Review of: "Exploring the Boundaries of Behavioral Robotics: Understanding the Limitations of Psychokinesis"

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Potential competing interests: No potential competing interests to declare.

Review [for *Qeios*] of the paper:

"Exploring the Boundaries of Behavioral Robotics: Understanding the Limitations of Psychokinesis" by Adrian David Cheok and George Karolyi

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This paper under review has a very ambitious objective: ‘Our paper endeavors to prompt an exploration of the extraordinary, shedding light on uncharted frontiers, and unraveling the mysteries that lie at the crossroads of science and the human mind’ (Concluding sentence of the abstract), and is ‘an invitation [to ‘researchers, scientists, and enthusiasts’ (Abstract)] to embark on a transformative journey of inquiry, discovery, and collaboration—an exploration of the extraordinary that challenges us to redefine the possible’ . For such super ambitious aims, it is curious that:

1. Four of the 5 references cited in this paper of 31 large pages all dated more than 23 years ago (the latest of the four being published in 1999), and the fifth one is dated 2010.
2. The content of the paper is also not substantive enough to support such super ambitious objectives.
3. Some arguments in the paper are controversial.

As an example of this last point, consider the statistical standard of the paper in accepting the verification of psychokinesis (mind over matter). At the early parts of Section 3 (entitled ‘Methods’) from p.2, the paper considers tossing a unbiased coin, and consider whether a subject may affect the outcomes by mind power to make head turning up by significantly more than statistical expectation. ‘Probability calculations, show that the probability of getting 120 heads or more, in 200 tosses by chance, is 0.0029 or 0.29%.’ (p.3) The paper uses the following tests for significance and highly significance:

‘If in any orthodox scientific test, the probability for a result having come about by chance is 0.05, namely 5%, or less, that result is considered "significant", chance is called into question, and a causative factor is suspected. Also, if the probability for a result having occurred by chance is 0.01, namely 1%, or less, the result is labelled "highly significant", chance is rejected’ (p.3).

Then, the paper concludes:

‘In practice one might arrange 10 test runs, typically one week apart, each with 200 tosses or more. One might then find that the psychokinetic ability of the subject varies from test run to test run, but if the overall result is highly significant, the psychokinetic ability should be considered as verified, doing otherwise would be inconsistent, and even dishonest.’ (p.3)

I regard this argument as ignoring the valid point by the famous American astronomer and planetary scientist Carl Sagan that ‘Extraordinary claims require extraordinary evidence’ (Sagan 1980). To show that one place has significantly higher rainfall than another, the normal significance level of 5% and very significance level of 1% may be sufficient as such claims are not extraordinary. However, before paranormal phenomena including psychokinesis have been widely accepted as already well established, we should regard them as extraordinary claims and a probability of very much less than 0.29% and consistency over many researchers are required for acceptance as confirmed verification. Even for non-extraordinary claims, the 1% highly significance level does not indicate that ‘chance is rejected’ (p.3), but only that happening by chance is highly unlikely. Actually, repeating the test a thousand times, one would expect the 1% ones happening many times.

However, I am not a simple, paradigmatic materialist. I think that ‘10 test runs, typically one week apart, each with 200 tosses or more’ would not be sufficient, even if clearly passing the 1% ‘very significant’ test, for verifying psychokinesis. Nevertheless, there have been many substantive studies not only on psychokinesis, but also on extrasensory perception, medium communications with the dead, memories of past lives, paranormal near-death experiences (see Cardeña 2018, Ng 2023 for brief surveys) that their combined weight should make all people, including philosophers and scientists, reconsider the paradigm of simple materialism. Thus, I am very much in agreement with that paper on:

‘As we navigate the uncharted territories of science, it is imperative to remain open to possibilities, encouraging the exploration of unconventional phenomena with a critical and unbiased lens.’ (p.29)

In fact, in Ng (2023), I discuss a somewhat related topic as that of the paper under review: The potential capabilities of AI partly depend on whether AI may become conscious. This possibility depends on the correct answer to the mind-body problem. While answer to this hard problem of consciousness is unlikely to be available anytime soon, some recent results in neurology and parapsychology may throw some lights.

Some minor points:

1. ‘Thus if a die is thrown 180 times, then in the absence of bias, one would expect each number of spots to come uppermost in 1/6 of the 180 throws, that is in 30 throws.’ Should be approximately 30; need not be exactly 30.
2. Second line of the third paragraph on p.5: I do not know how is the number 1.15 derived.

References

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