# Variation in Strategies for Deleting Unusable Content Across the Major Wikimedia Projects

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**Abstract:** One of the negative effects of the rapid development of the information society is the problem of the reliability of content created by millions of users on the Internet. Socially created Wikimedia projects, the largest of which is Wikipedia, quickly developed procedures for identifying and eliminating problematic content. The article presents an analysis of the procedures for removing articles and the discourse on deleting content conducted among active users of the ten largest language versions of Wikipedia. Previous research focused primarily on the lack of neutrality in making decisions about content to be deleted and the resulting social inequalities, and was usually limited to the English-language Wikipedia. Based on previous participant observation, we noticed that individual language versions have different solutions in the context of ensuring project quality, which results in the emergence of different types of problems. We therefore looked into how much the approaches to deleting articles differ in different language versions. At the same time, we attempt to identify the common characteristics of the users who most often initiate discussions about deleting articles. To do this, we analyzed Wikipedia pages used to debate articles submitted for deletion (AfD) in 10 of the largest language versions of this project. The guidelines for submitting articles, the content of automatically generated messages helpful in conducting discussions, and the specific design of the websites where the debates took place were taken into account. Moreover, for three language versions (French, Swedish, and Polish), a statistical analysis of the activity of users of these websites was performed. It was noticed that the procedures for running AfD websites were similar in the analyzed language versions, but they differed significantly in terms of design and automatically generated messages addressed to debate participants.

**Keywords**: Quality of the Content, Wikimedia Projects, Online Communities, Socially Constructed Strategies, Knowledge Selection

## 1. Introduction

The emergence of technologies facilitating knowledge sharing among internet users has contributed to the rise of egalitarianism. At the same time, this has led to increased uncertainty regarding the quality of information found in cyberspace. Consequently, various methods have been developed to cope with acquiring useful knowledge. It can be observed that a significant portion of publications regarding behavioral strategies in the virtual space focused on information search strategies (West & Leskovec, 2012; Rodi, Loreto, & Tria, 2017). In the case of Wikimedia, the largest online community of volunteers dedicated to knowledge sharing, research on behavioral patterns often focused on technical and substantive issues related to editing Wikipedia articles (Iba et al., 2010; Hachey et al., 2013). Some studies examined differences in Wikipedia co-authors' approaches to the quality of content created within this service. Among them were cross-sectional papers that addressed the quality of Wikipedia and related projects, to a lesser extent touching upon the complex individual behaviors of users (Mayfield & Black, 2019; Lewoniewski, Węcel, & Abramowicz, 2023), as well as addressing the issues of egalitarianism and the difficulties novices face in mastering the intricate rules of the project (McDowell & Vetter, 2022, pp. 55–65).

In these studies, the focus was primarily on ways of reacting to information being continuously added to the project. Hence, there was a strong emphasis on the difficulties faced by new users. As the project develops, both standards and requirements are becoming increasingly higher. This means that new content posted on Wikipedia is generally much better than what was created in the early stages of the service. Although the rules in all language versions are similar, individual solutions and interpretations of rules for specific cases may vary. Previous studies have also pointed to certain relationships between patterns of behavior and membership in different national cultures (see: Konieczny 2020, 2023).

However, the issue of the community's evolving efforts to remove knowledge resources that were becoming increasingly unacceptable has not been subject to significant scholarly attention until now. Due to this fact, we have set ourselves the exploratory goal of researching and determining this variability. Following the principles of grounded theory (Konecki, 2018), we do not initially assume hypotheses that could be statistically tested. Instead, we pose research questions regarding the diversity of approaches to dealing with the removal of content that does not meet the standards set by Wikipedia communities.

In the next chapter, we review subject-related literature, primarily in the areas of behavioral strategies in virtual environments and concerning practices of detecting and removing articles on Wikipedia. In the methodological section, we present our approach to qualitative research and the method of collecting empirical material.

## 2. Literature Review

In the theory of mind and the evolution of language developed by Robin Dunbar, it is assumed that the primary function of language was to strengthen group bonds rather than to transmit precise information. Furthermore, the development of human cognitive abilities was not so much related to solving problems associated with functioning in the natural world, but rather to resolving dilemmas in the social environment. This concept is known as the social brain hypothesis and is also referred to as the Machiavellian intelligence hypothesis (Gamble, Gowlett, & Dunbar, 2014). Building social relationships thus involved employing various strategies that led to the formation of specific cultural patterns. These established patterns can be described as evolutionarily stable strategies in evolutionary theory (Dawkins, 2016). Since this is an ancient evolutionary mechanism, it is visible in various cultural environments, including cyberspace, where individuals and communities make decisions about building shared knowledge resources.

