Investigation into ARV displacement

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1. Introduction

This document suggests a line of investigation into the problem of ARV displacement, using a composite quantum system model.

Section 2 includes a literature review relevant to this work.

Section 3 introduces the composite quantum system model associated to a viewer and the feedback images shown at feedback time. A simplified two state quantum system approximation is used.

Displacement is assumed to occur because confidence rankings associated with ARV trials may not correspond to the underlying probabilities of the event, but rather to their projection on a 2D plane following a perspective transform and may be distorted by a fisheye lens effect. The solution is to compensate for this effect by spacing ARV trials. The parameters of the perspective transform are unknown (orientation, field of view, focal distance, etc.).

2. Review of the existing literature

In [2], Targ and Puthoff review Stanford Research Institute's efforts in the study of the remote viewing perceptual channel, covering a period January 1974-February 1973. In the work, they address various mechanisms to enhance the reliability of Remote Viewing. The work of Dr. Mylan Ryzil is mentioned:

"A paranormal channel exhibits the attributes of a communication channel perturbed by noise and that redundancy coding can be used to combat the effects of the noisy channel in a straightforward application of communication theory".

Targ and Puthoff mention that: "In general, it appears that use of multiple-subject responses to a single target provides better signal-to-noise ratio than target identification by a single individual".

To bring further evidence to the multiple trials idea, they go into detail on the famous experiment of Dr. Ryzdl, in which a forced choice experiment involving 19350 binary trials of trial 61.5% accuracy were nested together and spaced 9 seconds apart, yielding 100% accuracy in the decoding of a sequence of 15 numbers. The authors argue that the experimental procedure in Dr. Ryzdl's experiment could have been improved (less trials would have been needed), if a procedure called sequential sampling would have been used. Sequential sampling is described in great detail as procedure to increase the signal-to-noise ratio of information received from a noisy data channel with the least amount of trials and is described as a procedure for reliably accepting or rejecting the information in a binary sort of cards.

In [3] the notion of trans-temporal inhibition is introduced together with the theory of the experienced present. Trans-temporal inhibition is the equivalent of the present time's nervous system attention span. It is introduced as the equivalent to what lateral inhibition means for the nervous system's experience of now, but applied on the ESP. Trans-temporal inhibition has the property of shifting the attention span of the extrasensory part of the brain at any point in time, within a wider but limited time span.

To introduce this idea, a number of two sets of trials involving sequential tasking and measurement of real time hits versus -1 and +1 hits have been conducted. Results show negative correlation between real time hits and +1 misses. The results seem to suggest a type of nervous system lateral inhibition mechanism involving extrasensory perception – trans-temporal inhibition. The work suggests the possible effects of an expanded extrasensory functioning ‘now’ time window that is much larger than the nervous system functioning in its experience of ‘now’ moments.

The work in [3] suggests the more focus on the feedback time on a desired future event, the less likely the prediction will describe the outcome of the next ARV trial. It also suggests that the width of the ESP dimension of the time mind ‘s notion of ‘now’ is between the previous experiment and the next experiment in a sequential series of targets done quickly in sequence. The discussion on trans-temporal inhibition applies equally to future targets, even though the experiments in [3] relate to real time ESP only.

The paper also discusses strategy boundness, as the tendency of conscious thought accessing short term memory by taking into account the previous trial’s result when making the real time prediction. It is shown the more this is used in the guessing of a RNG generator data, the less real time ESP performance is observed in terms of real time hitting. This suggests that ARV feedback should be an isolated event apart from past experiments’ memory to reduce strategy boundness, so temporal spacing of ARV experiments is also useful to be completely outside the ESP ‘now moment’ time window and outside the short term memory time window of the previous ARV experiment.

The present work focuses on the situation when the entire viewer’s focus is correctly placed at the time of viewing, thus inhibiting perceptions from outside the feedback time window in an ARV multiple trial experiment. It addresses the issue of displacement occuring in consensus trials when viewing is done roughly at the same time, potentially by different viewers, or by the same viewer, with enough spacing between trials, but still within a short time window.

3. Composite ARV feedback quantum system

3.1 Quantum System of the viewer at feedback time

Let us consider the remote viewer at the time of feedback as a quantum system **S_1** described by a wave function Ψ_1 belonging to a Hilbert Space **H_1**.

