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# Constructing the Modern Jewish “Present”: Time and Time Cycles in *HaTzifira*

**Abstract:** The modern periodical is an important medium in the construction of time. Its appearance and cycles of production turn artificial time cycles into seemingly natural and accepted social rhythms. Most importantly, periodicals play an important role in the construction of the “present” as a time frame of occurrences that happen “now”. However, the reproduced “present” shouldn’t be understood independently of the production cycle of the periodical.

Accordingly, this study characterizes the differences resulting from the shift in time cycles of the nineteenth-century Hebrew periodical *HaTzifira*. This periodical started in 1862 as a weekly and was transformed in 1886 into a daily. In order to explore the change, this chapter compares the discourse in the three years prior to the conversion of this weekly into daily (1883–1885) with the discourse in the three years following this conversion (1886–1888).

Through the use of computational tools, and in particular topic modeling algorithms, which offer a general overview of large-scale textual corpora, this chapter compares discursive patterns before and after 1886. This comparison is based, on the one hand, on a nuanced qualitative analysis of the resultant topics, and on the other hand, on an original mathematical analysis of the resultant vector space. On a theoretical level, this comparison helps characterize the differences between the discursive rhythms of weeklies and dailies. It also contributes to the introduction of computational tools into the study of Hebrew historical journalism.

**Keywords:** temporality, topic modeling, Hebrew Journalism, dailies, Nineteenth century, print culture, digital humanities, history of time

Yet if the present were always present, it would not pass into the past: it would not be time but eternity. If then, in order to be time at all, the present is so made that passes into the past, how can we say that this present also “is”? The cause of its being is that it will cease

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**Note:** Oren Soffer of Blessed Memory co-authored the original versions of this contribution but sadly passed away a few weeks before the DHJewish conference. His contribution to this work remains immense. I would like to thank the Luxembourg Centre for Contemporary and Digital History for organizing the virtual DHJewish conference, and the audience for their comments and insights.

to be. So indeed we cannot truly say that time exists except in the sense that it tends toward non-existence.<sup>1</sup>

History is the study of time: locating and understanding events, people, and ideas that existed in a certain time, along a certain timeline. But the concept of time itself is usually taken for granted. In his *Confessions*, St. Augustine says “What then is time? Provided that no one asks me, I know. If I want to explain it to an enquirer, I do not know.”<sup>2</sup> Unfortunately, the work of historians is to do exactly that, ask questions: what is time? who’s time? and most importantly, “how is it that everyone, in making a choice, constructs their own personal time while still remaining subject to the restraints of social and natural time?”<sup>3</sup> Norbert Elias begins to answer these questions by stating that “timing thus is based on people’s capacity for connecting with each other two or more different sequences of continuous changes, one of which serves as a timing standard for the other (or others).”<sup>4</sup> Taking Elias’s definition as a guideline, this article explores the history of “timing standards,” as they are expressed within a 19th-century Jewish journal.

The modern periodical is an important medium in the construction of time. Its appearance and cycles of production turn artificial time cycles into seemingly natural and accepted social rhythms. Most importantly, periodicals play an important role in the construction of the “present” as a time frame of occurrences that happen “now.” As a result of the public simultaneity of newspaper production and newspaper consumption, periodicals create simultaneous social and national times “marked by temporal coincidence, and measured by clock and calendar.”<sup>5</sup> However, the reproduced “present” shouldn’t be understood independently of the production cycle of the periodical. Time is not “a smooth and standard sequence of ticks of a clock to be lived through, but rather a sequence of whole blocks of time which contain partially predictable and broadly recurring sets of meaningful events. It is around these blocks of time that we construct the cycles which organize social time into smaller and larger temporally embedded structures.”<sup>6</sup> Accordingly, this study intends to characterize the differences resulting from the shift in time cycles of the 19th-century Hebrew periodical *HaTzfir*. This periodical started in 1862 as a weekly and was transformed in 1886 into a

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1 Saint Augustine, *Confessions*, trans. Henry Chadwick (Oxford: Oxford University Press, 2008), 231.

2 Augustine, *Confessions*, 230.

3 Simonetta Tabboni, “The Idea of Social Time in Norbert Elias,” *Time & Society* 10, no. 1 (2001): 6.

4 Norbert Elias, *Time: An Essay* (Oxford: Blackwell, 1992), 72.

5 Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1991), 32–35.

6 J. David Lewis and Andrew J. Weigert, “The Structures and Meanings of Social Time,” *Social Forces* 60, no. 2 (1981): 439.

daily. In order to explore the change, I compare the discourse in the three years prior to the conversion of this weekly into a daily (1883–1885) with the discourse in the three years following this conversion (1886–1888).

Previous academic analysis of journalistic news production in general, and news temporality in particular has relied primarily on human-driven techniques like traditional content analysis.<sup>7</sup> However, as Ryan Cordell argues, the digitization of periodical archives has resulted in a shift in their study.<sup>8</sup> This shift is not just in the increasing accessibility of these journals; it is an actual methodological shift that allows researchers to deal with questions that were previously too difficult to ask. The growing academic field of periodical studies is a direct result of new innovative computational techniques and widespread digitization in the last two decades.<sup>9</sup> Instead of viewing journals as mere conveyors of discrete bits of information, computational tools transformed them to autonomous objects of analysis. They offer a new perspective on large-scale textual corpora which can reveal patterns that traditional modes of analysis typically cannot.

In an attempt to map and characterize the “present” in *HaTzifira*’s discourse, I apply algorithmic topic-modeling analysis, which enables identification of latent themes in the corpus. While applying computational tools to the study of historical journalism has become relatively known and accepted, it is still absent in the study of historical Hebrew journalism.<sup>10</sup> Nevertheless, such application is possible because of recent breakthroughs in the processing of previously digitized historical Hebrew periodicals.<sup>11</sup> This allows us to dramatically upgrade the Optical Character Recognition (OCR) identification rate of these periodicals and, consequently, use digital tools to analyze them.

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7 Nikki Usher, *Making News at the New York Times* (Ann Arbor: University of Michigan Press, 2014); M. Neiger, and K. Tenenboim-Weinblatt, “Understanding Journalism through a Nuanced Deconstruction of Temporal Layers in News Narratives,” *Journal of Communication* 66, no. 1 (2016): 139–60; B. Zelizer, “Epilogue: Timing the Study of News Temporality,” *Journalism* 19, no. 1 (2018): 111–21.

8 Ryan Cordell, “What Has the Digital Meant to American Periodicals Scholarship?,” *American Periodicals: A Journal of History and Criticism* 26 (2016): 2–7.

9 Dean Latham and Robert Scholes, “The Rise of Periodical Studies,” *PMLA* 121 (2006): 517–31; Maria DiCenzo, “Remediating the Past: Doing ‘Periodical Studies’ in the Digital Era,” *ESC: English Studies in Canada* 41 (2015): 19–39.

