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The World of Edgerank: Rhetorical Justifications of Facebook's News Feed Algorithm

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Abstract

Web algorithms like Facebook's so-called Edgerank algorithm play an increasingly important role in everyday life. The recent surge of research in such algorithms often emphasizes algorithmic orderings as powerful but opaque. In this essay, we propose an alternative reading of the Edgerank algorithm as a self-justifying ordering of the world. Drawing on the pragmatist sociology of Boltanski and Thévenot, we examine Edgerank as not just a hidden logic, but a rhetor that actively constructs a rhetorical commonplace that can be drawn upon in order to justify the evaluations produced by the algorithm. We do so by examining three specific situations where the operations of Edgerank have been critiqued and defended: First, Facebook's own response to the critique that social media produce echo chambers. Second, Facebook's presentation of the main variables in the Edgerank algorithm. Third, social media marketing blogs about how to handle the algorithm in practice. Based on these events, we construct an 'internalistic' account of the rhetoric of Edgerank, opening for an exploration of its moral grammar and the world or dwelling place it assumes and enacts. We find that the world of Edgerank is ordered according to recent engagement, which means it has affinities with what Boltanski and Chiapello have termed the connectionist world. At the same time, the world of Edgerank is marked by a tension between authenticity and automation that is a result of the algorithmic standardization of relations. In the rhetoric that comes with Edgerank, this tension is not something to be overcome, but rather a self-justifying hybrid, which points to a potential displacement of moral grammars in an age of computational valuation.

Introduction: From hidden power to explicit vision

Edgerank is an algorithm that composes the sequence of posts on a Facebook user's News Feed, which is the first page one meets after logging in to Facebook. The name and existence of Edgerank is relatively well known, but in comparison to Google's Pagerank algorithm¹, very little research in the social sciences and humanities has discussed Edgerank². This is somewhat surprising given the recent surge in interest in algorithms among researchers in software studies and beyond³, and the prominent role that Facebook now plays in many areas of everyday life.

The Edgerank algorithm, which we will present and examine in detail soon, specifies how the algorithm does what it says it does: ranks relationships ('edges') between content and users, in order to decide which posts should show up on the news feeds of individual users. When a chunk of content is prioritized by Facebook, it is because this content is being interacted with in way that the Edgerank algorithm picks up on. One way to understand Edgerank is to emphasize the power that seems to come with this position. Edgerank gets to make decisions about how Facebook users are informed about their social networks.

What is even more troubling for some is that this curation of the lifeworld of billions seems to work in the shadows. While Facebook presented a public version of Edgerank back in 2010, the company also stresses how the algorithm that is actually at work is much more sophisticated and constantly being optimized further through experimentation. The recent controversy around Facebook's experiments with changing users' exposure to positive and negative content is one example of the fact that Facebook's algorithms cannot be expected to be neither stable nor transparent⁴.

Based on these observations, there seems to be a task for critical social science to see algorithms as part of the so-called 'technologically unconscious'⁵, and reveal – or at least critique – their hidden power. One way to interrogate so-called web 2.0 algorithms like Edgerank, then, is to understand them as being at the forefront of the insertion of new kinds of power in everyday sociality⁶. An alternative strategy, however, is to trace how technologies are explicitly assigned with normative capacities⁷. Such a strategy, we propose, might supplement our understanding of the Edgerank algorithm in interesting ways.

To pursue this question, we draw on French pragmatist sociology. For several decades now, authors like Luc Boltanski and Laurent Thévenot have developed an approach that insists on the moral competencies of ordinary actors in everyday situations. In very general terms, the approach might be understood as a shift from critical sociology towards a sociology of critique and justification. Drawing on the work of Boltanski and Thévenot⁸, we start from the observation that any ordering calls for a justification. It follows that when the Edgerank algorithm orders events for billions of users, there is immediately a question raised about how and why these orderings are justified. Instead of intervening with our own critiques, which would be external to Facebook and Edgerank, our strategy is to shed light on the various ways in which the orderings of Edgerank are already being critiqued and justified. The fact that web algorithms like Edgerank offer orderings that we encounter on a regular basis means many actors are already challenged to relate explicitly to the algorithm. In this paper we interrogate some of these encounters as doing justification work related to Edgerank, which makes them a source for a more 'internalistic' account of Edgerank.

