

Semantic Network Analysis of Religious Pamphlets

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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).

- Box 1 provides examples of the literature used.
- Religious pamphlets have been in existence since the Lutheran Reformation. Nowadays, they are used by various Evangelical Christian groups.
- Pamphlets are always provided free of charge in public, usually distributed to passerby on the street.
- Their aim is to persuade people of their message.
- In our study, we explore the semantic networks that are transmitted by these pamphlets.

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Materials

- The first author (Y.I.R.) collected 30 religious pamphlets over a period of approximately eighteen years (1992–2010) in Canada, the U.S.A., and the United Kingdom.
- 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 = 6.4).

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).

Box 1: Sample of the religious pamphlets (10/30) used in this study.

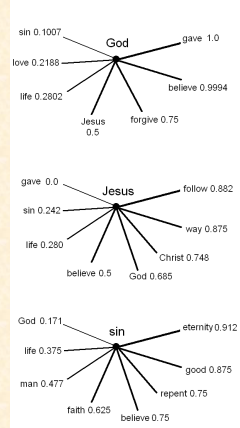
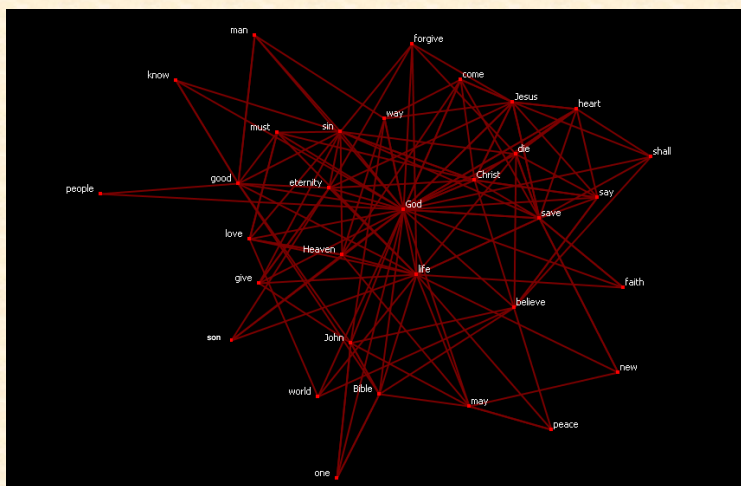
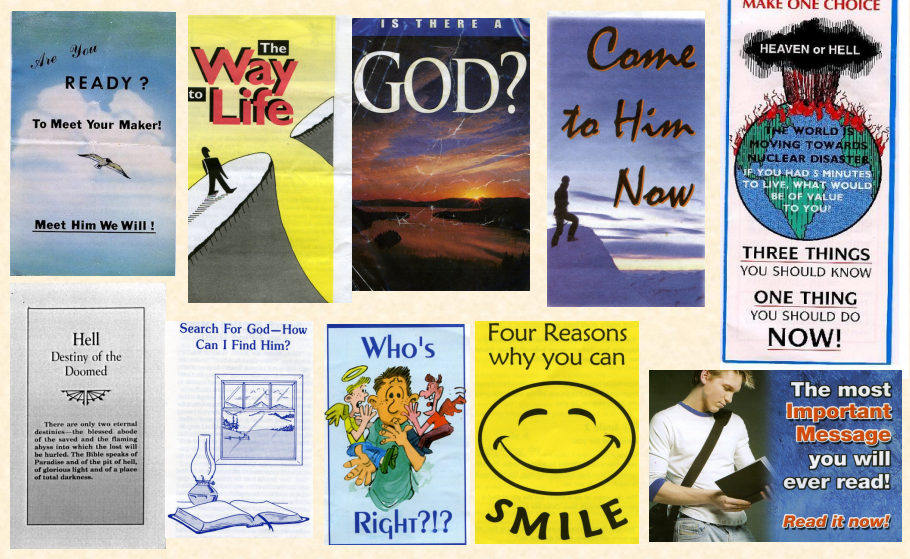


Figure 2. Network diagram of most frequently occurring words (≥50 times), showing links with a score of 0.7 or more (scale 0 – 1.0).

Figure 2. Examples of linkages of three key words (God, Jesus, sin) to other words.

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 → B 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.

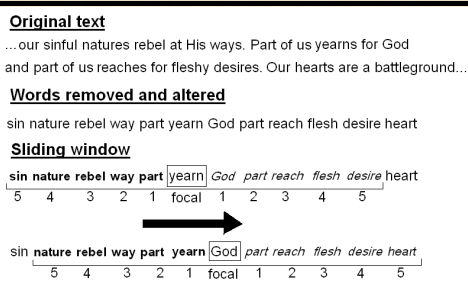


Figure 1. Text processing and sliding window.