

## Collateral Damage. Online Reception of Tolstoy and Dostoevsky after the Invasion of Ukraine

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### Abstract

The Russian invasion of Ukraine on February 24, 2022, triggered widespread cultural and geopolitical shifts, prompting a reevaluation of Russia's historical and imperialistic narratives. This study examines how perceptions of Russian literature, specifically works by Tolstoy and Dostoevsky, have evolved among non-academic readers in the wake of these events. Using data from the Goodreads platform, we analyzed over 5,700 user reviews and ratings to determine whether the war influenced public reception. The results highlight a statistically significant, albeit small, decrease in ratings following the invasion, suggesting a growing cultural skepticism toward Russian literature. Computational techniques, such as Change Point Detection algorithms, identified January and February 2022 as pivotal moments in this trend. The findings also raise questions about the impact of cultural boycotts, fake reviews, and bots on shaping public sentiment. These insights call for further exploration into the interplay between political events and literary reception, especially in highly polarized contexts.

**Keywords:** Goodreads; Online Book Reviews; Literary Reception; Tolstoy; Dostoevsky; Ukraine war.

*L'invasione russa dell'Ucraina il 24 febbraio 2022 ha innescato profondi cambiamenti culturali e geopolitici, portando a una rivalutazione delle narrazioni storiche e imperialistiche della Russia. Questo studio analizza come la percezione della letteratura russa, in particolare delle opere di Tolstoj e Dostoevskij, sia cambiata tra i lettori non accademici a seguito degli ultimi eventi. Attraverso i dati raccolti sulla piattaforma Goodreads, sono state analizzate oltre 5.700 valutazioni per studiare l'influenza della guerra sulla ricezione dei classici russi. I risultati evidenziano una diminuzione statisticamente significativa, seppur modesta, delle valutazioni dopo l'invasione*



dell'Ucraina, suggerendo un crescente scetticismo culturale verso la letteratura russa. Tecniche computazionali, come gli algoritmi di Change Point Detection, hanno individuato nei mesi di gennaio e febbraio 2022 un momento cruciale per il cambio delle valutazioni. Pur confermando un cambiamento percettivo, lo studio sottolinea la complessità di attribuire tale mutamento esclusivamente alle opinioni dei lettori, poiché anche le dinamiche delle piattaforme e la disinformazione digitale giocano un ruolo significativo. Questi risultati invitano a svolgere ulteriori indagini sull'interazione tra eventi politici e ricezione letteraria in contesti politicamente polarizzati.

**Parole chiave:** Goodreads; Recensioni online; Ricezione letteraria; Tolstoj; Dostoevskij; Conflitto ucraino.

## INTRODUCTION

### *1.1 The Perception of Russian Literature after the War*

After February 24th, the invasion of Ukraine significantly altered the global perception of Russia and its culture: since the onset of the conflict, there have been several instances of boycotts,<sup>1</sup> cultural isolation,<sup>2</sup> and historical and political revisionism. Both within Russia and internationally, the narratives surrounding the country are being extensively rewritten. The Russian invasion of Ukraine marked a pivotal geopolitical moment, prompting a reassessment of the colonial impact that Russia had on different countries. This reevaluation extends beyond Ukraine to regions such as Poland and the Baltic states (Estonia, Latvia, and Lithuania), which are framing past Russian policies as colonial practices and interpreting contemporary Russian actions as a continuation of its historical political agenda [14].

Until recently, extensive discussions regarding the colonial impact of Russia had not been widely undertaken [5]. In 2005, during the round table titled *Are We Postcolonial? Post-Soviet Space* Gayatri Spivak, one of the most prominent postcolonial theorists, began her intervention by stating:

When an alien nation-state establishes itself as a ruler, impressing its own laws and system of education and rearranging the mode of production for its economic benefit, ‘colonizer’ and ‘colonized’ can be used. [29]

According to Spivak, while the case of Russia aligns with the broader framework of colonialism, there are important distinctions to be made. Colonialism in regions such as the Middle East, South Asia, and Latin America often manifested itself as individual nations seeking additional resources for their capitalist societies. In contrast, Russian colonialism, in its imperialistic form, is more similar to that of the Austro-Hungarian and Ottoman empires. Theorists describe it as

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<sup>1</sup> We could recall the case of Paolo Nori, an Italian professor of Russian literature, who was initially prohibited from teaching a course on Dostoevsky, only to be reinstated after heated journalistic controversies.

<sup>2</sup> Currently, many European and American universities have restricted academic collaborations with Russian institutions. These restrictions include prohibiting Russian-affiliated scholars from teaching courses, participating in seminars, or attending conferences. Universities have severed ties with Russian institutions, resulting in students and scholars being unable to travel to Russia, and Russian students facing barriers to studying in Europe or the USA. Consequently, this situation has effectively isolated Russian scholars from the global academic and scientific community.