10 Zef Segal and Oren Soffer, “One Journal, One Decade, 3,797,592 Words: Computational Analysis of *HaTzifira*’s Discourse (1874–1883),” *Journal of Jewish Studies* 72, no. 2 (2021): 369–96; Zef Segal, “‘From One End of the Earth to the Other End of the Earth’: Changing Perceptions of the World in Late-Nineteenth-Century Hebrew Journalism,” *Jewish Studies Quarterly*, forthcoming.

11 Oren Soffer et al., “Computational Analysis of Historical Hebrew Newspapers: Proof of Concept,” *Zutot – Perspectives on Jewish Culture* 17 (2020): 97–110.

Before exploring the changing concept of “present” in *HaTzifira*, I will provide historical and methodological background. I begin by discussing the circumstances that brought about the specific shift of *HaTzifira* from a weekly publication to a daily one. This is followed by a discussion on our chosen methodology of topic modeling. The second part of the article discusses the topic-modeling analysis of *HaTzifira*’s discourse.

## 1 The Acceleration of the Hebrew Press

*HaTzifira* was founded and published in Warsaw in 1862 by Haim Zelig Slonimski, who also served as its editor. This newspaper and other Hebrew periodicals, such as *HaMaggid* and *HaMelitz*, were part of an extensive network of Jewish journals published not only in Hebrew but in Yiddish and other European languages.<sup>12</sup> Publication of *HaTzifira* ceased after six months and was restarted 12 years later, first in Berlin and later in Warsaw.

The original intent of *HaTzifira*’s founder was to promote scientific and technological knowledge among the observant Jews in Eastern Europe.<sup>13</sup> However, the style and subject matter of *HaTzifira* soon changed. In the renewed *HaTzifira* (from July 1874) an attempt was made to satisfy the readers’ interest in Jewish polemics and world politics. From 1874, world news rather than scientific innovations filled the pages of the newspaper.<sup>14</sup> The second, and more significant, change occurred in 1881, following the eruption of pogroms in southwest Russia: world politics lost their dominance in favor of Jewish-related matters, especially those concerned with antisemitism.<sup>15</sup>

Another important milestone in *HaTzifira* occurred in 1886, when it became a daily newspaper. The decision of the editors to accelerate the frequency of publication was a response to similar transformations in other Hebrew periodicals. The first Hebrew daily was *HaYom*, first published in Saint Petersburg on January 31, 1886, which was soon followed by *HaTzifira* (April 13, 1886) and *HaMelitz* (July 12,

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<sup>12</sup> Israel Bartal, “Mevaser U-Modi’a Le-Ish Yehudi’: Ha-Itonut Ha-Yehudit Be-Afik shel Hidush,” *Katedra* 71 (1994): 154–64 [Hebrew]; Israel Bartal, “Mi-‘Kahal’ Le-Kehilat Kor’im,” in *Ein Le-Falpel! Iton Ha-Tzifira ve-Ha-Modernizatzia shel Ha-Si’ach He-Hevrati Ha-Politi*, ed. Oren Soffer (Jerusalem: Mosad Bialik, 2007), ix–xiii [Hebrew]; Oren Soffer, “‘Paper Territory’: Early Hebrew Journalism and Its Political Roles,” *Journalism History* 30 (2004): 31–39.

<sup>13</sup> Oren Soffer, *Ein Le-Falpel! Iton Ha-Tzifira ve-Ha-Modernizatzia shel Ha-Si’ach He-Hevrati Ha-Politi* (Jerusalem: Mosad Bialik, 2007) [Hebrew].

<sup>14</sup> Segal and Soffer, “One Journal, One Decade.”

<sup>15</sup> Soffer et al., “Computational Analysis.”

1886). The old generation of editors, who established the Hebrew weeklies in the 1850s and 1860s, warned that Hebrew journalism had not reached a stage that could support production of content suitable for a daily publication.<sup>16</sup> Moreover, they assumed that most general news was irrelevant for a Jewish audience and therefore did not see any merit in accelerating the frequency of news production. In contrast, a younger generation of journalists and editors, who began taking a leading role in the 1880s, saw the shift from weekly to daily as an inevitable step toward the modernization and popularization of the Hebrew press. They recognized the rapid growth in Hebrew readership of the 1880s and understood the need of readers for a daily newspaper. This clash between generations was also evident within *HaTzifira*'s editorial board. The 76-year-old establishing editor of the periodical, Slonimski, opposed the attempt to transform *HaTzifira* into a daily, while the 26-year-old Nahum Sokolov saw this transformation as unavoidable. This clash ended in Sokolov's victory. Starting from 1886, Sokolov became an equal partner to Slonimski as owner and editor of the newspaper.

The use of computational tools, and more specifically topic-modeling analysis, helps detect the changes that occurred in *HaTzifira*'s discourse following its shift to daily publication, in terms of both the pattern of the topics discussed and their content. The following section briefly discusses the methodology of topic modeling.

## 2 Topic Modeling

The problem with periodical studies is that “their seriality, abundance, ephemerality, diversity, heterogeneity – posed problems for those who wanted to access their contents.”<sup>17</sup> As a result, distant reading approaches, such as topic modeling, that extrapolate backwards from a collection of documents to infer the discourses that could have generated them, have been used by many scholars over the past decade.<sup>18</sup>

Developed in 2003, this generative statistical technique identifies groups of words that tend to occur together in a large collection of documents. It assigns

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<sup>16</sup> Gideon Kouts, *News and History* (Jerusalem: The Zionist Library, 2013), 81 [Hebrew].

<sup>17</sup> James Mussel, *The Nineteenth-Century Press in the Digital Age* (London: Palgrave Macmillan, 2012), 2.

<sup>18</sup> C. Jacobi, W. Van Atteveldt, and K. Welbers, “Quantitative Analysis of Large Amounts of Journalistic Texts Using Topic Modelling,” *Digital Journalism* 4, no. 1 (2016): 89–106; Segal and Soffer, “One Journal, One Decade.”

each appearance of a word within a single document to one of a given number of topics. The number of topics is one of the parameters required for the execution of the algorithm; however, there are no generalized guidelines for the optimal number of topics. This choice is usually made following experimentation with various numbers of topics.<sup>19</sup> These are not necessarily “topics” in the sense of a theme, since the algorithm has no knowledge of the actual content or context of the words. A “topic” is merely a pattern of co-occurring words. However, these clusters of co-occurring words are rarely random, and they allow us to infer the latent structure behind a collection of documents.

Once topics are generated and assigned to every appearance of each word, the corpus, its documents, and words used in the corpus become vectors that reflect the distribution of topics within each object. For example, if document A includes 100 words, of which 55 words are affiliated with “topic 1,” 45 words with “topic 2,” and none with “topic 3,” then I could define document A by its distribution vector (55, 45, 0) and compare it with the vectors of other documents. Similarly, if the word “dog” appears 100 times throughout the whole corpus, and 50 of these appearances are affiliated with “topic 1,” 30 appearances are affiliated with “topic 2,” and 20 appearances are affiliated with “topic 3,” then the word “dog” could be defined by its distribution vector (50, 30, 20). Thus, topic modeling can be used to detect changes within the corpus or similarities between documents or words. The technique’s main advantage is its ability to switch between different levels of association within a corpus: words, documents, and topics.

