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Investigating extreme cases in Wikipedia talk pages: Some insights on user behaviours

Abstract: The study presented in this paper is part of a larger project that explores various dimensions of Wikipedia talk pages, in which we propose to examine the dynamics of interaction between Wikipedians. Based on a dataset of 3.4 million threads from the English Wikipedia talk pages, we specifically focus on extreme cases. Our approach targets the general and structural features of these threads (who posts when, and in which order) and not primarily their language content. After a quantitative overview of the main structural characteristics of our dataset, focusing on the general features of the discussions, we select a subset of items for a closer examination. These include the most prolific users, the longest threads (in terms of total duration, number of posts or number of distinct users involved) and the longest monologues (threads with multiple posts by the same single user). In each case we propose a coarse-grain typology and a number of features that relate to the origin of the underlying behaviours. We assume that the analysis of such extreme cases can help to better understand expected and unexpected interactions between Wikipedians. In other words, extreme cases may help us better understand various phenomena in Wikipedia dynamics of interaction, but also in the way individuals interact in writing on the Web. Indeed, some of the observed behaviours are mainly specific to the collaborative editing objective and context of Wikipedia, such as polls, logbooks, diaries, to-do lists etc. But other unusual types of discussion (long-time exchanges, monologues) can be expected to be found in other forms of asynchronous computer-mediated communication.

Keywords: Wikipedia talk pages, Wikipedia discussions, interaction dynamics, thread analysis, user behaviour

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1 Introduction

Wikipedia talk pages contain the discussions that take place behind the well-known encyclopaedic articles. They represent a valuable source of computer-mediated communication data which is abundant, multilingual and freely accessible, making them suitable for large-scale studies on generic online interactions (Gómez et al. 2011, Lungen and Herzberg 2019). They have indeed been extensively studied in the last decades to better understand the dynamics of cooperation and interaction in the collaborative encyclopaedia. Many dimensions of Wikipedia talk pages have already been studied and described, including the topics discussed (Schneider et al. 2010), the dialog acts (Ferschke et al. 2014) or the moves and arguments within the interactions (Kopf 2022). These studies have highlighted some of the main practices in Wikipedia talk pages, providing some insights in the dynamics of interaction between Wikipedians (Laniado et al. 2011).

Our study takes an unprecedented look at the data, concentrating on the marginal, or even extreme phenomena and behaviours in Wikipedia talk pages. Our objective is to observe specific behaviours of the Wikipedia community which can be found in other more inconspicuous contexts. Our methodological approach focuses exclusively on outliers i.e., the items that exhibit unexpected characteristics at the thread or user levels. The characteristics for which we chose to identify the outliers are only structural features that could be computed in every language available in Wikipedia because the same collaborative writing technology is used in every language. As a result, our method could be applied in every version of Wikipedia in order to contrast the extreme behaviours in different languages and cultures.

The extreme behaviours we identified are highly prolific users, excessively long threads (in terms of duration, number of posts or users involved) and monologues. We assume that the analysis of such extreme cases can help to better understand expected and unexpected interactions between Wikipedians. This will also allow us to highlight practices which are generally neglected although they may be found in more typical configurations.

In this chapter, we only present the study of the extreme cases found in the English Wikipedia. After presenting our data and method in section 2, section 3 gives for each extreme behaviour a quantitative and a qualitative analysis in order to take a first step towards a typology of extremes in Wikipedia.

2 Looking for the extremes: Data overview and method

We will present in the following the data used for investigating the user's behaviours, namely a large collection of Wikipedia talk pages. Section 2.1 describes how it has been collected and prepared. We then present (2.2) the behavioural features we have selected and an overview of their statistics, and discuss in 2.3 the methodological approach of focusing on extreme values.

2.1 Dataset: English Wikipedia talk pages

We base our study on the English part of the *EFG_WikiCorpus*, a comparable corpus which consists of talk pages extracted from the August 2019 dumps of the English, French and German Wikipedia. Multilingual links between talk pages are made according to the links between article, portal and category pages (Ho-Dac 2024). In the *EFG_WikiCorpus*, the English part contains 2,025,888 talk pages. We limited the corpus to the generic talk pages directly associated with the articles, including the archives, but discarding discussions that occur in other places of the Wikipedia ecosystem (users' home pages, administrative debates, etc.). The data is available online on the Ortolang repository¹ with a Creative Commons license (<https://hdl.handle.net/11403/efg-wikicorpus>, last accessed 14 February 2025).

It is worth noting that talk pages on Wikipedia are produced on the same infrastructure as the articles, using *wikicode* formatting. This means that a talk page is fully editable by any user and that its layout and organisation can be freely modified, in spite of strong recommendations from the Wikipedia community. Talk pages typically feature a section-based structure, with each section representing a distinct discussion having its own heading and clear boundaries. Individual messages are organised along a tree structure which follows the example of the more traditional online discussion platforms. However, the *wikicode* allows freeform editing which may lead to unusual structures in discussion threads, such as the re-sectioning of existing talk pages (used for archival purposes for example), the writing of non-contiguous answers to a previous long message (similar to emails), or postings appearing in a non-chronological order. This situation has direct consequences on the parsing of Wikipedia talk pages, which requires additional efforts to identify the network of interactions.

¹ <https://www.ortolang.fr/> (last accessed 14 February 2025).

Despite these challenges, we segmented each talk page into sections, with each section representing a thread. Each thread was segmented into posts (or comments or messages) following a heuristic based on signatures and indentations. The whole structure was then converted into XML format following the TEI-CMC guidelines, so that each post is associated with its author's name and date. Finally, threads containing a post written by a bot were discarded. In the end our corpus contains 3,385,583 threads and 8,873,620 messages.

2.2 Central tendencies and typical discussion in Wikipedia talk pages

Here we present the dataset characteristics that we considered relevant for this study. These features are directly related to the users' behaviour (as individuals or as a group), straightforward to interpret, and easy to extract.

