogen atoms combine with discrete oxygen atoms to make water and when he makes lasagne, he says, the discrete ingredients of the ragu combine to form a unity: "The red wine infuses the tomatoes..[t]he sauce leaks into the ground beef...[t]he onions become garlicky." I'm impressed by his culinary skills. But if such combination happens, as Coleman points out, "all across the natural world," what, then, is at issue in the combination problem? What, then, makes subjects inviolable?

Coleman argues that because the combination of discrete things is prevalent in the natural world, "if there's something distinctively problematic about the combination of phenomenal elements, it must derive from the fact of their phenomenality." However, if one admits that there are some types of things in the natural world that do not combine—oil and water do not mix, and the periodic table, after all, contains a limited number of elements—the implication does not hold since phenomenal combination might be impossible for reasons similar to why atomic orbitals can comprise only certain combinations of electrons and a nucleus. So it would seem possible that the combination problem, if there is a combination problem, arises not because of how we are conceptualizing the experiences of subjects at the world's innermost core, but rather because of general limitations on how things come together. Nevertheless, Coleman thinks the combination of minds is apparently problematic because of a feature specific to minds, a feature that minds have yet red wine and tomatoes lack. What, then, is this specific feature?

The feature that precludes pooling, on Coleman's account, seems to have something to do with the nature of perspectives. Minds can't combine, he says, because acts of introspection will disclose information about what occurs only in your own mind: "Intuitively, phenomenal perspectives—minds, subjects—include at a time a discrete set of phenomenally conscious elements, to which an introspective act on the part of one such phenomenal perspective has access." This, at least, is his first pass at explaining why subjects (or perspectives, or minds) can't combine. Mental combination cannot occur because mental combination would imply that we could introspect another's mind, yet we have introspective access only to our own minds. Thus, minds don't combine.

Partial Perspectival Overlap

Can we ever introspect what is going on in someone else's mind? Can we ever share someone else's perspective? By "sharing someone else's perspective" Coleman means, I assume, not merely that you and I could be in qualitatively identical states, not merely, in his words, "as if we are looking attentively at the same dog from more or less the same angle." I assume this

because, arguably, if *a* and *b* are in qualitatively identical states, they could still count as numerically distinct individuals if they were to occupy different spatiotemporal locations. Rather, what I understand him to mean when he talks of the sharing of perspectives is the sharing of one and the very same perspective. And it is the sharing of one and the very same perspective that he thinks cannot occur since my perspective is invariably mine and yours is yours, and no overlap is possible.

Or rather, he almost thinks this since Coleman, himself, realizes that in claiming that perspectives preclude any degree of pooling at all, he may be too eager to admit impediments to the marriage of true minds. Indeed, he mentions two different situations which he thinks suggest the possibility of partial pooling of two perspectives. One involves telepathy. In his words, “to be precise, *if* telepathy is possible then it seems that some mind-to-mind conditioning is feasible.” Telepathy then, on his view, suggests one way in which mental flavors could infuse one another a little bit (somewhat less, I imagine, what happens after his ragu is left in the fridge for a day or two). The second situation is mentioned quite briefly. However, Coleman also countenances the possibility that split brain cases—cases in which the corpus callosum connecting the brain’s two hemispheres has been severed—allows for two subjects, each corresponding to a single hemisphere, to both have introspective access to an element of experience.²

Though Coleman does not mention it, it would seem that another and far less fantastical way that perspectives can marry is illustrated by the strange and beautiful case of the conjoined twins Krista and Tatiana Hogan. Krista and Tatiana are craniopagus twins, which means that they are conjoined at the head, and quite unusually, perhaps uniquely, their brains are linked by a complex neural connection, what their neurosurgeon Dr. Doug Cochrane dubs the “thalamic bridge,” which allows information to pass from one twin to the other (Dominus, 2011). Arguably, this bridge facilitates perspectival pooling, for reportedly Krista, with eyes covered, can somehow move into Tatiana’s mind and identify what Tatiana is seeing. Their condition, from what I gather, is not very well understood and the scientific experiments performed on them by their neurosurgeon are as of yet unpublished (Dominus, 2012). However, if this story is accurate, it seems to be an actual example of two individuals having one and the same visual perspective. One might, of course, ask whether Krista and Tatiana are actually two subjects, however, given that they typically seem to inhabit their own perspectives and, as the case is described, it is only with a bit of effort that the one is able to move into the perspective of the other, it seems reasonable to count them as two individuals (though perhaps it might be that the case indicates there are situations in which there is no clear answer to the question of whether there are one or two subjects. In any event, their situation should make us question Coleman’s initial contention that phenomenal perspectives are “by their fundamental nature closed off by each other” as well as provide some insight into how one individual can have introspective access into another individual’s mind.