As stated previously, the generated topics have no pre-defined meaning. In this study, the meanings of the unsupervised generated topics were identified by examining the semantic relations between the most frequent terms in each topic, as well as reading the journal issues, which were statistically identified as the most reflective of the topic. This allowed a critical evaluation of the computational output in order to make sure the results of the algorithm were not meaningless or arbitrary. In addition, the results were evaluated against existing qualitative scholarship.

The corpus consists of six years of *HaTzifira*’s discourse (1883–1888), which includes three years prior to the change from weekly to daily and three years after that change. On the one hand, this corpus is broad enough to show long-term changes and pursue meaningful computational analysis; on the other hand, it is focused enough to avoid discursive influences of significant historical events, such as the 1881 pogroms or the 1897 First Zionist Congress. I initiated three different

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<sup>19</sup> H.M. Wallach, D.M. Mimno, and A. McCallum, “Rethinking LDA: Why Priors Matter,” *Advances in Neural Information Processing Systems* 22 (2009): 1973–81.

topic models on the corpus, each designed to produce 20 topics and in which the units of analysis were individual issues of the journal. The first was conducted on the whole corpus (860 issues), thus enabling a broader overview and a detection of changes and patterns over the full period (see Section 3). The second and third models were conducted on sub-corpus: 150 issues published 1883–1885, and 710 issues published 1886–1888 (see Section 4). These two models allow us to characterize the discourse in each period and compare patterns and topics before and after the change from daily to weekly.

### 3 The “Longue Durée”: 1883–1888

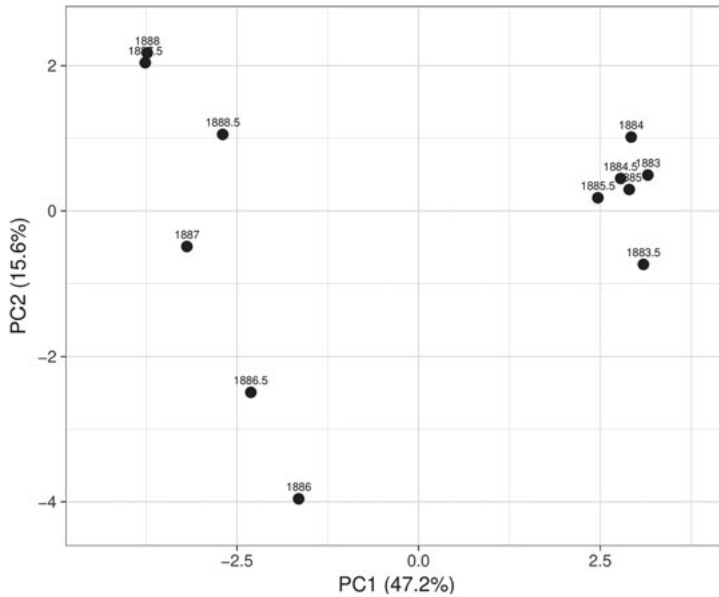
Six years cannot be considered what the French historian Fernand Braudel defines as a *longue durée*, but the concept suits the aim of the first topic model. Braudel describes a history that opposes daily events, that is not episodic in nature, one which “requires getting to know slower temporalities, almost immobile ones.”<sup>20</sup> Accordingly, before identifying and exploring the characteristics of the weekly “present” and the daily “present,” I look at a larger picture, a corpus consisting of both periodicities at once. At first, I use vector analysis to compare topic distribution in each six-month period during the time span. The choice to group together issues published within six months ensures the readability of the data. Each six months is understood as a 20-dimensional vector, in which each coordinate denotes the portion of the relative topic within that period’s discussions. Principal component analysis (PCA) reduces the 20-dimensional space into a two-dimensional visualization, in which the choice of axes optimizes the variation between the topics.<sup>21</sup> Figure 1 shows the differences between the periods in the relevant time span.

Although a *longue durée* approach concerns itself with continuity and gradual evolution, the distribution along the x-axis in this figure clearly differentiates between two groups of points. The left group consists of all the periods after the transformation, when the journal was published as a daily, and the right consists of all the periods before the conversion, when the journal was published as a weekly. As well as being far apart from each other, the distribution along the y-axis of both groups reveals entirely different patterns. The weekly group of points is

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<sup>20</sup> Fernand Braudel, “Histoire et sciences sociales: La longue durée,” *Annales* 13, no. 4 (1958): 725–53.

<sup>21</sup> Christof Schöch, “Principal Component Analysis for Literary Genre Stylistics,” *The Dragonfly’s Gaze*, last updated September 8, 2016, accessed January 23, 2020, <http://dragonfly.hypotheses.org/472>.

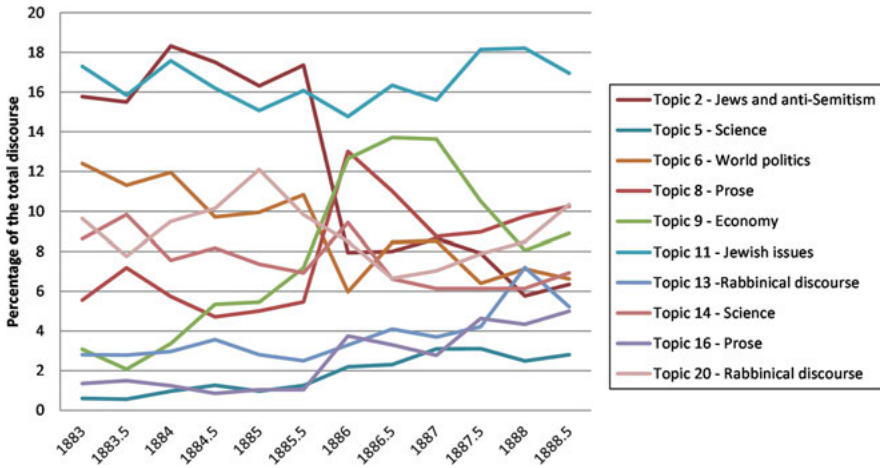


**Figure 1:** Principal component analysis (PCA) of topic distribution, 1883–1888. Each axis reflects a single dimension of the vectors as identified by the algorithm. The percentage listed on each axis reflects the proportion of variance that the specific axis reveals. The distinctions between left and right, between up and down, as well as the values listed along each axis have no significance in themselves. They show the differences between vectors. Visualization is done with ClustVis.

heavily clustered with seemingly no chronological rationale behind its distribution. In contrast, the daily group is aligned chronologically from bottom to top with a relatively uniform distribution of points, with the exception of the second half of 1887. The different characteristics of these two groups reflect a rupture, almost as if the analysis had shifted to a different newspaper. Considering the relative continuity in the internal and external circumstances surrounding the journal, we can assume that the change from weekly to daily caused this rupture.

