

The reception of holidays in social networks: A case study on Twitter

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Abstract—This study aims to push the boundaries of research in practical theology by applying methods from computational social science to identify the reception of holidays in online social networks in German tweets. Can we identify how people talk about holidays and especially Christian holidays on Twitter? As a subquestion, we try to find relevant information for interreligious topics, especially between Christians and Jews: Can we see how Christian holidays are related to or embedded in their Jewish counterparts? Is there an awareness of the Jewish roots of certain Christian holidays? While there is a growing awareness of these issues, there are still a number of unanswered questions. In addition to analysing and discussing these questions, we will also discuss methodological issues. First, we will discuss how computational methods fit in with common research in practical theology. Secondly, we will discuss the challenges of working with digital data beyond quantitative and qualitative research.

I. INTRODUCTION

MUCH research in practical theology is devoted to religious practices and their interaction with society. It tends to take an empirical approach similar to that of the social sciences. Digital methods and the analysis of digital texts and communications are emerging themes. There is an ongoing theological and cultural discussion about the connection between Jewish and Christian holidays, and we want to find out how they are perceived in online social networks.

The research of this project tries to identify the reception of holidays in online social networks in German tweets and to evaluate the lack of awareness of the relationship between Christianity and Judaism in the context of a post-Christian society in German-speaking countries. While not our primary concern, we will also present a discussion on tweets with anti-Semitic content¹. Our main research questions are

- Can we identify how people talk about holidays and especially Christian holidays on Twitter? (RQ1)
- If we find relevant information: Can we see how Christian holidays are related to or embedded in their Jewish counterparts? Is there an awareness of the Jewish roots of certain Christian holidays? (RQ2)

We will provide an overview of related work, leading to a careful reflection on the methodological background of the computer science methods used. While these methods – using an API, searching, clustering, analysis – are not new, they are not directly related to traditional empirical methods. We

¹For further details on hate speech, racism and anti-Semitism we refer to [1], [2], [3], [4]. Especially hate-speech detection is under constant research. However, in this work we will only collect evidence for further research.

reflect on the validity of the chosen mix of methods – combining qualitative and quantitative research – and evaluate our methodological approach. We also provide a brief introduction to the religious and theological background of the material studied.

This paper is divided into five sections. The first section provides an introduction, the second a brief overview of related work. The third section describes the methodological background, the data, the pipeline and the matching approaches. The fourth section is devoted to the analysis of the results. This includes a religious-historical and theological pre-location of the festivals studied and a discussion of the relevance of these results for Christian churches. Conclusions and implications are drawn in the final section.

II. RELATED WORK

The proposed approach aims to analyse social networks, in this case Twitter, to gain insights into religious phenomena [5], [6]. The analysis of online social networks is an emerging trend in research within the last decade [7]. For a general overview of Twitter data analysis, see [6], [8]. The applications and research questions are numerous, it has been used for health analysis [9], IoT [10], politics, recommender systems or emergency situations [11]. In addition to technical issues, ethical issues are also discussed [12].

First, we consider social network analysis of Twitter data in theological and religious research. This is more or less a niche topic, see [13], [14], [14]. Research questions focus on how religious leaders use social media [15], uncovering hidden church populations [16] or the relationship between sentiment of tweets and church growth [17]. In addition to metadata such as geographic data, word frequencies are widely used [18]. Secondly, clustering approaches are widely used to organise data [19], [20]. This is either related to identifying topics [22] or grouping similar tweets, for example using word similarities [21]. However, there is no one-size-fits-all solution and the choice of the best technology also depends on the data being processed, e.g. hashtags [22].

Thirdly, while we focus on German tweets, the technologies used are largely identical to other languages [23]. Basic statistical information can be extracted [24], other researchers focus on hashtag and word frequencies [25].

In summary, we can rely on many existing solutions, and especially the focus on German tweets does not remain a technical challenge. However, for interdisciplinary research,

especially for religious and theological research, there are several methodological issues that have received more attention in recent years: While the analysis of online social networks is based on methods from computer and data science, which lead to quantitative data, the research usually also includes a qualitative analysis of these data [26]. While the use of qualitative analysis was widely perceived as inappropriate [27], the situation has changed [28], [29]. Salvatore and Bianchi propose a mixed methods approach, while Dongo et al. summarise that “the differences in terms of accuracy and efficiency of both extraction methods [give] relevance to much more problems related to this area to pursue true transparency and legitimacy of information on the Web.” As this issue is particularly important for religious and theological research, which often focuses on qualitative research, we will also focus on a critical interdisciplinary reflection of a mixed-methods approach

III. METHOD

While there are numerous features that can be used to analyse Twitter data, such as network measures, finding related information, text measures, word frequency patterns, sentiment analysis and local information, our approach mainly aims at answering the question “what people say when they tweet about holidays”, similar to the approach of Vidal et al. [30]. We propose a mostly generic analysis workflow, which we present in the first subsection. We then describe the clustering approach and the data generated and analysed.

