Gospel and Gunpowder: Methodology for Firearm Discourse in Christian Periodicals 1857-2017

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Introduction

To understand the relationship between firearms and American Christian communities requires a principled, in-depth analysis of historical Christian periodicals. As humans, we are constrained in our ability to exhaustively analyze large volumes of text due to both time limitations and the evolution of language over time. This project addresses these challenges by applying traditional natural language processing techniques and modern large language models to over 11,000 PDFs of Christian periodicals ranging from the mid-19th century to present day. By automating key steps in the research pipeline, we develop a method to perform large-scale, reproducible, and less biased qualitative historical analysis. This framework enabled us to track how firearm discourse evolved over time and to examine how the contexts in which firearms are mentioned shifted during wartime and other major national events.

Data Collection & Processing

The table below summarizes the periodicals in the dataset. The accompanying workflow illustrates how each document was processed and analyzed to create our dataset.

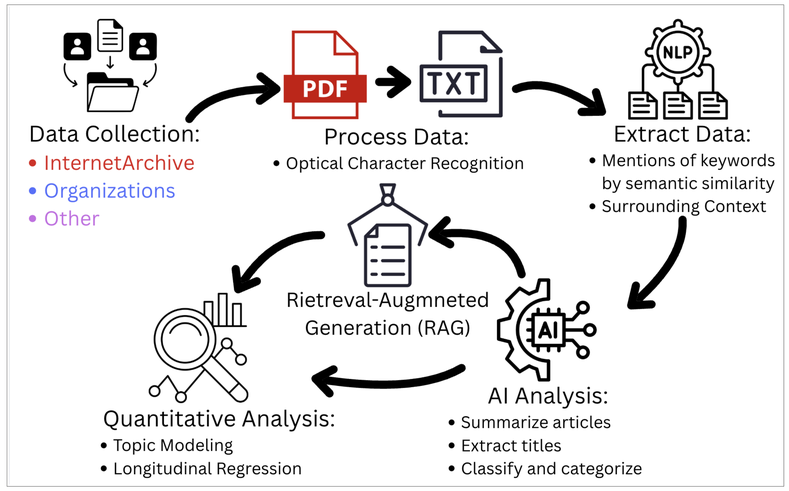

Figure 1. Diagram of Project Workflow

Source	Years	Political Leaning	# of Issues
Sunday School Times	1859 - 1961	Varies	4861
Christianity Today	1956 - 2025	Conservative	318
Christian Century	1880 - 2017	Liberal	5658
The King's Business	1910 - 1970	Conservative	732
Moody Monthly	1921 - 1961	Conservative	398

Table 1. Summary of Sources

Using AI for Historical Analysis

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How is AI useful in analyzing historical documents?

AI can be useful for analyzing historical documents by:

1. Efficiently analyzing and identifying key features in scanned PDFs that could have been lost due to OCR
2. Interpreting language context in a consistent manner across time-periods
3. Semantically embedding documents for search and retrieval
4. Conducting reproducible analyses and reducing interpretive bias in qualitative research
5. Enabling rapid and large-scale analysis, compressing years of manual work into months

Ask anything

gpt-4o-mini

How did the Gooyabadi Lab use AI in this project?

The Gooyabadi Lab utilized AI in this project by:

1. Parsing over 40,000 pages of PDFs to identify article titles
2. Summarizing articles spanning from the mid-19th century to the present day
3. Embedding OCR-converted text and developing a RAG to broaden research possibilities
4. Designing reproducible prompts to generate consistent and interpretable outputs
5. Conducting all analyses across more than 11,000 PDFs in under six weeks

Ask anything

Natural Language Processing

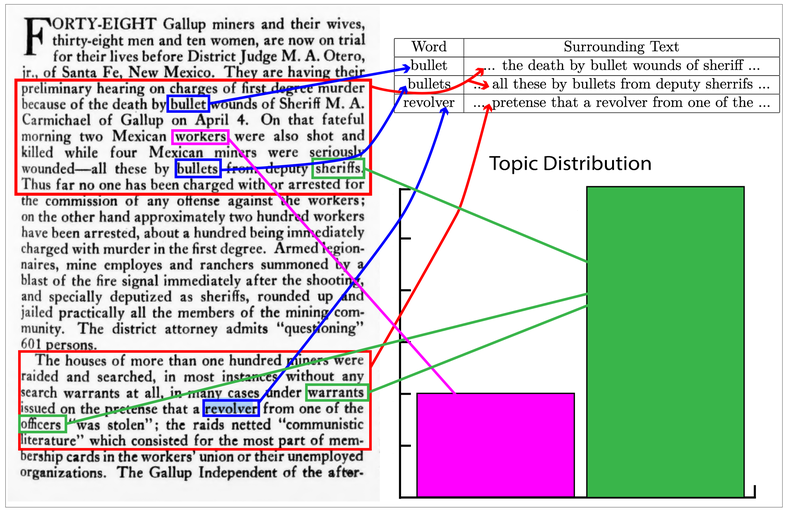

Figure 2. Diagram of Keyword Extraction and Topic Modeling

The diagram above illustrates how firearm-related terms and their surrounding contexts were extracted to form the basis of our dataset. The bar chart and corresponding lines show how we can construct a topic distribution for this document which can help reveal what discussions tend to surround firearm mentions.

Results

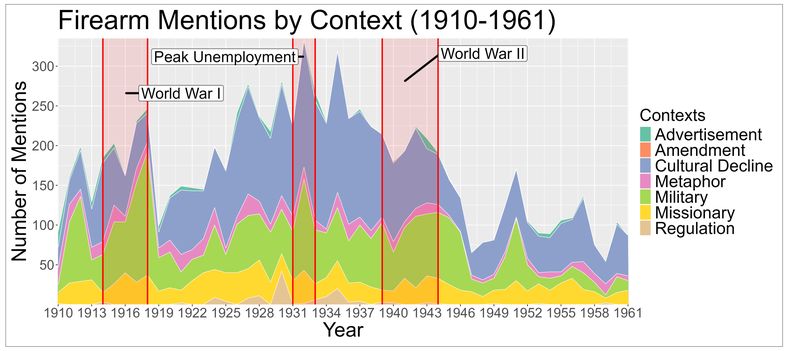

Figure 3. Area Chart of Firearm Mentions by Context from 1910 to 1961

Limitations, Challenges, and Future Work

1. Column Formatting Issues
   - Multi-column layouts often confuse OCR and LLMs, resulting in text that appears out of order
2. Expand the dataset
   - Include sources from a broader range of political perspectives and time periods

Acknowledgements

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