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SES 598: Fundamentals of Complexity
Peer review

LOLIntelligence: Alpha Development (*Alyssa Adams*)

This paper applies informational measurements to a popular online strategy game. This is an innovative idea in both the topic and the methodology: it applies a theory traditionally applied to biological systems to a social one that also hasn't been widely studied before. This originality makes it potentially very popular and able to draw audiences from both the social and natural science areas. It also constitutes a bridge between two traditionally distinct and independent branches of science, acting as a true example of interdisciplinary research.

One of the strongest points of the paper is the clear explanation of the network: how it is constructed, the criteria for the boolean approach and the limitations due the small size and bias of the sample. It makes it easy and straightforward to reproduce and extend the results to different samples from both the same and different systems. It also sets a solid background for future work as it clearly states which questions have already been answered, which ones are unclear and which ones can and should be addressed in future work.

The structure of the paper is adequate to the topic and the order of the sections generally helps process all the information included. The plots are helpful and laid out in a way that helps the direct comparison of them to each other. They are also carefully labeled and explained.

The main weakness of the paper is the incomplete background given on the network, which sometimes makes it hard to follow unless you are already familiar with the game. The goal of the game is not clearly stated until after some specific details have been explained, making it hard to follow this previous explanations. Some details of the game, such as the different roles a champion can fulfill, are mentioned to be an important part of the game but never explained, making it hard to follow the explanation without searching for additional information. Some extra details in the explanation of external factors that affect each game would be useful (e.g. what is considered "toxic behavior"). It would also help to include the definitions of very specific jargon (e.g. ESports).

Some extra background on the informational measurements applied would be helpful to understand the results. More specifically, a qualitative description of the concepts of transfer entropy and active information when applied to this concrete system would help understand the conclusions.

In summary, this paper stands out for its originality and innovative approach to a social system. It uses an established theory to study a new dataset in a way that can bring results interesting for both natural and social scientists. It clearly explains the network employed and its construction, but it needs a further explanation of the background and details of the dataset.