Background

- Previous studies show that brain networks follow power law.
- Language networks are also known to follow power law. These suggest that we can get insight into brain networks from studying language networks and vice versa.
- A hypernetwork is a weighted hypergraph and we define a k-hypernetwork as a collection of k-hyperedges, where k-hyperedges consists of a set of k vertices.

Methods

- We have analyzed the k-hypernetwork structures of TV drama dialogues.
- In language modeling, each k-hyperedge consists of k consecutive words in a sentence, i.e., k-gram.

Summary

- Log(frequency) values of TV drama scripts have high values in high rank region of 3-gram. In written language, i.e., Wall Street Journal this phenomenon was not observed. This phenomenon may due to the small corpus of spoken language of TV drama.
- How the hypernetworks “evolve” as new language data are observed in language acquisition of children is an interesting future work. This may shed light on organizational processing of the brain networks involved with cognitive development of language.