
Networked, diffuse and multimodal: Towards a new paradigm for the analysis of argumentation on the web

Abstract

This article provides an overview of the factors that affect argumentation in web-mediated environments. Starting from a discussion of the features of web-based communication that most have been argued to have affected pre-web conceptualisations of argumentation as an activity type, the article outlines how the networked, diffuse and multimodal nature of web-based communication calls for new approaches to the study of argumentation on the web capable of navigating the complexities of this environment. The notions of argumentative polylogue, hypertextual argument structuring and visual argumentation are discussed in theoretical terms, and with reference to a case study involving the analysis of the web-mediated self-legitimizing strategies enacted by a small sample of companies operating in the contested field of agri-biotechnology. In the conclusions, suggestions are put forth on how to promote a better understanding of debates in web-based environments.

Keywords: networked argumentation, web-mediated communication, public debate, corporate communication, legitimization strategies

1. Introduction

The advent of the Internet in the last decade of the 20th century revolutionised communication practices and conventions in ways that were not only unprecedented, but also unimaginable, with far-reaching implications in all areas, both personal and social. Back in 2012, in his first editorial as editor of the *European Journal of Information Systems*, Dov Te'eni stated that «new communication technologies, not the least social media, are changing the way we process information, learn, make decisions, create and distribute knowledge, manage, and socialize» (Te'eni 2012: 341). Just over a decade on, it is safe to say that Te'eni's prediction has proven more than accurate, and that the changes that have occurred have far surpassed expectations. Indeed, so quickly have technologies and practices evolved that keeping abreast of their development has proven a daunting task for analysts. Linguists are no exception, and while they realised early in the game that the digital revolution was going to have a dramatic impact on communication practices, they found themselves initially unequipped to deal with its consequences, and sought to adapt pre-digital analytical approaches to digital artefacts. In time, however, it became clear that «in order to analyse emergent and unprecedented discourse phenomena in all their manifestations», we need «to move beyond the confines of familiar methods and approaches» (Herring 2019: 26) and develop new ones capable of accounting for their novel – or changed – characteristics.

One type of communication activity that has proven particularly difficult to account for in its move to the digital environment is argumentation. In a 2010 paper, Smith Pfiester pointed out that while «in some cases, traditional argumentation tools can help us interpret public argument mediated through new digital technologies,» in other cases «scholars will be called upon to articulate new concepts, theories, and heuristics to better analyse digitally networked arguments» (Smith Pfiester 2010: 63). Since then, the study of web-mediated argumentation has made significant strides ahead (Degano's groundbreaking work being a case in point; see Degano 2012, 2014, 2017), with the concept of online polylogue emerging as a key paradigm in the field (Lewiński and Aakhus 2014, 2023; Aakhus and Lewiński 2017).

This study aims to contribute to current scholarship on argumentation on the web by outlining some of the key features of web-mediated argumentation and illustrating the role they play in a specific debate selected by reason of its relevance and broad outreach. More specifically, the analysis will focus on the way in which selected companies operating in a controversial field orchestrate their self-legitimation in the face of an ongoing debate on the presumed dangers of biotechnologies. Self-legitimation qualifies as an argumentative activity *par excellence* as companies argue their own legitimacy both by means of positive arguments and via (mostly indirect) confutation of de-legitimizing arguments advanced by detractors – either of the companies in particular or of their core business in general. The companies selected for investigation belong to the domain of agri-biotechnology, which has long been the target of a heated debate centered around issues of safety first, and of environmental and social sustainability more recently, and which remains to this day a fiercely contested

field.

2. Web-mediated argumentation

As an activity type, argumentation is ubiquitous in our everyday experience, and an essential component of social life, where it plays a fundamental role in all processes that include some form of deliberation. Broadly speaking, argumentation can be defined as «a communicative activity of producing and exchanging reasons in the context of doubt or disagreement», thus «constitute[ing] or contribut[ing] to a wide range of fundamental social processes, from political debates to legal disputes, scientific inquiry, and interpersonal conflicts» (Lewiński and Mohammed 2016). With the rise of internet-based communication, arguments have also started to be played out on the web, within and across sites and media. Indeed, Schoop et al. have claimed that the Internet has increasingly become «a pragmatic web, or web of opinion» (Schoop et al. 2006), with socio-technical information systems such as the website having the potential to change, alter, or reinforce attitudes (Chiang and Jackson 2013). More recently, this potential has been further enhanced by the advent of social media and the algorithms that govern them, which are especially suited to providing reinforcing effects. At the same time, the proliferation of the very same social media has also created the conditions for a dispersion of arguments across multiple sites – an aspect which is especially relevant in the analysis of debates, and which has led argumentation scholars to conceptualise such debates in terms of interconnected polylogues (see Lewiński and Aakhus 2023 for an overview).