All these features are either counts or durations, allowing for a simple overview using central tendency metrics. Table 1 shows the main statistics for each feature: maximum value, median and mean. Minimal values were not indicated as they are trivially equal to 1 for counts and to the precision value for timestamps (1 minute).

Table 1: Overview of the behavioural features taken into account: number of users, number of posts and duration.

Feature	Maximum	Median	Mean
Number of posts per user	25,078	1	20.06
Number of posts per thread	651	1	2.62
Number of users involved	97	1	1.85
Duration of threads with 2 or more posts (N=1,688,939)	16.6 years	5.3 days	260 days
Longest duration between 2 posts in the thread	16.1 years	4.1 days	233 days
Number of posts per single user thread (N=1,812,457)	150	1	1.08

Users author an average of 20 messages in their global participation to the Wikipedia effort discussion. Note that the median value indicates that a majority of users post a single message in all.

A Wikipedia discussion is quite short in average (2–3 messages) and involves 2 users. The duration can be very short, but a thread usually lasts several months (as late replies arrive after this amount of time). The example in Figure 1 illustrates a typical short thread in terms of number of posts (only 2) and duration (15 hours).

oops

Gah, I can't believe I reverted to that wrong version, was by accident, apparently someone did it before me and it messed it up. Sorry. -- [Natalinasmpf](#) 00:31, 12 July 2005 (UTC)

Stay cool Natalinasmpf, it has nothing to do with you or this Wikipedia article. It is about the Wikipedia as a whole. [Ww ww ww](#) 15:32, 12 July 2005 (UTC)

Figure 1: A typical thread with a 2 users collaborating behind the article about “Wikipedia” https://en.wikipedia.org/wiki/Talk:Wikipedia/Archive_5#oops (last accessed 14 February 2025).

In this thread, a user opens a discussion to report an action (*Natalinasmpf* informed the community of an editing accident she made) and a different user expresses a positive attitude towards her (*Ww ww ww* replied 15 hours later to reassure her). As stated in Ferschke et al. (2012), these two dialog acts are fairly frequent in the English Wikipedia talk pages. Among the 2,729 posts for which their dialog acts’ annotation scheme was applicable, 749 posts (27%) concern *Self commitment* (report of past action or commitment to action in the future) and 655 (24%) are *Interpersonal* (positive or negative attitude towards another user). The most frequent dialog act they observed is *Article criticism* with 65% posts. The less frequent category is *Requests* with only 16% posts (as the first post in Figure 6). As a result, according to Ferschke et al. (2014), the most frequent Wikipedia discussion profile is when users criticise the quality of a specific part of the article.

Nevertheless, these findings only cover 45% of the posts that composed their dataset. In fact, Ferschke et al. (2014) plan to annotate 1,864 threads extracted from the April 2011 dump. Among the 4,923 posts composing these threads, only 2,729 posts fall into at least one dialog act label. According to them, this is mainly because their annotation scheme focuses only on dialog acts that are relevant for article quality assessment and improvement activities. But Wikipedia talk pages are also used for other purposes that we propose to discover and examine in our analysis of the extreme cases.

As seen in Table 1, there are large differences between mean and median counts or durations. This suggests highly skewed distributions with numerous high-value outliers for each variable. This is confirmed by the maximum values each of these features can rise to.

Some users can be extremely prolific (25,078 is the equivalent of 5 messages per day over 15 years), which is quite impressive considering that a Wikipedia comment is quite long (average of 78 tokens in our corpus) and addresses complex matters. In other words this number cannot be directly compared to the quantities achieved per user in social networks such as Twitter/X. The discussions themselves can be very long, involve a large number of users and last for years. Finally, a dis-

cussion can be very long even without an interlocutor. These specific phenomena are the target of our investigation.

2.3 Focusing on extremes and outliers: Methodological aspects

As explained in the introduction, our methodological approach is atypical as it focuses exclusively on the items at the extremities of the spectrum. This methodological choice calls for justification and background.

The presence of atypical values and items in a collection is a well-known issue, certainly as ancient as statistics themselves. Their identification and the measure of their impact is a concern for any statistical analysis. Osborne and Overbay (2019) give an overview of their potential causes (such as an error in the original data, its sampling or processing), insisting on the fact that outliers can be genuine data items and should therefore be taken into consideration. Of course, the authors provide the most usual methods for identifying them (e.g., z-score thresholds) and discuss their impact on the central tendency measures that generally requires their removal from the dataset. In most cases, extreme cases are ignored and discarded as noise.

Certainly, extreme cases or anomalies are logically the natural target of specific studies that focus on crises (such as anatomical pathology or climate science).

However, a number of authors from very diverse domains have proposed to use these specific items as a focus of their investigation, and have advocated the insights that can be gained from them.

Authors promoting the study of extreme cases can be found in sociology (Chen 2016), history (Ginzburg 2014) or economics (Beamish and Hasse 2022). From a more epistemological point of view, Flyvbjerg explained the reasons for doing so.

When the objective is to achieve the greatest possible amount of information on a given problem or phenomenon, a representative case or a random sample may not be the most appropriate strategy. This is because the typical or average case is often not the richest in information. Atypical or extreme cases often reveal more information because they activate more actors and more basic mechanisms in the situation studied. (Flyvbjerg 2011).

We also found that the proponents of extreme cases are more generally advocates of qualitative studies, and they generally regret that these approaches are quite rare and disregarded by scientific editors. Indeed, they insist that focusing on mainstream phenomena cannot lead to substantial advance in the development of theory.

Flyvberg more precisely states that (among other strategies to divert from the simple typical or case) extreme or deviant individuals are specifically useful in order “*[t]o understand the limits of existing theories and to develop new concepts, variables, and theories that are able to account for deviant cases*” Flyvbjerg (2011).

