Postprint

Why Should You Believe in Open Data? – A Document Study Examining Persuasion Rhetoric of OGD Benefits

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Abstract. The rhetoric of Open Government Data (OGD) concerning
its benefits seems to lack anchor in practice affecting practitioners and
empirical evidence restraining academia. This rhetoric could be hard to
see for those already persuaded. As such, the rhetoric could contain in-
consistencies that are based more on myths than facts, contributing to
the slow pace of OGD development. OGD is sometimes based on dog-
matic rhetoric that is overly simplistic, which hides significant benefits
and blocks potential audiences from seeing the practical applications of
OGD. The purpose of the present study was to analyse the persuasive-
ness of present OGD arguments from a rhetorical perspective to identify
rhetorical patterns. We conducted desktop research, investigating the
rhetoric of eight websites emphasising OGD benefits. Our findings in-
clude four common patterns of the rhetoric involving persuasion and
dissuasion. The rhetoric contains paradoxes of promises and discover-
ies, which we categorised as the grand quest, promised opportunities,
tribal solidarity, and the silver bullet patterns. A further finding was two
mythical paradoxes: (1) promises versus discovery and (2) proving while
arguing.

Keywords: : Open government data, Rhetoric, Persuasion, Dissuasion,
Mythical paradox

1   Introduction

Open government data (OGD) is data available to everyone, without restric-
tions in terms of copyright, costs, and patents [1]. OGD builds on an "open
to everyone" vision, often emphasised by politicians and other governing actors
[e.g., 7, 23, 29]. Further highlighted are the benefits of OGD, with repeated mes-
sages about opening up data for transparency, accountability, cost savings, and

economic growth [e.g., 17, 35]. The focus on these benefits is intentional, as a part of persuasion, aiming to change people's minds and behaviours to support OGD [11, 12]. [9] explains that persuasion is an important activity within OGD. For example, public organisations looking to acquire resources to publish OGD might need success stories to persuade others of its benefits [41]. Persuasion is an ongoing activity, varying in intensity [11]. [19] framed the OGD persuasion as part of a revolution, declaring:*"Like all revolutions, it is being driven by a powerful set of arguments, forwarded by passionate believers in the benefits of new ways of knowing and acting in the world and an alliance of vested interests who gain from its unfolding"* (p. 113). Hence, the act of persuasion involves roles such as **sender** and **audience**; that is, the sender intends an argument to be compelling to a particular audience. For OGD, the sender often holds a role as an enthusiast or sometimes a politician. The audience can be managers in public organisations, or OGD enthusiasts like students at universities or hobby programmers. Therefore, activists and politicians attempt to construct arguments that will persuade this broader audience. Several arguments for OGD have been identified in practice [e.g., 14, 25, 31], and some academics have also provided arguments [e.g., 2, 5]. However, the persuasion has involved myths and motivations [e.g., 15, 17, 39], not focusing on the reality for practitioners or providing enough theoretical back-up for academia. [30] noted that the benefits of OGD are proclaimed rather than empirically proven. Practitioners are left without tools to persuade managers and managers are left without tools to persuade decision-makers, etc. This chain restrains the possible benefits that OGD practitioners can produce, adding to their burden to continue OGD. In academia, theorising OGD benefits has not attracted much interest, which adds to the mainstream argumentation. Thereby, the arguments themselves could be part of the low pace of publishing and using OGD [3], which would be difficult to see for those already persuaded to believe in OGD.

Therefore, the purpose of this study is to analyse the persuasiveness of present OGD arguments from a rhetorical perspective to identify rhetorical patterns. The study focuses on how the arguments can persuade and dissuade an audience where the objective is to highlight the value of studying rhetoric within the OGD community. In this study, 'persuade' means convincing the audience to believe in OGD, while 'dissuade' means convincing them to not believe in OGD. The findings could explain why anyone would be generally inclined or not to participate in OGD, but also help OGD senders to develop better arguments. Therefore, this study is guided by the following research question: What are the rhetorical patterns among OGD practitioners' arguments, in the form of persuasion and dissuasion, drawing on the benefits of OGD?