2.1. From linear to hypertextual

The case of the rise of the notion of online polylogue as an updating of existing conceptualisations of analogue argumentation practices testifies to the need for new methods and heuristics to study online argumentation. Prior to the advent of digital communication, the study of real-life argumentation had traditionally focused on monologic argument (how effectively a thesis is supported in a speech, for instance) or dialogic interaction (typically in the form of a debate). In both cases, the focus was on how the argument (or arguments) was (or were) developed, which typically entailed a linear progression in an orderly fashion. In web-based environments, the technological affordances available have prompted the establishment of practices that have caused both linearity and orderliness to fail. This failure is due primarily to two of the key characteristics of these environments: hypertextuality and networkedness (Lister et al. 2009). The hypertextual organization of web-mediated communication implies that information is not organised sequentially, and that users have greater freedom of choice in their reading paths. Thus, when presented with arguments, readers find themselves before «structure[s] of possibilities» (Bolter 1991: 119), and while it is not impossible to encourage readers to take a preferred route (by means of primacy, recency and recurrency effects) and to keep different parts of the argument ‘together’ (thanks to the deployment of cohesive links), making sure that one’s line of argument is followed through is much more difficult than it used to be with linear text. This does not mean that argumentation in web-based environments cannot be effective. Indeed, as Degano (2012, 2014) has shown, it can be highly so, especially if monologically organised and contained within a single website. In particular, Degano (2014) suggests that there are multiple possibilities for argument construction and display on websites, with two categories being identifiable – one where individual webpages (typically the homepage) offer arguments in a nutshell, and one in which the webpage functions as an argument hub, with individual arguments being displayed in further, linked pages.

A substantial contribution to argumentative effectiveness can also come from the way the message is constructed – both visually and structurally – on the webpage. In their study of the link between website design and persuasion, based on the Elaboration Likelihood Model by Petty and Cacioppo (1979, 1984), Cyr et al. (2018) argue that «persuasion may be induced through a central route based on the strength of arguments presented in a message or a peripheral route based on cues such as attractiveness of the message source», suggesting that «those with interest in a topic will most probably take the time to read and process the informational arguments presented», while «those who are less interested will make judgments based on less elaboration and will seek cues to guide attitude formation» (Cyr et al. 2018: 808). **All these factors can contribute to the persuasiveness of a multimodal text, and belong by right in any comprehensive account of argumentation on the web.**

2.2. From mono- and dialogical approaches to argumentation to polylogues

These considerations apply to single webpages and sites. When the arguments supporting a standpoint are

dispersed across multiple texts, genres and media, however, constraining reading paths and achieving persuasion become much more difficult. As Lemke put it in a seminal 2005 paper where he discussed the breaking down of textual unit boundaries on the Internet, even genres (prototypical text forms governed by a recognizable communicative purpose) have ceased to be self-contained structures to become «units, raw material, for flexible trans-generic constructions», «resources for meaning in a new, externally-oriented sense» (Lemke 2005: 45). To describe the emerging meaning-making practices fostered by the networked structure of the Internet, Lemke introduced the notion of ‘traversal’ – a mediational process involving the forging of connections across spaces (**webpages and sites, but also different media**) which can be argued to be the guiding principle at the basis of argument (re)construction on the web.

