GCP IONS Working Meeting, April 1-5 2005

Ten people gathered in Petaluma, CA for a few days of focused examination of data from the Global Consciousness Project and contextual material. Most of us were familiar with the general structure of the project, so the aim was to update everybody on progress made in recent analyses, and then to focus on incisive and productive questions. Ultimately, we want to work toward modeling and theoretical understanding of the structure that appears in the nominally random EGG data.

The first evening was given to free-ranging agenda setting. Points mentioned included concerns to establish quality of the data and rigor of analyses, how to best use the experience with the GCP data up to now, and what the experiment should look like in the future. For example, we can split the database into independent parts that can be tested for correlation with each other, or used in a data-mining and confirmation procedure.

Normalization of raw data and removal of all "warts" is part of a design for a new database. Tools include standardized analytical algorithms for which we have measures of generality and optimal use drawn from analyses of the event-based experiment.

Other long-term experimental databases such as "Gotpsi" have a quasi-continuous structure because they are online and attract large numbers of participants. Tentative assessments suggest they have structure that may parallel the GCP measures.

Theory and implications are major interests. While we generally agree the first task is deeper analysis to establish the quality and dimensions of the subtle structures in the data, it is important to have theory in mind. The data suggest that something is "sucking randomness out of the system." When we ask, "What does it mean?" an essential prior question is, what is "it"? Such observations suggest we need a glossary and vocabulary.

A brainstorming session on theory could be valuable, though fundamental analytical work remains to be done. We need to examine space and time relationships, look at analogues of field theory in consciousness domain, consider mechanisms like forced oscillations. At this point, it is valuable at least to list some of the viable hypotheses. They can help to shape analytical methods and questions. A sampling includes distance dependence, physical models, LST, geographic location, geomagnetic, cosmic variables. Sociological and psychological models, polls, news index measures …

We are looking at very subtle effects in a huge database. The substance is slight changes from expectation in statistical distributions. Canonical parameters offer a basic set of tools, but we need to find optimized measures. There are apparently overlapping sources for the effects, including the nominal source, anomalous experimenter influence, and the form of the question. We need to be open to new stories describing GCP data structure.

From Greg's notes:

Statistical design concerns
1. RT Individual events or elements in a big experiment. Conceptual replication
2. YD, PB Chisquare analysis gives additive results: Series of 185 rigorously defined tests compound to Z=4
3. RT How many tests? Design for completion?
4. YD Scale invariance of "random walk" that is null hypothesis
5. Implication of optional stopping (null effect, no problem)
6. Calculate sensible effect size?
7. Exploration vs formal
8. Splitting database to test parts, or to set new hypotheses from exploration

Broad issues
1. DS, DR Correlations with GotPsi database and other long-running consistent
2. DS Theory -- Why should there be something going on?
3. YD Schedule session on Terminology and Vocabulary
4. YD Ceremonial magic is said to "suck out some of the randomness"
5. In "What does it mean?" questions, the core issue to define "it".

Measures
1. Variance among the eggs – Device Variance – Devvar
2. Stouffer Z across eggs – when squared, Network Variance – Netvar
   - One Stouffer Z for whole set of eggs per second
   - One z for bits from one egg or one z for all the bits
   - Sum them for Chi with one degree of freedom, df, per second
3. Need Peter's scripts converted to common usability
4. Getting raw data distributed – Peter has 1-minute data on laptop
5. RA Look at space-time patterns overall – field theory. Bipolar Gaussian amplitude?
6. Hypotheses discussion. Suddenness? Uniqueness? Numbers of people? Compassion?
7. What is the "observable"? Variance? Change in Variance? Interegg Correlation?
8. What would be an optimal measure? Combine aspects of sever in one that is generally effective? Covar Correlation Devvar – Dispersion?

Greg's supplementary notes, in file:
1. Calculations for York's vector representation of the egg distribution and effect distribution on globe.
2. RAMREG – way to get single-location clone of egg network

Sat Apr 2 notes. Talks and related discussions

1. Roger gives usual intro, but lots of questions and discussion
2. Dean gives summary of Entangled Minds, his new book
3. Peter gives detailed presentation of the Analysis 2004 results

Sun Apr 3 Morning

Russ leaving today; what points important for him, augmented by others' similar points.