2   Background

Senders tend to argue for OGD based on perceived societal needs or problems, which the release and use of OGD could cure or improve upon society [9]. The problems include dysfunctional democracies, walled data gardens that are only

accessible to a small elite, wasted potential of untapped data, and obscure governments [24, 25, 33, 34]. The improvements that have been suggested to address these problems are to show political, social, economic, operational, and technical benefits [17] where the core is to maximise the value of OGD and minimise wasted work and storage for said OGD. Through persuasion, a persuaded audience gains purpose and reason to work with OGD [9]. OGD is driven by a powerful set of arguments, often presented by passionate believers in the benefits of OGD [19]. The arguments are based on statements used to gain legitimacy for believing or not in OGD without a determinable basis of facts or evidence are myths [17]. Therefore, the arguments of OGD could be myth-driven rather than evidence-driven. On the other hand, an audience might see risks and dangers in OGD and resist or refuse to believe in it [4, 38, 42]. Propensities in OGD arguments emerge repeatedly, although the arguments do not seem to reflect what is happening in practice. To approach this phenomenon further, we describe fundamental parts of rhetoric.

2.1 Rhetoric

Rhetoric is the study and practice of persuasion. People need each other and work in collaboration. Because of the need for collaborators to agree on common goals, people need to be able to influence each other. Hence, much interaction requires persuasion [20]. Persuasion consists of arguments. An argument is a set of evidence (datum) to support a claim and an effort to support certain views with reasons [18, 40]. Rhetoric occurs when a sender provides a speech or a written text for an audience in response to an occasion where their interpretations are based on their presuppositions [20].

Rhetorical analysis studies persuasion in order to understand how people have been and can be persuaded, which can help us become better judges and advocates by analysing the effectiveness of the arguments. This analysis can study calls to character (ethos), emotions (pathos), and reasoning (logos), but also rhythm, structure, and style [36]. Our research is based on Toulmin's argument mode, enhanced by Longaker and Walkers' argument analysis[20].

Toulmin explained that an argument attempts to answer an **issue** by providing **datum** towards a **claim**. The leap from datum and a claim is supported by a **warrant**, which explains how the datum leads to the claim and is captured as a general statement. A warrant certifies all arguments of the appropriate type similar to a law. Its is supported by **backing**, which explains why, in general, a certain warrant should be accepted as having authority [36]. A sender can draw on warrants whose acceptability is taken for granted (warrant-using) or attempt to establish a new warrant by applying it to a number of cases (warrant-establishing). In the former, the conclusion is commonly accepted and understood, while in the latter the warrant is novel and original. Warrant-establishing is common in scientific papers [36]. In addition, **qualifiers** indicate the strength conferred by a warrant (such as can, could, and might), while a **rebuttal** indicates circumstances when the general authority of a warrant would not apply [36]. Toulmin's model focused on logos, which abates ethos and pathos, so we

have included Longaker and Walkers' argument analysis. Their argument analysis studies the establishing of ethos, connections to an audience's pathos, and asking who is the audience and what the sender wants the audience to believe, feel, and do [20]. Toulmin's model is summarised in Figure 1. The next section explains how his model and Longaker and Walkers' argument analysis were used.
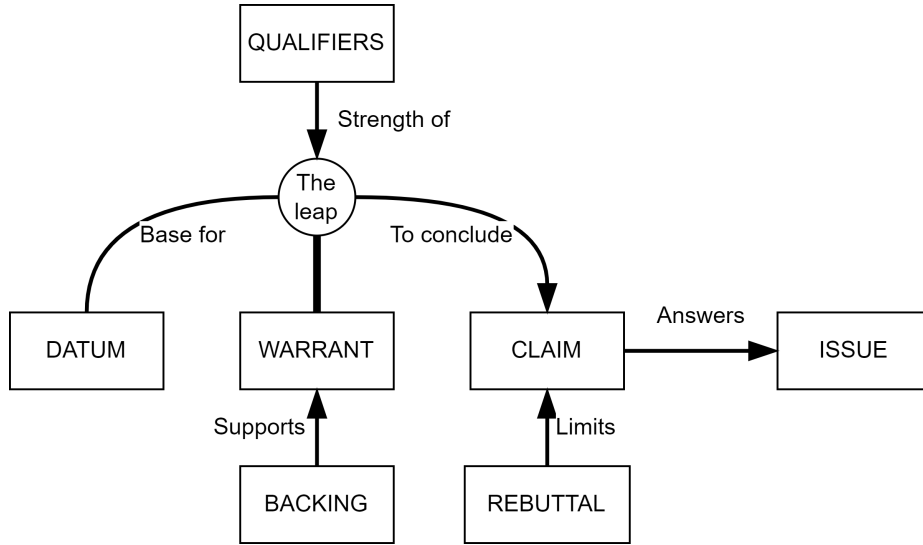