With the digital methods presented here, we have created a text corpus focusing on aspects of two Jewish-Christian festivals. The available quantitative data will be analysed in terms of content and interpreted with available qualitative methods (especially the concordant search function) and with methods of qualitative social research, and only on the side we consider the findings of corpus linguistics [31].

In general, tweets were retrieved using Python and the Tweepy library, which accesses the Twitter API itself. This allows us to search for Twitter users, tweets and collect data. We also used spaCy and sklearn.

In order to preserve the anonymity of the Twitter users, we provide a paraphrasing translation of the German tweets into English. For an in-depth discussion of these and other ethical issues, we refer to [32].

A. Analysis Workflow

The analysis workflow consists of four steps: querying Twitter (using Twitter API v2), data processing, data storage and data analysis, see Figure 1. Querying Twitter is done using predefined queries, and data processing consists of two simple tasks: Extraction and handling of metadata, e.g. tweet ids, datetime, retweets and likes, and a basic NLP approach to extract hashtags.

Due to the relatively small number of tweets, we used a SQLite database to store the tweets for further analysis. We used a clustering approach based on hashtags, which is described in the next subsection.

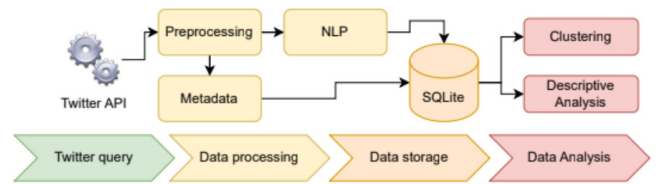


Figure 1. The proposed workflow queries the Twitter API and uses basic NLP techniques to extract hashtags and stores all data and metadata in a SQLite database. Data analysis is performed using descriptive analysis and clustering approaches.

B. Clustering

To cluster tweets by hashtags, we rely on K -means as a classic hard clustering approach. Similarity was computed as semantic relatedness according to GermaNet [33], similar methods exist for other data and languages [34]. However, for some small datasets no meaningful clustering of the data can be obtained. For all other datasets, we worked with different values of K that gave the best performance in distinguishing four different clusters of interest:

- Church related tweets.
- Pandemic related tweets.
- Tweets related to holidays.
- Tweets related to holidays and travel in general.

For two datasets, we will describe more details on these steps in the next section.

As mentioned above, we were not able to apply clustering to all datasets. Therefore, we will now briefly present the data retrieved from Twitter.

C. Data

In order to query Twitter for the four different holidays, we prepared special queries. As there are hardly any differences in the naming, spelling and usage of these holidays in German, these queries are quite simple, see Table I.

In summary, we used population data have retrieved around 65,000 unique German tweets about different holidays. As we can see, Easter is by far the most present, while Shavuot receives very little attention. The overlap between Jewish and Christian holidays is also comparatively small.

We now move on to a more detailed analysis.

IV. EVALUATION

For the analysis, the results for the individual feasts are discussed and then the texts in which the Jewish and Christian feasts are mentioned together are specifically discussed. In the qualitative textual analysis, the quantitative clustering (see Section II B) was further differentiated. The new clustering is based on a content categorization of individual tweets, especially in the festival months and the month before and after. Here, the method of conversation analysis [35], [36] and hermeneutic principles were applied.

This also depends on knowledge of Christianity and Judaism, especially basic knowledge of the Hebrew language and

Table I
DIFFERENT DATASETS USED FOR THE ANALYSIS AND THEIR SIZE.

Dataset	Query	Years	Tweets
Easter	“Ostern”	2018-2022	32,081
Pentecost	“Pfingsten”	2018-2022	22,254
Passah	“Passah” or “Pessach”	2018-2022	11,035
Shavuot	“Schawuot”	2018-2022	510
Pentacost / Schavuot	“Schawuot” and “Pfingsten”	2018-2022	92
Easter / Passah	“Ostern” and (“Passah” or “Pessach”)	2018-2022	817

knowledge of Jewish customs, mores and traditions. Therefore, a brief historical and theological context of the festivals is given first. Two research questions guided the study: (1) How do people talk about Christian holidays on Twitter; (2) How are Christian holidays related to or embedded in their Jewish counterparts? Is there an awareness of the Jewish roots of certain Christian holidays?