Strategies of action adopted by Wikipedians have been described in relation to both conscious choices and unconscious patterns. Wikipedia is often depicted as a place where strategic decision-making processes are co-created by a global community. It is emphasized, however, that certain factors may limit engagement in creating open strategies and thus may lead to frustration among some users (Dobusch & Mueller-Seitz, 2012; Nketia, 2016).

In large social projects, including the volunteer-created Wikipedia, there is considerable diversity among actors, including collective actors. Collective actors can include groups involved in thematic WikiProjects, welcoming committees, administrator groups or arbitration committees. Additionally, some actors do not contribute to shaping shared knowledge resources. As the Wikimedia projects have many language versions, users' actions in each of them may differ due to cultural differences. This diversity has been observed in previous studies (Konieczny 2020, 2023). In cultures with high power distance, a hierarchical structure grows, leading to a longer path to "promotion" from a novice to a user with, for example, administrator privileges (Skolik & Karczewska, 2021). Conversely, cultures with stronger individualism tend to have a smaller number of rules relative to the number of users and a higher number of edits per article (Kukowska & Skolik, 2021). It can be assumed that in "shame cultures," which have a lower Individualism Index, Wikipedians may be less inclined to make corrections to others' articles or may try to create their own articles in a way that avoids the need for corrections.

Individual behaviors may stem from the cultural background of the individuals, but this diversity is mitigated by the strong organizational culture of Wikipedia. For Wikipedians' actions to be acceptable, they must not violate a set of norms — rules, guidelines, and procedures — the number of which rapidly increased in the early years of Wikipedia's development (Kittur et al., 2007; Butler, Joyce, & Pike, 2008). Some users (often called vandals or trolls) intentionally break the established rules, attempt to destroy content, or incite "edit wars." This, in turn, leads to an ongoing "arms race." Special filters are created to quickly detect destructive behaviors, leading to modifications in behaviors among such disruptive users. The greater the awareness of such threats, the more the community may mobilize to cooperate in eliminating them. Although vandalism-detecting scripts are constantly modified, continuous human monitoring is needed to interpret unique behaviors (see: Jankowski-Lorek et al., 2016). This, in turn, requires a stronger internalization of rules. Over time, the number of rules becomes so large that newcomers have significant difficulties in mastering them, even if they are academics (Konieczny, 2021). Standardization also leads to greater technical complexity. Therefore, initiatives aimed at facilitating entry for new users periodically emerge.

An important modifier of behaviors can be the attitude of Wikipedians towards the content contained in the encyclopedia they co-create. In this context, two opposing attitudes are described: inclusionism and deletionism. The supporters of inclusionism lean towards including articles on niche topics, and even all content for which the appropriate sources of information can be found. On the other hand, the proponents of deletionism argue that the priority should be maintaining and raising high standards and removing content that, due to its insignificance, should not be included in Wikipedia (Mayfield & Black, 2019; Worku, Bipat, McDonald, & Zachry, 2020).

The main arena where the supporters of inclusionism and deletionism compete is the discussion pages for articles up for deletion (referred to by the acronym AfD). Administrators, users with privileges allowing, among other things, the deletion of a page, consider the opinions of those in favor of keeping the entry and those in

favor of its deletion. It is worth noting that only 20% of article authors participate in such discussions (Mayfield & Black, 2019). AfD pages contain both nominations for articles identified for deletion shortly after their creation and those whose flaws were not previously noticed. This also contributes to less involvement from their authors, who may have stopped contributing to Wikipedia earlier (sometimes, years earlier).

The decision-making process by administrators in AfD discussions may depend on the number of participants in the debate. In the English-language version, it has been observed that administrators' decisions are influenced by the number of votes for deletion or retention of the entry, despite nominally considering only the quality of arguments (Taraborelli & Ciampaglia, 2010). In the Polish-language version, however, a very large number of participants in the discussion may result in closing the debate as not leading to a consensus. In such a situation, the entry under discussion is not deleted (Skolik, 2013). The participants in the discussion may vary in their flexibility towards the arguments put forward, and their goals for participating in the discussion may differ. Some may strive, regardless of the arguments, for the deletion of the entry, while others may aim to retain it, and some may change their decisions depending on subsequent arguments or improvements made to the articles. Viewing AfD as a playing field involving many players, the stakes in the game could include, for example, the general aim to improve quality (by either deleting or improving the entry) or mobilizing a greater number of Wikipedians to address the problem on a broader scale (articles in a specific field where quality has not been previously addressed).

