Weighting the Parameters, a Response to Bancel's “Searching for Global Consciousness: A Seventeen Year Exploration”

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Abstract

This brief report is a response to the paper by Peter Bancel entitled “Searching for Global Consciousness: A Seventeen Year Exploration” in which he compares a Goal Orientation (GO) model with a field-like model he refers to as Global Consciousness (GC). He first attempts to exclude the latter, and then presents selected tests that compare the models. While the paper appears to provide support for Bancel's conclusion that GC cannot explain the data and must be supplanted by GO, there are good reasons to believe this conclusion is premature at best. I address the vulnerable assumptions underlying Bancel's rejection of GC, and then provide multiple examples of parametric structure in the data which cannot be attributed to GO, but are amenable to explanation by field-like models.

Introduction

By far the most complete effort to explain how the small but persistent anomalous effects found by the Global Consciousness Project (GCP) might occur is by Peter Bancel, who has done a great deal of analysis to characterize the data. Over the years, he has discovered qualities and defined parameters which make our understanding of structure in the data – which should be random numbers – more complete, adding several other observations to the basic finding that there are anomalous inter-node correlations. These are more fully described elsewhere (Bancel & Nelson, 2008; Nelson & Bancel, 2011; Bancel, 2014; Nelson, 2014), but they deserve a brief treatment here because they form an important background for Bancel's efforts to identify the source of the effects in GCP data described in his “Searching for Global Consciousness” paper. His current model is different from earlier versions, and reaches contrary conclusions about how the effects arise. It is worthwhile to consider what changed in his thinking, and to see whether the more recent model should supplant its predecessor. He is a careful thinker, and his analyses presented in the current paper deserve consideration. They are helpful steps toward understanding these interesting data, and I am grateful for the insights they lend toward understanding the GCP data. I believe, however, that his present conclusions (as he remarks about his previous work) must be considered preliminary and incomplete.

The Case for GO

In his current paper for *Explore*, Bancel says that while the cumulative result over 17 years and 500 events apparently lends strong support to the proposal of global consciousness, which he calls GC, there is an alternate interpretation, namely that the result is due to an anomalous effect associated with persons directly engaged with the experiment. His paper examines these interpretations and concludes that the data do not support the GC proposal and instead indicate that the GCP result is due to a goal-

oriented (GO) effect similar to the Decision Augmentation Theory (DAT) model proposed by May, Spottiswoode, and Utts (1995). This model explains effects in laboratory Random Number Generator (RNG) studies as a consequence of future feedback influencing present decisions, for example, when to "push the button" to initiate a trial that will yield a desired result in the future. The idea is that all random sequences have unusual excursions, and that an unexpected statistical outcome can be produced by selecting just the right moment to start collecting data for a trial so as to capture the unusual data. Feedback from the future showing the experimental outcome somehow reaches back to influence the participant (or the experimenter) to start the trial or experiment at an opportune time.

One of the clear achievements of Bancel's earlier work was a test of two models against the GCP data, one representing the goal-oriented idea, namely the DAT model mentioned above, and the other a "field-like model" representing the idea of global consciousness and the thesis that there is an actual physical effect. (Bancel, 2011) In that earlier paper he states: "… the GCP data reject the DAT model with moderately high confidence. [And] one can show that a similar procedure which tests the alternate hypothesis of a physical effect accepts that hypothesis as being consistent with the data." He now says that earlier statement, "moderately high confidence," means the question was unsettled.

In any case the new modeling effort directly contradicts the 2011 conclusions. What changed? I know that over the years Bancel worried about what he called the exclusive-or (XOR) problem. This refers to a logical operation combining the original random bit-stream with a pattern of bits comprising 50% ones and zeros such that half the original bits are inverted. He spent considerable time and effort trying to see how the effects of consciousness could possibly penetrate the XOR in order to affect the RNG bit-stream. The concern is that the XOR procedure for eliminating potential physical biases by inverting 50% of the bits (thus automatically compensating any positive bias with an equal amount of negative bias) would also exclude any possible biasing effect of consciousness. What is implicit here is a belief or assumption that the only way consciousness can change the outcome is by a physical intervention which changes a bit derived from a fluctuating voltage level from 0 to 1 or vice versa.

In his new modeling effort Bancel makes this issue central, and explicitly adopts a specific physical interpretation entailing a requirement that physical bits be similarly affected in pairs of RNGs for the GCP data to show a non-zero mean pairwise correlation. This would require microsecond timing and synchronization of the two RNGs' XOR patterns. Given that the XOR processing is an efficient filter that blocks spurious correlations due to biases induced by physical sources like temperature variations or electromagnetic fields, he argues that RNG-RNG correlations we find in the data could survive the XOR process only by exploiting a small synchronization "loophole" which postulates biased random sequences at two RNGs being processed with identical XOR sequences. In this picture, the RNG data streams must be synchronized to an improbably fine degree with each other and with the imposed XOR sequence. Since microsecond synchronization across the network is virtually if not actually impossible, he concludes there is no possibility that a GC "field" of the sort he postulates could penetrate the XOR barrier and create the correlations we see in the data.

