Digital Methods: Mirroring Monarchs

A Digital Approach to Exploring Kingly Images in Funeral Sermons

Keywords:

Digital Humanities, Danish Reformation, Text Mining, Distant Reading, royal funeral sermons

Indholdsfortegnelse

Introduction and historical background

In his funeral sermon, the Danish king Christian IV is descried as "So pious and God-fearing, so righteous, and so diligent for his subjects, as there have never been anyone more or better".[1] Funeral sermons became a literary genre in Denmark following the Reformation, serving to immortalize the deceased with idealized descriptions of their lives, and to provide an example of what it meant to be a good Christian, noble or King.[2] Due to this genre features, the narratives in funeral sermons serve as excellent sources for understanding what was considered ideal at a special point in time.

My study aims to *examine how the perception of the ideal king changed during the reign of Christian IV.* Using digital methods, specifically text mining and visual analysis using RStudio, I will compare two different funeral sermons: Frederik II's sermon from 1559, written just before the ascension of Christian IV, and Christian IV's own funeral sermon from 1649.[3] With help from digital tools, I will examine the word counts in various categories representing different aspects of kingship, such as the roles as church leader and scholar. My approach is inspired by the methodology used by Karin Hassan Janson in her research on gender descriptions in "Kvinnfolk och könskategorier",[4] although my focus is on the development in the portrayal of kings, rather than gender.

After the reformation in 1536, Danish kings acquired unprecedented power, as they became leader of the new Danish Lutheran Church. However, the position alone in the top of Danish society, was also a new role, which had to be defended and defined.[5] Christian IV was the third monarch to ascend the throne after the reformation, and his 60 years on the throne, had a big impact on Denmark, as the country underwent various historical events throughout his rule: A stringent form of Christianity was introduced to foster unity within the reformed church. The nation evolved into a colonial power, Copenhagen experienced significant growth, and investments in trade strengthened the Danish economy.[6] Nevertheless, Christian IV also dragged Denmark into costly conflicts, most notably the Thirty Years' War, which ended with huge losses and the occupation of

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[1] *Funeral sermon Christian IV* s.25
[2] Jacobsen, "Danske ligprædikener" p.3
[3] Hindsholm, *Førstelig Leffnetzs*
[4] Hassan, "Kvinnfolk och könskategorier"
[5] Bregnsbo, *Konge og kirke* p.47
[6] Havsteen, *Kongerækken* p.35-36

Jutland by Swedish troops.[7]

Given the timing of Christian's ascent to power, the duration of his reign, and the historical context, it is interesting to investigate whether the characteristics of a "good king" underwent any changes, comparing it with a portrayal of a king 60 years closer to the reformation, as evident in Frederik II funeral sermon. Due to the absence of prior studies on this specific topic and by using two kingly funeral sermons, never used in research before, this study gets particularly interesting. By using digital tools, I hope to uncover patterns I missed during my traditional close reading of the sermons. My hypothesis is that Christian IV will be portrayed more in relation to the church in his funeral sermon, reflecting a protestant church that became more established during his reign.[8] However, old Danish text is challenging to read and therefore, a successful outcome of the use of digital tools on 17th-century Danish text would be extremely relevant and beneficial to historians. In essence, this project has a dual purpose: Firstly, I aim to explore how the description of a "good king" evolved during the reign of Christian IV. Secondly, I intend to assess the utility of digital tools for analyzing centuries-old Danish historical sources.

Software Framework

I worked on this project on my MacBook Pro, with the software MacOS ventura 13.3.
I used the desktop version of Transkribus (v1.26.0) to transcribe the funeral sermons.
I processed my data in the desktop version of RStudio (2023.06.2+561), and R (4.3.1).
All the code and data associated with the project is available in my GitHub repository found here:

https://github.com/Digital-Methods-HASS/au728030_beuschau_mia

Once you are in my repository, go to the folder "My Final Project" and here you will find a HTML file (funeral_sermon_exam.html), an R Markdown document, and the data used in my project (in the "data" folder).

