In Shannon’s Mathematical theory of Communication, Shannon’s main motivation is to develop a mathematical theory, through the use of PCM and PPM and other statistical methods, to model human’s method of communication. To achieve this, Shannon addresses some conditions and variables: semantic aspects of communication are negligible, selecting a message from a set of possible messages (basically system must be generalized to assume all possible permutation of messages), set is assumed to be finite thus the number (or monotonic function) used to describe it will be a measure of information, etc. Setting these variables and conditions allowed Shannon to proceed with mathematical conjectures and proofs to model the method of communications.

When reading this article, we can observe Shannon’s research article is strikingly similar to that of a STEM paper. He starts off with his main motivation and listed his conditions, variables, and assumptions to proceed to how he worked out his experiment (the discussion and results/observations of his experiment). While his paper does include rigorous proofs and observations, his writing appears to deviate from the STEM (or CARS method) to which he includes long dialogues about certain theories and his reasoning behind using them. One example would be from page 34 where Shannon explains “Just as we may perform various operations on numbers or functions to obtain new numbers or functions, we can perform operations on ensembles to obtain new ensembles. Suppose, for example, we have an ensemble of functions …” Typically research articles in the STEM field based their writing under some conditions. One, their audience members are people with similar or the same profession as them. Two, the audience members are aware of all the equations and information required to understand the paper. The reason I am stating these conditions is mainly because STEM papers do not put a tremendous amount of effort to explaining every single detail unless it is absolutely necessary. Shannon appears to put more effort to explaining every possible detail to allow his readers to understand his thought process. We can see this similarity in Gleick’s Information Theory, which his review of Shannon’s paper typically is more descriptive rather than mathematical. Other notable differences would be his style of citing certain quotes from others, typically directly referring the author rather than by the number with the equation or proof, and the way he structures his “experiment section”. His structuring method is similar to a novel or book; where each chapter is clearly listed and some numbers to indicate argument points.

Shannon’s writing style has shown two things, either I clearly have no understand of what entropy is or information/communication is capable of being portrayed mathematically. While the first statement was a joke, the second statement seems plausible as Shannon’s writing style clearly implemented both that of STEM and SSHA. He was able to transition from experimentation to “story telling/ narrating his characters” to back to experimentation. His actions lead to a philosophical question: if it is possible to use language as a method to explain mathematics, then is it possible to use mathematics to understand language.