1. Pairs of events (or series) to allow identification of functional relationship of REG behavior with other things to help pull out signal to noise
2. This might be something like the Autocorrelation
3. Mini vs Maxi celebration zones for New Years; also other categories, e.g., population in zones.
4. Prescribe what events are Not Expected to produce effects. Examples: sports, politics, some forms of meditation (anything self-serving).
5. Use objective outsiders to pick out subsets, including the no-effect subset. Such subsets can be removed to increase S/N ratio, improve focus of analysis questions.
6. Shapes of Random Walks – York Dobyns analysis strategies to decide if shape is probable.
7. The Pope died on 2 April. The GCPIONS group made a formal prediction for the hypothesis test. Death was at 9:37 pm Rome, 2:37 EST, 19:37 UTC. The prediction includes the whole daytime period for Europe, represented by formally defined time: 04:00 to 24:00 on April 2 UTC.
8. Email from Ralph suggesting "Space-time pattern recognition on mean and variance data using neural network algorithms.

Mon Apr 4 morning

Explicit list making. What to do. Who will do it.
  Propaganda – Mostly Roger, but with inputs and kibitzing Russ Peter and others.
  1. ROGER: Write "white paper" summarizing
     a. Executive summary, one page
        • International network of instruments
        • Two interests
             i. Physical implications of changes in REG behaviors
             ii. Social implications of correlations with human-centric events
        • Main even-based results, long-trend results, including prespoll
     b. Favorite events descriptions
        • 9/11
        • OJ Simpson
        • Diana
        • Newyears
     b. 10 page journal article
        • methodology
        • objections, criticisms, responses
        • event-based analysis
        • long trend
        • interpretation: Global Consciousness?
     c. Criticisms and how they have been handled. People think we are wrong, here is the program, what we do, how we avoid the problems

2. YORK: Sweep the database with slope detectors, and various other tools
3. MARK: Threshold (for Mark Pace database probe) for detection of big changes, e.g. in slope of Devvar or Dispersion. Go to Google to see what is maxing the newsfeeds
4. *ROGER, PETER, OTHERS: Mainstream journals such as JCS, Psych Bulletin, Sociology, Statistics. Also Trade journals such as Physics Today*
    (Note: Send FoPL article to Russell)
5. DEAN: Compare New Years Celebrants vs Non Celebrants; also population categories *(Note: Send URL of population info to Dean)*
6. PETER?: Locality vs Nonlocality, Effect of Distance: two or three measures at New Years, 9/11, Geological events, other? Can we design an event-based sweep?
7. ?: Test the significance of the long trend and the A and B correlations. Use Shape analysis
8. Interpret the slope in the long trend.
    - Increased Coherence indicates negentropic
    - Negative value suggests we (world) became depressed of became more attentive
    - Orienting response is suggested as appropriate metaphor
9. PETER: Separate correlation and variance in the longtrend
10. EMAIL: Vocabulary
11. PETER: Pair correlations between all REGs per distance
    - General Locality
    - Locality of Event – Pair Corrs all events, New Years
    - Locality of whole database at seconds level
12. PETER: Dependence on number of REGs
13. GREG, ROGER: GCP mailing list (GCPIONS), GCP Wiki may do. Also, shifting main server for GCP (including admin@GCP for project email) to global-consciousness.org
14. DEAN, ROGER: Distinguish Experimenter Effect vs something else.
15. YORK: Datamining to get hypotheses for prospective testing. Also, do this on A or odd seconds, then test the hypotheses on B or even seconds.
16. ?: Physical variables such as Geomagnetic, Local Sidereal Time, …
17. ROGER: Funding. Personal contacts, proposals to foundations. Seeking new contacts; consider mil/intel (after making a case for the predictives as on 9/11). Paypal, Sell Books of various authors like Dean, Jessica, Russell, others?
18. YORK: Look for predictive blips, e.g. disasters and presentiment analog during the sweeps with various measures
19. Parallels to polling. Maybe we have a "Zeitgeist Detector". What about homeland defense, look at other polling data, News index, retrospective and prospective.
20. Are Insurance companies potentially interested? Maybe the predictives.
21. Stock Market correlation? "If there is money involved, GCP becomes very interesting to various funding sources." Consider issues of ownership, proprietary stuff. Is there something we should patent?
22. If the sweep is successful, and predictivity can be touted, this becomes propaganda material. This also feeds into the consciousness education matrix. Think about the application implications.