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[7] Heiberg, *Christian 4*. s.219
[8] Heiberg, s.40

Data Acquisition and Processing

I downloaded the funeral sermon of Frederik II written by Anders Vedel in 1588[9] and the funeral sermon of Christian IV written by Laurids Hindsholm In 1649,[10] from Det Kongelige Bibliotek, where they are publicly available as TIFF files through Early European books.

Because the funeral sermons are not available as machine-readable files, I used the NorFraktur_1600_Pylaia[11] model in Transkribus, which provided me with a partial transcription of nearly 200 pages of text,[12] that I then spend 30 hours editing, making sure each word was retained how it was originally spelled. When transcribing the texts, I only included the data regarding the kings, leaving behind the descriptions associated with biblical figures and other persons, found in the margin of the sermons, as illustrated below.[13]
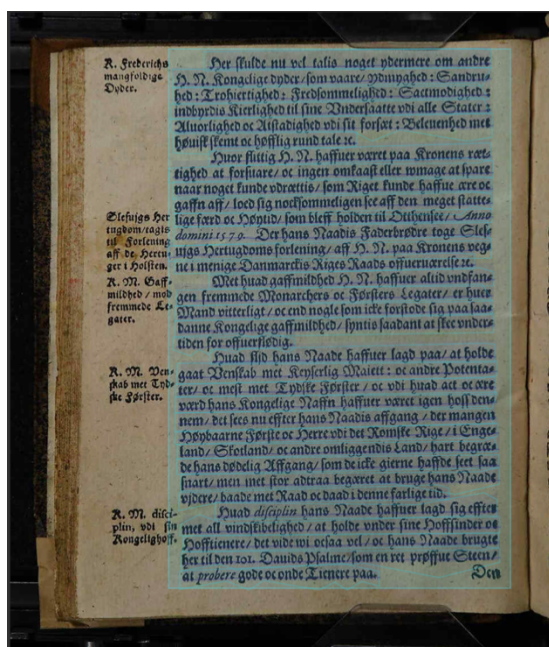

Figure 1, a picture of page 53 from the funeral sermon of Frederik II

Figure 2, An example of a transcripted page in Microsoft word

I ended up with machine-readable files, which I then loaded into RStudio, using the readtext package, which allowed me to work with docx. files in R. I processed the data with the tidy text package and other standard packages used in class.

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[9] Vedel, *En sørgelig ligpredicken*

[10] Hindsholm, *Førstelig Leffnetzs*

[11] PyLaia HTR 40982

[12] Each funeral sermon is around 100 pages long

[13] Decisions I took during the transcription can be found in my GitHub folder "metadata_til_transskription"

After initial processing, cleaning, and correction of interesting words, I ended up with a total of 36643 words across the two texts, organized in a manner that conforms to the tidy data principles specified by Hadley Wickham in 2014.[14]

Empirical results

To ensure valid visualization, I made sure that the two tidy text datasets were comparable. Given the varying lengths between the funeral sermons,[15] I chose to create random samples of 15000 words from each text. I then combined these two samples in the same spreadsheet, still following the tidy format. I removed the stop words, but due to the lack of a 17th-century Danish stop word list, I created my own with the assistance of RStudio.[16]

Then I had one dataset containing the word samples from both sermons, but without the stop words.

Visualizations

In the following section, I am going to analyze some of the visualizations I created based on my dataset, representing different word categories. I will analyze the graphs separately and afterwards, describe the tendencies that appears. First, I will be looking at which titles were used to describe the kings.

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[14] Wickham, "Tidy Data".
[15] Word counts (Christian =15328), (Frederik =21117)
[16] The stop wordlist is the most frequently occurring words in the two funeral sermons, with a few alterations. Notably, some interested words have been excluded from the list. You can find the removed words and the stop wordlist in my GitHub repository.

A) Visualization: Which titles were used to describe the kings?

