**Modeling Disagreement: Philosophical and Scientific Debates Through the Lenses of Epistemic Network Analysis**

Science can be defined as a study and understanding of natural phenomena. It is concerned with empirical data that can be observed, tested, and repeated. It is systematic and determined by its scientific method. Science bases its explanations on the results of experiments, objective evidence, and observable facts. It started as a part of philosophy, but deviated from philosophy in the 17th century and emerged as a separate study that involves objective types of questions. It tries to find answers and prove them to be objective facts or truth. As its most important method, experiment tests certain hypotheses that can be proven or validated as facts. By observing and undertaking an experiment, science produces knowledge through observation.

Philosophy is a more difficult concept to define. It is broadly defined as an activity that uses reason to explore issues in many areas. Its application to many different fields makes it impossible to have a definite and concrete definition of philosophy, but we can say that philosophy tries to understand the fundamental nature of things and is based on reason. Philosophical methods utilize logical argumentation. Philosophy uses arguments of principles as the basis for its explanation, and entertains both subjective and objective types of questions. This means that aside from finding answers, it also generates questions.

Debates represent the mutual exchange of arguments, both in philosophy and in science. On that side, debates are significant for both science and philosophy. Disagreement is a central phenomenon of a debate because it is the main cause of the emergence and proliferation of the debate. Using ENA (epistemic network analysis software), we will construct models of one philosophical and one scientific debate. We will use a transcript of the debate between Chomsky and Foucault to present the philosophical disagreement (Chomsky & Foucault, 1971). We will also analyze the debate between Einstein and Nils Bohr to present the scientific disagreement (Kumar, 2008). Using transcripts and papers, as sample data, we will establish connections to single out all points of disagreement between the mentioned parties. The connections can then be represented by a network diagram; qualitative codes become nodes of the diagram. ENA can then calculate the centroid of the polygon created by the network diagram. The centroid, similar to the center of mass for an object, takes into account the weights of the connections and has a corresponding plotted point (Shaffer *et al.*: 2016). Connections between the nodes are represented by weighted lines in the network diagram. The plotted points can be used to determine systematic statistical differences between networks since they represent each unit’s network as a single point on a Cartesian plane created by the first two ENA dimensions.

After constructing models of disagreement, we will compare them in order to examine whether these disagreements significantly vary in both models. Our hypothesis is that philosophical and scientific disagreements are based on the same type of questions and the same structures of epistemic networks, that is, philosophical and scientifical models of disagreement should be statisticaly the same.

**Keywords:** Philosophical disagreement, scientific disagreement, epistemic network analysis, Chomsky-Foucault debate, Bohr-Einstein debate