Fig. 1. *A representation of Toulmin's model.*

3   Research Approach

The method for this research followed a general qualitative methodology [22] analysing documents [6] and was conducted in four stages: (1) identify documents, (2) create an analysis template, (3) individual analysis, and (4) collaborative analysis. The first stage was to use desktop research focusing on identifying existing websites based on OGD benefits. For this purpose, we chose eight websites to analyse as documents. The *criteria* for the websites, besides arguing OGD benefits, were a combination of public and business organisations, and interest groups. Their headquarters are located in Sweden, Europe, and worldwide. Further criteria were variations in the communication styles and preferable different perspectives on the benefits, which contributed to triangulation in our research [8]. The second stage was to create an inductive analysis template based on the Toulmin model, enhanced by Longaker and Walkers' argument analysis; Table 1. The template was applied in a top- down fashion with possible iterations between the analytical units, where some units were based on previous units. The third stage was the individual analysis, using inductive analysis based

on the previously created template. The template was used in three steps: (1) the argumentation, (2) the audience, and (3) analysis of the parts for persuasion and dissuasion. The first step was descriptive and gap-filling; the second step was interpretive and derivative; and the third step was analytical. This analysis was performed for each website. The fourth stage was to jointly discuss the individual analysis, comparing our findings and writing the persuasion and dissuasion in collaboration. The synthesised analysis is shown in the following section. The last three stages contributed to reliability of our research, as the template prevented analytical drift and the sharing of the analysis allowed for cross-checking [8]. At the same time, the discussion in the fourth stage allowed for reflexivity, which contributed to the validity of our research [21].

Table 1: Analytical template for arguments (based on Section 2.1).

Steps	Analytical Unit	How-to
Step 1. Argumentation	Claim	Identify what the sender wants the audience to conclude.
	Issue	Look for topics, questions, or rebuttals.
	Qualifier	Study modal verbs in relation to claim and warrants.
	Rebuttal	Study how the sender differentiates the claim from alternatives or fails to mention them.
	Establish Ethos	Study any attempts on how to gain legitimacy and trust, such as presentation of logos and statements of expertise.
	Datum	Identify evidence or statements used to support the claim.
	Warrant	Identify general statements and determine if they are warrant-using or warrant-establishing.
	Backing	Identify statements that support the warrant.
	Connection to pathos	Study how the sender uses humour, values, and statements to emotionally connect to an audience.
Step 2. Audience	Who?	Scrutinise the argument to construct an idea of the intended audience.
	Asked to believe	Identify warrants and statements an audience needs to accept on face value and condense them into a belief.
	Asked to feel	Compare the connection to pathos with the above; what feelings are the sender attempting to rise?
	Asked to do	Study the claim and warrants; if so, how does the sender want an audience to change their behaviours or act?
Step 3. Analysis	Persuasion	Analyse why an audience should be persuaded by the argument by bringing the above together.
	Dissuasion	Analyse why an audience should be dissuaded by the argument by bringing the above together.

4   Findings and Analysis

Table 2 presents an overview of the analysed arguments. The following subsection presents the identified rhetorical patterns.

Table 2: Overview of OGD arguments.

Sender	Medium	Type	Audience	Structure	Approach
[7]	Webpage	Text, video	Governments, enthusiasts	Tool kit	Encourage
[27]	Blog post	Text, GIFs	Beginners	Ten bullet points	Humour
[29]	Webpage	Text	Beginners	Two-tier	Encourage
[37]	Document	Text	Governments	Body text	Encourage
[32]	Blog posts	Text	Governments, enthusiasts	Counter-rebuttals	Motivate
[35]	Article	Text	Governments, enthusiasts	Two-tier	Encourage
[26]	Webpage	Text	Governments, enthusiasts	Body text	Enthuse
[23]	Webpage	Text	Governments, enthusiasts	Two-tier	Encourage

4.1   Rhetorical Patterns

The findings show that senders of OGD arguments for benefits use and combine four rhetorical patterns: (1) the grand quest, (2) promised opportunities, (3) tribal solidarity, and (4) the silver bullet. The pattern related to the grand quest can be explained by framing OGD as a big adventure and the promised opportunities adds in various directions, such as just promises or even prophesies. Rhetoric pattern related to the tribal solidarity looks upon the community aspect of OGD and rhetoric related to the silver bullet frames various or individual patterns of the benefits related to OGD. Each pattern is presented with a description, some empirical examples, and the reasons we see for persuasion and dissuasion. Table 3 presents the patterns' occurrences and variations in the analysed OGD arguments, which is further detailed through the subsection.