Titles of the Kings in the Funeral Sermons
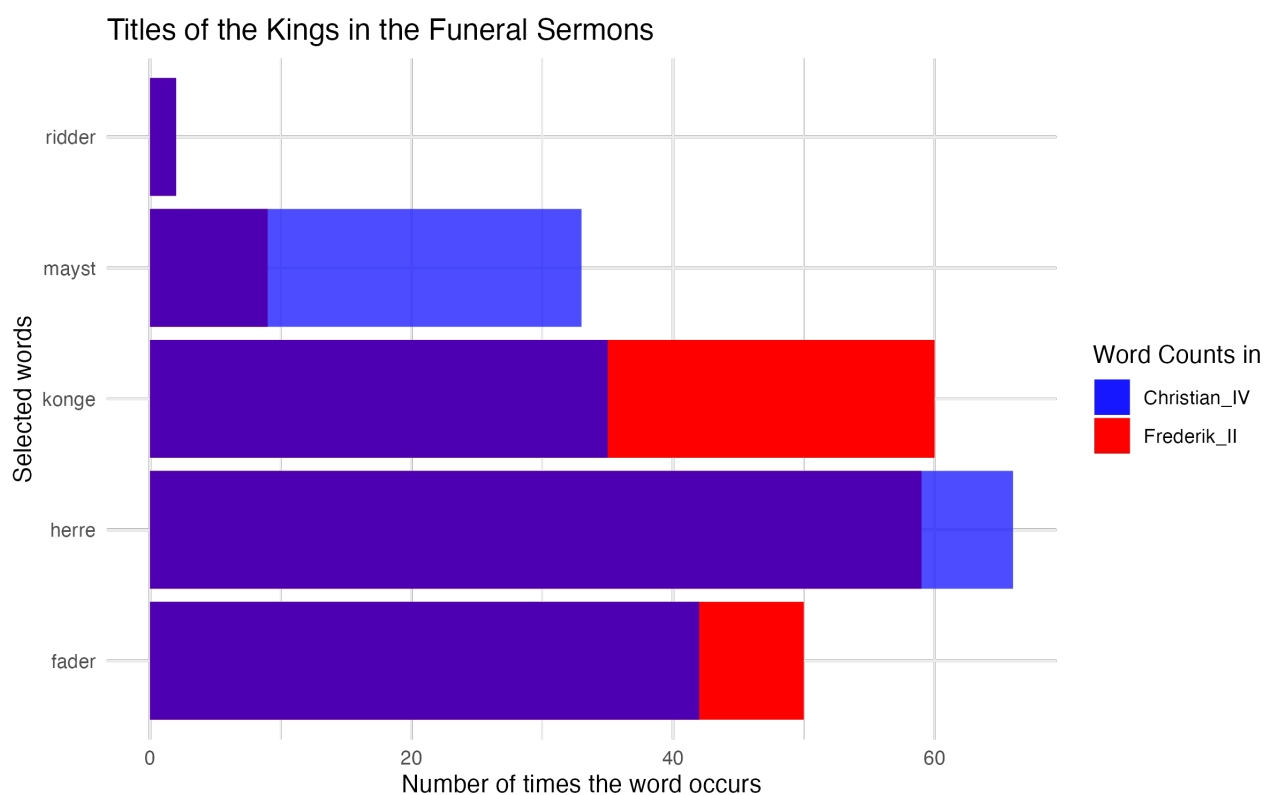
Figure 3: Titles used to describe the two kings (line 507 in R Markdown document)

Figure 3 illustrates how the two kings were described with different titles. The difference between the use of the title "mayst" [Majesty] and the use of "konge" [king] is particularly interesting. According to the definitions of these two words in Den Danske Ordbog,[17] "konge" appears to be a more common and neutral title used to describe a male ruler, and it is less formal than the word "mayst", which is a more respectful term indicating elevation, honor, and authority. Frederik II is also more often described as a "fader", indicating a role as protector and caretaker of his people. This suggests that there might be some differences in the way their personal characteristics are portrayed, let's take a look.