So far, the focus has been on narrow aspects of such discussions, primarily considering the effectiveness of actions or the inequality of opportunities in arguing between new and experienced Wikipedians. However, there has been a lack of research that would capture the diversity of behaviors leading to the complexity of decision-making processes on pages where deletion discussions take place.

## 3. Materials and Methods

To classify strategies related to making decisions about article deletion, we conducted qualitative research using a netnographic approach (Kozinets, 2015). Content analysis was employed, with a focus on pages outlining deletion rules as well as randomly selected discussions about article deletion. We did not formulate statistical hypotheses but instead formulated two research questions as follows:

1. What strategies do users adopt in the process of deleting articles that are identified as unacceptable?
2. What strategies do communities of individual language versions develop for articles targeted for deletion?

For the research, 10 of the largest language versions of Wikipedia were selected (the largest as in weighting both the number of created articles and the size of active user communities). These versions included English, Swedish, German, French, Dutch, Russian, Spanish, Italian, Polish, and Japanese. It was assumed that large communities have greater capabilities to identify low-quality content and can create their own tools and decision-making standards for its elimination. The research was conducted from January to April 2024. During this time, a comparison of deletion and archiving systems was conducted, enabling decisions on content selection for analysis. The analyzed AfD pages were created between 2005 and 2013.

The content analysis consisted of several stages (Fig 1.). Initially, attempts were made to identify the differences between language versions, which could result from the development of different action strategies by communities. To achieve this, we compared how different Wikipedias differ with regard to the following:

- Discussion flows in individual AfDs.
- Procedures for submitting articles for deletion (starting an AfD).
- Tools aiding in creating AfDs, such as template messages manually or automatically added by users.
- Methods of archiving submissions.

In the second stage, user comments posted in individual AfDs were analyzed. Twenty such discussions were randomly selected from each language version. If individual pages were archived and categorized, the PetScan tool was used to select these pages. In some language versions, individual AfDs were not categorized, but sets of discussions were archived with daily dates provided. In such cases, two discussions from each year in the last decade were randomly selected. This approach allowed for the selection of discussions where AfD procedures had already been institutionalized, and users might be more engaged in interpreting the rules. For translating comments (the authors only use Polish, English, and Russian), Google Translator was used for this purpose. In doubtful cases (users often make linguistic errors), consultation with individuals proficient in the respective

language proved most often necessary with regards to Japanese as the quality of machine translation between European and Asian languages lags behind that of European to European, which approaches near-perfect quality - at least for tasks such as understanding AfDs.

The coding of comments was conducted in several steps. Firstly, unique comments that did not repeat verbatim were selected in each language version. Subsequently, they were coded as follows: the type of comment was determined, and each comment was assigned categories - detailed and more general. This approach allowed for obtaining a general overview of users' action strategies in the studied language versions. Coding was done by one author and spot-checked by another to improve reliability.

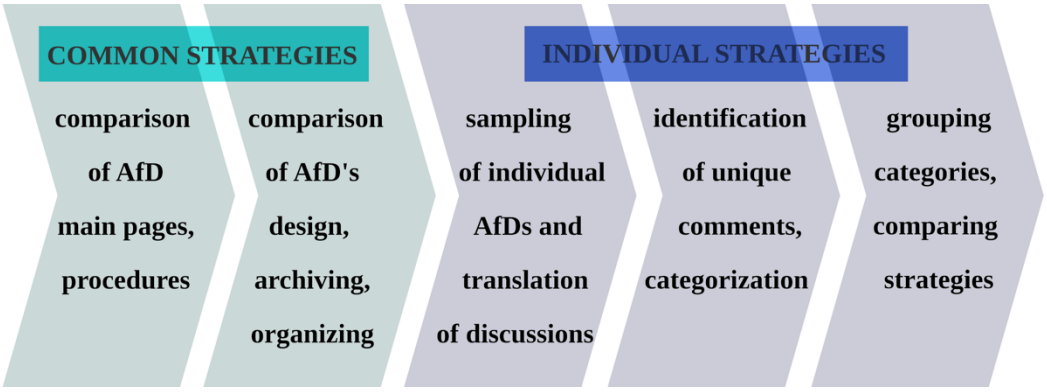


**Figure 1: Stages of the analysis of common and individual strategies related to making decisions about article deletion in Wikipedia**

## 4. Results

Among the wide variety of strategies implemented in AfD, we distinguished two primary types: strategies undertaken by individual users and strategies adopted by the language community of Wikipedia versions.