However, some form of continuity reveals itself when examining the temporal distributions of each topic. In general, we can distinguish between two types of distributions: (i) temporary topics that vary significantly over time and (ii) constant topics. Figure 2 shows the ten constant topics during the whole time span. Although these topics are characterized by continuity, we can still see that 1886 was a turning point. For some it meant a steep decline and for others a sharp incline.





**Figure 2:** The temporal shift in the distribution of constant topics, 1883–1888. Each line signifies a single topic, listed in the legend. The value at each point marks the percentage of all the content during the relevant period.

Four topics, making up 36% of all the discussions between 1883 and 1888, remained relatively constant throughout the entire time span: topics 11, 13, and 20 are related to Jewish and rabbinical discourse and topic 14 is related to natural sciences. The consistency of these topics despite the change in publication frequency can be explained by the fact that they formed the backbone of *HaTzifra* – as a 19th-century Jewish periodical structured on a heritage of Jewish Enlightenment. Beetham discusses three different times that appear in a periodical: “monumental,” “masculine,” and “feminine” times.<sup>22</sup> “Monumental” time includes large historical forces; “masculine” time is “linear time, or the time of history and politics, the world of production associated with men”; and “feminine” time is “the time of reproduction, characterised as repetitive and circular rather than linear and progressive.” The four topics can be considered the “monumental time,” existing beyond the realms of frequency of publication.

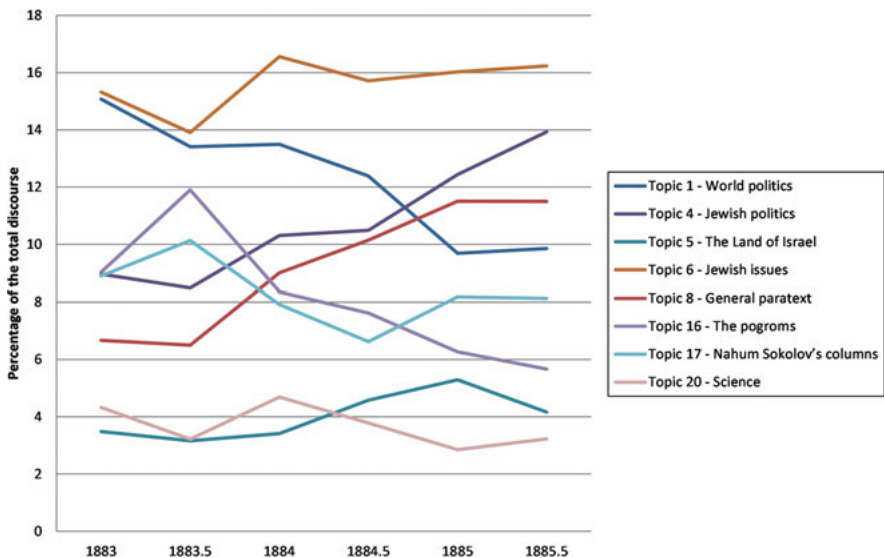
The next section provides an in-depth analysis of each period by creating two different topic models, one for the period 1883–1885 (the weekly era), and another for the period 1886–1888 (the daily era). Rather than looking for similarities, this section will identify the changes.

<sup>22</sup> Margaret Beetham, “Time: Periodicals and the Time of the Now,” *Victorian Periodicals Review* 48, no. 3 (2015): 332.

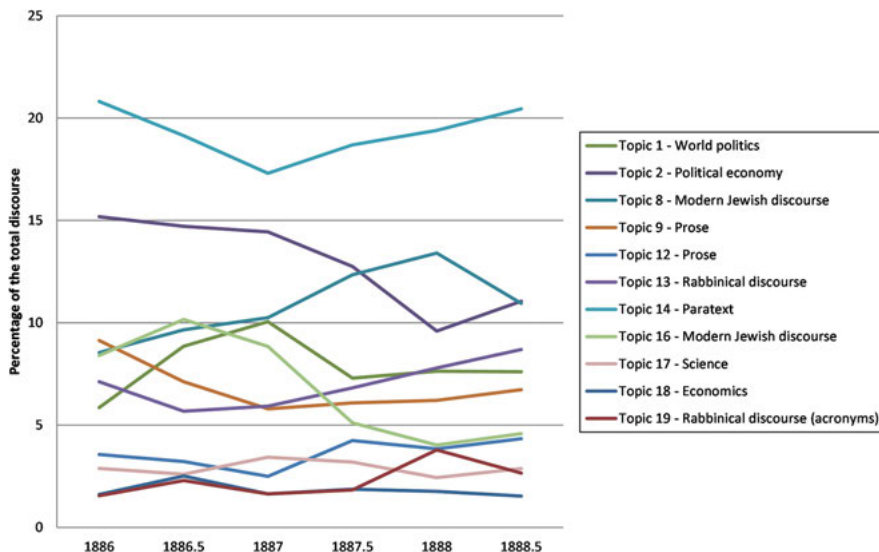
## 4 Changing Temporalities

As mentioned previously, some of the topics were constant while others reflect the temporal and changing nature of journalistic discourse. Figure 3 depicts the constant topics in the first period of time, during which the journal was published as a weekly, and Figure 4 depicts the constant topics in the daily era (for further information and an explanation of the topic numbers see Tables 1 and 2). What stands out in the comparison between both graphs is the rise in number of constant topics, from eight in the weekly era to eleven in the daily era, and their share of all the discussions in the journal, from 70% in the weekly era to 80% in the daily era.

The constant topics mainly relate to the recurring themes of a Hebrew journal of the late 19th century: the general paratext of the journal is affiliated with topic 14 in the weekly era and topic 8 in the daily era; recurring news regarding German politics and Jewish affairs are affiliated with topic 1 in the weekly era and topics 1 and 4 in the daily era; religious discussions appear as part of topic 6 in the weekly era and topics 13 and 19 in the daily era; and the heated debates on the fate of Jews in Europe appears in topics 5, 16, and 17 in the weekly era and topics 8 and 16 in the daily era. Topic 20 in the weekly era and 17 in the daily era, with



**Figure 3:** The temporal shift in the distribution of constant topics, 1883–1885. Each line signifies a single topic, listed in the legend. The value at each point marks the percentage of all the content during the relevant period.



**Figure 4:** The temporal shift in the distribution of constant topics, 1886–1888. Each line signifies a single topic, listed in the legend. The value at each point marks the percentage of all the content during the relevant period.

terms such as “air,” “blood,” and “medicine,” are unique to *HaTzifira* and reflect the initial scientific motivation for the publication of the journal. Religion and science were mentioned in the previous section as monumental themes, but the other six topics would define the journal’s “feminine time”: its repetitive, constant, and reproduced items.