We also took a look at the other hashtags that appeared for each holiday (e.g. Easter 2018 hashtag). Here, randomly selected years were analyzed to identify peculiarities or patterns. In the next step, the results were summarized and theses, further hypotheses and questions were derived.

Finally, we reflected on the validity of the chosen mix of methods and evaluated our methodological approach. We articulate findings for further research, for Christian and Jewish communities, and provide suggestions for social actors seeking to prevent anti-Semitism.

A. Religious-historical and theological pre-location of the studied festivals

The two Christian feasts under consideration here, Easter and Pentecost, were originally Jewish feasts that were confirmed by Jesus Christ and his disciples on the one hand (aspects of continuity) and given new meanings on the other (aspects of discontinuity).

What Christians celebrate today at Easter is the resurrection of Jesus from the dead on the “first day of the week”, as mentioned by the evangelists (Bible: Mark 16:2, 9; Luke 24:1; John 20:1), after having been crucified according to Roman law (Good Friday).

According to Jewish reckoning, the first day of the week is the first day of creation. These events occurred exactly at the time of the Jewish festival of Passover, which most scholars believe took place in April 33 CE [37]. The Jewish festival of Passover commemorates the Exodus from Egypt: the journey from slavery to freedom.

As part of the Jewish festival of Passover (15th-21st of Nissan), the counting of the Omer (16th of Nissan, Reschith) begins, which lasts until the day after the seventh Shabbat, the 50th day, and ends with the festival of Shavuot. Other names for Shavuot include Pentecost (πεντηχοστῆ ἡμέρα, “fiftieth day”), Feast of Weeks, Feast of Harvest, Mattan Torah (Hebrew, “Gift of the Law”) in commemoration of the gift of the 10 Commandments and the Mosaic Law. Since the Jewish feast of Pentecost is a pilgrimage, the city of Jerusalem was traditionally filled with pilgrims. The disciples were in

Jerusalem at Jesus’ command, awaiting “power from on high” (Luke 24:49), and on this feast of the commandments they now received the additional gift of the Holy Spirit. Apart from very different receptions in the past and present, believing Christians of the Eastern and Western Churches (Orthodox, Catholics, Protestants in churches and free churches) have always held to the bodily and historical evidence of the resurrection of Jesus, which followed the crucifixion. Since the Enlightenment, however, historical-critical theology has contributed to the secularization of churches and Western societies by subjectivizing, relativizing, and psychologizing the resurrection event. As a result, the theological and spiritual meaning of this great event was lost in many churches and thus in society.

Similarly, the Feast of Pentecost has been celebrated by Christians for over 2000 years, and Christians remember and ask again for the outpouring of God’s Spirit.

However, since the 4th century with the Constantinian turn, the Christian festivals were deliberately decoupled historically, theologically and also calendrically by imperial and episcopal legislative decisions of the emperor. The reasons for this were clearly anti-Semitic. The result was that Christians lost the Jewish references to the feasts until today, although since the Shoah a new awareness of the Jewish roots of the Christian faith has slowly emerged [38], [39], [40]. How deep is the understanding of these festivals and the connections between them – and how is this expressed in communication – is what we want to find out.

B. Easter

Figure 2 shows the total number of tweets related to “Easter” between 2018 and 2022. We see a clear increase of tweets with the start of the pandemic measures Easter 2020. An analysis of tweets shows an increased need for communication for several reasons. First, due to organizational issues. New information on restrictions for events, the contact restrictions, the date postponements and date changes, new information about alternative online offers (links) in terms of replacement events. We also see behavioral issues. Uncertainties and questions regarding travel behavior and celebration options and religious customs. In addition, we find emotional expressions of approval and disapproval, understanding and lack of understanding of policy restrictions (rules, measures, and punishments), fears and anger regarding pandemic relaxations or further restrictions, empathy for those affected by the lockdown of other religious communities

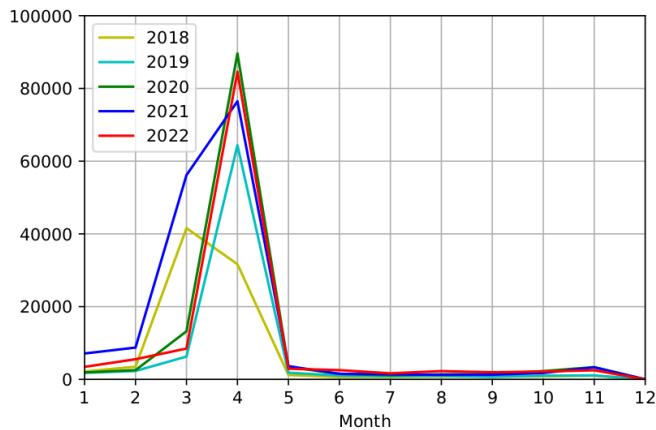


Figure 2. Total number of tweets related to “Easter” between 2018 and 2022. The peak clearly relates to the date of Easter in that year.