If GC can't work, but we do have the correlations to explain, what could do it? Well, feedback from future outcomes must influence the experimenter's decision whether to identify an event for one of our

formal hypothesis tests, what analysis to apply, and what exact times to specify for the beginning and end of the event. It may seem unlikely, but this DAT style model is favored by a number of psi researchers. They are mostly physicists, so tend to think in physical modeling terms, and it is no problem for them to regard a model that requires precognition as plausible, because time-symmetric equations are intrinsic to quantum models in particle physics. Whether an extrapolation should be made to correlations of (macroscopic) random data streams is a question that we should keep in mind.

In any case, the GCP as designed did not envision or expect that it would be necessary for the raw physical (electrical) bits to be affected, or synchronously "flipped" as discussed above. This is a mechanistic assumption that isn't necessary, but it provides an argument for rejecting a simple field model. It ignores alternatives, e. g., that post-XOR random sequences remain labile; that the anomalous effects are holistic alterations of the statistical output; or that they can be achieved by a "field-like" influence spreading over multiple bits. The latter is, incidentally, but tellingly, suggested by analogy to autocorrelations in the event data – as noted by Bancel (2014). He says: "*The autocorrelation at lag 1 for the subsequent data yields a Z=2.22 and this is the score retained here. Since the test is significant, it is interesting to look at the autocorrelation at higher lag times. ... It indicates that the effect is persistent out to times of roughly 10 minutes.*" Although it is at a more global level, this seems to make clear that microsecond timing and synchronization is not necessary for correlations to exist in the GCP network data.

The conclusion that a global consciousness field model must be excluded discounts a great deal of evidence for psi effects which suggests that alterations occurring in the bit-stream do not in fact require flipping the original bits. That the raw physical bits must be altered in RNG experiments is a common assumption by physicists (e.g., Scargle, 2000) but decades of experiments show it is suspect or false. Moreover, although some theorists believe all psi effects can be explained by a selection model such as DAT (May, et al., 1995) others show the model does not fit the data (Dobyns, 1996; Bancel, 2011).

Finally, Bancel's new model seems designed to complement and support another assumption, namely that anomalous effects of the sort we are discussing can only be generated by an intentional source, that is, someone who knows about the experimental measurement (and has intentions toward it). This reason for preferring experimenter goal orientation over global consciousness is a restatement of Bancel's 2014 discussion of "proto-psi" which he suggests is the only mechanism by which global consciousness could affect the physical world. Since, he says, proto-psi does not manifest intention, it cannot be the source of effects on the GCP network. This idea should be compared to Carpenter's (2012) discussion of unconscious intentions, which he maintains underlie psi effects in a virtually unconstrained, comprehensive way. In any case, we need to be cautious in claims about entities we can barely conceive, including the deep structure of consciousness and the potential interconnection of global populations.

Complementary structure

I don't discount Bancel's view, based as it is on serious efforts to make a model to fit the details. In the current paper, he describes several tests which appear to support the GO model over GC, and though

they are individually inconclusive, as an ensemble they present a good case. On the other hand, it is necessary to consider another ensemble comprising several factors that contribute to a more inclusive picture, which suggests the field model should not be discarded just yet. Much of the broader view comes also from Bancel's work, and it presents a picture which is sharply in contrast to the goal-oriented or experimenter effect model.

The elements that belong to the broader view are discussed elsewhere (Bancel & Nelson, 2008; Nelson & Bancel, 2011; Bancel, 2014; Nelson, 2014), but I will describe the more important ones here, in the context of the question whether a goal-oriented model is to be preferred over a field-like explanation for the effects. A common feature of these additional parametric findings is that they are discoveries via secondary analyses addressing questions that had not been asked in the original experimental design. They are the result of characterizing the data and looking for structure that the simple standard measure could not reveal. Most of the questions have been formulated only in the last few years, and being *post hoc*, were never part of any experimenter's intentions (as the GO model would require). It is important to note that these findings are not from fishing or data massage, but are all stimulated by physical and logical considerations.

Independent correlation: In addition to the the primary correlation of pairs (symbolized as the pair-product, Z_i*Z_j) of individual RNGs in the global network, an independent measure assessing the variance of correlations (symbolized as $Zi^2*Z_j^2$) shows effects of a similar magnitude to the Z_i*Z_j correlation. (Nelson & Bancel, 2011) This is an orthogonal or independent measure, and while it is statistically weak (due to intrinsic variation), it asks a similar question to that underlying the original measure – except that it was not part of the conceptual structure of the experiment. It was discovered in the course of characterizing the statistical distribution of the data deviations.

Temporal & spatial parameters: The design of the RNG network allows asking questions which, although they weren't intended as part of the hypothesis, are of interest as potential contributors or modulators of effects. Both temporal and spatial parameters can be examined to see if they reveal any further structure beyond the hypothesized inter-RNG correlations. Again, though it wasn't part of the design, it is natural to ask about the time-course of any effects, and also natural to ask whether the location of the RNGs has any effect on the correlations. Various explorations support the conclusion that both of these parameters matter, but they have no place in a GO model.