“internal” [5], meaning that the central state assimilates other nationalities and ethnic groups within the country. Eastern European countries (Poland, Hungary, the Czech Republic, the Baltic states, etc.) are often regarded as occupied territories, whereas Eurasian regions, including Ukraine and Belarus, are viewed as true colonies where Russia imposed its culture and language, attempting to fully integrate the population.

However, the issue remains complex. To an inattentive observer Russia, Ukraine, and Belarus may appear culturally intertwined. For instance, Ukraine and Russia share their earlier literary sources, as exemplified by *The Tale of Igor's Campaign* (late 12th century). Modern Russia itself traces its origins to Kiev, the present capital of Ukraine, with the Kievan Rus'. There are also Ukrainian-Russian writers, particularly in the 19th century, who felt part of both cultures simultaneously. A notable example is Nikolai Gogol, a Russian writer of Ukrainian origin, who expressed this dual cultural identity in a letter written in 1844:

I myself do not know what kind of soul I have, Ukrainian or Russian. I only know that I would not give preference to either a Little Russian<sup>3</sup> over a Russian, or a Russian over a Little Russian. Both natures are too generously endowed by God, and each one separately contains something that the other lacks – a clear sign that they are meant to complement each other [31]

This dual identity reflects the complex historical and cultural ties between Ukraine and Russia, where a shared history and overlapping cultural influences complicate the narrative of a straightforward colonial relationship.

Colonialist behaviors are not limited to military or political control. They can manifest themselves also in the domain of culture [2] and, more importantly for us, literature. The case of Serhiy Zhadan, one of the most popular Ukrainian writers, serves here as a good example. Upon the release of *Voroshilovgrad* (2010), *Izvestia*, a widely circulated Russian newspaper, wrote about him: “The Ukrainian writer can rightfully be considered one of the best Russian authors” [37]. Aleksandr Dmitriev claims that the promotional campaign for Ukrainian literature in Russia has shifted focus after the collapse of the Soviet Union. Until the 1990s, the emphasis was on the exoticism of Ukrainian literature. Nowadays, the current narrative emphasizes the cultural belonging of Ukrainians to Russians, highlighting that in the country, there are “naši lyudi” [our people] [34] especially in territories such as Kharkiv, Donetsk, and Luhansk, where Zhadan comes from. Dmitriev also cites an intriguing case regarding the publication of *Depeche Mode*, a 2004 novel published in Russia by the publishing house Amfora. This edition does not provide any information regarding translation, implying that the novel was originally written in Russian, while the original text is actually in Ukrainian [34]. These examples suggest how sometimes Russia tends to depict Ukrainians as ‘Russians who have forgotten their Russianness’ [18], transposing in the cultural realm the same imperialistic behaviors that characterize its political agenda.

Similar dynamics become particularly evident with regards to Russian classics. In some cases, Russian political power uses classic authors to legitimize war actions, while from another perspective – namely the Ukrainian one – these authors are viewed as bearers of imperialistic views. We can observe an increase in publications on this topic by many scholars – particularly

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<sup>3</sup> Little Russia (in Russian: Малороссия) is a term historically used to refer to Ukraine, persisting in usage until the 20th century, now considered offensive by Ukrainians.



from Ukraine – who are now publishing comments in online journals to achieve a faster and more immediate impact [38].

Overall, it is clear that recent events prompted many scholars of Russian literature to critically reassess their field of study.<sup>4</sup> But what about common readers? Has the perception of canonic Russian authors changed outside of academia as well? The aim of this paper is to assess whether the perspective shift that underlies the discussion about the imperialistic nature of Russian literature remained confined to scholars, journalists, and cultural theorists, or if it extended to the wider public. To do so, we conducted an empirical study of the ratings attributed to the work of two major Russian writers (Tolstoy and Dostoevsky) on the Goodreads platform. These two authors hold markedly different perspectives: Tolstoy embraced pacifist and anti-war ideals, especially in the latter part of his life (after the 1870s), while Dostoevsky, following his exile to Siberia in 1848, returned as a conservative with strong nationalist convictions. A notable example of their contrasting views is their stance on the Russo-Turkish War: while Dostoevsky advocated for active participation in the conflict, Tolstoy firmly believed in abstaining from action [28]; [32].