The aforementioned themes were similarly relevant in both eras, but the daily introduced two new themes: literary content (topics 9 and 12) with terms such as “my heart,” “his eyes,” and “my soul”; and economics (topics 2 and 18), with terms such as “ruble,” “liter,” “the price,” and “the trade.”

Literary content entered as a separate section of the journal in the third installment of the daily journal on April 15, 1886, as Slonimski had earlier forbidden publishing such content.<sup>23</sup> The first story entitled “Yerushalima” (To Jerusalem), described the longing of a dying European Jew for the land of Israel.<sup>24</sup> The topics related to the literary theme reflect two types of content. Topic 9 is related to published prose<sup>25</sup> while topic 12, with its emphasis on verbs in the first person,

<sup>23</sup> *HaTzifira*, February 4, 1862, 8.

<sup>24</sup> Dober Rabinowitz, “Yerushalima,” *HaTzifira*, April 15, 1886, 2–3.

<sup>25</sup> Abraham Zuckerman, “Eshet Khayil,” *HaTzifira*, June 21, 1886, 2–4.

reflects personal diaries and poems.<sup>26</sup> The integration of the feuilleton and literary content on a daily basis helped meet the challenge of producing enough content for a daily, as it could be prepared with no connection to current events.

The major change in content was not literary material but rather economics-oriented texts. While the economy was rarely discussed during the weekly era, it occupied 50% of the journal's content from 1886 onwards. As we will see in the analysis of the changing topics, the economy became the main feature of the daily journal. Two topics related to economic discourse appeared constantly throughout the daily era. Topic 2 connects financial terms such as "money," "trade," and different currencies with political terms such as "government." This topic relates to generalized issues of political economy. For example, a particular issue of *HaTzifira*,<sup>27</sup> of which 33% was affiliated with topic 2, included an article on military expenses as its main international news segment, an article on taxes as its main internal news segment, and an article on finances of Jewish philanthropy as its main segment on Jewish affairs. Topic 18, on the other hand, includes commercial terms such as "price" and "rate" and different commodities such as "sugar" and "flour." This topic reflects various commercial indices that were published on the back page of the newspaper.

In contrast to the relative similarity between the content of the constant topics in both eras, the temporary topics signify a real change in discourse. Figure 5 depicts the temporary topics in the weekly era, and Figure 6 depicts the temporary topics in the weekly era.

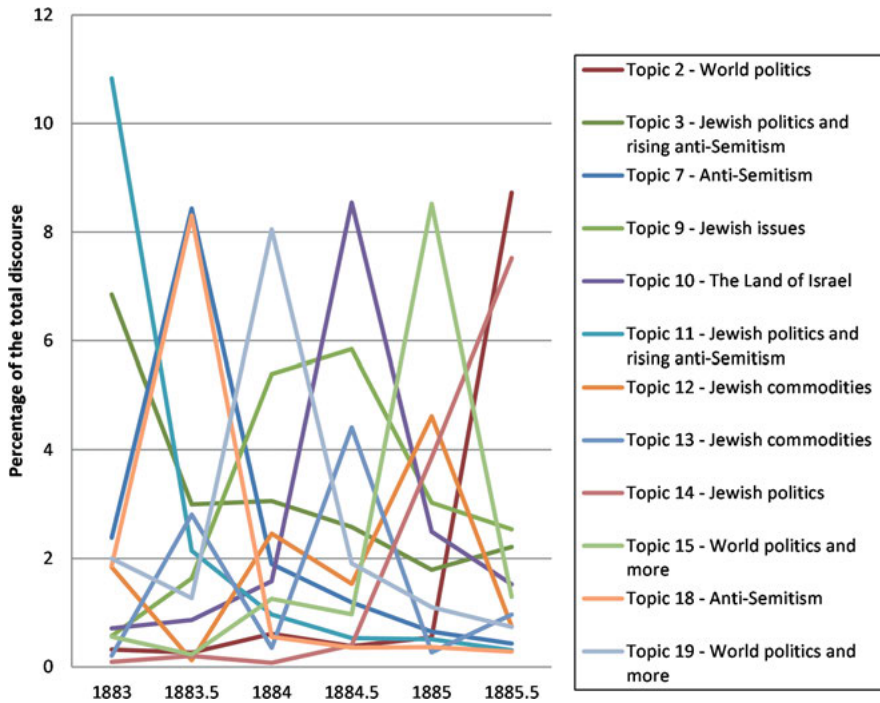
In general, the weekly era can be characterized by an ongoing discussion of European Jewish affairs in connection with world politics. In fact, there is no topic that is not connected in some ways to the Jewish people.<sup>28</sup> During the first year (1883), topics 3, 7, 11, and 18 consist of various issues around libels and rising antisemitism. This follows the pogroms of 1881–1883 in south Russia, which had a tremendous effect on Eastern European Jewry. During the second year (1884), topics 9, 10, 13, and 19 partially reflect a search for a solution for the Jewish people; thus, for example, topic 10 connects Moses Montefiore, the Jewish philanthropist, with the British colonial regime. During the third year (1885), topics 2, 12, 14, and 15 are not particularly identifiable but are still connected to general Jewish politics and issues.

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<sup>26</sup> Israel Saba, "Amarti yesh li Tikva," *HaTzifira*, September 29, 1886, 2–3; "Berosh Homiyot," *HaTzifira*, September 13, 1888, 2.

<sup>27</sup> *HaTzifira*, September 27, 1886.

<sup>28</sup> Segal and Soffer, "One Journal, One Decade."

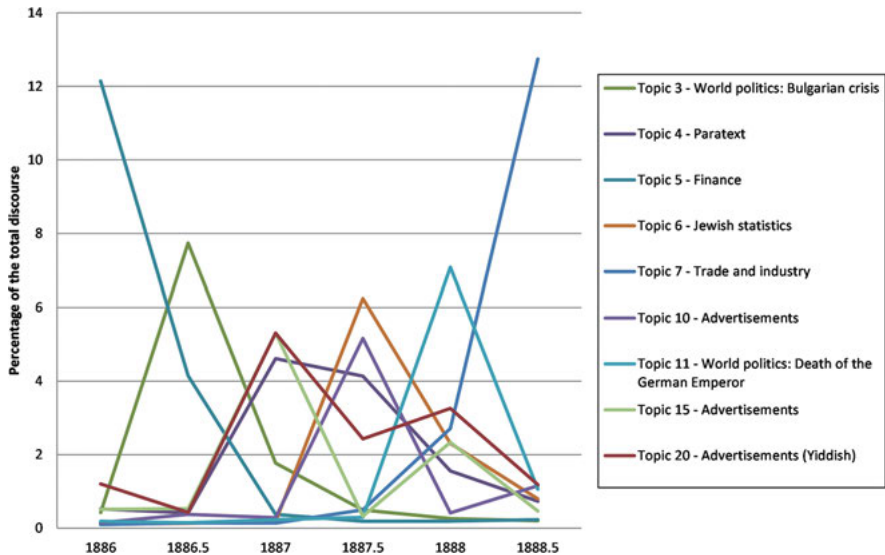


**Figure 5:** The temporal shift in the distribution of temporary topics, 1883–1885. The value at each point marks the percentage of all the content during the relevant period.