In our case, we considered that previous extensive studies have been able to give a quite complete view of what is the “average” discussion on a Wikipedia talk page, and that further investigation may benefit from such an approach.

Technically, we isolated the users and discussions in our corpus which exhibit the highest values for each selected variable. We then examined the individual items and proposed a coarse-grain typology in order to explain the underlying behaviours. As we will see in the next section, the qualitative analysis of these outliers allows us to identify behaviours that are made possible by the Wikipedia device, and that may even be typical of Wikipedia interactions.

3 Extreme cases

We will examine the extreme cases for each of the dimensions considered. We will begin with the users themselves before examining specific discussions.

3.1 Most prolific message authors

Our first investigation targets Wikipedia users who have produced a significant number of posts on talk pages. In our dataset, we found a total of 499,137 different usernames in the signatures of all talk pages (without including the bots or the unregistered users who are only identified by their IP addresses). As expected, the number of posts per user follows a Zipfian distribution, meaning that while a majority of users have only written a single comment, a few Wikipedians are the authors of a very large number of messages. The user ranking #1 posted 25,078 messages, the user ranking #10 14,281, and the user ranking #100 5,900.

To compare message-posting behaviour with actual Wikipedia editing activity, we gathered data on the number of edits (i.e., the modifications made on any page of the Wikipedia, including posts in any kind of talk page) and the number of posts in the article talk pages for the 1000 most productive Wikipedia editors, as indicated in the official leader board² (as of July 2019), shown in Figure 2. We measured

2 <https://en.wikipedia.org/w/index.php?title=Wikipedia:WBE> (last accessed 14 February 2025).

a weak positive correlation ($p=0.09$) between the number of edits and the number of messages. As an example, the most active editor of the English Wikipedia (Steven Pruitt, who was responsible for more than 3 million edits as of 2019, and over 5 million as of 2023) has never participated in any discussion in an article talk page (although he did post some messages in a few users' personal talk pages, not included in our dataset). Similarly, several of the most prolific authors on the articles talk pages rarely modify the articles themselves, limiting their role to commenting or proofreading the text written by others, or to enforcing Wikipedia policy and rules through discussion. This observation is undoubtedly an interesting parameter to consider for creating user profiles in Wikipedia.

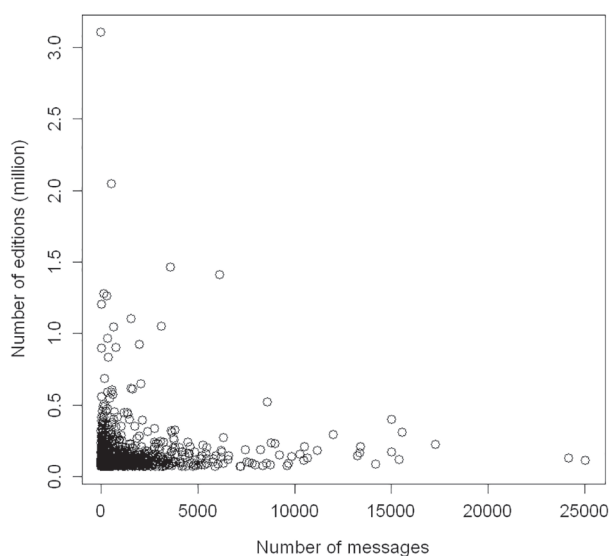


Figure 2: Number of editions versus number of messages for the 1000 most productive Wikipedia editors.

Although it is difficult to outline a precise profile for these most productive posters, it seems that many of them assume a role of referee and intervene on a large number of topics and issues. This role can either be self-attributed or officialised as a Wikipedia administrator. In some cases their interventions are considered as problematic for the community, for example defending political or ethical positions and therefore not following the neutrality principle that is a pillar of the Wikipedia effort. This can lead to their banishment from Wikipedia, as was the case for the most productive user in our dataset.

These first observations would clearly show that taking part in a Wikipedia discussion can to some extent be considered as a specific activity, uncorrelated from article writing, at least for a subset of the Wikipedia users.

3.2 Most active threads (highest numbers of posts/users)

The second phenomenon we investigated is the number of posts per thread. If 53% of the threads consist of a single message, some of them contain several hundred posts.

We examined the 100 longest threads in our dataset (threads with more than 90 posts, up to 651). Surprisingly, these very long threads rarely imply a large number of participants (median of 14 different users) and they may even be written by a single user (this particular category is examined more closely in §3.5).

If we only consider their organisation and structure, these very long threads can be classified as follows:

- 68 of the 100 examined threads can be qualified as *standard discussions*. Indeed, these threads follow the conventional organisation where users exchange their views and arguments, following a tree-like structure where the replies and reactions to previous posts are indicated through cumulative indentations. However, due to the extensive size and depth of the threads, indentation can hinder their readability. To address this, some users (most of the time participants to the discussion) sometimes use the flexibility of the talk pages (based on the same wikicode used for article pages) to organise them into sections. When appropriate, subtopics can be identified and used to start a new nested thread in a subsection, while remaining in the same section and therefore related to the same topic. When not, arbitrary breaks are introduced to reset the indent level when it becomes too deep, as can be seen in Figure 3 below. Although this was not the focus of our inquiry, it appears that, as could be expected, the longest discussions are invariably conflictual in nature (as Denis et al. had already shown in 2012). However, Wikipedia discussions remain globally polite and moderate, especially when compared to other forms of public online communication (Hobman et al. 2002, Poudat and Chandelier 2024).