We chose these two vastly different authors for two key reasons. First, since, amongst the general public, they are perceived as the two major Russian authors –which makes them very good candidates for a study aimed at capturing shifts in the general perception of Russian literature and culture. Of course, different choices could have been made. Brodsky, for instance, is now a highly controversial figure in Russian studies [35]; [36] with much academic debate surrounding his poem *On the Independence of Ukraine* (1992), where he expresses disdain for Ukraine's separation from Russia, using irony and bitter sarcasm. The poem is now often seen as an expression of imperial nostalgia. However, this remains an academic discussion, largely absent from broader public discourse.

Secondly, the postwar period has seen a resurgence of commentary on both Dostoevsky and Tolstoy, which at times resulted in a reinterpretation of the latter. While it is true that Tolstoy was a pacifist, some argue that, as a writer working in an empire, he inevitably operated within an imperialist mindset. As one commentator provocatively puts it: “Dostoevsky was an imperialist, Tolstoy was an anti-imperialist. But the outcomes are similar” [33]. A Ukrainian journalist, reflecting on the legacy of Russian literature, expressed a similar sentiment in an article for an Italian newspaper:

We read the heavy volumes of Tolstoy's works, listening to the pacifism that seeped from every page. We discussed it in class, dedicated essays to him and to the fate of the Fatherland, and no one thought to specify that this fatherland belonged to someone else, not to us. We had to memorize the passage about the sky over Austerlitz, just as our parents and grandparents had done, and as other children have done in every village and every city in Russia. They still do it today, I presume – no one has wanted to overturn the usual order of things [4].

### ***1.2 Literary Reception in the Digital Era***

We live by now in a world that constantly pushes us to share our thoughts and opinions concerning the most diverse aspects of our experiences. Such “rating culture” [7]; [27] hasn't left literature untouched. A plethora of websites dedicated to both writers and readers has emerged,

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<sup>4</sup> See, for instance, the round table held in Comenius University Bratislava: “*How to write the history of modern Russian Literature after the 24th february 2022?*” (Как писать историю современной русской литературы после 24 февраля 2022 года?). 01.02.2024.



shaping what has been called the phenomenon of “digital social reading” [20]; [21]. On platforms such as Goodreads, Anobii or Shelfari anyone can play the part of the literary critic. Here, readers are called to evaluate the books they read both by rating them (usually following a one-to-five-star rating system) and by writing full-fledged reviews. This basic format, paired with the classical functionalities of a social network (following users, chatting, forming groups etc...), creates a virtual communal space entirely dedicated to forming and sharing opinions about literary works. Other platforms or applications, like Wattpad (or, to a lesser degree, Kindle and Bookshelf) host entire eBooks on their servers and allow readers to highlight or to comment certain passages, sharing with the community of users the thoughts, opinions, and evaluations that they formed during the very act of reading. On the one hand, these platforms democratize the process of literary criticism, offering virtually to any reader the means to evaluate the books they read. On the other, by documenting such process, they offer scholars an extremely valuable resource to study literary reception, allowing them to test their theories and hypotheses against real-world data, as well as enabling them to access a huge dataset of reader responses.

Reader response, it's worth remembering, constitutes one of the most important aspects of a literary work. It is through readers, for the most part non-academic, that literature survives and evolves, taking on new forms and meanings across centuries and cultures. In our approach, we draw considerable inspiration from Hans Robert Jauss, whose theories highlight the pivotal role of the reader as an active agent in the formation of a literary work [9]; [41]. According to Jauss, the literary work does not exist in isolation but is contingent upon the engagement of a historical reader, equipped with a specific horizon of expectations, a conceptual framework shaped by the reader's prior knowledge and experiences. This horizon of expectations profoundly influences the interpretation of the text, fostering a dynamic and evolving relationship between the work and its audience. The interaction between text and reader, therefore, becomes a dialogical process, where both elements mutually influence and transform one another.

In our contemporary world, characterized by an incessant flow of media, information, and news – including pervasive reporting on war and conflict – It is compelling to consider how these factors might reshape the reader's horizon of expectation and, through that, their interaction with and opinions of literary texts. To what extent do the prevailing socio-political contexts and the constant bombardment of information mediate the way we engage with literature? This question invites a deeper exploration of how modern external influences recalibrate the interpretive frameworks that readers bring to literature. A particularly intriguing question arises when applying Jauss's perspective to the Russian literary canon. How might the gaze of a new generation of readers, situated within today's unique cultural and historical moment, alter the reception and interpretation of Russian classics? Could the current geopolitical climate, marked by the ongoing war and its attendant narratives, precipitate a decline in the readership of these works? Or might it instead provoke fresh interpretations, uncovering latent meanings that resonate with contemporary realities? In the case of Russian classics, the current global scrutiny of Russia's political actions raises questions about the potential for these works to be reframed or even rejected by certain audiences. Could the war and its pervasive impact lead to a reevaluation of these texts, causing them to lose their cultural centrality in some contexts while gaining newfound significance in others?