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[17] "majestæt — Danske Ordbog".
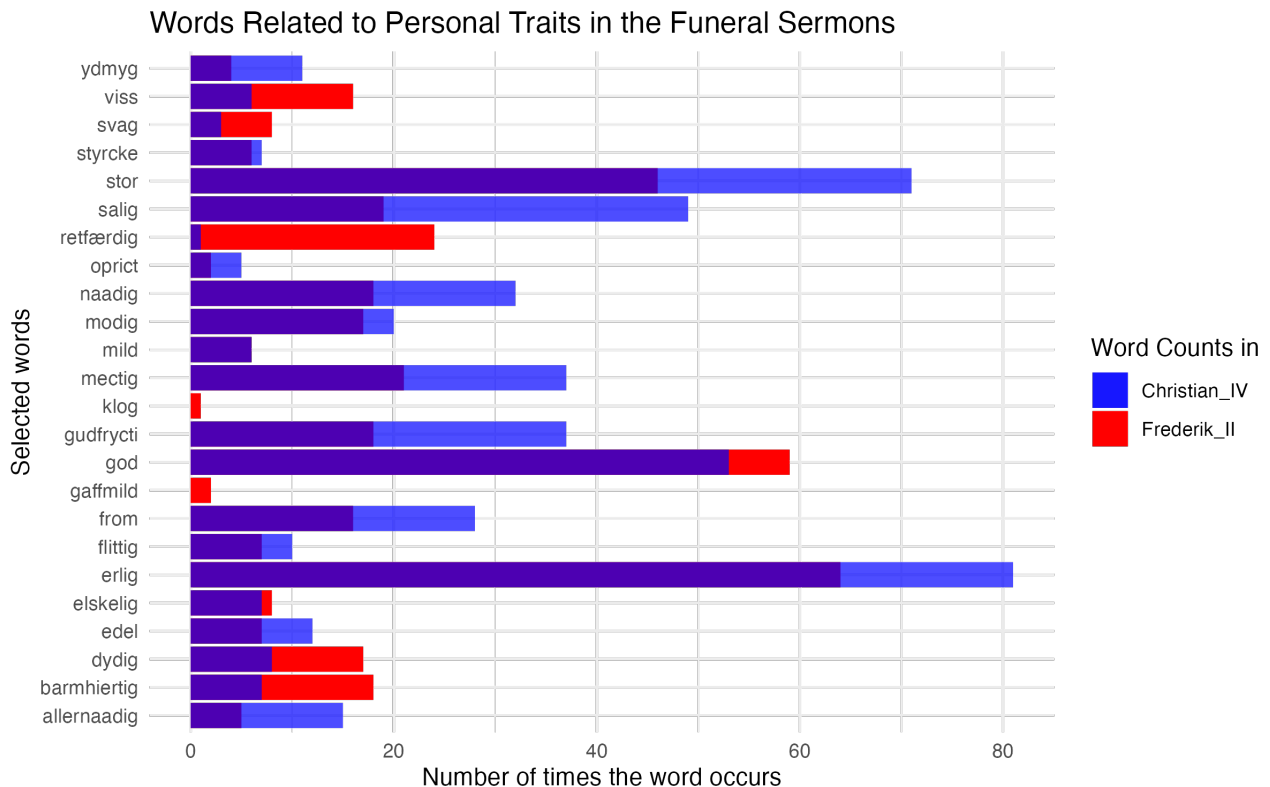
Figure 4: Words regarding traits of the two kings, (line 583 in R Markdown document)

Looking closely at this graph, it confirms that the kings are described with different characteristics. Words used to describe Christian IV includes: "ydmyg"[humble, indirectly implying he is more than he expresses], "stor"[big], "flittig"[hard working], "mægtig"[great], and "berømt"[famous]. All these words project the image of a powerful and great leader.

In contrast, Frederik II is depicted with words such as "viss"[meaning smart], "retfærdig"[fair], "good"[good], "gavmild"[generous], "dydig"[virtuous], and "barmhjertig"[compassionate]. These descriptions emphasize gentler and softer qualities and correlates with what can be seen in figure 5.