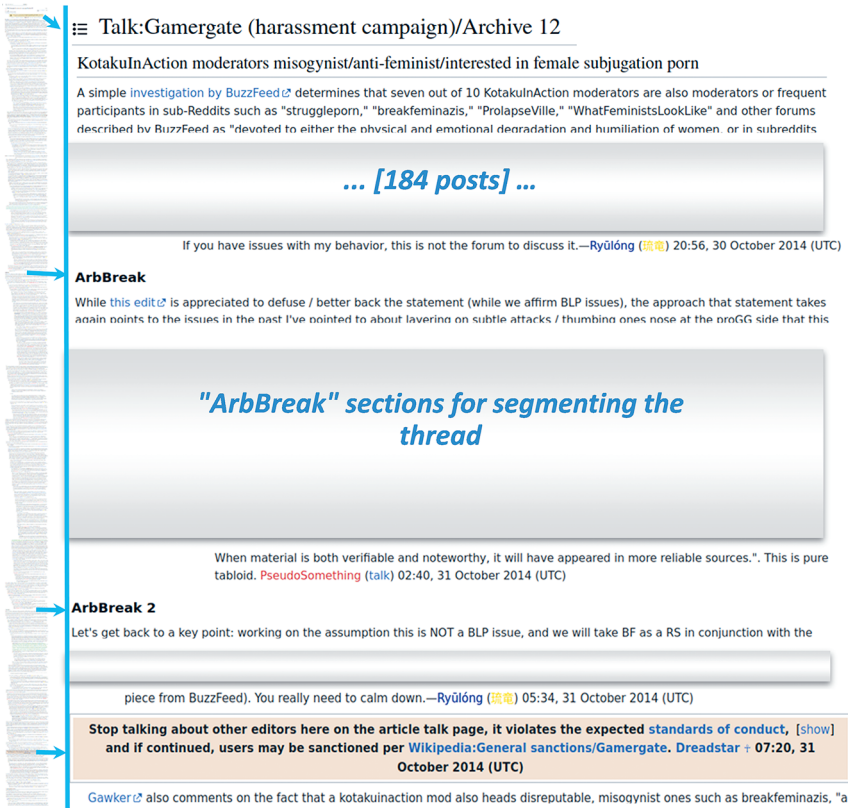


Figure 3: Overview of a long discussion with arbitrary breaks. On the left is a bird's eye view of the thread with indents, from which the arrows indicate specific points. [https://en.wikipedia.org/wiki/Talk:Gamergate_\(harassment_campaign\)/Archive_12#KotakuInAction_moderators_misogynist/anti-feminist/interested_in_female_subjugation_porn](https://en.wikipedia.org/wiki/Talk:Gamergate_(harassment_campaign)/Archive_12#KotakuInAction_moderators_misogynist/anti-feminist/interested_in_female_subjugation_porn) (last accessed 14 February 2025).

- 26 of the 100 longest threads are *polls* or *series of polls*. In these threads a user collects the position or opinion of others on specific topics, which is a common practice in Wikipedia talks, as we develop below. As such, every single vote by the polled users counts for a message. The length of these threads can be attributed to the high number of participants (up to 97), multiple related polls grouped together (with the same users posting a message for each subtopic), or one or more nested threads developing inside the poll. The longest thread in our data (651 posts) falls in this category; an extract can be seen in Figure 4.

Straw poll**Mr. 4**

- To be mentioned in the Baroque Works section.

- **Mention** under a possible Baroque Works section. He has a one fight end. [Spindori \(talk\)](#) 19:55, 7 August 2010 (UTC)
- **Keep** -- He was an Officer Agent of Baroque Works. He deserves his own section. [Rico70](#)
- **Merge** into Baroque Works - an extremely minor character who has appeared in only one arc. [Sjones23 \(talk - contributions\)](#) 23:42, 7 August 2010 (UTC)
- **Mention** among the Baroque Works agents. His small role doesn't merit anything more. [Goodraise](#) 01:52, 10 August 2010 (UTC)
- **Keep** Same reason as Rico70. --[Dylandh \(talk\)](#) 23:20, 12 August 2010 (UTC)

Mr. 5

- To be mentioned in the Baroque Works section.

- **Mention** under a possible Baroque Works section. He has a one fight end. [Spindori \(talk\)](#) 19:55, 7 August 2010 (UTC)
- **Remove** from the list. I wasn't thinking when I made most of these (a mistake). Mr. 5 only appears during the Little Garden arc, and it by itself is too minor to accredit any casted character (the very reason the two giants aren't listed). [Spindori \(talk\)](#) 17:39, 16 August 2010 (UTC)
- **Keep** -- He was an Officer Agent of Baroque Works. He deserves his own section. [Rico70](#)
- **Merge** into Baroque Works - an extremely minor character who has appeared in only one arc. [Sjones23 \(talk - contributions\)](#) 23:42, 7 August 2010 (UTC)
- **Mention** among the Baroque Works agents. His small role doesn't merit anything more. [Goodraise](#) 02:02, 10 August 2010 (UTC)
- **Keep** Same reason as Rico70. --[Dylandh \(talk\)](#) 23:20, 12 August 2010 (UTC)
- **Merge**. Even though he was the main antagonist to the Whisky Peak arc and a supporting antagonist to the Little Garden arc, he is nothing more after that. Both Mr. 5 and Miss Valentine should be merged into the Baroque Works section. - [SuperTiencha \(talk\)](#) 01:22, 14 August 2011 (UTC)

... [651 posts] ...