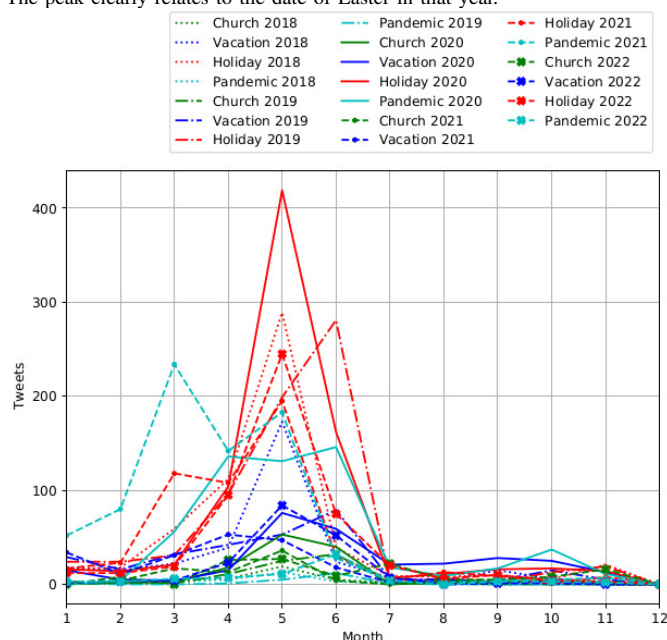


Figure 3. Total number of tweets related to “Easter” and showing the four clusters of interest during five years: Church, Vacation, Holiday, Pandemic, between 2018 and 2022. Interestingly, these topics are not aligned with the actual date of Easter in one particular year.

(e.g., Muslims Ramadan, Jews Passover). There is also an increased need for community and closeness in the phase of lockdowns, expressed through wishes, greetings, words of blessing, expressions of friendship (“I miss you ...”). However, we also see an increased interest in understanding theological and historical background of Easter celebration – often also interest (questions – answers) in context or comparison to other Christian celebrations or Jewish backgrounds. The increasing digitalization and the increased interest in Easter also in print media (e.g. newspapers) coincides with the above observations. An example is the analysis of the DWDS (Digital Dictionary of the German Language), which evaluates the text

corpus of German-language newspapers. In 2020, the word course curve of the lexeme “Ostern” (Easter) showed a frequency of 20.69 per 1 million tokens². We can provide some examples for explanatory, understanding, reflective tweets:

2018-04: ‘My thesis is that more people do not feel they belong to any religion, however, they believe in a higher power. This starts with the fact that many don’t even know the history behind Christmas, Easter, and Pentecost.’

2022-04: ‘so resurrection (Easter) is that after the crucifixion (Good Friday), then a few weeks later he goes again (Ascension) and still a little later the Holy Spirit comes (Pentecost).’

Other tweets are distant, derogatory (negative) or even faith-denying:

2019-04: ‘Easter is over ζ soon comes Pentecost... Religious people (Christians now using the example) really have something to celebrate all year round... (We #atheists / #agnostics, on the other hand, look for substitute events to look forward to - they’re still not #substitutegods, are they?)’

2021-04: ‘14 days after Ramadan: the numbers are finally receding. But then comes Pentecost with mass baptisms and singing in the free churches. We have already had experience with Easter and Christmas. Religion as a superspreader. Now we finally know what it (religion) is really good for.’

However, we also find examples for politicization of terms and language used in faiths:

2021-04: ‘50 days. This is also the period between Easter and Pentecost. The decisive MPC at the beginning of March could have been the resurrection and the day today could have been the outpouring of the Holy Spirit, the realization that it can work if you listen to science.’