### 4.1 Common Strategies

The frameworks for the handling of AfDs are established by community procedures. They primarily include the timeframe for action, the manner of conducting the debate, and how it is concluded. In this regard, the studied language versions did not differ significantly. In each of them, emphasis was placed on participants presenting their arguments rather than just expressing support or opposition to the deletion of the entry. Some AfD regulations explicitly state that the deletion procedure is not a vote. In the English version, such non-substantive comments are often ignored or criticized, while in the Polish version, they are struck out. The timeframe for reaching a consensus on the deletion of an article is almost universally set at seven days. Shortening or lengthening was applied if situationally permissible. In the Russian and Japanese versions, some nominations are not closed even for many months.

Certain differences in procedures are visible regarding the opening and closing of AfDs. In the English, Spanish, and French versions, special help pages with tips on how to nominate articles for deletion have been created. In some versions, actions to be taken before nomination are required (e.g. searching for sources in English Wikipedia), while in others, recommended (e.g. in Polish, to inform the author and relevant WikiProjects). On the other hand, when closing the discussion, besides the duration of the discussion, required actions are common. Closers are generally asked to summarize the discussion and based on that, decide the fate of the nominated article.

The greatest differences among the examined language versions were observed in the design of AfDs and related user interfaces and tools. Specific solutions were found in each of the studied language versions in this regard. In the Italian version, the "temperature of discussion" is measured by placing a message about the length of the discussion next to the links to individual AfD discussions. The longer the discussion, the warmer the color of the indicator. In the Polish version, a tool aimed at "cooling down" the discussion is a message encouraging users to express their opinions in a civilized manner, which appears above the AfD page when it is being edited. The Spanish version of the AfD category page contains tables with information about ongoing discussions: the number of users, the number of days since the last edit, and the number of days until the discussion is closed. Additionally, it includes a dictionary of acronyms most commonly used within AfD. A similar glossary is present

in the Dutch version, but it distinguishes itself by explicitly recommending the use of acronyms when submitting articles for deletion.

In some language versions, special subpages are created for submissions of pages that are not articles, and in some cases, subpages are created for individual thematic areas. The greatest diversity in this regard is visible in the English version, where discussions are separately held on topics such as Media, Organizations, Biography, Society, Web, Games, Science, Arts, and Places. These topics are further divided into subtopics, totaling several dozen (e.g. for individual countries, or branches of science). In these discussions, templates with icons are sometimes used, which immediately indicate the commenter's position. The Japanese version has as many as 20 icons for preferred AfDs outcomes. In the Russian version, templates (messages) with declarations of improving the article are used, specifying the time needed for improvement.

Significant differences were also observed in the structure of pages. The German version contains separate sections for submitting articles, lists, categories, user pages, meta pages, and templates. The division of the subpage into sections is also visible in the Swedish version, but in this case, separate positions on what to do with the article are presented in different parts of the page: delete, keep, neutral, merge, redirect. In the French version, each AfD page discussion is preceded by several elaborate messages about the AfD procedure and the possibility of participating in it. In other versions, such messages are either not used or placed so as not to overshadow the main part of the discussion.

The diversity of solutions in the design of AfD pages reflects different approaches to addressing issues related to understanding messages, persuading appropriate actions, or organizing arguments. Each of these aspects pertains to controlling the process of article removal. Some of the solutions developed are not compatible with other language versions. For example, synthesizing solutions from the French, Swedish, and German versions would lead to excessive expansion of AfD pages and could consequently result in cognitive overload.

## 4.2 Individual Strategies

Analyzing 200 AfD discussions from 10 language versions, some consisting of a few sentences and others spanning several pages, 767 unique comments were identified. Uniqueness meant that comments repeated within the same language version (comments copied by subsequent participants in discussions) were not considered. This allowed for determining the scale of qualitative diversity. Out of all the identified comments, 760 were categorized, and the categories were divided into three types: comments relating to Wikipedia's core principles, comments concerning the quality of the discussed articles, and comments related to the course of discussions at AfDs.