As said above, to investigate how and if the reception of Russian literature has changed among non-academic, common readers following the invasion of Ukraine, we turned to Digital Social Reading (DSR). According to Rebora and colleagues, DSR refers to “shared reading experiences which happen either online or offline but involve some use of digital technology and media, either for reading or for sharing experiences elicited by books” [21: 231]. Gathering terabytes of book-related data generated by real readers, DSR platforms are the perfect environment to



explore contemporary phenomena linked to literary reception. In particular, we focused on Goodreads, indubitably the biggest of such platforms, which allows its users to rate books and post reviews about them, as well as to interact with each other in all the ways that are typical of social media. Using Goodreads as a platform for studying literary reception, particularly in the context of major historical events like the invasion of Ukraine, is not just a convenient choice – it’s a strategically significant one. Goodreads is the world’s largest social media platform dedicated exclusively to books, boasting tens of millions of active users. Its audience spans a wide spectrum of demographics, including age, nationality, gender, and reading preferences. This diversity allows researchers to tap into a globally representative sample of “everyday readers” transcending the academic or specialized literary circles.

Of course, user-generated data are all but univocal and easy to interpret. The perceptions of literature often vary dramatically across cultures and individual experiences. Goodreads captures this broad heterogeneity, offering a more nuanced picture of literary reception compared to smaller, niche platforms. Let’s, for instance, scroll through some reviews to the works of Tolstoy and Dostoevsky. On the one hand, Tolstoy is: “repeating the same thought over and over and over again in the same sentence, in the same paragraph, until the reader is ready to cry for some respite” (Nataliya, 17/03/2023), while on the other hand a book by him “is a masterpiece, not just a Russian masterpiece but a true gift to the world of literature” (Jeffrey Keeten, 25/09/2020). The war is sometimes mentioned, as for example in the comment of the *Sebastopol Sketches* by Matthew Ted: “it’s also an oddly prophetic and scary read, thinking about the war then, the war nearly one-hundred years later in which my ancestor was involved and again, almost one-hundred years later to the present day, the importance of Crimea in Putin’s invasion of Ukraine” (29/08/2022). At the same time, Dostoevsky makes you feel like you are “in an emotionally abusive relationship with a dead russian author” (Amandus, 03/04/2024) or he appears to create confusion in readers’ feelings: “I don’t mind saying that I clearly did not get it” (Chad, 21/06/2017).

To extract meaningful and, most importantly, objective information from such materials, computational methods are required. In the next section, we present the methodology and the result of our study. The question that oriented our investigation is simple: did Russia’s invasion of Ukraine in February of 2022 impact readers’ perception of Russian Literature? Our hypothesis, based on what we presented thus far, was that it did. However, one thing is to formulate hypotheses, another is to test them against real world data – something that now, thanks to computational technologies, we are able to do.

## THE ANALYSIS

### 2.1 Data

One very useful feature of the Goodreads platform consists in user-generated lists of books pertaining to specific periods, genres, authors, and so on. To develop a dataset that would allow us to test our hypothesis, we turned to the lists of works by Tolstoy<sup>5</sup> and Dostoevsky.<sup>6</sup> This way, we put together a corpus of 46 works. Leveraging the functionalities of Python’s library

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<sup>5</sup> [https://www.goodreads.com/list/show/22373.The\\_Best\\_of\\_Tolstoy](https://www.goodreads.com/list/show/22373.The_Best_of_Tolstoy)

<sup>6</sup> [https://www.goodreads.com/list/show/5742.Best\\_of\\_Fyodor\\_Dostoevsky](https://www.goodreads.com/list/show/5742.Best_of_Fyodor_Dostoevsky)



Selenium,<sup>7</sup> we then scraped Goodreads reviews of these works, creating a final dataset composed of 5744 entries.<sup>8</sup> The number of reviews per book is stable across a major part of the corpus, with only a small fraction of works (8 out of 44) having less than 80 reviews—which can be taken as a sign of their lower popularity on the platform—and the others settling between 130 and 140.

More reviews concerned works by Dostoevsky than Tolstoy (3301 vs. 2443). Importantly, however, the distribution of reviews before and after the start of the Ukraine war did not differ significantly between the two authors ( $\chi^2(1) = 2.33$ ,  $p = 0.13$ )—which would have otherwise indicated that one had been affected differently than the other by such event. A significant difference, in this regard, was registered with regards to the single works ( $\chi^2(45) = 185.2$ ,  $p < 0.001$ ). More specifically, two short stories by Dostoevsky (*Bobok* and *The Crocodile*) were reviewed more frequently after the war than before, despite the latter period covering a considerably larger portion of our dataset. Tolstoy’s *The Death of Ivan Ilych* and *The Sebastopol Sketches* also registers a higher-than-expected review count in the period after the start of the war.

