

Review of: "If knowledge were simpler, we would all be wiser"

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Potential competing interests: No potential competing interests to declare.

Review of Michael Wood's "If Knowledge were Simpler, We Would all be Wiser"

I appreciate the opportunity to review Dr. Wood's preprint titled "If Knowledge were simpler, we would all be wiser". I find the topic of the manuscript interesting and its content stimulating, because this subject matter and my research interest converge on understanding how knowledge is structured. However, our initial motivations differ in that Dr Wood is interested to make knowledge easier accessible, understandable and useful (to facilitate assimilation), whereas mine is that from a scientific administrator's perspective to quantify knowledge as an indicator of research progress, which requires answering the question "what is the unit of knowledge?"

The question if knowledge can be expressed more friendly to human cognition is both important and timely, for we are experiencing an explosion of information/knowledge never seen in history. Therefore, I give the topic of this manuscript a "5/5".

The author considered the subject matter quite thoroughly, including conceptual, technical, social issues. While the treatment is not exhaustive, it does cover a broad range of relevant matters. There are some interesting and excellent ideas, e.g., the figure describing two structures (the figure does not appear numbered). I give the coverage of the article a "4/5".

I have a few concerns about the manuscript. First, it is difficult for me to categorize it in the normal way a journal article is categorized. I would say it is more of an "opinion" piece or a "review" than a "research article", for the latter requires some original data. Second, the "examples" in the manuscript are not effective to convey simplification of knowledge, at least to someone like me who is neither a mathematician nor Excel savvy. I agree with the other reviewer that the examples should be expanded to include other types of knowledge (e.g., non-mathematical) and consider the background of a broader audiences. Therefore, for the "approach" of the manuscript (for lack of a better word), I would give it a 2/5.

Overall, i.e., 5/5 (topic), 4/5 (coverage) and 2/5 (approach), I would give a score of 3.5/5, but want to encourage the author to continue this line of research, hence a final score of 4/5.

Finally, if I may, I would like to share with the author a quote from Philip Anderson, from his Nobel Lecture in 1977:

"One of my strongest stylistic prejudices in science is that many of the facts

Nature confronts us with are so implausible given the simplicities of non- relativistic quantum mechanics and statistical

mechanics, that the mere demonstration of a reasonable mechanism leaves no doubt of the correct explanation. This is so especially if it also correctly predicts unexpected facts Very often such a simplified model throws more light on the real workings of nature than any number of “ab initio” calculations of individual situations, which even where correct often contain so much detail as to conceal rather than reveal reality. It can be a disadvantage rather than an advantage to be able to compute or to measure too accurately, since often what one measures or computes is irrelevant in terms of mechanism. After all, the perfect computation simply reproduces Nature, does not explain her.”