*a subsection for each character***Yamakaji**

- Yamakaji should not keep his section, and is to be deleted

- **Delete**. Minor character who is only involved in one story arc. [Sjones23 \(talk - contributions\)](#) 17:09, 29 July 2010 (UTC)
- **Remove** him from the list. As far as I know, his name is only mentioned in one of the data books and his role so far has been minor at best. [Goodraise](#) 23:55, 30 July 2010 (UTC)
- **Keep** -- He is one of the powerful Vice Admirals of the marines, and he and four other Vice Admirals led the Buster Call on Enies Lobby. He deserves his own section. [Rico70 \(talk\)](#) 04:49, 31 July 2010 (UTC)
- **Keep** Same reason as Rico70. --[Dylandh \(talk\)](#) 23:20, 12 August 2010 (UTC)

Yasopp

- Consensus is to establish mention of character under Shanks

- **Merge**. can be mentioned in Shanks' section. He is a minor background character. [Sjones23 \(talk - contributions\)](#) 17:09, 29 July 2010 (UTC)
- **Mention** him with Shanks and Usopp. That should be more than enough for a character with as little screen time as him. [Goodraise](#) 23:53, 30 July 2010 (UTC)
- **Keep** -- He is one of the Red-Haired Pirates. He deserves his own section. [Rico70 \(talk\)](#) 04:49, 31 July 2010 (UTC)
- **Keep** He plays a major role as a member of the Red-Haired Pirates, and as Usopp's father. Not to mention, that he heavily influenced Usopp to become a pirate. --[Dylandh \(talk\)](#) 23:20, 12 August 2010 (UTC)

Figure 4: Overview of the longest thread in our dataset: 651 posts forming a series of 153 polls in which 6 users indicate whether each character in the One Piece manga series deserves a dedicated section. [https://en.wikipedia.org/wiki/Talk:List_of_One_Piece_characters/Archive_4#Reducing_article_size_\(I\)](https://en.wikipedia.org/wiki/Talk:List_of_One_Piece_characters/Archive_4#Reducing_article_size_(I)) (last accessed 14 February 2025).

- 6 of the 100 longest threads are long *lists*, the items of which are expressed as separate messages, and are initially posted by the same user. As these discussions only marginally contain posts by different users we study in more detail this specific type in §3.5.

To summarise, our findings indicate that only two thirds of the 100 longest threads can be classified as discussions, highlighting the diverse uses of talk pages.

If we now consider the 100 most populous threads, with the highest numbers of different participants, we observe that they are all polls or series of polls. Polls are indeed a common practice in Wikipedia talk pages as they represent the pursuit of consensus (Kopf 2022). Polls can cover various decisions related to the article page, such as article deletion, merging with another related article, changing the article's title, deleting a whole section, choosing between different pictures etc. These polls may be created after inconclusive discussions or as a first intent when dealing with a new issue. The questions asked can be binary (support/oppose a suggestion) or open-ended (propose a new title, picture etc.). As we focus here on the number of different users, our sample is limited to threads with a single poll.

Due to the flexibility of the underlying wikicode, polls may be organised in two different ways. Messages can be in chronological order, with each user expressing his/her opinion in sequences. Alternatively, messages can be grouped based on their position, so that all messages, users and arguments in support or opposing the initial proposition are in the same section.³

Some of the polls are both spontaneous and local, and can be organised inside a discussion: they are qualified as *straw polls*. Others are qualified as *Request for Comments* (RFC) and follow a more sophisticated organisation. RFC polls are indexed in the Wikipedia space and therefore receive much more attention. This increased attention can lead to some problems when high stakes motivate certain users to manipulate the voting process with additional or fake accounts (*puppetry*), leading to their abandonment.⁴ Several of our most massive threads show such cases that are explicitly flagged, but all expressed votes and comments remain available.

3.3 Longest-lasting threads

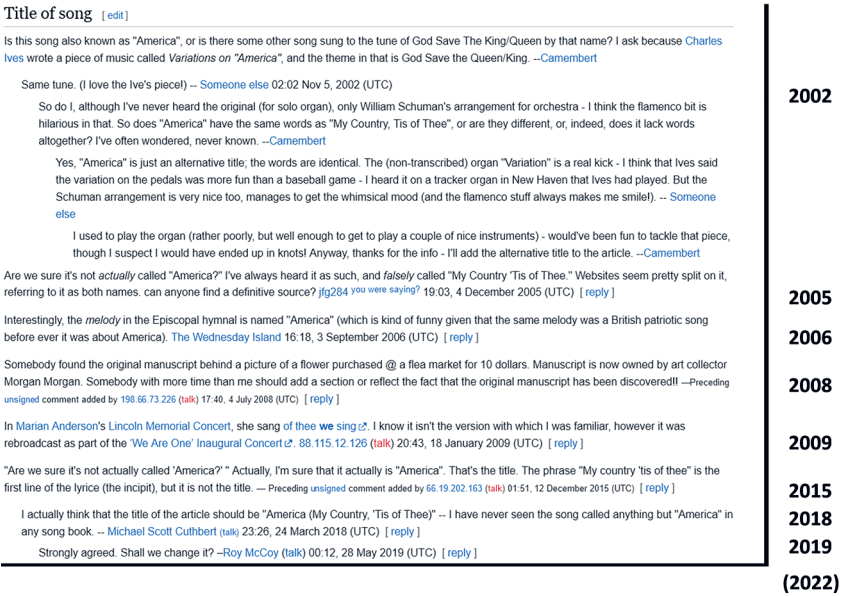
The temporal dynamics of Wikipedia discussions has been studied in (Kaltbrunner and Laniado 2012) but, as seen in Table 1, some threads can last more than 15 years, nearly the timespan of our dataset. In 2019, the 100 longest-lasting threads covered

³ https://en.wikipedia.org/wiki/Talk:Campaign_for_the_neologism_%22santorum%22/Archive_6#Proposal_to_rename_redirect_and_merge_content (last accessed 14 February 2025).

⁴ https://en.wikipedia.org/wiki/Talk:K_P_Yohannan#Keeping_the_controversy_Section_in_this_article (last accessed 14 February 2025).

a duration of over 14.5 years. Eight of the threads we examined are false positives: the prolonged duration is due to the fact that some unrelated messages have been placed in a generic section of the talk page (labelled as “Comments” or similar). Therefore these messages simply do not constitute a genuine discussion; but the 92 other cases are clear instances of communication occurring over an extended period of time.

About 10% of these threads exhibit a continuous spread over a significant period, with regular postings and no extended periods of silence exceeding a couple of years. This is the case of the example presented in Figure 5, which has continued even after our data collection, involving different users over the years but remaining focused on the initial topic.