Words Used to Describe the Status of the Kings in the Funeral Sermons
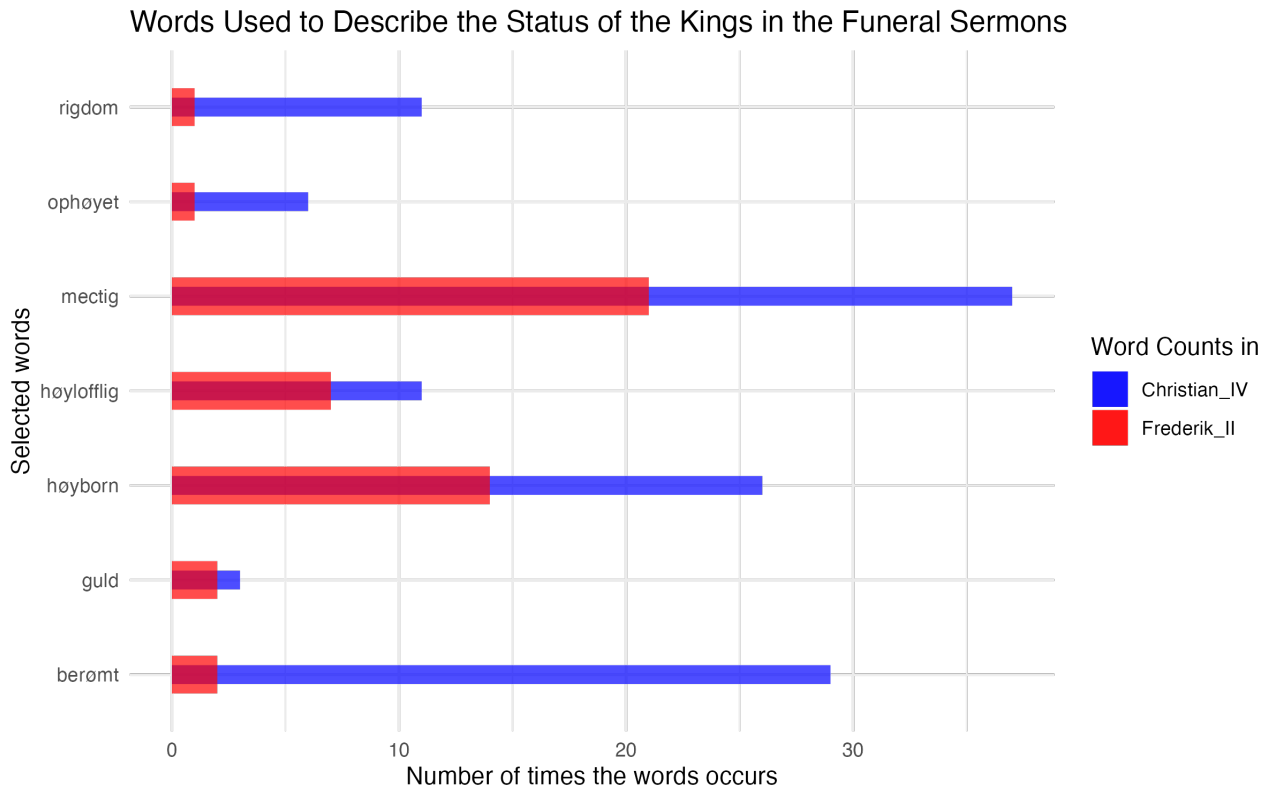
Figure 5: Words about status and wealth in the funeral sermons, (line 878 in R Markdown document)

