A Mathematical Analysis of Constructed Languages

Presented by

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Abstract: Using concepts from information theory such as entropy, we analyze the complexity of several constructed languages. First defined and studied by Claude Shannon in 1948, the entropy of a written language measures how much information is produced on average for each letter of text in the language. Shannon estimated the entropy of written English by doing experiments to approximate word, letter, and n-gram frequencies. We analyze and compare the entropy and other similar quantities of constructed languages such as Dothraki (Game of Thrones), Tengwar (Lord of the Rings), Na'vi (Avatar), Klingon (Star Trek), Esperanto, and Lojban as well natural languages such as English, French, and Spanish.

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