

A RANDOM NUMBER GENERATOR TEST OF THE GRADIENT OF SHANNON ENTROPY

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Bial Fellowship Programme 34/98

Abstract

The main expectation of this experiment was to explore the binary random number generator hit rate region above 60%. Given the strong and stable correlation of AC with the gradient of Shannon entropy and given the evidence that RNG results arise from AC rather than some force-like interaction, we thought that high gradient binary sequences would be "easier" to obtain in a psi-mediated selection task.

Fourteen subjects participated in formal trials in this study and contributed a total of approximately 4,600 individual trials of 200 binary bits each. We found that the selection of high entropy sequences was no more likely than for low entropy sequences. Thus the initial hypothesis was not confirmed.

However, this experiment indicated an exciting path for a future experiment. In the AC studies that do show a correlation with the gradient of Shannon entropy, the main feature is that feedback to the subject also has the gradient information embedded in the display. We noticed, too late for the experiment, that the feed back of even high gradient sequences was a display who's visual gradient was always quite low. That is a "wiggly" line graph has low visual display gradient regardless of the gradient of the underlying driving sequence. If individuals make psi-like decisions on the bases of the gradient they experience, then we would expect the observed null result.

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