The Considered View: The impossibility of total necessary overlap

Because Coleman wants to allow for the possibility that telepathy and split brain cases could facilitate partial perspectival overlap, he retreats from his view that “you cannot mix or pool minds to create a larger mind, no matter how closely you bind them together” to the view that you cannot have necessary total overlap of minds. His considered view, then, is that if *a* and *b*’s

² Would each hemisphere in split brain cases have introspective access to the other? And if they do, would we still count each hemisphere as grounding a distinct subject? It is difficult to say.

perspectives were to necessarily overlap entirely, then *a* and *b* are not two different subjects. That is to say, for Coleman, if whenever *a* reflects on her own internal mental states she necessarily thereby has direct access to *b*'s mental states, then never the twain shall part.

According to Coleman, full pooling can never illustrate how subjects merge since full pooling is impossible between distinct subjects. Minds can marry, on his view, only if there could be two subjects whose introspective access necessarily ranged over the same set of phenomenal elements. Yet he thinks that "to say that there are two entails that the introspective access of one could differ as to some phenomenal element, with respect to the other." But partial pooling, for Coleman, doesn't illustrate how subjects merge either. With telepathy, he tells us, "despite having some qualitative overlap, our phenomenal perspectives are irrevocably separate," and with the spilt brain case, he says, since there would not be total phenomenal overlap, we would still have "two discrete minds on our hands." The Hogan twins, I imagine he would say, also do no better at helping us to see how subjects can combine since their phenomenal overlap is neither (presumably) necessary nor total. And because subjects, if they are to merge, would need to merge either partially, or entirely, subjects or perspectives, on his view, can never enter into a state of connubial bliss.

Yet why accept the entailment from the impossibility of two individuals necessarily having total perspectival overlap to the impossibility of minds combining? When the blood of Jack the Ripper's victims pools under their necks, the drops do not overlap entirely giving you just one drop, but rather the drops cohere and we are left with a ghastly crimson pool. Since with cohesion we get only partial overlap at the edges, perhaps the partial overlap of perspectives is enough to at least help us make sense of minds or subjects combining at a level. And it would seem that even if the fantastical cases of partial phenomenal overlap via telepathy or split brain cases are too iffy to indicate that partial overlap is possible, the case of the Hogan twins may give us a better a sense of how this could be so.

More generally, however, it seems reasonable to reject Coleman's requirement that subjects can combine only if, per impossible, we have necessarily complete shared perspectives because this seems to be too strong a requirement for combination: if everything is what it is and not another thing, then, if subjects are individuated by their perspectives, it of course follows that if *a* and *b*'s perspectives are numerically identical then *a* and *b* are one and the same subject. But why should this indicate that perspectives cannot pool at a level in virtue of partial overlap or, what I think it more relevant, cannot combine in such a way so as to bring into existence a higher level mind with each individual perspective continuing to exist, perhaps in a modified form, at a lower level?

A Refutation by Boredom?

Another reason Coleman has for thinking that the panpsychist ought not to posit subjects in the world's innermost core is that doing so is insufferably boring: "in fact," he tells us, "this sort of manoeuvre is boring in such a deeply metaphysical way that this alone indicates, from what we know of the workings of the world, that what we have on our hands is far from the correct solution." This is an interesting counter to Occam's razor which tells us that of two hypotheses that are equally consistent with the data, we should prefer the simpler, for Coleman's extender seems to tell us that of two hypotheses that are equally consistent with the data, we should prefer the more complex, for it would seem the deathly dullness he finds in explaining big subjects in terms of little subjects is, at least on some ways of measuring things, simpler than explaining subjects in terms of something else. But, just as applications of Occam's razor are

countered by the observation that there is little evidence that simple theories are more likely true than more complex ones, there is little evidence that interesting theories are more likely true than boring ones (though perhaps they are more likely to get published).