What is even more striking is the wave-like pattern of the graph in Figure 5, as the rise of each journalistic theme or topic heralds the decline of another. Furthermore, the main transitional topics of *HaTzifira* reach similar peaks at approximately 8% of the journal’s discourse during a single half-year period before being superseded by another topic. This temporal pattern echoes Franco Moretti’s conceptualization of shifts in literary genres. In *Graphs, Maps, Trees*, Moretti refers to the temporal and ephemeral nature of genres: “the new form makes its appearance to replace an old form that has outlived its artistic usefulness ..., and the decline of a ruling genre seems indeed here to be the necessary precondition for its successor’s takeoff.”<sup>29</sup> Moretti describes the life cycles of genres as waves, in which “a rather regular changing of the guard takes place, where half a dozen genres quickly leave the scene, as many move in.”<sup>30</sup> In terms

<sup>29</sup> Franco Moretti, *Graphs, Maps, Trees* (London: Verso, 2005), 14.

<sup>30</sup> Moretti, *Graphs, Maps, Trees*, 18.



**Figure 6:** The temporal shift in the distribution of temporary topics, 1886–1888. Each line signifies a single topic, listed in the legend. The value at each point marks the percentage of all the content during the relevant period.

of time, the “present” of the weekly tended to operate like a metronome: some topics were continuous and constant, while others consistently appeared and disappeared.

Unlike the wave-like and uniform pattern of news cycles during the weekly era, Figure 6 reflects a chaotic change of news items in the daily era. Some topics have several peaks, others have relatively long decay periods, and many of them overlap. In addition, the peak levels are different for each topic.

The change from weekly to daily is not only apparent in the pace and rhythm of news production but also in the actual content. Of the nine changing topics, depicted in Figure 6, only two are not related to the economy (topics 3 and 11).<sup>31</sup> This recurring theme reflects a growing commercialization of the Hebrew journal, which was part of the capitalistic commodification of time within the commercial project of periodical print. As stated by Sommerville, “the adoption of weekly and then daily schedules for marketing information began developments, the implications of which are still being worked out. Periodicity allowed information to become a business, where it had once been a part of personal

<sup>31</sup> Topic 3 discusses the Bulgarian crisis of 1885–1888 and topic 11 is related to the reports from Berlin regarding the death of the German emperor Wilhelm I on March 11, 1888.

relations.”<sup>32</sup> This process of commodification escalated in the daily newspaper. As the frequency of production increased, more and more space was devoted to advertisements. The first daily newspaper, the *Daily Courant* (1702–1735), for example, devoted about one-half of its space to advertisements.<sup>33</sup> Similarly, many of the topics in *HaTzifira*’s daily discourse relate to straightforward journalistic finances. Topic 4, for example, includes financial terms from the paratext of *HaTzifira*’s front page, emphasizing the commodification of news and the newspaper as the agent providing these news items. Topics 10, 15, and 20 relate to the advertisements in *HaTzifira*. Topics 10 and 15 are connected to commodities for Jewish holidays, such as fruit from Egypt, Passover flowers, and wine.<sup>34</sup> Topic 20 is connected to advertisements in Yiddish, which appeared sporadically throughout the period.<sup>35</sup>

As can be seen, financial issues soon entered into the journalistic texts (topics 5, 6 and 7). Topic 5, peaking at the beginning of 1886 – with terms such as “guarantee,” “loan,” and “departments,” together with mention of various European currencies – identifies an early trend immediately following the change into daily publication.<sup>36</sup> During this stage, economic texts were separated from other parts of the newspaper, located in the back pages. The full integration of financial discourse within other parts of the newspaper occurred in 1887. Topic 6, for example, reflects the influence of financial reasoning on Jewish polemics through the introduction of statistics and primarily economic statistics.<sup>37</sup> The paper did this by encouraging readers to send figures and data concerning the finances of their own communities in answer to antisemitic accusations of the economic inefficiency of the Jewish people.<sup>38</sup> Topic 7 reflects a broader and more integrated influence of economic discourse on the journal. Articles related to this topic combine industrial terms such as “factory,” financial terms such as “guarantee,” and political terms such as “emperor” and “Jews.”

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<sup>32</sup> Charles J. Sommerville, *The News Revolution in England: Cultural Dynamics of Daily Information* (Oxford: Oxford University Press, 1996), 161.

<sup>33</sup> Will Slauter, “The Rise of the Newspaper,” in *Making News: The Political Economy of Journalism in Britain and America from the Glorious Revolution to the Internet*, ed. Richard R. John and Jonathan Silberstein-Loeb (Oxford: Oxford University Press, 2015), 31.

<sup>34</sup> *HaTzifira*, August 19, 1887, 4; *HaTzifira*, January 23, 1888, 4.

<sup>35</sup> *HaTzifira*, April 1, 1887, 6–7.

<sup>36</sup> *HaTzifira*, May 13, 1886, 4.

<sup>37</sup> “Ma-Yif’al Israel,” *HaTzifira*, November 28, 1887, 2–3.

<sup>38</sup> Soffer, “Paper Territory.”

**Table 1:** The ten prominent terms in each topic after removing stop words, and a defining title based on the full bank of terms, 1883–1885.

	Title	
1	World politics	the Jews, Germany, government, Bismarck, England, [written] by, newspapers, Germans, in Germany, France
2	World politics	newspapers, Bulgarians, natives, Alexander, students, the sick, iron, Kopeks, Jews, Austria
3	Jewish politics and rising antisemitism	the emperor, Israel, the minister, France, the French, Russia, the war, the prayer, ruble, in honor of
4	Jewish politics	the Jews, the government, Jews, Russia, Jews [of], newspapers, the Jew, to the Jews, government [of], the Christians
5	The Land of Israel	God, Jerusalem, Zion, our brothers, settlement, in Jerusalem, the Land of Israel, the Ga'on, to God, houses
6	Jewish issues	Israel, God, trade, in our Land, religion, the charity, our brothers, the people of Israel, in the lands of, 20, the money
7	Antisemitism	Israel, Stoecker, the minister, Montefiore, China, France, the king, the freedom, libel, army
8	General paratext	God, ruble, rabbi, aforementioned, 10, books, in the language of, Torah, franc, of blessed memory
9	Jewish issues	bad, the Talmud, the republic, million, kopeks, doctor, the Jews, the rabbis, the order, the movement
10	The Land of Israel	the minister, Montefiore, the parliament, the colonization, the English, the council, the Land of Israel, Solomon, Germany, synagogue
11	Jewish politics and rising antisemitism	Israel, aforementioned, the government, Austria, the Christians, the elected, France, the Talmud, the bitter enemy, The Jew
12	Jewish commodities	Passover, the kosher, flour, the Passover, the enlightenment, Italy, the year, Gordon, the nature
13	Jewish commodities	citrons, myrtles, France, China, families, equal, the French, trade, purchase, Egypt
14	Jewish politics	the minister, Stoecker, to us, Salisbury, the ministry, Rothschild, the lord, in England, citrons, the Holy Land
15	World politics and more	England, the elected, Russia, 25, mit [Yiddish], 50, Gladstone, 12, 16, 10
16	The pogroms	the Jews, the government, the army, newspapers, the riots, the mob, fire, the trade, Europe, the end
17	Nahum Sokolov's columns	the English, Russia, war, the address, army, the truth, sea, letter, the holy, and us
18	Antisemitism	the law, the trial, the judges, the blood, the boy, the libel, the witnesses, Esther, libel, Moritz
19	World politics and more	Israel, the parliament, Bismarck, the laws, cult, Lasker, the community, Egypt, the ministry, the elected [of]
20	Science	[written] by, the nature, the sun, ruble, the price [of], water, between them, the sky, 50, Austria