We consider the state of the remote viewer at feedback time as the quantum superposition of two states :

$$|\Psi_1(t)\rangle = \alpha_1(t)\,|\theta_1\rangle + \alpha_2(t)\,|\theta_2\rangle\,, where:$$

- $|\theta_1\rangle$ is the state corresponding to the situation where the viewer receives full and correct target feedback for all ARV sessions from the ARV images associated to the realized outcome of the event.
- $|\theta_2\rangle$ is the state corresponding to the situation where the viewer does not receive full and correct target feedback from the ARV images associated to the realized outcome of the event.

This can include random perceptions from the viewer's environment, or anything that can invalidate the feedback process relative to the correct imagery by even one wrong feedback image observation.

  - No or partial feedback from the ARV images associated to the outcome, or:
  - Full or partial target feedback from another source unrelated to the ARV images associated to the realized outcome of the event.

- $\alpha_1(t), \alpha_2\,(t): \boldsymbol{R} \rightarrow\ \boldsymbol{C}$ are the time dependent probability amplitudes of states $|\theta_1\rangle$ and $|\theta_2\rangle$

3.2 Quantum System of the feedback imagery

We consider the image set presented to the viewer at feedback time for all trials in an ARV project as a quantum system **S_2** described by a wave function Ψ_2 belonging to a Hilbert Space **H_2**.

We consider the state of **S_2** as described by:

$$|\Psi_2(t)\rangle = \beta_1(t)\,|\varphi_1\rangle + \beta_2(t)\,|\varphi_2\rangle\,, where:$$

- $|\varphi_1\rangle$ is the state corresponding to the event's realization of outcome 1 and the related ARV imagery being available for feedback.
- $|\varphi_2\rangle$ is the state corresponding to the event's realization of outcome 2 and the related ARV imagery being available for feedback.

NOTE: for simplicity it is postulated that the probability of the ARV imagery being destroyed (not available for feedback) or the event not happening are both zero, as this would apply in most real life circumstances.

3.3 Composite ARV Feedback Quantum System

The composite system $\mathbf{S_1 + S_2}$ (viewer at feedback time + feedback observed) can be described by a wave function Ψ_{feedback} in a Hilbert space:

$$H_{feedback} = H_1 \otimes H_2$$

so that:

$$\Psi_{feedback} = \Psi_1 \otimes \Psi_2$$

$$\begin{aligned}|\Psi_{feedback}(t)\rangle \\ &= a_{11}(t)(|\theta_1\rangle \otimes |\varphi_1\rangle) + a_{12}(t)(|\theta_1\rangle \otimes |\varphi_2\rangle) \\ &+ a_{21}(t)(|\theta_2\rangle \otimes |\varphi_1\rangle) + a_{22}(t)(|\theta_2\rangle \otimes |\varphi_2\rangle)\end{aligned}$$

Where:

- $a_{11}(t), \alpha_{12}\,(t), a_{21}(t), \alpha_{22}\,(t) : \boldsymbol{R} \rightarrow \boldsymbol{C}$ are the probability amplitude functions associated to each state of the feedback time composite system

- $\otimes$ is the tensor product operator

In Quantum Mechanics, the general time evolution of the state of a system is given by the time dependent Schrödinger equation:

$$-i\hbar \frac{\partial\,|\Psi_{feedback}\rangle}{\partial t} = \boldsymbol{H}|\Psi_{feedback}(t)\rangle$$

The general solution is ([5]) :

$$|\Psi_{feedback}(t)\rangle = |\Psi_{feedback}(0)\rangle e^{-iHt/\hbar}$$

3.4 Simplified model of a two state quantum system

For the practical purpose of our analysis, we can reduce the statefunction $|\Psi_{feedback}(t)\rangle$ to a two state quantum system:

$$\Psi_{feedback}(t)\rangle = a_{11}(t)(|\theta_1\rangle \otimes |\varphi_1\rangle) + a_{12}(t)(|\theta_1\rangle \otimes |\varphi_2\rangle),$$

assuming that viewer focus and protocol are strictly adhered to and that feedback is always provided, which is the case in most experiments.