As figure 5 shows, all words used to describe the status and wealth of the king, is more prevalent in Christian IV's sermon. There appears to be a greater emphasis on Christian's wealth, and both "ophøyet" and "høyborn" [underscore a high social status and exalted position], is much more common in Christian's sermon. Notably, the word "berømt" [famous] stands out due to a significant difference, suggesting that fame was a key focus in Christian's sermon. But being famous and wealthy does not necessarily align with religious values.
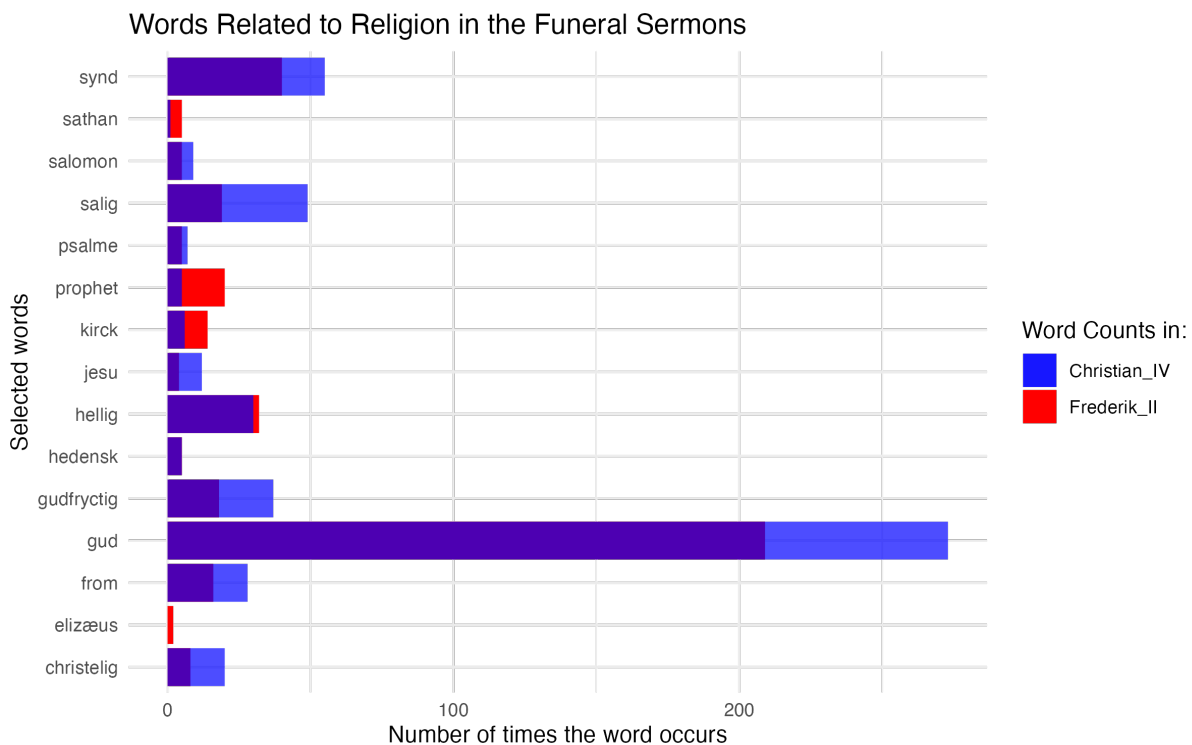
Figure 6: Words about Religion (line 446 in R Markdown document)

Figure 6 shows, that there are more religious word references in Christian IV's sermon. Words like "from" [signifying religious devotion] and "gudfryctig" [god-fearing[18]] describe virtues associated with a good Christian. Especially, there are big differences in the word counts of "salig", referring to one who will attain eternal salvation in God's kingdom,[19] suggesting a strong connection between Christian IV and God.

Furthermore, the graph shows that different biblical figures are present in the two funeral sermons. The variations in these figures may carry symbolic significance, but such an analysis is beyond the scope of this project, instead I will be looking at words related to the kings school and education.

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[18] "gudfrygtig — Danske Ordbog"
[19] "salig —Danske Ordbog"

Words Related to Education and Knowledge in the Funeral Sermons

Figure 7: Words regarding education in the funeral sermons (line 643 in R Markdown document)