Traversals are possible – and indeed necessary – because of the networkedness of the web environment, which the use of hypertextual links exploits in the service of argument construction. However, the very same structure that enables overt intertextual linking also makes it possible for users to search for and retrieve alternative, competing and contrasting arguments. In online debates, such arguments are dispersed over multiple sites, but simultaneously present in the public arena; as such, they have the potential to be brought to bear on any single line of argument advanced by an arguer. This means that standpoints and arguments can be (and indeed are) challenged in multiple ways, at multiple levels, by multiple actors – and that all these challenges are present somewhere on the web at the same time. Lewiński and Mohammed (2015) graphically illustrate the configuration of online debates as a network of interconnecting arguments, with varying degrees of popularity and centrality, but all in a way or another related, however flimsily, to the others in a polylogical configuration. This potentially endless extension in participation framework, combined with the interactivity and co-articulation of online discussions, implies an «epistemological shift away from the idea that an argument resides within a single text or narrative»:

Instead, arguments emerge from sustained and engaged interactions with digital communities, from explorations of hyperlinked trails of information, from patterns of images, words, and datasets. In digital space, knowledge is constructed communally, meaning that argumentation takes place in collaboration with a community.” (Kelly 2016:5)

Argumentation takes therefore place in large, complex practices (Aakhus, Ziek and Dadiani 2016), with «massive polylogues» (Bou-Franch and Garcés-Conejos Blitvich 2014) developing asynchronously and diachronically, often giving rise to argument stratification (see Greco et al. 2018).

2.3. From verbal to multimodal argumentation

Finally, no discussion of argumentation on the web can ignore the impact of multimodal affordances on all forms of web communication, including argumentation. The above-mentioned study by Cyr et al. (2018) on the role of web design on persuasion puts *visual* design at the centre of the discussion – and rightly so. As the authors point out, quoting Lehto et al. (2012), «design aesthetics significantly impact[s] website credibility», which can enhance persuasion. These considerations highlight the importance of a website’s visual design for persuasion purposes, as by improving aesthetics and emotional appeal it is possible to foster positive attitudes or trust (Cyr et al. 2018: 810).

Despite the awareness, on the part of website designers, of the importance of visual elements for the persuasiveness of web-based arguments, this aspect has received limited attention on the part of argumentation scholars. This may be partly due to the fact that the field of visual argumentation is relatively new, its inception being generally thought to coincide with the publication of Birdsell and Groarke’s *Toward a theory of visual argument* in 1996. Another reason for its relatively scarce uptake among argumentation scholars is that visual argumentation *per se* (i.e. without accompanying verbal arguments) has proven often difficult to demonstrate. Thus, while «there seems to be general agreement that visuals and imagery can play an important role in argumentation», «there has been resistance to the idea that pictures can constitute arguments» (Kjeldsen, 2015: 122), mainly based on the assumption that argumentation relies on words to be made explicit (see Fleming 1996; Blair 2004; Barceló Aspeitia 2012; van den Hoven 2012; Roque 2015 for key contribution to the debate, and Kjeldsen, 2015 for an overview). Moreover, studies in multimodality and argumentation, despite being potentially mutually relevant, seem to have had minimal overlap so far, with argumentation scholars «that extend the study of argument beyond the verbal» often seemingly unaware of the rich scholarship in multimodality that has developed since the 1990s, and semioticians and linguists dealing with multimodality seldom interested in exploring the argumentative potential of multimodal discourse (Rocci and Pollaroli 2018: 1).

Still, it is undoubtedly true that, in the multimodal universe of web-mediated communication, visual

rhetoric plays a crucial role, and that scholarship on web-based argumentation should pay greater attention to this aspect, and in particular to the ‘symbolic condensation’ of meaning and enthymematic potential of images beyond the ‘ornatus effect’ (Kjeldsen 2012). While a few studies exist that focus specifically on this aspect (see, in particular, the collections edited by Tseronis and Forceville, 2017, and Rocci and Pollaroli, 2018, but also Degano 2017, Feteris, Groarke and Plug 2011, Tseronis 2021, Macagno and Pinto 2022), this remains an understudied topic – a gap in the literature that urgently needs filling.

In the following section, I offer a brief analysis of a specific instance of web-based argumentation in which all the aspects discussed above play a role. The analysis will focus on how the hypertextual, networked structure of web communication and the polylogical nature of online debates affect – in ways that are both enabling and constraining – the strategies of discursive legitimation deployed by companies operating in the contested field of agri-biotechnologies, and how elements of visual rhetoric contribute to argument construction and reinforcement.

