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Semantic Network Analysis of Religious Pamphlets

Introduction

- We introduce a new methodology for analyzing religious literature.
- **Semantic Network Analysis (SNA)** is a highly quantitative procedure where we distil the most commonly co-occurring words from large bodies of text.
- SNA is conducted using computer programs, where the text corpora are fed into an analyzer, and the output is a matrix of associations.
- Here, we provide an analysis of religious pamphlets (a.k.a. flyers, gospel tracts).

Materials

- All of these were collected in public, usually from people standing in the street who were there for the sole purpose of distributing them.
- These pamphlets were diverse in their format, their subject matter, their extent of professionalism, their publishers, and which church was distributing them.
- Most of the pamphlets did not show a publication date or the author’s name.
- The mean word count of the entire collection was 916.5 (SD = 427.0), range 228 – 1936 words. The total word count was 27,495.
- There were 733 Biblical citations, with a mean of 24.5 citations per document (SD = 27.5), and 4.9 citations per page (SD = 8.4).

Procedure

- We used the EXRELAN software (a variant of the ICAN program), which was created specifically for this project.
- EXRELAN works in the following steps:
  1. Corpus is prepared (contents of pamphlets were manually typed into a .doc file).
  2. Function words are removed from the documents (articles, pronouns, conjunctions, prepositions, etc.). This is done automatically by the program, but then further processing is done by hand to combine synonyms.
  3. Files are concatenated into a single corpus.
- Figure 1 shows how the text is transformed and then analyzed.
- A ‘sliding window’ is used, consisting of an odd number of words where the middle word is paired with each other word in the window.
- Co-occurrence established a score. This score decays with every non-occurrence.
- We chose a window of 11 words (5 + 1 + 5).

Results

- Figure 2 is a network diagram showing the most frequent concepts and the links between them (drawn with the ORA program).
- As shown, certain words (e.g. God, life, Christ, etc.) were in the centre of the network, with many strong connections.
- Figure 3 provides examples of links to three key concepts: God, Jesus, and sin.
- Note that scores are asymmetrical: link from $A$ is not necessarily the same as the link from $B → A$.

Discussion

- We have provided a brief demonstration of the capabilities of SNA pertinent to the study of religion.
- This methodology can be applied to a wide variety of potential studies. For example:
  - Distillation of the major themes that emerge from various corpora (e.g. the Bible or the Qur’an could be compared, and the sections therein).
  - Analysis of historical trends in how concepts are transmitted (e.g. sermons through history).
- SNA can also be a useful adjunct to more traditional forms of the study of religion.