Table 3: Rhetorical patterns in analysed OGD arguments.

Sender	Grand Quest	Promised Opportunities	Tribal Solidarity	Silver Bullet
[7]	Challenge	Promises	Partnership	Scattered
[27]	N/A	Prophesy	Everyone	Social, Economic
[29]	Untapped	Promises	Support	Social, Economic
[37]	Untapped	Mixture	Initiative	Social, Economic

Table 3: Rhetorical patterns in analysed OGD arguments.

Sender	Grand Quest	Promised Opportunities	Tribal Solidarity	Silver Bullet
[32]	Resistance	Solutions	Alliances	N/A
[35]	Progress	Promises	Community	Social, Economic
[26]	Untapped	Mixture	N/A	Scattered
[23]	Progress	Mixture	N/A	Scattered

The grand quest pattern frames OGD as a challenge or resistance to overcome, untapped potential to unlock, or progress towards benefits. It contains challenges, treasures, and possible rewards at the end. The grand quest argues for OGD as another type of journey, where there will be new challenges in relation to what the audience previously has experienced. Still, the texts emphasise the journey as being worth it, as the discovered results are more valuable than the efforts. For example, *"[...] OGD still remains an uncharted territory. Much untapped potential could be unleashed if government data are turned into OGD."* [37, p. 4], *"Open data, especially open government data, is a tremendous resource that is as yet largely untapped. [...] At the same time it is impossible to predict precisely how and where value will be created in the future. The nature of innovation is that developments often comes from unlikely places."* [29, p. 1, 3], and

> *"Releasing Open Data is not easy. It requires time and resources and it can also be a challenge to make sure the fine line between transparency and privacy isn't compromised. So if it is so challenging and requires money, then the question is : Is it worth it? Take a moment to watch this video about the potential of open data [Video:* `https: // youtu. be/ bwX5MAZ6zKI` *] This is just the tip of the iceberg, there is much more to this. "* [7, p. 9].

The pattern is persuasive for an audience that seeks to overcome challenges for rewards or discover hidden rewards in uncharted territory (it appeals to an audience's spirit of adventure), while it dissuades an audience for the same reasons. It asks the audience to believe that there will be a reward once the grand quest is completed, but an adventure can include risks and dangers, which could stop the adventure in its tracks. **The promised opportunities** pattern frames OGD as a deliverable, a certain possibility for benefits, or promise. If an audience invests time and resources, the pattern explicitly or implicitly promises that the audience will gain, unlock, or enable certain categories of benefits. It is sometimes woven into the grand quest pattern as the final destination. Three good examples of this pattern are:

> *"From a social perspective, open data enhances participation, collaboration, and enables the inclusion of marginalised groups. It enables citizens*

to make better-informed decisions but more importantly, empowers citizens to contribute to policies that are better designed to their needs and to a more engaging relationship with their governments. [...] As discussed, there are benefits to open data, including its impact on economic growth and society. The benefits of open data create substantial value to society as a whole and impact your daily life." ' [35, p. 7], and

"In addition to increasing government transparency and public awareness of government programmes and activities, opening up data can also help generate insights into how to improve government performance. Increased data transparency provides the basis for public participation and collaboration in the creation of innovative, value-added services." [37, p. 4].

The promised opportunities pattern persuades by presenting the audience with the possible benefits of OGD. This gives the audience an idea of what OGD could do for them. However, it dissuades an audience by framing benefits in general terms and failing to disclose the data leading to the benefits. The pattern potentially oversells OGD.

The tribal solidarity invites the audience to an OGD community, which has open boundaries. For example, *"**Be more open** To find out more about how we can help your organisation become more open, get in touch. "* [29, p. 8],

"Interested in learning more about the benefits and value of using open data? Explore the EDP's news archive, feature articles, and use cases! Aware of open data examples? Tell us your story and share them with us via mail, and follow us on Twitter, Facebook, or LinkedIn to stay up to date!" [35, p. 8], and

*"**C. I Don't Know Who To Talk To About It** [...] Often, strong open data movements start with actors both inside and out of government. If you're having trouble identifying allies in one sector, look for champions and co-leads in the other. Community groups with overlapping interest may include a local chapter of US PIRG, the League of Women Voters, FOI advocates, Code for America, tech meetups, and more."* [32, part 3, p. 11].

The tribal solidarity persuades by showing the audience that others are involved in OGD who can help and support the audience. It can dissuade the audience as it sometimes constructs an "us versus them" thinking, implies social commitments to others, and alienates the audience.