3. Arguing self-legitimation on the web: a case study

This section is devoted to illustrating the concepts outlined above using a case study as an example. Due to space constraints, the analysis is limited and therefore offers only a cursory overview of the way in which a set of interconnecting arguments are orchestrated and unfold on the web. The case study chosen concerns the discursive strategies of self-legitimation deployed by companies operating in the controversial field of agri-biotechnologies. In order to conduct their business, companies need – besides a statutory licence (i.e., a legally valid authorization) to operate – what has been called a ‘social licence to operate’. Originally developed with reference to the mining industry, the latter refers to the ongoing acceptance, on the part of stakeholders, of a company’s business and conduct (see Joyce and Thomson 2000) and is intangible and unwritten (Franks and Cohen 2012). Encompassing ethical, as well as practical principles and values, the social licence to operate can be seen as a form of moral legitimacy requiring «processes of active justification vis-à-vis society» (Palazzo and Scherer, 2006: 71). In today’s world, such a process often involves forms of more or less active (and more or less effective) online dialogic engagement with stakeholders (cf. Colleoni 2013; Eberle et al. 2013; Kent and Taylor 2016; Catenaccio 2021), which is occasionally referred to, amongst other things, as ‘proactive webcare’ (van Noort and Willemsen 2012; Köhler et al. 2011) – a form of reputation management including constant monitoring of online activity mentioning a company in an effort to spot, and possibly forestall or at least mitigate, potentially damaging criticism. While such monitoring is principally aimed at identifying arising crises, it also serves the purpose of more general sentiment detection, making it possible for an organization to identify and respond to broader stakeholder concerns threatening its licence to operate.

Organizational websites are prime sites for the discursive construction of legitimacy, and as such can be seen as legitimation hubs. The “About us” section of corporate websites exemplifies this function (Garzone 2021), which is also pursued in other website sections, first and foremost the one devoted to Corporate Social Responsibility. Legitimacy is essential for all organizations, but for those operating in contested industries it is especially crucial. It is no chance that the concept of social licence to operate was developed within the mining industry, whose environmental and social impact – and frequent past business misconduct – put it at particular reputational risk. The agri-biotech sector has also been exposed to similar risks: the now defunct agri-biotech giant Monsanto (whose assets and operations were taken over by Bayer in 2018), to cite but the best-known example, was for many years one of the most vilified companies on the planet. The charges levelled at the agri-biotech sector have been manifold over the years, and have ranged from issues of safety (the question being initially whether crops grown from genetically modified seeds were safe for human consumption), to concerns for the impact of genetically modified crops on the environment in general and biodiversity in particular, to the implications of seed patenting and seed monopoly for small farmers. Currently, the key concerns raised in respect of genetically modified crops are neatly summarised in a 2016 document published by the EU parliament group The Greens/EFA in 2016. The document, which is entitled *6 reasons to ban GM plant cultivation in the EU*, lists the following reasons:

- 1 - EU citizens don't want GMOs.
- 2 - Biotechnologies allow privatisation of Life.
- 3 - Coexistence between GMO crops and non-GMO crops is not possible.
- 4 - GMO cultivation means pesticides in our environment.
- 5 - They are creating “superweeds by breeding with wild plants”
- 6 - There are alternatives!

<https://www.greens-efa.eu/en/article/news/id-6-reasons-to-ban-gm-plant-cultivation-in-the-eu>

With the exception of the first one, which is strictly confined to the European setting, all other arguments can be found, in a variety of shapes and forms, all over the Internet, often in clusters containing all or some of them (not necessarily in the same order), but also in independent form, depending on the specific focus of the entity or individual advancing the charge. The second reason quoted is possibly rather opaque to readers unfamiliar with the argument. The text under this heading offers a clearer explanation (note that the document is pre-2018, i.e. predates Bayer's acquisition of Monsanto), which is here reported in full because of its relevance for the remainder of the discussion:

1. Trans-genesis and most modern biotechnologies allow the resultant modified plant variety to be patented. This means the GM plants cultivated in our fields, their seeds, and the resultant food or feed products are covered by patents owned by agroindustry giants such as Monsanto, Syngenta and Dupont. This allows the privatisation of life and the monopolization of nature itself by a handful of global agrochemical companies, but also the privatisation of food by private interests, a dangerous trend in terms of food sovereignty. Patents mean higher prices and further concentration of an already highly concentrated market. They also constrain further breeding and seed reproduction and particularly disadvantage small-scale seed-breeding businesses and farmers. (<https://www.greens-efa.eu/en/article/news/id-6-reasons-to-ban-gm-plant-cultivation-in-the-eu>)

