REFEREE REPORT(S): Referee: 1

COMMENTS TO THE AUTHOR(S) This is an interesting and worthwhile paper. The authors examine the relative frequencies of occurrence of different knot types in the world of knot diagrams, where diagrams with a fixed number of crossings are assigned uniform measure. This is not the same as the more usually studied model where different simple closed curves in 3-space are assigned uniform measure. The model studied here is less physically relevant but none the less interesting. The authors present and discuss an enumeration scheme and give interesting results about relative frequencies. In addition the paper contains a lot of oddments of information that are themselves of considerable interest. The arguments given are clear and the paper is well written. I have only a few minor comments that might somewhat improve the paper.

1. On page 1, near the end of the first paragraph, I think that several pertinent references are missing. There is a paper by Soteros et al in Math Proc Camb Phil Soc in about 1992 and two papers by Diao in JKTR (about the same time) that treat various aspects of different types of simple closed curves in 3-space. I would like to see these references included.

   Added the sources

   - *http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=2095592*
   - *http://www.worldscientific.com/doi/abs/10.1142/S0218216595000090*
   - *http://www.worldscientific.com/doi/abs/10.1142/S0218216594000307*

   to the end of paragraph 1.

2. On page 2 the authors say that their results obey Zipf's law (or an approximation to it). This has been observed in other models. See a paper by Orlandini et al in Phys Rev Letters in 2007.

   This is a very interesting article! Added the source http://journals.aps.org/prl/abstract/10.1103/PhysRevLett and a reference in the text: "This distribution has been previously observed for knotting in self-avoiding polygon models by Baiesi, et al. [#]."

3. On page 14, above Table I, is the detailed discussion of the organization necessary?

   Shortened most of the details to the sentence, "We processed the diagrams across 400 simultaneous Amazon EC2 cores in Oregon and Virginia."

4. On page 15, just before Table II, the authors talk about symmetries becoming rare. Do they have information about the rate? Is it exponential?

   One of the authors has shown that the rate at which diagrams are asymmetric is at least exponential, so "decrease" has been changed to "decrease exponentially".

5. In Table III, why doesn't 5_1 appear?

   The table can hold as much or as little data as need fit; the data itself is to be provided in a more usable format. The knot types 5_1 and 5_1^m have been added to the table.

6. On page 18, Zipf's law is mentioned again. See my earlier comment.

   See (2). Added a citation to the reference: "(cf. [#])"

Referee: 2

COMMENTS TO THE AUTHOR(S) The manuscript is overall well-written: sufficient details are provided to confirm the authors' propositions, lemmas, and theorems. The presented analysis is detailed and thorough. The only criticism is that at times the manuscript reads like a novel: commentaries extraneous to the scientific matter should be eliminated; only the material and comments relating to the academic comment (as opposed to the authors' thought processes) should be included. This should reduce the length of the manuscript while making it more focused.

The most glaring instance of this concern was brought up by referee 1's third comment, which we have condensed.