Despite being prevalently anglophone, Goodreads is a global platform, which means that reviews might not always be written in English. Using the Python Langdetect<sup>9</sup> library, we counted in our corpus a total of 41 different languages, with English (45%), Farsi (16%) and Arabic (13%) being the most frequent. Such a complex linguistic tapestry is the reason why we limited our main analysis to ratings, instead of exploring language-based approaches such as sentiment analysis or topic modelling. Ratings on Goodreads are based on a one-to-five-stars system, that can be understood as a five-point Likert scale measuring overall appreciation for a given book. The average rating for the works in our corpus is fairly high, settling around 4 (SD = 0.9)—which is not surprising if we keep in mind that we are dealing with canonized authors, widely considered as the pinnacle of Russian prose.

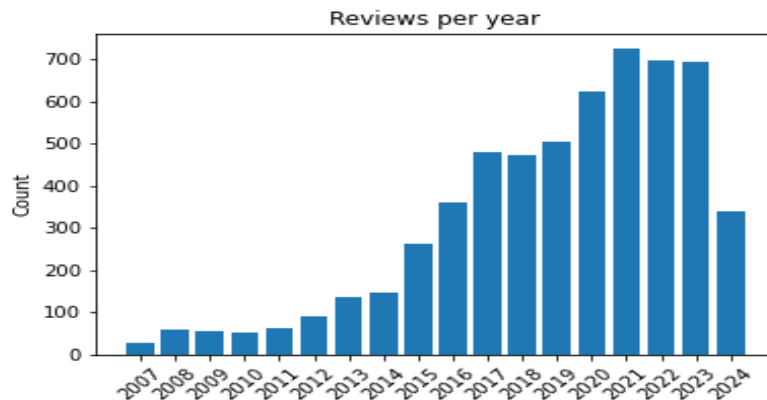


Figure 1. Distribution of reviews per year of publication

<sup>7</sup> <https://robotframework.org/SeleniumLibrary/SeleniumLibrary-5.0.0b1.html>

<sup>8</sup> The datasets, together with the scripts used for scraping and statistical analysis, can be found here: [https://github.com/GVezzani/collateral\\_damage](https://github.com/GVezzani/collateral_damage). The text of the reviews and the usernames don't appear in the public repository for copyright reasons.

<sup>9</sup> <https://pypi.org/project/langdetect/>



The other variable we considered was the date when ratings were attributed. Overall, the entries in our dataset cover a period that ranges from 2007 to 2024. As can be seen in Figure 1, reviews are not equally distributed across years. This is consistent with the fact that, since its foundation in 2007, Goodreads has seen steady growth, both in terms of users and posts. To enable quantitative analysis, each date was transformed into an integer, representing the number of days that separated it from a reference point set at 1/1/2007. This allowed us to encode the time dimension of our data on a continuous scale, common to all the collected reviews.

## 2.2 Analysis

To check for trends in the ratings caused by the simple passage of time (which could signal specific directions in the evolution of the online environment under study), we ran an ordered logit model, using the reviews' year of publication to predict rating. Ordered logit models predict an ordinal target by modeling a single linear predictor along with multiple thresholds that separate the different levels of the outcome. This allowed us to gain insights on the trends associated with each rating level separately. To assess the model's goodness of fit, we used McFadden's R-squared [15], which evaluates how well the model explains the data relative to a null model (i.e., an intercept-only model). Values for this metric range from 0 to 1, with one indicating the optimal fit. The analysis just described was performed using R's MASS package,<sup>10</sup> while everything that follows was carried out in Python.

To test whether the start of the war in Ukraine in February of 2022 significantly affected our target variable, we performed a Mann-Whitney test, comparing the ratings from before and after this date. We opted for this non-parametric test because ratings were not normally distributed (a Shapiro-Wilk test reported a p-value of 0). The effect size was obtained by computing the point-biserial correlation coefficient, which measures the strength of the relationship between a binomial variable (in our case, a dummy variable encoding whether a rating was attributed before or after 02/2022) and a continuous one (the actual rating, here treated as a continuous value ranging from 1 to 5).