I'm not persuaded by the view that taking the ultimate constituents of the world to be subjects—or in other words, placing subjects at the fundamental level—is too boring to be true. However, I would say that it is a good methodological principle to try to explain things rather than taking them as fundamental unless we have been at it for so long and are so flummoxed by the issue that we are compelled to give up (which is the situation some see us in with respect to explaining consciousness). And in calling a theory of panpsychism that posits microsubjects “boring,” this is really what Coleman means. That is, it is not necessarily soporific, but it leaves something unexplained that seems to call for an explanation: we should “want to say,” he tells us, “something remotely interesting about how minds come about, not simply take them so thoroughly for granted.” This is a reasonable point: why give up and simply call something fundamental rather than forging ahead on our quest to understand it in other terms? Yet, isn't this just what the panpsychist, and Coleman himself are doing with consciousness? For as Coleman points out, though he doesn't posit fundamental subjects, he does posit fundamental experience, and thus is not furthering our quest to explain experience in terms of something else. Yet in doing so he sees himself as taking fundamental only what is minimally necessary. Well, maybe; but on the other hand, I tend to favor the view that one should never give up—in philosophy or in life, for that matter.

Fundamental Continuity

Coleman has further reasons for why we should reject the idea of micro-subjects, however, rather than addressing them, let me instead posit one more.

Panpsychism is sometimes explained as the view that, in David Chalmers' words, “the fundamental physical entities [such as quarks and photons] have conscious experiences” (this volume). However, if our current physics is in the right ballpark, the fundamental nature of reality may not comprise discrete particles but rather the continuous *fields* of quantum field theory. As the physicist David Tong (2011) puts it, “[t]he objects we call fundamental particles are not fundamental,” rather “they are ripples of continuous fields, molded into apparently discrete lump of energy by that framework of quantum mechanics.” Yet if this is true, and if subjects are discrete (even if they are capable partial pooling), then it would seem that subjects are not part of the world's inner-most core.

If Tong's picture of reality is correct, then it would seem that panpsychists should think of the fundamental nature of the world as comprising not discrete particles, but rather a continuous expanse of consciousness, what might be called “psych,” which should be thought to refer not to the soul or spirit-like “psyche” of the panpsychists of yore, but rather the underlying experiential, nondiscrete nature of the universe. On this picture, God, as it were, did not make the elementary particles; rather, She made psych, and from that all else emerges. If our current physics is in the right ballpark, psych may correspond to the fields of quantum field theory. And fields, if our current physics is a guide, are both fundamental and continuous. Particles, then, for the panpsychist, are mere ripples in psych.

Since discrete particles emerge from fields, the panpsychist on this picture is still faced with explaining how conscious particles can combine to create human-level conscious experience. Yet, as I would like to now suggest, once we reject the pooling metaphor, combination is a relatively straightforward task.

Panpsychism in a Layered World

The Hogan twins' thalamic bridge connects human-level mind to human-level mind. And this partial perspectival overlap, I claimed, might suffice to show that subjects can pool. But does the panpsychist really need pooling in the first place? Or, rather, does the panpsychist need pooling to occur in the somewhat literal sense that Coleman uses the term, that is, pooling in the sense that smaller quantities of a thing come together to make larger quantities of that same kind of thing the way droplets of mercury pool in a mercury pendulum clock.

A molecule is a grouping of atoms, but atoms do not need to literally pool in order to create molecules; a macromolecule is a grouping of molecules, but molecules do not need to fully blend into each other to create a macromolecule; a cell is a grouping of macromolecules but the discrete nature of the lower-level molecules remains in the grouping, and so forth. Generally when we move from lower level micro-states to higher level macrostates the lower level micro-states retain their individuality to a degree. And Coleman readily admits this: “[i]n the combination of hydrogen and oxygen to form water, for example, ... the constituent atoms *continued to exist*, albeit in modified form, after the integrated whole was formed.” One oxygen atom and two hydrogen atoms considered at the atomic level are discrete individual entities, yet when brought together change to form water at a higher level; understood at a lower level, we have bonded atoms; at a higher level, we have water. There is not total overlap and each retains its identity to a degree in the bond; yet they do marry. Why shouldn't the same be true of minds? For the panpsychist, microminds exist as distinct entities at the microlevel, but at higher levels they undergo some changes and, while retaining their identity to a degree, enter into the everlasting bond of marriage.