The silver-bullet pattern presents OGD as a solution to many problems, relating to the promised opportunities pattern. Examples are...

"In the computer world there is something called Linus' Law, which states: "given enough eyeballs, all bugs (problems) are shallow." and one

can draw parallels from it for almost everything. There can also be long-term or unanticipated benefits to opening data. " [7, p. 14] and

"The publication of data is driven by the belief that it brings enormous benefits to citizens, businesses, and public administrations, while at the same time enabling stronger co-operation across Europe. Open data can bring benefits in various fields, such as health, food security, education, climate, intelligent transport systems, and smart cities " [13, p. 2].

The silver bullet pattern draws on sweeping generalisations to persuade an audience that can be attracted by benefits, such as efficiency or transparency. The dissuasion reflects that the argument does not take into account the fact that it is hard to relate to the benefits with specific data or easy to identify rebuttals. At the extreme extent, the generalisations make the benefits sound too good to be true.

5   Discussion

This paper's findings show that an OGD argument reasons as follows: *"public organisations possess vast vaults of restrained data that, if made open, could (or will) lead to certain benefits. Therefore, the audience should believe in OGD".* The warrantal leap is from the could (or will) to should, where the benefits are assumed to be an accepted common good. When this reasoning lacks basis in facts or evidence, it can help to produce myths [17]. This section discusses patterns in the OGD argumentation for benefits, mythical paradoxes in the argumentation, the value of studying rhetoric within the OGD community, and implications for practice and academia.

5.1   Patterns in the OGD Argumentation

OGD builds on an "open to everyone" vision, which is often emphasised by politicians and other governing actors [e.g., 7, 23, 29]. Most of the literature has argued for OGD as a grand quest involving more than the organisation's IT department. Even though the OGD commonly is viewed as a grand quest, the argument does differ. Some arguments focus solely on the OGD as resource [29], while others attribute it to a journey [23]. The resource variation emphasises OGD as an untapped resource, regardless of the content. The argument is not aligned to a specific audience and leaves the audience to align it to their specific context. The perspective of journey varies from challenge to progress [7, 23]. both of which should appeal to different types of audiences. The challenge might appeal to public organisations that need to choose to invest their scarce resources on various assigned tasks, whereas progress could favour entrepreneurs.

All texts argue for OGD as a resource with promising opportunities of yielding benefits in the future. A common way to give promises is by emphasising

what will happen when OGD is published [7]. Another way is by claiming opportunities when OGD is in use as a service [23]. The promises can be viewed as pure promises or as prophecies, where the latter adds less credibility to the argument. Still, the promises can have low credibility as the publishing rate is relatively low and thereby the real benefits. Arguing for OGD as the foundation for services approaches not just the resource, but also the work of others, such as extraction or development [10].

The pattern of tribal solidarity varies among the texts. Some of the analysed OGD arguments do not present tribal solidarity in their arguments, such as [23, 29]. The answer to why a resource from public organisations is viewed as part of some tribal solidarity could be the inclusiveness related to the resource itself [1], the "open to everyone" vision [e.g., 7, 23, 29]. Still, it differs from the role of public organisations focusing on its stipulated domain and not being a natural way to collaborate. Besides this situation, the tribal solidarity differs from including everyone [31] to following someone's initiative [37]. The initiative charity could also include support by reaching out [28] or even creating alliances [32].

The silver bullet pattern includes two variations, the scattered, like [23] and the social-economic [31]. Both variations are general and could apply to an audience on a management level, which is not the intended audience for the text. The scattered silver bullet approach, solving all types of problems, give the audience a misleading view of a specific dataset and how it can be used. Reducing the silver bullet to socio-economic perspectives aligns with public organisations' boundaries and does not focus on what benefits OGD can yield as a resource.

5.2 Mythical Paradoxes in the OGD Argumentation

Promises versus discovery. The analysed OGD arguments tend to fluctuate between coulds and shoulds, possibilities and certainties, and discoveries and promises. The findings present a paradox in the OGD argumentation, which is stretched among the grand quest, promised opportunities, and silver bullet patterns. When the first pattern is used with one or both of the latter patterns, they can create a contradiction between discovery and promises of OGD benefits. Several of the arguments contain an idea of an adventurous journey or exploration of uncharted territory. Those arguments attract an audience that wants to be adventurers and frontier entrepreneurs, but excludes an audience that needs to show stability and safe and stable progress. We believe that this thread within the OGD arguments could be one reason for why the OGD movement is stagnating [3]. It would help to explain the myths encountered by previous OGD research [15, 17] since the adventurers are on a journey towards a higher vision and the quest could be considered more important than the facts. The collective acceptance of a grand quest pattern could be further motivated by the tribal solidarity pattern. This thread can be further enhanced by arguments based on a dichotomy of promised benefits and discovery. This dichotomy creates a paradox in the argumentation where the sender promises an adventure of discovery,