2022-04: ‘@Karl_Lauterbach @haintz_markus Also happy Easter #LauterbachRuecktritt ! Now only the Holy Spirit has to enlighten them on Pentecost and convince them to resign’

As discussed above, several tweets are also concerning the explanation of culture change or showing incomprehension:

2019-04: ‘On the other hand, I would also like to see those who say that on Easter, Christmas and Ascension Day as well as Pentecost should be worked. If we limit the privileges of the churches, then we also limit our privileges that result from the church.’

2022-04: ‘Why don’t Jews and Muslims just move their holidays to Easter, Pentecost, etc.? Wouldn’t that be the easiest solution?’

²See <https://www.dwds.de/r/plot/?view=1&corpus=zeitungenxl&norm=date\%2Bclass&smooth=spline&genres=0&grand=1&slice=1&prune=0&window=3&wbase=0&logavg=0&logscale=0&xrange=1946\%3A2022&q1=Ostern>.

2022-04: ‘The holidays already make no sense because no one knows what is actually the reason for the holiday. What percentage of the population can say what happened on Corpus Christi, Pentecost? And the main holidays are also just Santa Claus and Easter Bunny.’

So there is basically explanatory talk about the festivals, but there is also negative and derisive talk, especially because the church and faith itself are no longer perceived as credible. In addition, there is always the interreligious aspect, not only towards Judaism, but also towards Muslim festivals. But there are also secular and rejectionist tendencies, such as the shifting of festivals.

In Figure 3 we show the results of the cluster analysis described in the previous section. The events around Corona strongly influence the communication at Easter and dominate 2020 and 2021, which is not surprising since the Corona-related changes (restrictions) at the festivals were massive. However, we also see a religious consciousness that still dominates Easter. In the first year of the pandemic, 2020, Easter is the dominant factor, with only a small increase in attention to the church. According to the tweets, a marginalization of the church can be observed before 2020, while from 2020 onwards, the festivals enjoy a high level of attention, but the church as an institution does not correlate with this. As with Pentecost, the holiday plays a very large role in 2018, while it plays a rather subordinate role in 2019 (even before the pandemic).

C. Pentecost

As discussed above, we analyze tweets related to a particular holiday by year and month. For a first overview of the total number of tweets per month, we refer to Figure 4. This clearly shows that the tweets are related to the date of Pentecost, underlining that there is little background noise in the data.

The K -means clustering approach was performed on $K = 7$ clusters, see Figure 6 for a PCA plot of these clusters. We will present some more details on some of the clusters obtained. In Figure 7 we show a word cloud for cluster 7, which is mostly related to holidays. However, we still see “Corona” as a central theme, while other words refer to traffic jams, traffic and holiday destinations. This underlines that some topics can be identified quite well. Other topics are more difficult: In Figure 8 we show the word cloud for a cluster related to “Church”. However, there are also other topics in this cluster: the pandemic and holidays. Therefore, a closer look at the tweets themselves was necessary to identify the underlying topic, and clustering could not be used without supervision.

For a more detailed analysis, we group tweets with hashtags into different categories related to church, vacation, holidays and pandemic, see figure 5 for details. Clearly, the number of tweets is still related to the date of Pentecost. However, few tweets use hashtags and are therefore available for categorization. While holidays are important in 2018 and 2022, the pandemic is the most prominent topic in 2020 and 2021. This again shows that the data is not too noisy. What is

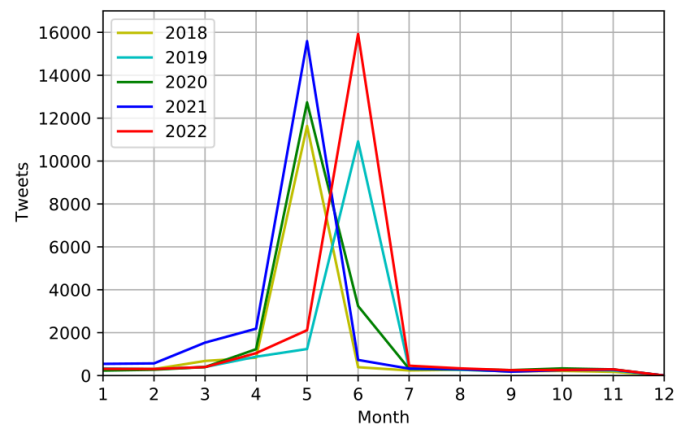


Figure 4. Total number of tweets related to “Pentecost” between 2018 and 2022.