Obtaining a significant result in the Mann-Whitney test described above wouldn't necessarily have confirmed our hypothesis. Time series data such as that which we collected, in fact, can exhibit many fluctuations, leading to slight differences in the averages of groups formed by partitioning it even randomly. To assess the robustness of our effect, we borrowed a method from corpus linguistics and performed a slightly modified version of a permutation test [12]. In its classical implementation, in fact, this method would have required us to iteratively reshuffle our datapoints to create many random groups of the same size of the ones obtained with our original partitioning. To get a p value, one then simply counts the number of permutations where the absolute value of the difference in the means of the two groups is higher than the one registered with the original partitioning, divided by the number of permutations. However, the possibility of a general trend in the ratings would have unfairly favored our original groups over others obtained by random sampling. As Moe and Schweidel suggest, "a ratings environment can take on a life of its own, sometimes to the detriment of the product or brand to which it is dedicated" [16]. In particular, it appears that ratings environments tend to evolve towards more negative outcomes over time (Godes et al. 2012). If there really was a general, negative trend underlying our data, the mean difference in ratings before and after any point in time would likely be higher than the one obtained with ratings selected randomly (without replacement) from

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<sup>10</sup> <https://cran.r-project.org/web/packages/MASS/index.html>



the whole dataset. To control for this possibility, we performed the permutation test by randomly selecting 1000 dates to use as threshold. For each of the groups thus obtained, we registered the difference in average rating, performed a Mann-Whitney test and finally, only in case of a significant result, computed the point-biserial correlation coefficient. By obtaining a distribution of effect sizes, we managed to compare the magnitude of the effect associated with February 2022 with others that could have influenced our data (including possible general trends).

A last approach we tried to pinpoint the exact moment where a possible shift in our ratings occurred consisted in the use of Change Point Detection (CPD) algorithms. Simply put, CPD is the task of automatically detecting drastic changes in a time series [1]. One concrete application, for instance, is the study of climate change, where these algorithms are implemented to detect rises or drops in temperature across different periods [22]. In our case, the series under investigation is represented by the ratings attributed, day by day, to the books in our corpus — in case of multiple ratings for the same day, the average was computed. If our hypothesis is correct, we should be able to use CPD techniques to detect a significant change around February of 2022. To do so, we leveraged the Python library Ruptures,<sup>11</sup> which includes several built-in CPD algorithms. Given that different algorithms can lead to different results, we analyzed our data using 5 different algorithms (pelt, bottom-up, dynamic programming, binary segmentation, sliding window) and assessed whether they converged on a similar result. All the algorithms were set to detect only one change-point, with the only exception of ‘pelt’, which does not include such a parameter, but instead allows to set a ‘penalty’ parameter that prevents the algorithm from adding new change-points.

Last, to obtain more qualitative data on the possible factors influencing readers’ evaluations, we carried out a chi-squared test and extracted the 100 words whose occurrence was more tightly associated either with the period before or after the war. Of course, this required us to limit our dataset to only English reviews, which amounted to a total 2482, with an average number of token per review of 306 (SD = 414).

### 2.3 Results

In our ordered logit model, the negative coefficient associated to reviews’ year of publication was significant, even if very small. Amounting to -0.02 (SE = 5.4e-05,  $t = -449$ ,  $p = 0$ ), it indicates the possibility of a downward trend. The plot in Figure 2 suggests that the model detected a decrease in the probability of people awarding five stars to the books in our corpus over time, as well as an increase in the probability of 2- and 3-star ratings. However, McFadden R-squared returned a value of 0.001, indicating that the model explains very little of the target’s variance.

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<sup>11</sup> <https://pypi.org/project/ruptures/>



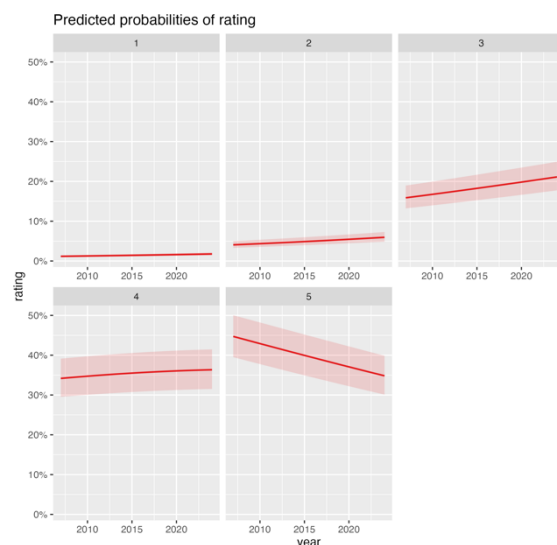


Figure 2. Predicted probabilities of different ratings as a function of reviews' year of publication.