The basis vectors of $\Psi_{feedback}(t)\rangle$ can be simplified as : $\beta_1 = \binom{1}{0}$ and $\beta_2 = \binom{0}{1}$

Where $\beta_1 = (|\theta_1\rangle \otimes |\varphi_1\rangle)$ and $\beta_2 = (|\theta_1\rangle \otimes |\varphi_2\rangle)$ is a 2D complex plane reductionist model of two orthogonal vectors from a higher dimensional state space involving the observer's state at feedback time, which is assumed constant in both cases (outcome 1 or outcome 2).

Assuming the two state quantum system approximation of viewer at feedback time:

$$\Psi_{feedback}(t) = a_{11}(t)\begin{pmatrix}1\\0\end{pmatrix} + a_{12}(t)\begin{pmatrix}0\\1\end{pmatrix}$$

$$a_{11}(t) = a_{11}(0)\, e^{-i\omega_1 t}$$

$$a_{12}(t) = a_{12}(0)\, e^{-i\omega_2 t}$$

Where ω_1 and ω_2 are rotation speeds of each probability amplitude, in its own complex plane. A simple 3D representation of the wavefunction is shown in figure A.

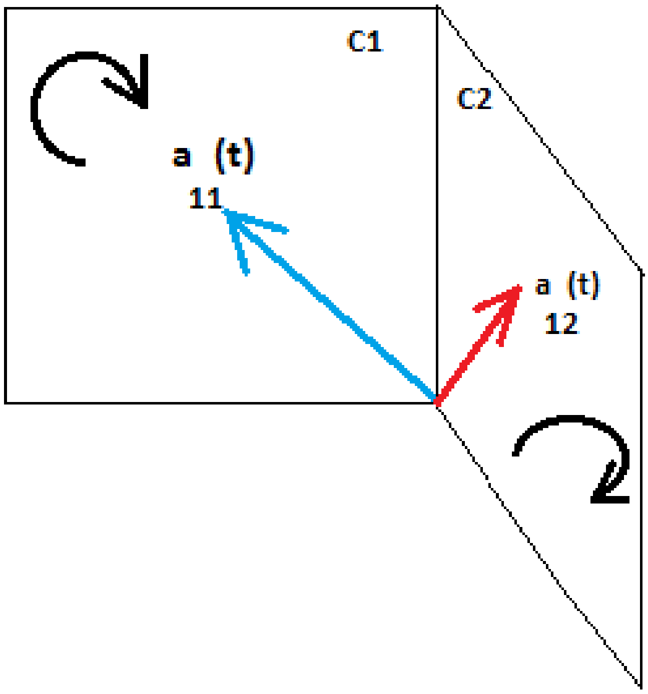

Figure A. Complex planes representation of the wavefunction. They are orthogonal in 3D. In this illustration, the probability amplitudes are projected on a 2D plane following a perspective transform

The probability amplitude a_{11} (t) lies in the complex plane C_1 and the probability amplitude a_{12}(t) lies in the complex plane C_2 with $C_1 \perp C_2$.

If displacement did not occur, then any set of ARV trials's confidence rankings of outcome 1 and outcome 2 would be samples drawn from the probability distribution given by a_{11}^2 for outcome 1 and a_{12}^2 for outcome 2, irrespective of their phase in planes C_1 and C_2. However, experiments show that even with strong consensus, displacement still occurs.

The logical conclusion is that confidence rankings are not always and strictly following the probability distribution of the event at feedback time.

Scientific hypotheses

The confidence rankings of ARV trials are drawn from the projection of the probability amplitudes a_{11}(t), a_{12}(t) on a 2D plane following a perspective transform that may be exaggerated by a fisheye lens effect. Under this hypothesis, the relative magnitudes of the probabilities depend on the time of viewing and their relative length relationship may be perceived as inverted at certain times.

- Displacement occurs when the viewer’s field of view distorts the least probable outcome in this potential perspective transform (Figure B). In this case, projections of the most likely outcome are reduced relative to the magnitude of the least likely outcome, which appears dominant. If viewing is done at this time, then confidence rankings may be inverted relative to the true underlying probabilities.

Conclusion: multiple trial ARV projects must be done at various intervals and never all at once, to reduce the risk of displacement and to compensate for a potential perspective distortion of the probability amplitude vectors. Doing so may reduce displacement, but not eliminate it completely.