Untitled [edit]

The original text said "fluid resistance". I replaced this with "viscosity". Is this correct? -- Tim Starling 12:07 Apr 16, 2003 (UTC)

Tim Starling: No. The fluid property called viscosity is an essential element in the explanation of skin friction which is one of two kinds fluid resistance. However, viscosity and fluid resistance aren't synonymous. (The other kind of fluid resistance is form drag which arises because the pressure over the leading half of a moving object is generally higher than the pressure over the trailing half of the object. Form drag is related primarily to parameters other than the viscosity of the fluid through which the object is moving.) Dolphin (t) 22:48, 18 May 2019 (UTC) [reply]

Figure 6: sample thread with a question answered after 16 years https://en.wikipedia.org/wiki/Talk:Charles-Augustin_de_Coulomb#Untitled (last accessed 14 February 2025).

Surprisingly, most of these actual dialogues (72) contain no explicit mention of their temporal specificity. Users write their comment as if the message they are replying to was posted just a few minutes ago. A wide range of dialogue acts can be observed in such situations: answering a simple factual question (as in Figure 6), providing a reference, commenting on a statement,⁵ etc. In a few of these cases however we found that the respondent addresses the author of the first message in the third person, which may seem unusual in online communications ("Related to why that was put by an earlier editor, the reason is [...]",⁶ "I have to wonder what this IP user imagined [...]"). This may indicate that the most recent author acknowledges the fact that his interlocutor has long departed from the talk page and that the response is directed toward present and future readers. But this particular behaviour has to be studied more precisely; Herzberg and Lungen (2024) studied the different ways a user addresses the author of a previous message, and found that a second person address occurs in less than 30% of replies.

If the late response is sometimes justified by a change in the world or an advancement of knowledge, it can also deal with atemporal topics. All these efforts to provide answers and additional information across time, even in the absence of the original participant, reflects the global dynamics and objective of the Wikipedia project.

In the remaining cases, users also take advantage of the flexibility of Wikipedia talk pages. Some users explicitly modify the timestamp of their message, pre-dating them to several years in the future to prevent their automatic archival. This is a

⁵ <https://en.wikipedia.org/wiki/Talk:T-shirt#Capitalisation> (last accessed 14 February 2025).

⁶ <https://en.wikipedia.org/wiki/Talk:Brondesbury#Place> (last accessed 14 February 2025).

move similar but somewhat more drastic to “bumping” a thread in online forums (i.e., adding empty messages to an existing thread to keep it visible).

In two cases, we found what may be qualified as talk page archaeology (see example in Figure 7). A user re-posts an old message or discussion that had been deleted or lost in the restructuring of Wikipedia. The reason for this is apparently not to answer the initial question or to correct a statement, but simply to preserve a trace from previous efforts. This preservative attitude has even led to keeping the very first versions of Wikipedia accessible in a dedicated website named *Nostalgia Wikipedia*.⁷

Text from 2001 [\[edit \]](#)

This doesn't read like an encyclopedia entry to me. Comments? — Preceding [unsigned](#) comment added by [200.191.188.xxx](#) (talk) 19:45, 2 December 2001 (UTC) [\[reply \]](#)

This comment was made by the author of the page when it was only about the film with this title and it appeared like [this](#). It was later [removed as unconstructive](#) by [Eclecticology](#). He could not have known about the context of that comment, because the [2001 edits hadn't yet been imported into the Wikipedia database](#) and even once they were, the talk page edit was never imported because it was the only one in the page's history; it was only available on the [Nostalgia Wikipedia](#). The original talk page was deleted in [May 2004](#) because it was a blank page; I've imported all the missing edits. [Graham87](#) 13:18, 16 November 2016 (UTC) [\[reply \]](#)

Figure 7: sample thread restoring a previous comment

https://en.wikipedia.org/wiki/Talk:Casablanca#Text_from_2001 (last accessed 14 February 2025)

Although these temporal behaviours have not been formally described before, they confirm the specific position of the Wikipedia project as a global memory as expressed by Pentzold et al. (2017).

3.4 Longest single-user threads

Our last study focuses on single-user threads. In our dataset, 53% of all threads are authored by a single user, primarily due to them consisting of a single post. However, 6.9% of threads with 2 or more posts are entirely written by a single user. These “monologues” can grow to be quite extensive, reaching up to 150 messages. Similar to our previous analyses, we examined the 100 longest single-user threads (with 12 or more posts) and identified two main configurations.

⁷ <https://nostalgia.wikipedia.org/> (last accessed 14 February 2025).

A significant majority of these threads (88) are lists, as we had observed in some of the longest threads (§3.2). The messages within these threads can take the form of paragraphs that include comments, remarks or suggestions.⁸ These cases typically result from a review of the article, or a series of proposals and suggestions for rewriting or expanding it. Of course, these items can sometimes receive comments or extensions in the form of nested messages by other users as noted in §3.3.

But long lists of another kind contain only simple informational elements relevant to the article, such as products, dates, characters, users... In most cases, the thread lacks an explicit communication goal and appears to function as a logbook or to-do list for the author. A thread of such “grocery list” type can include check marks or crossed out items, indicating that they have been processed (e.g., proof-read, referenced, integrated into the article...). In only 12 cases of such lists we could find explicit invitations from the author to others to contribute by extending, commenting or correcting the items, although in our sample these remained unanswered. Figure 8 shows such an explicit checklist with the author giving potential helping hands precise instructions.