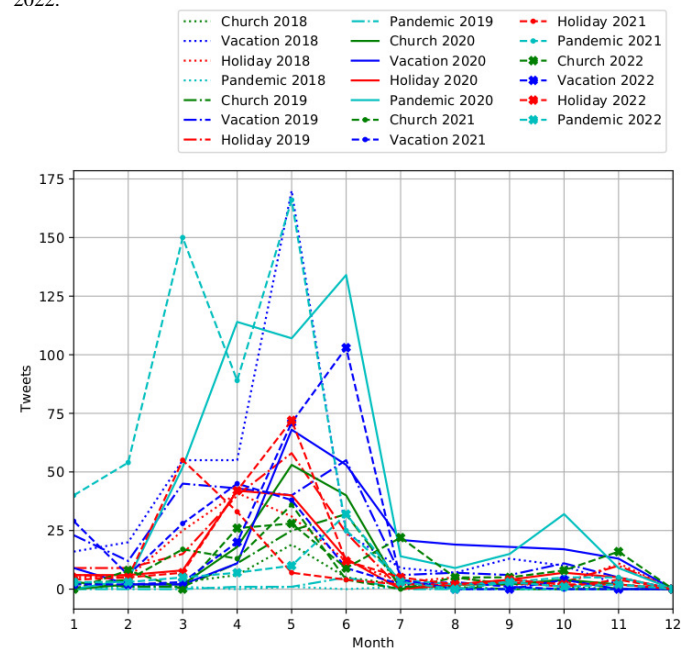


Figure 5. Total number of tweets related to “Pentecost” and showing the four clusters of interest during five years: Church, Vacation, Holiday, Pandemic. between 2018 and 2022.

striking, however, is that the term is usually not mentioned in connection with churches or religious issues.

There are a number of important observations. Pandemic topics dominate around the time of the Pentecost holidays in 2020 and 2021, which is understandable since the restrictions strongly influenced or limited holiday behavior. Tweets mentioning churches spike in 2020 - the first pandemic year with lockdowns and massive restrictions on worship. However, given the number of church restrictions during this time, the curve is rather flat, which may indicate the writers’ comparatively low interest in church. There is an increasing interest in holidays over the study period. Can we infer an increased awareness of the religious significance of these holidays? In some tweets there seems to be a basic understanding that

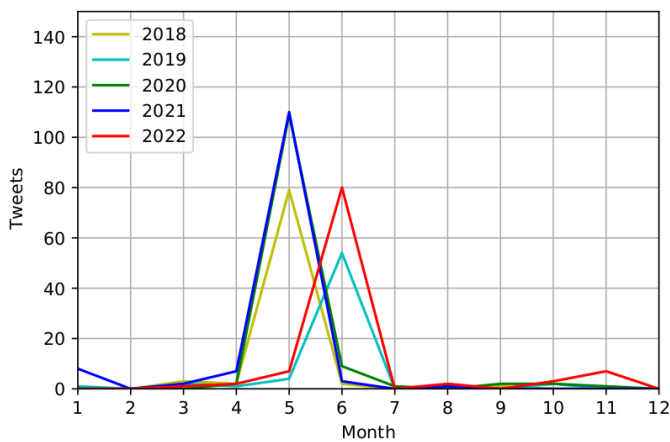


Figure 10. Total number of tweets related to “Shavuot” between 2018 and 2022.

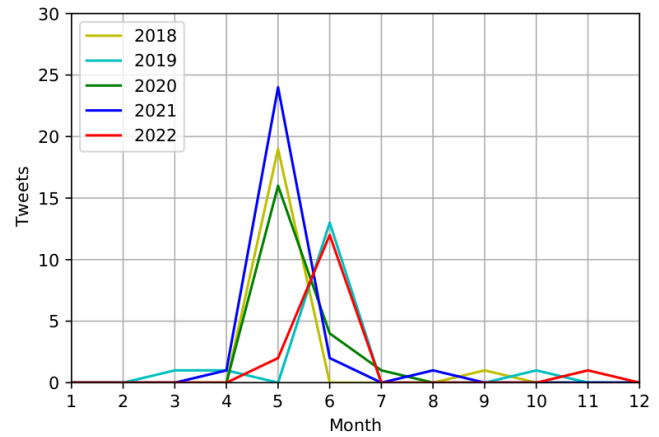


Figure 12. Total number of tweets related to “Pentacost / Schavuot” between 2018 and 2022.