The most frequently posted comments (399 cases) fell into the first category (Table 1). These included comments where those advocating for deletion cited specific provisions in established policies, comments expressing doubts about the application of these provisions in individual cases, and opinions questioning specific principles of the policies themselves. Discussions at AfDs can thus be seen as an arena through which interpretations of Wikipedia's core principles are created and modified. Some rules have been developed after recurring discussions in AfDs within a particular thematic scope (this is particularly common with regards to clarifications of notability criteria; notability means importance and is an important consideration in deletion, i.e. it concerns the question of whether a topic is important enough to merit a Wikipedia article). These discussions often revolve around establishing entry thresholds for articles in a specific area of knowledge, as evidenced by the results of this study. A total of 240 comments (over 30%) were related to the recognition or non-recognition of notability. On the other hand, the submission of multiple articles within a certain scope is a strategy employed by individual users to initiate debate among the community and establish specific notability criteria. A significant part of comments also addressed reliability and verifiability issues, most commonly the lack of sources or the presence of low-quality sources.

**Table 1: Comments relating to Wikipedia's main principles**

| General categories | Specific categories |
|---|---|
| Notability / What Wikipedia is not (240) | lack of demonstrated notability: topic is local, niche, unknown, the entry is too detailed, or a directory/catalog entry<br>arguments for notability: popularity, media coverage, reach, influence, uniqueness, award-winning;<br>arguments about the lack of references to the article (also in other language versions); and failure to meet specific notability criteria. |
| Verifiability / No original research (93) | Issues related to lack of citations (sources of information), including the problem of no sourcing for an extended period; searching for and obtaining sources of information; verifying content in sources; determining the credibility of sources, including rejecting and accepting primary sources.<br>Criticism of speculation or original research (forbidden on Wikipedia). |
| Neutral point of view (36) | Issues related to self-promotion, censorship, advertising, subjective views |
| Copyrights (18) | Detecting and removing copyright violations |
| ”Ignore all rules” (12) | Arguments about the usefulness or harmlessness of weak articles; denial of specific rules; the need to describe all topics within a certain scope regardless of their individual significance. |

It was somewhat surprising to see AfDs being used for discussions on the removal of copyright-infringing content. Out of 18 such comments, 15 originated from the Japanese version, which, incidentally, less frequently employs AfDs for other purposes. In other language versions, procedures related to the removal of copyright-infringing content are usually conducted on separate pages. Transferring discussions on this matter to AfDs may be a good strategy if other pages are not as popular among Wikipedia users in a given project.

Among the comments of the second type, there were more opinions from inclusionists, pointing out the possibilities of improving the content or arguing about the existence of similar articles that have been accepted. Deletionists, on the other hand, pointed out issues such as articles not being improved for a long time, the inappropriate form and style, including faulty translations from other language versions, the presence of false information, and the problem of posting many low-quality articles. Conciliatory-minded Wikipedians, in turn, suggested taking actions that facilitated preserving someone's work, including improvement, integration with other articles, or temporarily moving content to the authors' drafts (Table 2). Understanding the arguments of the participating sides in the debate often led to finding solutions that could be acceptable to adversaries.

Comments of the third type most commonly focused on the behaviors of other users. This included both detecting inappropriate behaviors and expressing positive emotions towards the actions of others. Their appearance in the discussion often led to the development of side threads about the AfD procedure itself and contributed to involving a greater number of users in the discussion. Emotionality can therefore promote greater engagement and the development of more favorable decisions; however, it often leads to a situation where consensus is not reached due to the length of the discussion (see: Skolik, 2013). This type also included ethical evaluations of actions related to the subject of the article, such as writing biographies for payment and assessing the protagonists of the biographies (Table 3).

**Table 2: Comments relating to the quality of existing articles**

| General categories | Specific categories |
|---|---|
| Comparisons (53) | Pointing out analogies to other articles or other language versions, mainly in the context of the need for the existence or removal of an article. |
| Correcting or not correcting articles (47) | Pointing out the lack of necessary changes in content for a long time and suggesting the need for more time for improvement;<br>Declaring improvement, making corrections during AfD, and creating articles from scratch;<br>Indicating one's own involvement in improvement;<br>Suggestions for improving the article, including suggestions to move them to user sandboxes. |
| The form of the article (42) | Pointing out inappropriate form, style, failure to meet standards for old articles, insufficient length of articles; issues arising from incorrect translation of articles and discrepancies between titles and content. |
| Integration/redirection (33) | Pointing out the need to include the issue in a more general article; integrating content; converting articles into redirects to other articles; moving content to another wiki; and changing articles into disambiguation pages. |
| Currentness (23) | The problem of lack of updates; pointing out that Wikipedia is not intended for describing current and future (uncertain) events. |
| Detecting of false content (16) | Describing content as nonsense, garbage, hoaxes, pseudoscience;<br>Detecting falsification of information. |

| General categories | Specific categories |
|---|---|
| Series of problematic articles (10) | Detecting authors of many weak articles; arguments about the need for mass deletion of articles within a certain scope. |