Comparing the ratings from before and after February of 2022, we found a statistically significant effect ( $\mu = 3551113$ ,  $p < 0.01$ ,  $rpb = 0.039$ ), slightly favoring the ratings before this threshold, which were 0.08 point higher than the others. Our permutation test showed that almost 20% ( $p = 0.2$ ) of randomly selected dates produce groups of reviews with a difference in average rating higher than this. Mann-Whitney tests yielded significant results 65% of the times. In these cases, the average effect size was 0.02, with a standard deviation of 0.009 – which would place our original effect in the high range.

It is important to note that phenomena such as the one under study (namely the influence of historical events over literary reception) are gradual processes rather than abrupt occurrences. Therefore, a binary partitioning can only show a partial picture. In this regard, our permutation analysis allowed us to aggregate data from multiple partitions and draw more general conclusion.

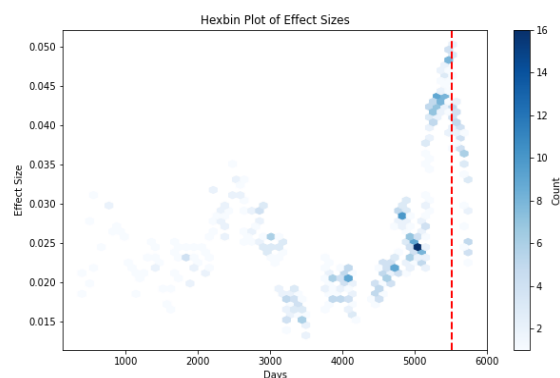


Figure 3. Point biserial correlation coefficients using random dates as threshold.



If we look at Figure 3, we can see that almost all of the highest effect sizes are centered around February 2022, which speaks in favor of the salience of this date. Interestingly, another peak can be noticed between day 2000 and 3000. To which period does this segment of the plot correspond? Considering that day 2616 is the first of March 2014, we could correlate this peak to another major event in Russian history: the invasion and subsequent annexation of Crimea. Using this date as a threshold, we still obtain a significant difference in average ratings ( $\mu = 1437360.5$ ,  $p < 0.01$ ,  $rpb = 0.032$ ). Such results point towards the latter event as another possible influence on the evaluation of our works —an effect, however, that, not being the focus of this study, will not be investigated forward.

CPD Algorithm	Threshold Date(s)
PELT	2022-01-14, 2022-02-01
Binary	2022-01-05
Dynamic Programming	2022-01-01
Bottom-Up	2022-08-20
Sliding Window	2023-08-19

Caption missing

CPD analysis confirmed what has been presented thus far. As shown in Table 1, three out of five algorithms detected a significant change around January and February of 2022, with one postponing such effect to August of the same year. Note that, given the fluctuating nature of our data, some algorithms may detect a change slightly earlier or later, so minimal variations are to be expected. In Figure 4, we can observe these changepoints against the general trend of the ratings, smoothed by applying a rolling average with a window of 200 days. The plot makes evident the slight downward trajectory of our rating environment, as well as its fluctuating nature. After the start of the war in Ukraine (indicated by the red band), ratings indeed dropped and remained low for quite some time. Interestingly, however, it appears that around August of 2023 — the changepoint identified by the last of our CPD algorithms — the trend was inverted and ratings started rising again.

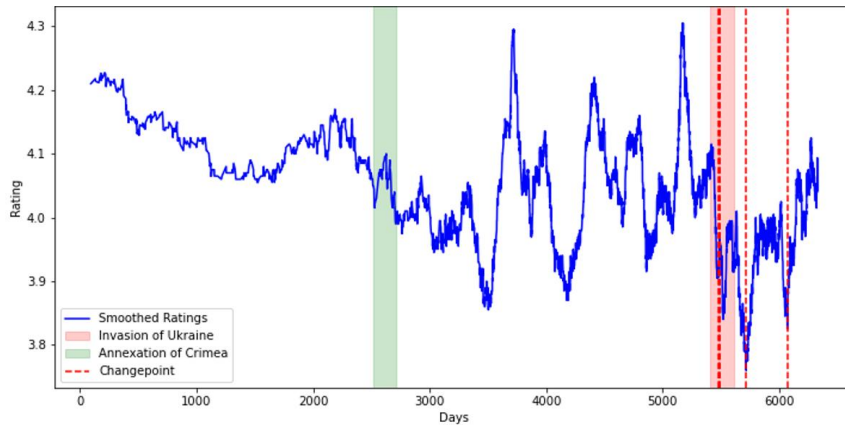


Figure 4. Trend of ratings during the period under study. The red and green bands correspond to the periods of the annexation of Crimea and invasion of Ukraine. The red dotted lines represent the changepoints.