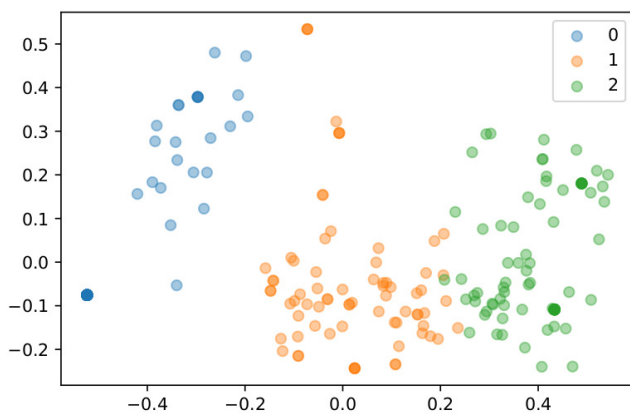


Figure 11. PCA plot of K-means clustering for tweets related to “Shavuot” with $K = 3$.

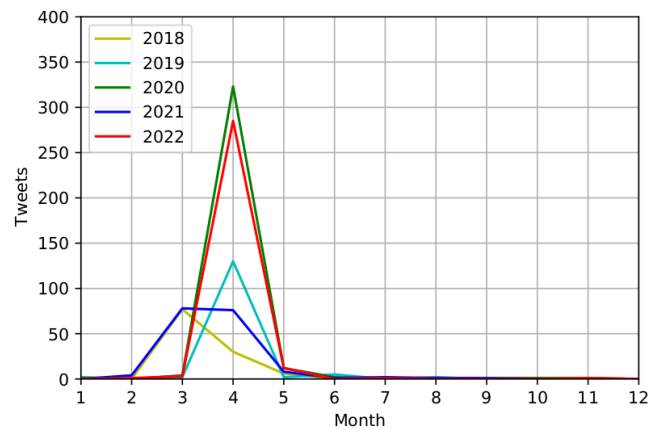


Figure 13. Total number of tweets related to “Easter / Passah” between 2018 and 2022.

of it beforehand’ (2022-02 12/10).

E. Shavuot

For a first overview of the total number of tweets per month, we refer to Figure 10. Again, this shows that the tweets are related to the date of Shavuot, underlining that there is little background noise in the data. Since the pandemic, there have been significantly more mentions of the festival. All of the tweets are highly religiously charged and almost all of the terms have a reference to spiritual, religious themes related to the festival. This clearly anchors Shavuot as a spiritual festival for individuals.

However, a more detailed cluster analysis was not possible. In Figure 11 we show a PCA plot for K-means clustering for tweets related to “Shavuot” with $K = 3$. It is almost impossible to distinguish between the predefined topics and it shows again that clustering cannot be used without supervision. It also shows that this approach is difficult to apply to small datasets.

While tweets referring to Passah showed that they are mostly connected to religious topics, for Shavuot we find much more information on events, links to webpages and several tweets explaining cultural issues. For example:

2022-06 77: ‘On Shavuot, Jews celebrate receiving the Torah at Mount Sinai. This is the most important event in Jewish history, but the holiday is rather unknown. And what is it about the cheesecake?’

F. Connection to Jewish holidays

In Figure 12 we show the total number of tweets related to “Pentacost / Schavuot” between 2018 and 2022.

In 2018, 2019, and 2022, the Christian and Jewish holidays of Pentecost/Shavuot fell on the same calendar days. However, the influence on the dates is not obvious. What is evident, however, is a significant increase in 2018, 2020 and 2021, when both are referenced.

In Figure 13 we show the total number of tweets related to “Easter / Passah” between 2018 and 2022. Again, we see

Table II

SUMMARY OF PARTICULAR TOPICS IDENTIFIED WITHIN DIFFERENT HOLIDAYS. ALTHOUGH ALL TOPICS WERE FOUND, SOME WERE MORE IMPORTANT THAN OTHERS. THESE ARE MARKED WITH AN "X".

#	Topic	Easter	Pentecost	Passah	Shavuot	Pentacost / Schavuot	Easter / Passah
1	Explanatory	X	X	X	X	X	X
2	Faith-based					X	X
3	Distance	X	X				
4	Critics	X	X				
5	Metaphorical/ political use	X	X	X	X		
6	Incomprehension	X	X	X	X	X	X
7	Hate speech						
8	Pandemic	X	X	X	X	X	X

an increasing interest in the combination of both festivals in 2020 and 2022.

Comparing these results to our previous analysis clearly shows that there are less references to Jewish Holidays, and very little references to them and the corresponding Christian Holidays.