**Table 2:** The ten prominent terms in each topic after removing stop words, and a defining title based on the full bank of terms, 1886–1888.

	Title	
1	World politics	Bismarck, the army, newspaper, France, Russia, the government, government of, Ashkenaz, Europe, God
2	Political economy	the government, ruble, the trade, the value, kopek, the money, franc, trade, Warsaw, in our land
3	World politics	Bulgaria, England, December, temporal, the army, October, newspaper, government, Russia, the government
4	Paratext	100, June, the Jews, May, 50, publication, 10, the loan, demanded, abroad
5	Finance	100, May, 40, journey, July, to God, June, guarantee, Greece, one hundred
6	Jewish statistics	providers, 10, November, December, October, Israel, Berlin, Paris, traders, 15
7	Trade and industry	10, the emperor, July, 100, Wilhelm, June, August, God, 50, Shimon, Factory
8	Modern Jewish discourse	Israel, our brothers, the readers, the authors, see, in <i>HaTzifira</i> , we are, the enlightenment, the religion, articles
9	Prose	his eyes, the woman, loud, answered, called, woman, rabbi, will say, stand, sit
10	Advertisements	August, September, Israel, July, p. (acronym), 10, Bulgaria, pomegranates [of], pomegranates, number, the Jews
11	World politics	the emperor, April, 10, Berlin, May, Wilhelm, Bismarck, Friedrich, Boulanger, newspaper
12	Prose	my heart, I knew, my soul, my master, in me, I said, I saw, my brother, and I, I will be able to
13	Rabbinical discourse	God, Israel, rabbi, the congregation, the Torah, our brothers, ruble, to God, the deceased, Yitzhak
14	Paratext	kopek, 15, g' (acronym), ruble, 24, florin, saw, [written] by, fire, the time
15	Advertisements	God, February, January, Passover, rabbi, 10, Berlin, Warsaw, the Passover, flour
16	Modern Jewish discourse	the Jews, God, Israel, our brothers, the government, newspapers, about, doctor, the Christians, Jew
17	Science	by, the body, the air, the disease, the blood, the medicine, occasionally, physicians, flesh, disease [of]
18	Economics	ruble, liter, the price, the sugar, kopek, this week, 50, the traders, pood, the rate
19	Rabbinical discourse (acronyms)	vcu' [et cetera], z"l [in blessed memory], s', b', but, g', a', issue, that is, c"א [each and every one]
20	Advertisements (Yiddish)	mit, auch, fuer, im, dem, ein, werden, Fabrik, wie, Freisen

## 5 The Editors' Perspective on Periodical Time

At the core of the previous analysis lies the question of periodical time, and more specifically its defining role in conceptualizing the present. The editors of *HaTz-fira* were well aware that the shift from weekly production to daily production resulted in the need to accelerate news presentation to the readers, which they did express in short quarterly bulletins to the readers, published on the front page. These bulletins acted as policy declarations on behalf of the editors, expressing their obligation to shortening the time of news production and newspaper delivery. The summarizing bulletin of 1886,<sup>39</sup> for example, states that the paper will provide “current news and perceptions, brought by well-known writers that expediate all their reports to our readers *as soon as they can*” (emphasis in the original). In addition, it acknowledges the need to fill the pages of the newspapers, but at the same time expresses the obligation to provide “valuable content in each issue.”<sup>40</sup>

The need for a more rapid cycle of news did not allow the editors to maintain the same themes discussed in the weekly era. The most dynamic and fluctuating content available to the editorial board was economic information. Data on commercial prices, global currencies, and stock market indices changed on a daily basis. Although it is hard to believe that most Jewish readers had any need for such information, it structured their time. The transformation from Jewish politics (the main theme in the weekly era) to economics (the main theme in the daily era) was initially a structural change, due to the introduction of more advertisements and specialized economic and financial columns in the back pages. Over time, economic discourse found its way into the general journalistic discussion.

While topic modeling identifies the growing role of economics within the discourse of *HaTz-fira*, the quarterly bulletins show very little sign of this change. The bulletins, which reflect the editors' overview of their work, emphasize continuity from earlier periods of the journal, stressing its original scientific and political orientation. The “dailiness” of the journal is seen mainly in the editors' success in maintaining its traditional nature on a daily basis. However, the editors do reflect on a particular change in content, while never mentioning its novelty – that is, the introduction of literary columns within the daily *HaTz-fira*. By September 1887,<sup>41</sup> the editors define the journal's mission as being “a political, scientific

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<sup>39</sup> *HaTz-fira*, December 28, 1886, 1.

<sup>40</sup> *HaTz-fira*, July 1, 1887, 1.

<sup>41</sup> *HaTz-fira*, September 30, 1887, 1.

and *literary* newspaper” (emphasis not in the original). They seem unaware of the new economic hegemony.

The single exception is the quarterly bulletin of March 30, 1887.<sup>42</sup> In it, the editors explicitly acknowledge the important role of “reports on the world of commerce and news related to daily work of the people of Israel.” In addition, they emphasize the value of advertisements, “especially for those dealing with the people of this great metropolis [Warsaw].” This unique expression of the commercialization of the newspaper and its dependence on urbanized readership corresponds with our analysis based on computational distant reading. Although this was not repeated in previous or later bulletins, it reveals the editors’ underlying awareness of these new circumstances and reality.

## 6 From “Masculine Time” to “Feminine Time”

January 5, 1886, was the date of publication of the last issue of the weekly *HaTzifira*. Three months later, on 13 April, 1886, the new daily *HaTzifira* was published, with very little apparent change. The subtitle of the newspaper changed from “published weekly” to “published daily,” and the length of the newspaper was shortened from eight pages to four. Due to the fact that the editorial board, consisting of Slonimski and Sokolov, never changed, and that nothing much occurred in world affairs during this time of transition, we could assume that the journals would remain almost identical. However, this study shows that the transformation from weekly to daily had far reaching consequences on the rhythm and content of periodical times. The findings of the topic-modeling algorithm, as can be seen in the vector analysis (Section 3), provide evidence that the shift in the cycle of publication had a substantial effect on the social discourse presented in this periodical. The computational analysis shows that the difference between the two discourses was almost as great as that between two different newspapers.