Many of the 100 words that registered the highest chi-squared score concerned general aspects of literary reception, such as ‘read’ ( $\chi^2(1) = 46.5, p < 0.01$ ), ‘novel’ ( $\chi^2(1) = 33.4, p < 0.01$ ), or ‘book’ ( $\chi^2(1) = 32.4, p < 0.01$ ). These words seem to be employed more frequently before the Ukraine war than after. Terms pertaining to more content-wise, almost existential aspects of the text were instead employed more frequently after the event. This is the case, for instance, of ‘nihilism’ ( $\chi^2(1) = 23.7, p < 0.01$ ) or ‘brutality’ ( $\chi^2(1) = 12.4, p < 0.01$ ). The latter term doesn’t lack connections to our topic, such as when, in a review dated a few months after the start of the war, one user praises *War and Peace* as “a universal commentary on the brutality of war” (Zoe; May 30, 2022) or when, commenting *The Sebastopol Sketches*, another recognizes Tolstoy’s ability to “elegantly capture the brutality of the Crimean War” (William Smith; July 1, 2022). Amongst the reviews of this latter book we find many of the occurrences of an additional term that effectively discriminates between reviews written before and after the invasion of Ukraine: ‘invasion’ ( $\chi^2(1) = 13.4, p < 0.01$ ). Understandably, the term is often used by readers when summarizing the book, which is indeed centered around the invasion of Russia during the Crimean War. However, reviewers don’t miss the chance to connect the events narrated by Tolstoy to the horrors of contemporary history, as we can see in the following quote:

My great-grandfather was captured by Russians in Sebastopol in 1944 and Tolstoy is one of my favorite writers, so this book has always been of great interest to me. [...] It’s also an oddly prophetic and scary read, thinking about the war then, the war nearly one-hundred years later in which my ancestor was involved and again, almost one-hundred years later to the present day, the importance of Crimea in Putin’s invasion of Ukraine. (Matthew Ted; August 29, 2022)

## CONCLUSIONS

The results of the ordered logit model seem to confirm prior research on online ratings environment [1], highlighting a movement towards negativity in the reviews of our corpus. As demonstrated by the low R-squared coefficient, however, this effect is very limited in its magnitude. In other words, the simple passage of time explains very little of the variability in our ratings. Nonetheless, on big samples even such a slight trend can cause significant fluctuations. With particular reference to our case, the fact that ratings tend to decrease with time increases the probability that a comparison between ratings before and after any given date yields significant results, even if the observed difference is merely a consequence of this general trend rather than a true effect of any specific event. This is evident both in the low p value obtained with our permutation analysis and in the fact that more than half of the Mann-Whitney tests performed with randomly selected threshold dates returned significant results.

If the only effect operating on the ratings environment was due to this general downward movement, we would expect the effect sizes of the aforementioned comparisons to also follow a consistent trend. What we observe, instead, is the presence of peaks, possibly corresponding to the effect of punctual events. The highest of such peaks is centered around the very moment of the invasion of Ukraine, namely February of 2022. The results of CPD analysis further prove the relevance of this date. Last, our keyword analysis allowed us to verify the relevance of both the general theme of war and the specific case of the invasion of Ukraine in the very reviews written by Goodreads users. Overall, our results allow us to state that the beginning of 2022 had



a significant effect on the public opinion surrounding the works of Dostoevsky and Tolstoy, lowering the appreciation that they enjoyed.

The effect we detected can be interpreted in several ways. First, it could be taken as the result of an act of cultural boycott, reflecting the antipathy towards Russia that start spreading after the invasion of Ukraine. Indeed, it is possible that such negative sentiment was transferred from Russia as a political entity to Russian culture, especially when one considers the heavy propagandistic use that has been done of many canonical Russian authors, as well as the tendency of some academic environments to read them through a postcolonial lens. Another phenomenon that should not be underestimated concerns fake reviews. The action of bots flooding the platform with synthetic reviews and ratings hasn't gone unnoticed on Goodreads [26]. Given the highly digitalized character of the Ukraine war, one could hypothesize that the information campaign that accompanied it extended to review platforms (especially ones as big and influential as Goodreads), leading to the use of bots to affect public opinion. Last, these two effects can also be thought of as reinforcing each other in a sort of chain reaction: what started as a response to a real-world event gets reproduced and amplified by some immanent process of online platforms, which in turn can influence the opinion of real users. If this was the case, however, we believe that we would have registered an effect of bigger scale.

Our results demonstrate that the Ukraine war has influenced readers' perception of Tolstoy and Dostoevsky works in a negative way, highlighting the value of social reading platforms such as Goodreads for the study of literary reception. However, the moderate magnitude of this effect warrants caution in its interpretation, also revealing the methodological challenges faced by the analysis of digital social reading data.

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