In spite of all this, we can take two questions as an interim conclusion for further discussion: First, it seems that the Corona period made people more curious and interested in the connections between Judaism and Christianity – maybe according to the motto: what I'm not allowed to do, makes me curious.. In addition, the tweets seem to indicate that there is currently more awareness of religious festivals, after participation was significantly hampered during the pandemic. But we have also to consider a possible artifact here, because we have to take into account the Jewish Orthodox customs: When the feast-day is a Shabbat, many pious Jews do not use a mobile phone or electronic equipment.

G. Relevance for Christian Churches

In Table II we summarise our findings from the previous sections. The cluster analysis was helpful in those cases where it could be carried out. Horizontally, however, we were able to identify eight themes that were particularly helpful in answering our question. Although all themes were found, some were more important than others, as highlighted in this table. Most interestingly, we found very little evidence of hate speech. However we do not know, if Twitter may have already deleted those tweets, violating their rules and regulations. Critical and distant remarks are found especially for Christian holidays. In addition, we find both explanatory and non-explanatory tweets in all cases.

Several points are relevant for Christian churches. First, there is a lack of knowledge about the biblical background and customs of the festivals. But also the connection to the Jewish roots of the festivals is rarely recognized. Thus, there is a lack of both theology and practice. In order to promote interreligious dialogue and understanding of their own festivals, churches need to reawaken awareness of the Jewish roots and clearly anchor them in doctrine, liturgy and customs. Where the reference to Judaism is clear (e.g. through the use of Jewish festival names), theological interest and knowledge is deeper and greater – and so is interreligious interest and understanding – or the desire and curiosity to understand.

Where Jewish references are clearly recognizable, references to Islam (Ramadan wishes) or understanding of the problems of the various religious festivals in corona measures and pandemic-related restrictions are also often evident. Of fundamental interest, as discussed above, is the phase of pandemic restrictions. This has led to increased communication about festivals, e.g. 2020. However, this must be seen in the context of the increased church departures in the 2nd and 3rd years. There are broader questions to be answered here, but they are not the focus of this paper.

Often, however, the use of core theological terms is merely a stepping stone into metaphorical language, usually for cynical or sarcastic remarks about the state or the church. Another question is whether there is a danger that in a secularized world theological content will have only a symbolic or linguistic effect. Is this a consequence of a liberal theology that no longer regards many biblical events as historical and thus demands a reduction to the metaphorical level?

V. CONCLUSIONS AND OUTLOOK

Our two main research questions were:

- Can we identify how people talk about holidays and especially Christian holidays on Twitter? (RQ1)
- If we find relevant information: Can we see how Christian holidays are related to or embedded in their Jewish counterparts? Is there an awareness of the Jewish roots of certain Christian holidays? (RQ2)

In this work, we could answer RQ1: Yes, we can identify how people talk about holidays. However, distinguishing between church-related and secular topics was not at hand. We could show that there is a lack of knowledge about the biblical and theological background and customs of the festivals. But also the connection to the Jewish roots of the festivals is rarely recognized. Thus, we could also answer RQ2: Where we could identify the reference to Judaism – which was mainly done through the use of Jewish festival names – theological interest and knowledge is deeper and greater. We find at least a small interest in interreligious exchange and understanding. It was interesting, that, where Jewish references are clearly recognizable, references to Islam or understanding of the problems of the various religious festivals in corona measures and pandemic-related restrictions are also often evident.

There were a number of methodological challenges. First, there is the large amount of data. Classical qualitative ap-

proaches provide a first orientation, but also show the need for quantitative work. In this step, the work could and had to be done classically by keyword searches on selected terms such as Acts, disciples, speaking in tongues, Holy Spirit, Spirit, glossalia, and so on. Some aspects had to be counted by hand, because terms have to be assigned and interpreted, e.g. with different spellings or with spelling mistakes. While *K*-means in Twitter data gains some insight, in another iteration of our research we plan to make use of the full text body for deriving alternative clusters.

Another aspect that arises is the question of the authors of the tweets, which, unlike the qualitative work, was not considered in this work. But who writes the tweets? Apart from private individuals, interreligious organization organisations such as the “Israel Network” or ecumenical organisations (“House of One”) should be mentioned. Further analysis would have to provide more clarity here. However, this would require in-depth knowledge of Christian churches, free churches and Jewish and Islamic organisations. Obviously, the use of computational social science methods in practical theology poses new challenges, but also makes new data available for research. In particular, the methodological overlap between classical quantitative and qualitative research is small, and thus our work is also a plea for more interdisciplinary exchange. And beyond this: Actors of churches and culture should promote an awareness of the historical, theological and cultural contexts of the faith communities, especially the festivals. Because this creates a bond between people, which can be a small contribution to peace in this divided world.

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