Ship checklist

Each ship will be crossed out as its entries in the timeline are referenced. You can help with this work to improve the verifiability of the timeline. Entries in this list are alphabetical by country then ship, with earlier ships of the same name listed first. I will enter the ship's names first and then as time allows I will wikilink them here, before I attempt to start the work of referencing.**Nick Thorne** *talk* 10:58, 12 September 2008 (UTC)

Argentina

- ~~ARA *Independencia* (V-1)~~ **Nick Thorne** *talk* 22:14, 13 September 2008 (UTC)
- ~~ARA *Veinticinco de Mayo* (V-2)~~ **Nick Thorne** *talk* 07:44, 14 September 2008 (UTC)

Australia

- ~~HMAS *Melbourne* (R24)~~
- ~~HMAS *Sydney* (R147)~~
- ~~HMAS *Vengeance* (R74)~~ **Nick Thorne** *talk* 23:23, 12 September 2008 (UTC)

Brazil

- ~~NAe *Sao Paulo*~~ **Nick Thorne** *talk* 13:57, 14 September 2008 (UTC)
- ~~NAeL *Minas Gerais*~~ **Nick Thorne** *talk* 13:57, 14 September 2008 (UTC)

Canada

- ~~HMCS *Bonaventure* (CVL-22)~~ **Nick Thorne** *talk* 13:12, 16 September 2008 (UTC)

Figure 8: sample list thread by a single user (extract) https://en.wikipedia.org/wiki/Talk:Timeline_for_aircraft_carrier_service/Archive_1#Ship_checklist (last accessed 14 February 2025).

⁸ https://en.wikipedia.org/wiki/Talk:Timeline_of_the_Irish_War_of_Independence#Doubtful_edits (last accessed 14 February 2025).

Professor Mersini Radio Broadcast [edit]

Here is Dr Mersini's second paper which predicts the second void of one degree <http://arxiv.org/abs/hep-th/0612142>.
[Notpayingthepsychiatrist](#) (talk) 16:21, 22 March 2008 (UTC). In that paper the writers reference this paper as indicating the small void in the southern hemisphere <http://arxiv.org/abs/astro-ph/0602478>.
[Notpayingthepsychiatrist](#) (talk) 16:36, 22 March 2008 (UTC) This paper attributes assymetry, planarity and alignment in CMB power between hemispheres as explained by assymetry of voids between hemispheres which seems to be were the prediction of a small void in the opposite hemisphere comes from.
[Notpayingthepsychiatrist](#) (talk) 05:04, 23 March 2008 (UTC) [reply]

It seems the large void near the horizon of the universe verified predictions of the string theory landscape high scale inflation birth of the universe where, I think, long waveforms of different universes entangled and decohered http://wunc.org/tsot/archive/?b_startint=42 (understandable radio broadcast as at 23-03-08) <http://arxiv.org/abs/hep-th/0612142>, radio broadcast archived as at 07-04-08 <http://wunc.org/tsot/archive/sot0221b08.mp3/view?searchterm=mersini> and the small void is simply to understand the CMB power.
[Notpayingthepsychiatrist](#) (talk) 08:10, 23 March 2008 (UTC) [reply]

As yet the theory has not been adopted by high impact magazines like Science, Nature or PNAS.
[Notpayingthepsychiatrist](#) (talk) 19:49, 29 March 2008 (UTC) The significance of Laura Menisi-Haughton's prediction can't be understated, the cold spot could have been dark matter.
[Notpayingthepsychiatrist](#) (talk) 06:58, 5 April 2008 (UTC) [reply]

But the Wikipedia article doesn't give any competing theory
[Notpayingthepsychiatrist](#) (talk) 10:47, 31 March 2008 (UTC). A competing theory was proposed on 5 March, where the cold spot is regarded as a gateway to extra dimensions: <http://209.85.173.104/search?q=cac he:2IAbBS94HuEJ:export.arxiv.org/abs/0803.0694+arxiv+cold+spot&hl=en&ct=clnk&cd=5&gl=au>
[Notpayingthepsychiatrist](#) (talk) 23:46, 6 April 2008 (UTC) [reply]

At <http://209.85.173.104/search?q=cache:ph3Xluba9Q8J:www.hr-online.de/servelet/de.hr.cms.servelet.File/08-022.pdf%3Fwfs%3Dhrmysq l%26blobid%3D6423810%26id%3D33781304+susskind+mersini+void&hl=en&ct=clnk&cd=7&gl=au> three physicists are commended for using mathematical proofs. This is a translation from the German using AltaVista Babel Fish: Are there infinitely many beside our universe still different universes, possibly? The answers to this question are speculative - and most disputed. There are proofs none. But one must admit one: Researchers such as Alex Vilenkin, Laura Mersini and Leonard Susskind do not establish her theory buildings PAGE 10 page 10 by any means on that to nothing. They quite move with their computations on the ways its that is mathematically possible. —
 Preceding unsigned comment added by [Notpayingthepsychiatrist](#) (talk • contribs) 09:14, 6 April 2008 (UTC) [reply]

This report dated December says it is actually a group of extrema and not one, prefers not to use wavelet analysis as a measure of Gausinnity and also examines whether there are other cold spots. <http://front.math.ucdavis.edu/0712.1118>. (They conclude - using their different technique - that: "clustering of the extrema of the ILC III and WCM signals is a typical feature of the morphology,...") (p9)
[Notpayingthepsychiatrist](#) (talk) 00:52, 7 April 2008 (UTC) [reply]

Here are the title of the article, it's authors and their positions:

Title: The mystery of the WMAP cold spot Authors: Pavel D. Naselsky (1), Per Rex Christensen (1), Peter Coles (2), Oleg Verkhodanov (3), Dmitry Novikov (4,5), Jaiseung Kim (1) ((1) Niels Bohr Institute, Copenhagen, Denmark; (2) School of Physics and Astronomy, Cardiff University, Wales, United Kingdom; (3) Special astrophysical observatory, Nizhnij Arkhyz, Russia; (4) Imperial College, London, United Kingdom; (5) AstroSpace Center of Lebedev Physical Institute, Moscow, Russia) —Preceding unsigned comment added by [Notpayingthepsychiatrist](#) (talk • contribs) 03:39, 8 April 2008 (UTC) [reply]