while also promising concrete benefits at the end of this adventure. The journey is framed as challenging with risks, but also safe and certain. Consequently, the adventure could be understood as not being an adventure. It is a path towards something specific, which means it cannot be a discovery. This paradox is expressed in OGD arguments as a contradiction between warrant and backing, which makes a leap from datum to claim difficult (as OGD arguments are backed with promises about benefits that cannot be known). The result is that an audience needs to follow OGD with a degree of blind faith.

Proving while arguing. Another paradox relates to the promised opportunities and silver bullet patterns. It is like using warrants at the same time as you are establishing them (similar to arguing based on deduction by proving it through induction). In this context, the sender argues on two levels: (1) to prove certain OGD leads to certain benefits and that certain OGD leads to certain benefits and (2) to prove that the audience should believe in OGD. When the sender argues based on certain benefits (such as political, social, and economic), it reuses warrants about assumed common goods, which could be sought after by the audience. On the other hand, the sender still needs to prove that OGD could lead to these benefits, while the benefits might not have previously been realised. The sender needs to establish new warrants for the audience. This paradox creates a situation where a sender might express promised opportunities, but also declares how OGD can solve several previous problems. The paradox tends to be expressed as sweeping generalisations from a few specific cases to a general warrant [20] combined with fluctuations in qualifiers.

5.3   A Rhetorical Perspective on OGD

The paper's findings show that OGD senders face a daunting challenge. Senders need to use and establish warrants for a broad audience and convince the audience that OGD, as something new, can lead to already familiar benefits (such as transparency, economic growth, and innovations), while being uncertain about its possibilities. This leading also involves the introduction of a new leap from datum to claim, which is a task that is often found in academic literature [36]. While practitioners can see many possible OGD benefits [17], [30] identified that many OGD benefits are only proclaimed and have not been empirically tested. Similarly, [16] called for more research about economic benefits. This research gap most likely means that OGD practitioners need to rely on myths rather than facts to persuade an audience [15, 17]. As such, a rhetorical analysis of OGD arguments revealed a practical challenge, where future OGD research can help improve the OGD arguments. This has helped us to see how OGD practitioners and OGD researchers can become better advocates of OGD.

5.4   Implications

Practitioners can use the results to further detail their rhetoric related to benefits and specify it to their intended audience. One angle is to contextualise the benefits related to the domain specific content. Another angle is understand the

specific audience and their boundaries, such as the difference between public organisations and entrepreneurs, or knowledge level; namely, beginners versus OGD specialists.

Researchers can use the results to motivate studies that further understanding variations on OGD benefits and elaborate on them from factors such as audience and OGD content. By adding this knowledge, practitioners can feel more secure about publishing OGD. Further, our use of rhetoric related to OGD can inspire use related to other software implementations, such as larger ERP installations.

6   Conclusion

We found several patterns when investigating the rhetorical patterns among OGD practitioners, in the form of persuasion and dissuasion, related to the benefits of OGD. The patterns are the grand quest, promised opportunities, tribal solidarity, and silver bullet. The grand quest declares OGD as a journey, either focusing on OGD as a resource or contextual parts. Promised opportunities mean that there are opportunities with OGD, either just as promises or as prophecies. Another pattern is tribal solidarity, which ranges from including everyone to following others' initiatives. This pattern can relate to OGD as being accessible and used by everyone and that the benefits have to be shared among domain-specific contexts. The silver bullet approach adds to the rhetoric on what OGD can solve, viewed as everything in a scattered or socio-economic perspective. Besides the pattern, we see few persuasive benefits and dissuasion while aligning audience and OGD benefits. The two major contributions of this paper are the mythical paradoxes of (1) promises versus discovery and (2) proving while arguing.

6.1   Limitations and Future Research

The foundation for this study is eight texts focusing on OGD and its benefits. Although the sampling is divided among contexts, an increase in the number of texts changes the findings. Besides increasing the number of analysed arguments, an interesting avenue for future research on the same path is to divide the text among contexts, such as public transportation or health. Another angle is to use the results and analyse OGD benefits from a bottom-up perspective in the contexts mentioned earlier, adding detailed knowledge on the benefits that OGD delivers.

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