The differences were related not only to the content of the topics but also to their structure, cycles, and duration. While in the weekly era we see a wave-like pattern of similarly important topics replacing each other, in the daily era we see a much more chaotic nature of changing topics as well as a larger number of unvarying topics.

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<sup>42</sup> *HaTzifira*, March 30, 1887, 1.

As Beetham argues, there is always a dependency between time and money within the journalistic discourse.<sup>43</sup> In the daily, this dependency was radicalized, as information became a business.<sup>44</sup> In *HaTz'fira* we see several layers of this commodification. The first layer relates to the new social function of the newspaper as the provider of information rather than reading material. In order for the daily to be relevant and commercially valuable to the readers, this information had to be printed before the readers received it through other means. The second layer is an outcome of the first layer because the most available, updated, and dynamic type of information the journal can publish is commercial and economic information. As a result, the orientation of the journal's discourse gradually shifted to economics. The third layer of the commodification is the growing proportion of advertisements in the newspaper. This was an outcome of the combination of several factors: the rising costs of daily publication required new sources of funding; the daily appearance of the newspaper created an added value for the advertisers, as the newspaper provided ongoing exposure to the readership; and the shift of the discourse to economics created a suitable environment for the commercialization of the printed space.

Frequency affected not only news cycles and journalistic content, but also the genre of journalism. The new social and commercial function of the daily newspaper was different from the distant and interpretive role of the weekly. While the Jewish weekly was often perceived as a periodical book that could be read years after the publication, the daily was designed to affect the immediate, everyday environment of the readers. The dailies were designed to grasp the attention of a daily commute to work.<sup>45</sup> Thomas P. O'Connor, a 19th-century journalist, wrote in 1889 that "we live in an age of hurry and of multitudinous newspapers. The newspaper is not read in the secrecy and silence of the closet as is the book. It is picked up at a railway station, hurried over in a railway carriage, dropped incontinently when read."<sup>46</sup> Rather than the summary and evaluation of distant events provided in the weekly era, the daily dealt with the everyday life and needs of the readers. This was manifested in a shift from politics and Jewish discourse to economics, as well as the dominant role of advertisements.

Another perspective of the fulfillment of everyday requirements was the introduction of literary columns. Similar to economic discourse, literary dis-

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<sup>43</sup> Margaret Beetham, "Towards a Theory of the Periodical as a Publishing Genre," in *Investigating Victorian Journalism*, ed. Laurel Brake, Aled Jones, and Lionel Madden (London: Palgrave Macmillan, 1990), 19–32.

<sup>44</sup> Sommerville, *The News Revolution in England*.

<sup>45</sup> Beetham, "Time."

<sup>46</sup> Thomas P. O'Connor, "The New Journalism," *The New Review* 1 (October 1889): 434.

course was introduced partly as a result of institutional circumstances, since they were available and could be prepared in advance to fill the newspaper. However, such content related to the new personal perspective of the daily newspaper. As reflected in the prominent words of the relevant topics (9 and 12), the vocabulary was personal and related to mundane personal domains. Such style was entirely different from the dominant scientific style of the weekly era. This could reflect a much-needed balance within the daily newspaper between an instrumentalized economic style and a personal literary one.

As Turner observes, varying frequencies of journal publication create divergent time cycles that relate differently to everyday lives.<sup>47</sup> As we have seen, the weekly era was characterized by a metronome-like change of topics. Relatively few topics were constant, while others superseded each other in a uniform wave-like pattern. In contrast, the daily era was characterized by a larger number of constant topics while the dynamic topics reflect chaotic change. This can be explained by the need to create a sense of continuity within a daily cycle of journalistic production. The daily cycle’s lack of journalistic perspective forced the creation of stabilized indexing within an unpredictable daily atmosphere. This indexing is manifested in the constant topics, which reflect Beetham’s “feminine time.”<sup>48</sup> This finding is not intuitive and stands in contradiction to Sommerville’s assumption that constant change is reflected within daily production of journals.<sup>49</sup> While the weekly perspective enabled the production of uniform change, the rapid information provided in the daily was structured as if it was uniform continuity. This structural uniformity allowed the daily newspaper to contain relatively few changing topics, which reflect Beetham’s “masculine time.”

The daily *HaTzifira* was not restricted to a single sense of periodical time; it encompassed monumental, feminine, and masculine times simultaneously. The need to discipline the rapid change of information created structured journalistic formats with identified spaces within the printed topography, which elevated “repetitive and circular” representation of “linear and progressive” information. In this way, it challenged the binary distinction between feminine and masculine times. Periodicals in general, and dailies in particular, were significant in the construction of the “present.” However, the meaning of this “present” was rarely, if ever, constant and coherent.

The case-study of *HaTzifira* manifests the advantages of computational tools and methods in juxtaposing two areas of interest in current Jewish Studies, the

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<sup>47</sup> Mark W. Turner, “Periodical Time in the Nineteenth Century,” *Media History* 8, no. 2 (2002): 183–96.

<sup>48</sup> Beetham, “Time.”

<sup>49</sup> Sommerville, *The News Revolution in England*.

reliance of Jewish societies on communication networks and the significance of time in Jewish tradition.

Due to the diasporic nature of the Jewish society, communication networks assumed an exceptional significance: they were the means not only of creating an “imagined community” but a central element in maintaining the actual, real, community. “The dispersed, centerless Jewish world remained connected and in many ways intact into the modern era, based on innovative and effective media arrangements and communication strategies,” claims Blondheim.<sup>50</sup> The importance of communication has resulted in extensive research on Jewish media in the Modern Age. Those same circumstances caused Abraham Joshua Heschel to distinguish between the “space-minded man” and the Jew and claim that Judaism is a “religion of time aiming at the sanctification of time.”<sup>51</sup> Consequently, Jewish Studies in the last two decades has seen a rising interest in time-related research, and in particular diverse forms of temporality in Jewish culture.<sup>52</sup>

However, despite the fact that a lot of the work in both areas of interest has dealt with new media and digital technology, their analysis remains mostly qualitative and non-digital. Computational analysis provides new perspectives on each of these fields individually and together.

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<sup>50</sup> Menahem Blondheim, “The Jewish Communication Tradition and Its Encounters with (the) New Media,” in *Digital Judaism: Jewish Negotiations with Digital Media and Culture*, ed. Heidi Campbell (New York: Routledge, 2015), 28.

<sup>51</sup> Abraham J. Heschel, *The Sabbath: Its Meaning for Modern Man* (New York: Farrar, Straus and Giroux, 1951), 7.

<sup>52</sup> Sarit K. Gribetz and Lynn Kaye, “The Temporal Turn in Ancient Judaism and Jewish Studies,” *Currents in Biblical Research* 17, no. 3 (2019): 332–95.

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