# Response to Reviewer 1 Comments

The authors propose a new method for characterizing the complexity of objects. Objects subjected to this method cannot be derived from the probability distribution and cannot be infinite.

This concept is based on decomposition the object into a partially ordered multiset which describes how the object can be formed by joining or altering existing building blocks.

This article is not easy to read. However, I would not take this as an objection. It requires increased attention. Moreover, the authors made sure that the reader had the best possible ease. It's a great idea to create a glossary of terms.

In my opinion, the article is worth publishing.

**Response 1:** Thank you very much for the comments and the appreciation.

I would only recommend developing an introduction. I was surprised that there was no mention of the importance of Fisher's information, both in the study of the complexity of the objects and in the general description of the information it carries.

Of course, the authors do not use it in their model. However, it is worth mentioning because it is closely related to the model in question. A number of papers on the relationship between Fisher Information and the measurement of complexity are still published, see e.g.
https://doi.org/10.1093/imaiai/iaaa033
or information carried by market parameters:

Note that the proposed approach can also be used in the analysis of signals generated by the market. They form certain regularities that allow us to predict (for better or worse) the behavior of the markets in the future. It is therefore worth mentioning the importance of Fisher's information. This will give the reader a more complete picture of the potential applications of the proposed method. This is especially important when proposing something new. As we know, it is very difficult to break through with new topics.

**Response 2:** Thank you very much for the comments and the suggestions.

Indeed, Fisher information is important, in statistics in particular, and therefore worth mentioning. Yet we think it is too far removed from the main content of this manuscript (as the reviewer also mentioned) and there are already quite a few new concepts introduced in the manuscript. Thus, we didn't discuss this topics in detail but added a few sentences in the introduction about Fisher information and its applications on measuring complexity of learning tasks and analyzing signals generated by the market, with the references cited accordingly (line 88-92).

We've also corrected some typos and minor parts here and there, and improved the introduction.

Thanks very much again for your time.