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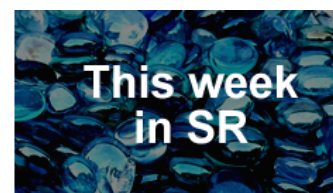
My budget smartphone every single day regales me with over two dozen (unrequested) 'reported stories' of truly remarkable new discoveries. My response is invariably to discard them as unreliable trash at best or attempts to deceive at worst. But as an economist imbued with rational thinking (and a Bayesian to boot – see **31 January 2023** (<https://www.scottishreview.net/ManfrediLaManna645a.html>)) am I justified in taking such a consistently dismissive stand? Surely, some of them may be true – amazing new discoveries *do* happen.

The strange case of Mrs Gloria Stewart and Dr Soal may be instructive. Dr Soal was a respected British mathematician who in the 1940s conducted extensive experimental research on extrasensory perception (ESP). Mrs Gloria Stewart was the star of a long series of experiments: under controlled conditions, she was asked to call out the value of one out of five possible playing cards. This experiment was carried out no fewer than 37,100 times – a large amount of data indeed. If her responses were just guesses, the number of successful guesses would be around 7,420.

You must have a view about the very existence of ESP, whether you are a sceptic, an agnostic, or (less likely) a believer. What number of 'successes' would make you change your mind, whether strengthening your scepticism or confirming your faith in ESP?

Mrs Stewart was right in her predictions 9,410 times, thereby making the probability that she had no ESP vanishingly small (smaller than 0. followed by 100 zeros), compared to the alternative hypothesis that she had some form of telepathic powers.

Were he alive today, Dr Soal would be a familiar figure on morning TV programmes, Facebook, etc, and his findings would eventually make their



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way to my smartphone.

Faced with these data, I would not change my mind about the non-existence of ESP, but in fact my belief would be strengthened (and the newsfeed swiftly erased). Am I a dogmatic rationalist unable to accept evidence that challenges my prejudices? The answer can be found by examining in more detail how the above conclusion is arrived at. What the figures tell us is that if we compare the alternative hypotheses that Mrs Stewart has ESP or not, we are bound to conclude that she indeed must have telepathic powers.

Good decision-making is based on considering all relevant information and it should be obvious that this is not the case in the scenario described above. What about the possibility of unintentional errors in recording the data of the experiment? Or the possibility of Mrs Stewart having an accomplice among the testers? Or the possibility that the experimental results have been doctored to produce a sensational outcome? And so on.

If you believe that any of the new hypotheses is more likely than Mrs Stewart being a clairvoyant, then you may take comfort in the fact that probability theory does assign zero probability to the existence of ESP. In fact, if any of the new hypotheses is more likely than ESP, the more sensational the reported outcomes are, the more justified a rational decision-maker is in rejecting them.

For the record, it is now widely acknowledged that Dr Soal fabricated his ESP data and no replication of properly controlled experiments has ever found any evidence of ESP.

Notice, and this is very important, that it is not the case that any new information challenging our beliefs should be discarded. Rather, that any properly verified new information should be accepted even if it goes against our prior beliefs.

This underlines the crucial importance of who reports the new information. A study reported in a properly peer-reviewed publication and replicated in subsequent research should be taken seriously. A newsflash appearing on your smartphone, not so much.

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