Taken in its entirety, the debate appears as a polylogue with implicit contributions from a multiplicity of stakeholders, each with their specific concerns, with some of them having reached critical mass and being now universally recognised. In particular, in text (1), in itself produced by an advocacy group with political affiliations whose position the text represents, other actors are mentioned or implied, each carrying along, albeit implicitly, their attendant claims and discourses. Besides the agri-biotechnology corporations under scrutiny, the text mentions farmers, and, through the use of the term “food sovereignty”, evokes grassroots movements such as the internationally known *La Via Campesina*, whose mission is precisely to defend food sovereignty.

Given the extent and prominence of the contestation (though, admittedly, there are signs that it is subsiding), it is hardly surprising that the strategies of self-legitimation deployed by companies operating in this sector should involve a substantial component of argumentation, both in support of the beneficence of their core business, and aimed at refuting their detractors' claims. And indeed, to anybody familiar with the polemic about agri-biotechnologies, even a cursory look at the websites of key players in the field such as Bayer CropScience and Syngenta triggers echoes of the debate. Both companies represent themselves as champions of sustainability – a not unusual strategy in today's business climate, but one which acquires special significance in the case of an industry that is routinely accused of being unsustainable, both socially («biotechnologies allow privatisation of life») and environmentally («GMO cultivation means pesticides in our environment»). A search engine query for Syngenta retrieves the company's Internet address together with the following caption:

2. A leading agriculture company helping to improve global food security by enabling millions of farmers to make better use of available resources. (<https://www.syngenta.com/en>)

For Bayer CropScience, the snippet of text appearing under the website URL is the beginning of its homepage text, which reads as follows:

3. At Bayer, we believe human ingenuity can shape the future of agriculture. For more than 150 years, we've used science and imagination to advance health and nutrition. And together, we can achieve so much more. What's possible begins with what we can imagine. We're committed to a world where biodiversity thrives in harmony with humankind. Where hunger and climate change are terms relegated to history books. Where farms are more sustainable, with plants that are more adaptive and resilient, to help improve life for families and communities. In short, where agriculture is part of the solution. As a new leader in agriculture, we have the opportunity and the responsibility to grasp this moment. To continue moving humanity forward by tirelessly shaping what's possible. (<https://www.bayer.com/en/agriculture>)

In both cases, the companies' self-representation opens by establishing a strong object of agreement (Perelman and Olbrechts-Tyteca 1968/1957) – respectively improving food security (Syngenta) and advancing health and nutrition (Bayer CropScience), which, incidentally, coincide with one of the UN Millennium Development Goals. The remainder of the texts revolves around the very themes at the heart of the debate. Both Syngenta and Bayer CropScience put farmers at the heart of their communication strategies – a move that both refutes and pre-empts the argument that agri-biotechnologies pose existential risks to small farmers. Similarly, Syngenta's claim that its mission is to help farmers «make better use of available resources» suggests that the

company's actions are external to the resources themselves (they affect the *use* of resources, the latter being excluded from the operations that may alter them). Bayer CropScience also highlights its commitment to social beneficence with the mention of families and communities, additionally citing the protection of biodiversity as one of the company's goals. Again, this appears as a response to the charge that GMOs are a threat to biodiversity. These themes, as well as others that are the object of specific contestation (such as the increased need for pesticides allegedly associated with the use of GM seeds) are dealt with in dedicated sections dispersed across the website. The texts where they are tackled are never framed in confutational terms – i.e. they are never formulated as counter-arguments, but rather as positive arguments, indeed in the form of expository texts. For instance, Bayer CropScience devotes a section of its website to explaining how its products can help enhance biodiversity, and Syngenta has a section devoted to its 'Operation Pollinator', also aimed at enhancing biodiversity in and around farming areas using its product. The texts are expository in outlook (they offer accounts of what the companies and their products do); at the same time, however, they constitute powerful confutations of some of the most frequent charges levelled at the companies. Throughout, the websites feature images of natural landscapes and agricultural products which are virtually – and deliberately – undistinguishable from those associated with conventional agriculture, tended by traditionally looking farmers. An example of this is reproduced below:

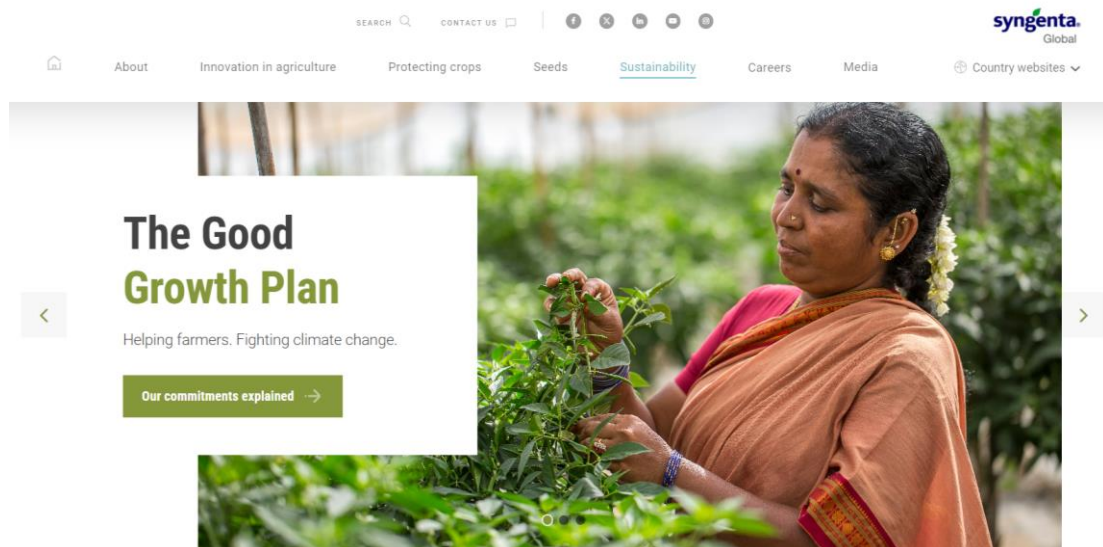


Figure 1. Syngenta's sustainability section landing page. (<https://www.syngenta.com/en/sustainability>)

This use of images cannot perhaps be argued to be argumentative, but – again – anyone familiar with the debate will know that the issue of *difference* between 'natural' products and GMOs is a relevant one, and that the visual erasure of such difference (as opposed to its visual enhancement on the part of GMOs detractors) is a strategic move aimed at normalising genetically modified crops.

4. Conclusions

This article has offered a brief overview of some of the salient characteristics of argumentative discourse in web-mediated environments, illustrating their deployment in the self-legitimizing discourse of selected companies operating in a contested industry, namely agricultural biotechnologies.

Argumentation on the web is dispersed in multiple loci: this means that web-mediated debates are best understood as polylogues taking shape across different sites and media. Each participant in any given debate can contribute to it with specific arguments, which may be simple (think, for instance, of a single tweet supporting or contesting a position), or complex, i.e. consisting of several arguments. The hypertextual nature of web communication makes it possible to treat each argument independently: this has been argued to weaken the strength of argumentation, but can in fact strengthen it in so far as individual lines of arguments can be more cogently developed and addressed to (or made more easily retrievable for) the relevant stakeholders or constituencies. The multimodal nature of web-based communication can further enhance the effectiveness of an argument, and even though not all visual elements can or should be considered argumentative in nature, considering the role of visual rhetoric in enhancing argumentation is essential for a full understanding of the strategies enacted.

The case study briefly discussed in the final part of the article illustrates all the points above. Moreover, it suggests a further point that deserves further exploration: when large scale debates are involved, only readers familiar with them can appreciate the argumentative goals of seemingly expository texts. In dispersed polylogues, arguments can be expanded – but also go undetected. The web certainly offers ample opportunities for finding alternative opinions; but its structure also makes it possible for communicative activities not to be recognised as part of an argumentative activity type, thus potentially leading to acritical acceptance of standpoints that would deserve being questioned.

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