Why then, can't it be that just as the non-reductive physicalist grounds consciousness in lower-level physical processes of the brain which in turn are grounded in lower and still lower level processes until we reach the fundamental level (or if there is no fundamental level, then so on ad infinitum), that the panpsychist grounds human-level consciousness in lower level microconsciousness? Of course, even with H₂O combining to form water, nature brings in very sophisticated engineers. And with the combination of subjects, the engineering problem may be even more difficult. But I fail to see why there should be a special problem—the combination problem—that is supposed to make panpsychism impossible. That is, I fail to see why combination should be or even appear to be intractable when our raw materials are conscious as opposed to when they are not.

In order to account for subject combination, the panpsychist, I claim, simply needs the right type of complex organization, yet it is not the complexity that accounts, or at least fully accounts for conscious experience. Rather, it is that the raw materials are already conscious and because they are already conscious, consciousness comes for free. This, it would seem is an advantage since it allows panpsychists to avoid the “structural argument” against physicalism, that is, the view that from structure and relations all one gets is more structure and relations and never anything like consciousness. And although panpsychists may face other difficulties, such as providing an account of just what micro-subjects could be, avoiding the structural argument would seem to be an important advantage.

But what of James' idea that human minds never combine into a corporate mind? Doesn't this at least indicate a difficulty with the combination of subjects at the lower level as well? Perhaps it would, if it were correct, however, I see no reason why the panpsychist should reject the idea that human minds combine into larger conscious minds. James and Coleman point

out that humans don't pool merely by stacking. Thus when you place them one on top of the other, like a deck of cards, you don't get a group mind. This seems right. However, at a higher level, humans and social infrastructures interact in complicated ways which creates communities and social organizations, and such conglomerates, though not human minds, could be thought of as group minds.³ Indeed, it may be that the highly complicated social organization of aliens in spaceships that Block describes in his thought experiment do combine to form a mind, but not a human mind, a social mind. Of course, the panpsychist need not say that every combination of minds creates a higher level mind, for, as I said, some things combine, others don't. Perhaps the primary reason to think that social organizations cannot be conscious is fear of the incredulous stare. However, if the incredulous stare does not prevent the panpsychist from admitting microminds into her ontology, why should it make her demure when it comes to admitting what James disparaged as the 'spirit of the age,' and the 'sentiment of the people'? If you are a panpsychist, it would seem that such talk need not be metaphorical.

Tolstoy, in *The Kreutzer Sonata*, tells of another way in which minds may merge. In the story, which recounts a deed more horrifying than those of Jack the Ripper, the central character speaks of music carrying him "instantly and directly" into its composer's mind: "my soul merges with his, and together with him I'm transported from one state of consciousness into another." If panpsychism is true, we can come closer to understanding the possibility of such a merger.

References

Block, Ned (1980). "Troubles with Functionalism," in *Readings in the Philosophy of Psychology, Vol. 1*, ed. Block. Cambridge, MA: Harvard University Press.

Chalmers, David (this volume?).

Coleman, Sam (2012). "Mental Chemistry: Combination for Panpsychists," *Dialectica*, 66 (1), pp. 137–166.

Goff, Philip (2006). "Experiences Don't Sum," *Journal of Consciousness Studies*, 13 (10–11), pp. 53–61.

Bryce Huebner (2013). *Macrocognition: A Theory of Distributed Minds Collective Intentionality*. Oxford University Press.

James, William (1890/1950). *The Principles of Psychology, Vols. 1 & 2*. New York: Dover Publications.

Kuhn, Thomas

Shani, Itay (2010). "Mind Stuffed with Red Herrings: Why William James' Critique of the Mind-Stuff Theory Does not Substantiate a Combination Problem for Panpsychism," *Acta Analytica*, 25 (4), pp. 413–434.

³ For a discussion of the social mind see Bryce Huebner. And see Wimsatt (1994) for a discussion of the relation between higher and lower levels of organization.

Dominus, S. (2011). "Could Conjoined Twins Share a Mind?" *The New York Times Magazine*, May 29th.

Stoljar, Daniel (2006). *Ignorance and Imagination: The Epistemic Origin of the Problem of Consciousness*, Oxford University Press.

Tolstoy, Leo (1889). *The Kreutzer Sonata*.

Tong, David (2011). "Physics and the Integers."

Wimsatt, William (1994). "The Ontology of Complex Systems: Levels of Organization, Perspectives, and Causal Thickets." *Canadian Journal of Philosophy* supp. vol #20, ed. Mohan Matthen and Robert Ware, University of Calgary Press, 207-274).