**Table 3: Comments relating to the course of the AfD**

| General categories | Specific categories |
|---|---|
| Etiquette/expressing emotions (56) | Assessing the behavior and competence of commentators, including accusations of vandalism and trolling; critically evaluating the course of AfD; expressing thanks (including for content improvement), apologies; joking; expressing discouragement from further action. |
| AfD internal issues (28) | Canceling AfD; duration of AfD; meta evaluation of AfD; monitoring changes in AfD; opting out of AfD; closing AfD; the issue of "clogging AfD" by too frequent submissions. |
| Decision making (27) | Questioning and circumventing AfD decisions; reminding that AfD is not a vote; informing about previous discussions on the same topic; suggesting discussions outside of AfD; the issue of repeated deletion and speedy deletion. |
| Approval/disapproval (11) | Expressing approval of actions, including integration, deletion, or retention of the article; discrediting other participants. |
| Conflict of interest (8) | Pointing out the independence of the content of the article from the subject it covers; the issue of paid editing; recognizing the primacy of principles over personal judgments. |
| Subject of the article (7) | Assessing the subject of the article; the issue of posting private data about the subject. |

## 5. Discussion and Conclusions

The research revealed a significant diversity in the behaviors of participants in article deletion discussions. It captured the specificity of technical and organizational solutions, which would not have been possible by analyzing only predefined cultural dimensions (Konieczny 2020, 2023). At the same time, the similarity of procedures in the analyzed versions of Wikipedia may indicate a strong organizational culture. Individual users' comments mostly referred to Wikipedia's main principles. Additionally, arguments, argumentative styles, and counterarguments were similar in each language version, with notable differences observed in the Japanese version, where users more often focused on removing copyright-violating content.

As noted in previous studies referring to behavioral strategy arguments, individuals with broad activity profiles tend to pay less attention to conflict situations. Stronger reactions are observed in individuals who have invested more in developing specific projects (Ocasio, 1997; Klapper & Reitzig, 2018). Similarly, individuals more involved in AfDs or the development of articles submitted to AfD for not meeting standards exhibit stronger reactions. However, comments tend to prioritize rules over personal attachment to the article's subject, which suggests that attachment to jointly developed rules is high.

Future research could delve into the stages of differentiation between language versions more closely. Survey research would help determine the intentions of the most engaged users in AfD from other major language versions.

Although a more precise comparison of individual strategies would require describing the actions' history of the most active users engaging in AfD, based on years of participatory observation, we conclude it is likely that individual actions become routinized over time. We also conclude that AfDs contribute to the development of institutionalized policies and guidelines (in particular, ones related to notability).

Most rules and procedures were copied from the English version, but the pace of their implementation varied. Language versions also differ in enforcing rules developed locally. While it is technically possible to identify when a rule was written, it is harder to determine when it began to be treated as a standard. Recognizing strategies and the complexity of actions on AfD could lead to better handling of conflict situations and optimization of actions by Wikipedia editors, who, as a community, spontaneously manage processes related to removing low-quality content from the encyclopedia.

At the individual level, a variety of behavioral strategies can be observed on AfD (Articles for Deletion) pages. However, at the community level, specific rules and norms tend to crystallize. In the initial years, these rules are frequently modified, but over time, due to organizational inertia, they become increasingly institutionalized, making any changes more challenging to implement. One could argue that certain strategies, once they gain popularity, become stable and are difficult to displace with new patterns, even when solutions from more developed language versions are proposed.

According to Dunbar's social brain hypothesis, the dialectalization and emergence of new languages were linked to the need to distinguish between "us" and "them" in growing human communities (Dunbar, 2011). In the context of Wikipedia, communities that initially create rules collectively (globally) tend to separate over time, thereby strengthening their own identities. This phenomenon leads to a resistance to innovation, a trend observed in many organizations. Consequently, Wikipedia, which began as a grassroots alternative to traditional encyclopedias, is becoming increasingly similar to traditional organizational models.

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