The time-course is about what one would expect from physical considerations, that is, it is like what might happen for an ordinary influence like turning on a stove to heat water. There is a slow buildup of temperature, and then when the heat is removed, a gradual decrease. We can get a rough picture of the time-course of GCP effects by assessing the coincidental variation of our two independent correlation measures. Since they are driven by the same influences, they should correlate during the effect, but not during the surrounding null periods. For the GCP event tests, it appears that it takes on the order of half an hour, on average, for this correlation to reach significance, with an hour or two of steady state and then a decline. A GO model would have little to say about a time-varying effect, but a GC model could describe a field with growing, then waning coherence relating naturally to the time-course of the event under study.

Distance also matters, but the way it manifests is different from our ingoing expectations and those of other professionals in psi research. Most professional researchers have come to regard psi as a nonlocal phenomenon, essentially unaffected by distance, but the design of the GCP network provides an opportunity to explore the question empirically since we have nodes at various distances from each other. This allows us to ask whether separation or distance modulates the correlations. The answer is a complicated yes: During relatively small and localized events we see a decrease in pairwise correlation strength as the separation between the RNG pairs increases, suggesting that the range of anomalous influence is limited. This is counter to the original expectations held by any of the experimenters or analysts. For large events with truly global interest and engagement, on the other hand, the tendency for distance to matter is weak, apparently because both RNGs, even in widely separated pairs, are subject to the same magnitude of effect from a globally extensive influence. In hindsight these findings make sense, but the result obviously is not compatible with an experimenter goal orientation model.

Negative results: Shifting perspective to an overall picture, it is worth mentioning another relevant modeling effort (by Bancel), which provides evidence for "true negative" outcomes in a substantial fraction (estimated to be about 17%) of GCP event analyses (Bancel and Nelson, 2008). I note that Bancel regards this as a preliminary analysis which should not be strongly interpreted, but assuming it is indicative, this obviously would not be an expected outcome for a goal oriented explanation of the data. Such results are actively contrary to the experimenters' intentions and expectations.

Awake vs asleep: One of the most persuasive "new" findings in this context is the recent discovery that the effect size is a function of time-of-day. Since we have the locations of all RNGs it is possible to aggregate the pairwise correlation data according to the local time of day, looking at pairs with one or both RNGs in a single timezone. Doing so, we see a satisfying result: There is a clear pattern across all the events, where the effect is largest in the local afternoon, and smallest in the middle of the night. In other words, it depends on whether we are awake or asleep. This is another item where most of us will say, "Of course, why would we think otherwise?" After all, we have to be awake to hear the news and feel the emotions aroused by the event. In the context of identifying the source of effects, however, it seems quite unlikely that this result could be a goal-oriented experimenter effect. One might push the GO model further and say it is expectations of the analyst – in this case Peter Bancel – but allowing or postulating that any anomalous structure one finds in the data, no matter how unexpected or how logical, is there because of experimenter or analyst intention is tantamount to giving up on experimental design and giving in to unfalsifiability.

Autocorrelation: There are more points that are similarly incompatible with an experimenter effect/goal orientation model. The raw trial data are autocorrelated, meaning the next few trial values, out to several minutes, are predictable given the current value. This would not be unreasonable for a goal-oriented model if the target was autocorrelation. But that was not a hypothesis we intended to test in the first instance. It is a reasonable analysis to make in order to learn more about the structure that appears in the nominally random data, but it was never a "goal" of the experiment. It isn't compatible with the GO idea conceived as influence from a future outcome on present decisions about precise timing.

For a field-like model, these and the other late arriving results of continuing analysis fit naturally. If

there is a “field” affecting a trial value, it is an easy and obvious step to predict it will affect adjacent values. The distance findings and the temporal aspects of the effects also are readily accommodated and make sense in a field-like model. A small, local event would be the source of a limited field we might expect to weaken with distance because fewer people are aware of it. A globally engaging event should produce a field of global dimensions, with less attenuation as the distance between RNG pairs increases because there are people everywhere who are conscious of the event.

Conclusion

Evidence and argument support the idea that the experimenter's intentions have an impact on the results in research attempting to gain insight into the extended reach of consciousness. It is obvious that there can be no experiment without the experimenter. Attempts like Bancel's to identify the source of effects broaden our understanding of the role. The experimenter sets the stage and asks the essential questions, and this constitutes a kind of “contract” between the experimenter and the system under study. This construction is crucial to the experiment, and it has effects in obvious but arguably also in subtle ways. Yet, beyond any experimenter effects which may manifest in the stated goals of the study, there are other degrees of freedom, as the examples given above make clear. Given the complexities of the real world we are probing in the GCP research, a competent model will need to be inclusive. A broad look at the evidence indicates that a successful model for the anomalous results must include both goal oriented experimenter effects and consciousness field effects.

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