However, does this refute figure 5 in <http://arxiv.org/abs/0704.0908> (which is quoted in the Wikipedia article itself)?
[Notpayingthepsychiatrist](#) (talk) 04:10, 8 April 2008 (UTC). This study was designed, presumably, on radio waves, while the other one mentioned by Wikipedia on background temperature.
[Notpayingthepsychiatrist](#) (talk) 05:17, 8 April 2008 (UTC) [reply]

However, the wikipedia article is not entirely easy to follow, as the article on detection by radio telescope proposes "modest redshift" objects lying they are further away? - eliminating the need for Gaussinnity. But isn't it true that the smaller the redshift, the slower and closer the ☾? I now understand it is the integrated Sachs-Wolfe effect (of a hot spot before a void in the line of sight), which is why the article mentions modest red shifts, but doesn't change the size of the void.
[Notpayingthepsychiatrist](#) (talk) 11:21, 8 April 2008 (UTC) [reply]

Figure 9: Example of a long monologue in which the user “thinks aloud” as he investigates a topic. https://en.wikipedia.org/wiki/Talk:CMB%20cold%20spot#Professor_Mersini_Radio_Broadcast (last accessed 14 February 2025).

The 12 remaining long monologues contain heterogeneous posts, which can consist of larger text segments such as problem analyses, reviews, suggestions, hypotheses, reports of actions taken, steps in an investigation and more, to various combinations of such messages within the same thread.

Figure 9 shows such a thread, in which the user reports his investigation of an issue which requires him to read additional sources, confront views and finally explicitly leads to an understanding. This thread has 13 messages, spans over a month and clearly shows the linguistic marks of an academic argumentation (“here is”, “it seems”, “but the article”, “however” etc.). At no point can we identify an address to an interlocutor nor any asking for advice, opinion or help: the whole thread can be considered as a diary or a “thinking aloud” process. It also corresponds to the extended notion of dialogism theorized by Bakhtin (1994), which explains why monological genres show such traces of an interlocution. This is the case for all 12 such monologues in our sample, and it has been confirmed that there are many more cases with fewer messages – in other words, that monologues or single-user threads are a significant phenomenon in Wikipedia talk pages (see Tanguy et al. 2024 for a more detailed analysis).

4 Conclusion

Our study of extreme cases in a dataset of over 3 million discussions from the English Wikipedia talk pages has allowed us to identify several specific behaviours:

- For the most active users of Wikipedia, editing the encyclopaedia articles and participating in talk pages may be considered as separate or at least decorrelated activities. This would require additional efforts to investigate specific individuals’ habits and propose a more precise profiling, but we were able to find prolific editors who do not discuss in talk pages, as well as users whose activity is more prone towards discussion.
- The threads involving a large number of users are mostly polls or series of polls, a known and common habit of the Wikipedia community to reach consensus.
- Very long threads can consist of poll series, but can also be genuine discussions between a small community of users. The length is mostly justified by conflicting views on a topic, but we have observed that the users give these discussions some value and make efforts toward a better readability.
- Talk pages may also be used as tools for other activities than communication between contributors: they can consist of logs, lists or diaries, mostly maintained by a single user as they perform some important editing work or inquiry.

- Wikipedia talk pages, as well as the articles themselves, are technically endless, leading to discussion lasting several years, potentially including long periods of silence.

The flexibility of the platform plays a crucial role in enabling these behaviours, as users can reshape and reorganise the posts in ways which are not possible in the other online discussion environments. The ability users have to freely insert or reorder messages in a thread facilitates the emergence of new forms such as organised polls, sectioned long threads and the use of threads as checklists. In some cases, these possibilities may induce a shift away from the supposedly central communicational goal of the talk pages, such as monologues and threads used as log books or diaries. However, interaction remains possible even in these cases.

Our observations of long-lasting discussions confirm the objective of the Wikipedia project to create a cultural monument and testimony. Talk pages, as the main articles of the encyclopaedia, are considered permanent documents. Therefore, it is not a problem for a Wikipedian to reply to a message 15 years later, with the response being primarily directed towards the community rather than the original user. In a few cases we could also witness the explicit unearthing of old discussions. These behaviours related to the passage of time seem to converge with our observation of the care some users make in organising long discussions and making them readable. These users consider that discussions are important traces or even sources of knowledge on a topic, or on the different views on a topic. This may also explain why the logbooks used by some users are made publicly available as discussions instead of remaining in a private storage, and why some users take the time to express their chain of thought and evolutive investigation.

From a methodological point of view, we consider that our mixed approach has been fruitful. Selecting items of interest on the quantitative basis based on the extreme values of their features, and examining them with a qualitative approach was both satisfactory. It is both reproducible and, as expected, the extreme cases were easier and richer to examine. For example, restructuring efforts in long discussions are more obvious when there are several of them, although we could later confirm that they can appear in a more isolated manner, and the “thinking aloud” monologues could be easily ignored or misinterpreted when they spread over only one or two messages. As a lighter note, extreme cases also were in many cases more pleasant to examine than random threads.

It was not our aim to investigate the specific topics or domains in which certain types of discussion take place. During our observations we did not identify any particular area of knowledge that would correlate with specific behaviours. However, it is evident that popular topics such as pop culture, sports and geopolitics tend to attract a larger number of participants. Nevertheless, impressive efforts to

gather information from a single individual can be found across various subjects, including niche areas.

On the methodological front, our approach needs further completion by exploring the extent to which these newly identified phenomena appear in less extreme cases. Preliminary surveys have shown, for instance, that polls and single-author lists appear at much smaller scales (2–3 voters, a few items in a list, short monologues) and, therefore, occur more frequently.

This naturally calls for further investigations, including a more systematic corpus search of local configurations in order to estimate the frequency of these behaviours, and to enable cross-lingual comparisons. It should be noted, however, that Wikipedia talk pages cannot be regarded as typical CMC data without taking these specificities into account.

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