23. Theory brainstorming did not develop strongly. How to achieve that? Another meeting would be valuable, especially if our present work and plans mature by another step or two. Begin planning for that. When, who, where?

Photo 2 (top right):

DIRECT FOURIER ANALYSIS OF CUMULATIVE DEVIATIONS

1. INDEPENDENT OF MEAN SHIFTS
2. CAN BE APPLIED TO ANY C.D. REGARDLESS OF UNDERLYING VARIABLE
3. ALL FOURIER COEFFICIENTS HAVE EXPECTATION 0, KNOWN VARIANCE, & ARE MUTUALLY STATISTICALLY INDEPENDENT
4. CAN ACCUMULATE EVIDENCE OF NONLINEAR STRUCTURE FROM POWER SPECTRUM AT ALL AVAILABLE FREQUENCY SCALES

#1 MEANS 2 APPROACHES AVAILABLE FOR CCP TRACE TESTING:

DIRECT DECOMPOSITION:

$$\text{(diagram)} = \text{(n=1 strong)} + \text{(n=2 weak)} + \text{(n=3 strong)} + \cdots$$

SPLIT ON MEAN INFLECTION   ANALYSIS OF HIGHER FREQUENCIES IN THESE TWO SECTIONS UNCONTAMINATED BY CHOICE OF SPLIT POINT

CUT HERE

Photo 3 (bottom left):

CORRELATION & SMOOTHING

LET x_i BE $N(0,1)$, INDEPENDENT, $\langle x \rangle = 0$, $\langle x^2 \rangle = 1$, $\langle x_i x_{i+i} \rangle = 0$ BY ASSUMPTION.

LET z_i BE LIKEWISE, & INDEPENDENT OF x

CONSTRUCT $y_i = \alpha z_i + \rho x_i$. $\langle y \rangle = 0$ BY CONSTRUCTION, $\langle y^2 \rangle = 1$ IF $\alpha^2 + \rho^2 = 1$. IF WE APPLY THIS CONSTRAINT THEN

$$Corr(x,y) = \frac{\langle xy \rangle - \langle x \rangle \langle y \rangle}{\sigma_x \sigma_y} = \langle xy \rangle = \langle x_i (\alpha z_i + \rho x_i) \rangle = \rho$$

APPLY 3-PT SMOOTHING: $x_i' = a x_i + b x_{i-1} + b x_{i+1}$

$\langle x_i' \rangle = 0$, $\langle x_i'^2 \rangle = a^2 + 2b^2$, $\sigma_x = \sqrt{a^2 + 2b^2}$, LIKEWISE FOR y'

$$Corr(x_i', y_i') = \frac{\langle x'y' \rangle - \langle x' \rangle \langle y' \rangle}{\sigma_x' \sigma_y'} = \frac{\langle (ax_i + bx_{i-1} + bx_{i+1}) \rangle}{a^2 + 2b^2}$$

$$= \frac{1}{a^2 + 2b^2} \langle (ax_i + bx_{i-1} + bx_{i+1}) \left[\begin{array}{l} (az_i + bz_{i-1} + bz_{i+1}) \\ + \rho(ax_i + bx_{i-1} + bx_{i+1}) \end{array} \right] \rangle$$

$$= \frac{1}{a^2 + 2b^2} \langle \rho a^2 x_i^2 + \rho b^2 x_{i-1}^2 + \rho b^2 x_{i+1}^2 \rangle$$

$$= \frac{\rho(a^2 + 2b^2)}{a^2 + 2b^2} = \rho \quad \text{UNALTERED}$$

Photo 4 (bottom right):

CUM DEV CALC BOTH WAYS FROM IMPULSE

PLOT IMPULSE EVENTS W/O EXPERIMENTER INTERVALS

EXTENDED EVENTS: USE EXTERNAL DEF'N OF DURATION, PRE & POST PHASES AS W/ IMPULSE