Examining the graph confirms that the funeral sermon of Frederik II places a greater emphasis on education and knowledge, describing him more frequently as "klog" an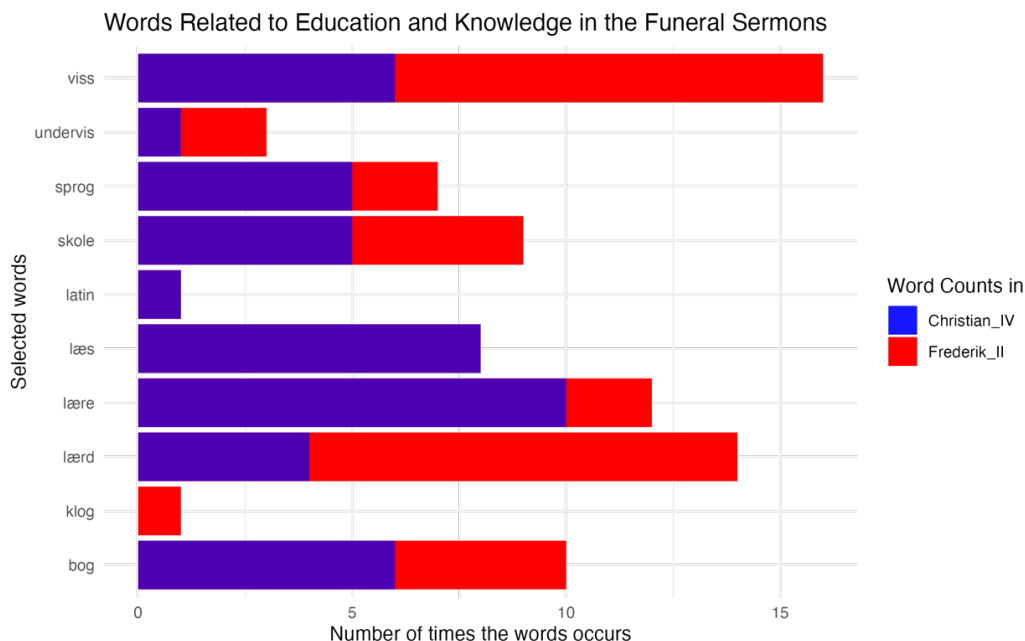d "viss" (both meaning intelligent). Considering his dyslexia, intelligence and an education must have been highly valued virtues during Frederik II's reign.

Based on insights gained through the distant reading of the funeral sermons and the use of digital tools, a pattern emerges. At the end of Frederik II's reign, it seems that softer personality traits and stronger educational skills were highlighted. However, it appears that a shift occurred during Christian's reign, where a powerful and famous leader with strong Christian values was portrayed. With the results of the analysis in mind, it is relevant to discuss whether the use of digital tools makes sense for this type of project.

Discussion and Evaluation, Does It Make Sense to Use Digital Tools?

First and foremost, my initial expectation appears to be confirmed: the frequency of words related to the church was higher in Christian IV's sermon. Furthermore, as stated above a picture of how the portrayal of the kings changed over time **is** emerging, and thereby making this analysis, more fruitful than I initially expected, considering the small amount of data used in this project (which

could be a critique point). However, I do have some concerns about the way I had to work with these 400-year-old sources. When making the visualizations, and cleaning and processing the funeral sermons, I realized how much the outcome of this project depends on my close reading of the texts, and my ability to find words that might be interesting, and at the same time find all the different spelling variations. Not knowing that "Gud" sometimes appears as "gvd" could have changed the picture, and it is a possibility that I might have missed some word variations. Additionally, in the absence of a stop wordlist containing 17th-century words, I partially made it myself, by removing words I found interesting in the 200 most common words across the two sermons. But this approach makes it pointless to look at the most common words, because only the words that I already found interesting appeared.

Therefore, the small dataset and the heavy reliance on my close reading of the historical sources for both visualization and data processing, which served as the basis of my analysis, raise valid concerns about the use of digital tools and the credibility of the results presented in this paper. Furthermore, the transcription of the funeral sermons was very time consuming, and you can question whether the outcome was worth the time spend.

You can also question if my visualizations meet the criteria for effective and good visuals.[20] At first glance, it may be a little unclear what to look for and how to interpret the graphs. To enhance clarity, I could have sorted the bars in the graph, placing the words that occur most frequently in, for example, Frederik's funeral sermon, at the top.[21] Nevertheless, I believe the use of bar plots, makes it easier to compare the word counts and spot the different tendencies. Therefore, taking these factors into account, I do think that the use of digital tools has been worth it, even if the analysis may not be able to stand alone in terms of validation. I think the visualizations and the results in this paper can provide a strong starting point for further exploration on this subject, especially with the inclusion of more data.

The challenges stated in this paper should therefore not keep historians away from using digital tools in the way I did in this project - if you just have a dataset already machine readable, knowledge about the source material and historical knowledge, the use of digital tools can be a very good starting point for further investigation into a given subject.