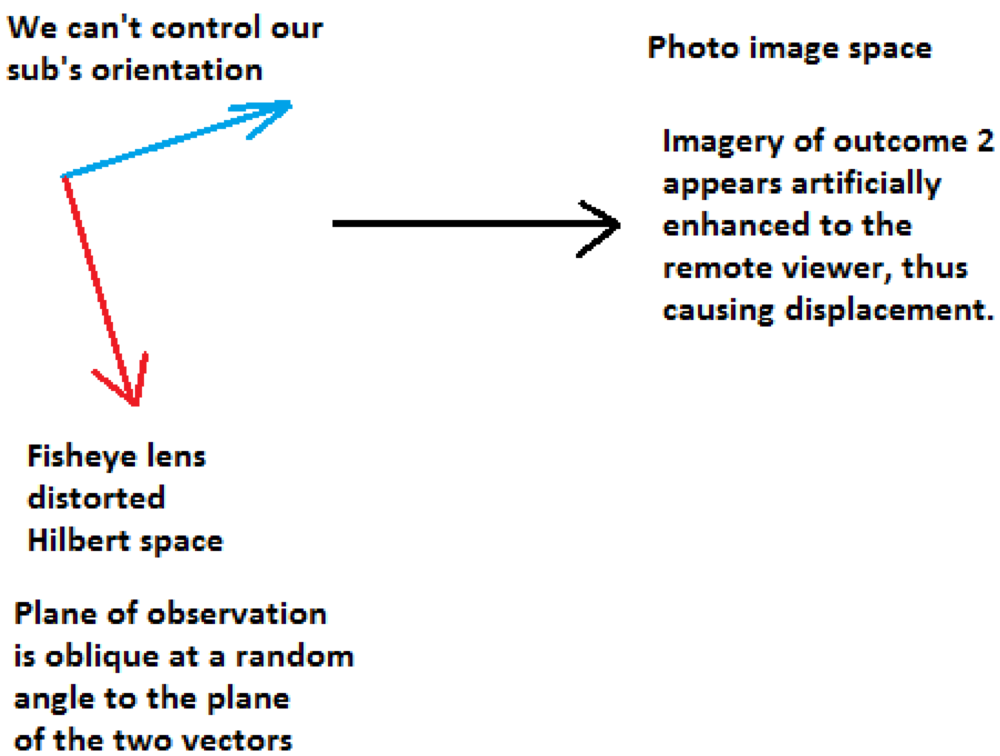

Figure B – Perspective distortion

The theory is easy to test: There must be two batches of 100 multiple trial ARV projects (events). First batch should contain only projects where viewing was done roughly at the same time (within an X hour interval), but with enough spacing between trials to avoid overlap in the lateral inhibition time window of the ESP part of the brain (maybe assumed in the order of 10-15 minutes between sessions). The second batch of ARV projects would contain projects where viewing was scattered well above 10-15 hours between sessions, to allow not only for non-overlapping ESP 'now' windows, but to also allow for a full or at least significant revolution of the wavefunction The two batches should contain the same number of trials.

NOTE: Both must be ARV project batches of viewing done by either a solo viewer with self-judging , solo viewer with external judge, group viewing with self judging or group viewing with a single judge. The idea is to have the data consistent in terms of experimental conditions before conducting comparison of confidence rankings.

For both batches, after judging and feedback, a count of displacement energy could be performed as follows:

displacementEnergy = 0

sumCRs=0

For each project j:

For each trial i in project j:

Add the trial's CR for outcome 1 and CR for outcome 2 to sumCRs

If Trial i is a miss relative to the outcome of project j, then add the highest CR of the trial to displacement energy

Calculate displacementRelativeEnergy = displacementEnergy / sumCRs.

It is assumed that displacementRelativeEnergy is lower in the second batch of trials where viewing is done scattered in time, compared to the value calculated for the first batch of trials.

If the experiment succeeds, a possible explanation would be that the CR data are drawn from the projection of the probability amplitude vectors onto a 2D plane, following a perspective transform that may be further distorted by a fisheye lens effect.

References

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Appendix A: The fisheye lens

An example of the fisheye lens is illustrated here:

http://lensbaby.com/sites/default/files/product/fisheye_craigstrong_fish.jpg

In this example, the fish in the foreground is distorted relative to its correct size in the absence of the fisheye lens effect.