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[20] Wilke, *Fundamentals of Data Visualization* Cap 29
[21] Wilke, *Fundamentals of Data Visualization* Cap 6.1

Conclusion

In this study, I used digital tools to examine two Danish royal funeral sermons, trying to find out how the portrayal of kings changed during the reign of Christian IV's, a period of deep transformation in Denmark following the reformation. I used digital methods, including text mining and visual analysis in RStudio, to compare two funeral sermons: Frederik II's from 1559 and Christian IV's from 1649. The use of digital tools revealed a shift in the portrayal of kings. After Frederik II's era, the emphasis lay on softer personality traits and strong educational skills. However, after Christian IV's reign, it seems like a powerful and famous leader with stronger Christian values took precedence.

The analysis shows that digital methods can be a valuable starting point for exploration of old Danish texts. As the visualizations presented here, although based on a relatively small dataset and requiring close reading of historical texts, revealed tendencies that were overlooked in traditional close reading and show that digital tools can be useful to traditional historical research.

In conclusion, while there are challenges associated with analyzing historical texts with digital tools, the results in this project should encourage more researchers to employ digital methods for delving into historical documents.

Acknowledgements

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"gudfrygtig — Den Danske Ordbog". Set 30. oktober 2023. https://ordnet.dk/ddo/ordbog?aselect=gudfrygtig&query=gudfryctig.

Appendix

Nr	Software metadata description	
S1	Current software version	RStudio version 2023.06.2+561 (R version 4.3.1). Desktop version of Transkribus (v1.26.0)
S2	Permanent link to my Github repository, with my R project	https://github.com/Digital-Methods-HASS/au728030_beuschau_mia/tree/main
S3	Legal Software License	Can be found in my GitHub repository. I am using: Creative Commons Zero v1.0 Universal
S4	Computing platform / Operating System	MacBook Pro, with the software MacOS ventura 13.3. 3,1 GHz Dual-Core Intel Core i5
S5	Installation requirements & dependencies	The desktop version of Transkribus (v1.26.0) and JAVA Also, Rstudio (2023.06.2+561), and R (4.3.1). And I installed the following packages in R: "Readtext", "tidyverse", "tidytext", "igraph", "ggraph", "ggplot2" and "here"
S6	Support email for questions	Miajuul99@gmail.com

Nr	Data Metadata description	
D1	Frederik_II_ts.docx (the name of the machine-readable file of the funeral sermon of Frederik II, found in my GitHub Repository)	The machine-readable (transcribed) version of the funeral sermon of Frederik II, written by Anders Sørensen Vedel in 1588. Subsequently, it was printed in the same year. The original source is located via Det kongelige bibliotek, where it is Publicly available through European Books. To conduct word counts on the funeral sermon, I transcribed the original source and copied it into Word (and that version can be found in my GitHub repository, in the "data" folder). A description of the measures taken in the transcription can be found in my GitHub repository as well. The original Source can be found here: https://soeg.kb.dk/discovery/fulldisplay?docid=alma99122823820805763&context=L&vid=45KBDK_KGL:KGL&lang=da&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any,contains,s%C3%B8rgelig%20ligpredicken%20salig%20och%20h%C3%B8lofflig%20ihukommelse%20frederich%20den%20anden%20aff%20anders%20s%C3%B8ffrins%C3%B8n%20vedel%20till%C3%A6g%20cronologia%20fra%20anno%201533%20indtil%201588%20met%20en%20kort%20genealogia&offset=0

| D2 | ligprædiken_CR_IV_ts.docx (the name of the machine-readable file of the funeral sermon of Christian IV, found in my GitHub Repository) | The machine-readable (transcribed) version of the funeral sermon of Christian IV, originally written by Laurits Jacobsen Hindsholm in 1649. The historical source is located via Det kongelige bibliotek, where it is Publicly available through European Books. To conduct word counts on the funeral sermon, I transcribed the original source and copied it into Word (and that version can also be found in my GitHub repository, in the "data" folder). A description of the measures taken in the transcription can be found in my GitHub repository as well (.
The original Historical source can be found here:
https://soeg.kb.dk/discovery/fulldisplay?docid=alma99122843905205763&context=L&vid=45KBDK_KGL:KGL&lang=da&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any,contains,F%C3%B8rstelig%20Leffnetzs%20oc%20D%C3%B8ds%20Speyl&sortby=date_d&facet=frbrgroupid,include,9040666162628311884&offset=0 |