The result is an approach to the Edgerank algorithm where it is no longer a hidden and indefensible mechanism for profiting on the social activity of Facebook users, but rather positioned as a specific response to specific problems, such as the problem of information overload. As we shall see later, Edgerank and the wider Facebook infrastructure seeks to filter and rank online information legitimately. With Boltanski and Thévenot, one would say that Edgerank solves a problematic situation of information overload by offering a set of operational principles that can be used to navigate the problem. The question then is: in relation to what principle are these orderings justified? – which also means asking what kind of rhetoric Edgerank makes possible and relies on.

Producing an internalistic account of how Edgerank is not just a powerful ordering device, but a self-justifying one, relies on Boltanski and Thévenot's challenge to the conception of rhetoric as mere techné, which is the understanding they find in Plato. In the Platonic understanding, rhetoric is understood as the production of persuasion and as something contrary to justice⁹. As an alternative, Boltanski and Thévenot draw attention to the inventive craft that lies in constructing apparent truth, something that is prior to that of testing it¹⁰. This is what we seek to do: Articulate the apparent truth proposed and enacted by the Edgerank algorithm, which allows us to show how it is constantly subjected to tests and critique by various actors instead of testing it ourselves with external means.

This move relies on Boltanski and Thévenot's emphasis on rhetoric as the construction of commonplaces, drawing on Cicero. The concept of commonplace refers to a shared resource for underpinning arguments – a source of proofs and a reference point for justifying or criticizing actions. In other words, we wish to resist the temptation to 'reveal' the Edgerank algorithm as an effective tool of persuasion and governance of Facebook users, and instead examine it as engaged in situated justification work. Following Boltanski and Thévenot's understanding of rhetoric, our strategy is to flesh out Edgerank's work as a rhetor through interrogating critical situations, where the justifiability of Edgerank is at stake. In what follows we move through three such situations, actively constructing them as providing explications of the rhetorical commonplace that goes together with the algorithm.

The first empirical situation is the widespread critique that Facebook due to its algorithmic orderings encloses public debate around current events in 'walled gardens' or 'echo chambers'. We rehearse two of the most prominent voices in this discourse. We then highlight the fact that Facebook has actively responded to this critique by, on their own terms, demonstrating how their algorithmic orderings are justifiable.

As the second empirical event, we examine the specification of the Edgerank algorithm that Facebook presented publicly in 2010. We take this as a chance to flesh out the details of the 'moral grammar' of Edgerank¹¹, including what entities exist in this world, according to what principles these beings are assigned worth, and how evidence is produced.

In the third case, we investigate the reactions to the presentation of the Edgerank algorithm in the community of social media marketers. More specifically, we examine some of the blog posts that offer advice about how to act in a good way on web platforms dominated by algorithms. We read these blogs as offering an explication of the practical wisdom of those who live in the world of Edgerank.

This empirical take on the rhetoric of an algorithm makes it possible to draw new connections between software studies and studies in rhetoric. Whereas the focus on rhetoric and the construction of commonplaces puts emphasis on discursive moves, software studies prompts us to also pay attention to the socio-technical materiality of Edgerank's existence, including the Facebook interface and the concerns of different kinds of Facebook users. This combination, we believe, might offer productive ways to avoid the technological determinism that is implied by algorithms if approached as powerful technologies. To be sure, scholars within Science and Technology Studies have long argued against technological determinism and for a more situational and distributed approaches. Such arguments are currently being taken up in relation to a specific focus on media¹², and this is where we believe an analysis inspired by Boltanski and Thévenot can contribute.

Drawing on Boltanski and Thévenot's theoretical work, we set out to analyze the world of Edgerank enacted within a specific type of social situation – a critical situation where there is an imperative for justification. Our analysis is intentionally biased towards analyzing Edgerank within a moral register. This of course does not mean that Facebook does not operate in many other registers. Nor would it suffice to analyze its moral logic in order to account for Facebook as actor in social life or as a sphere of social life. It simply means that Facebook and the Edgerank algorithm also operate within a moral register and on our moral registers – the fact that Facebook is a social and political navigation device for millions testifies to this. To be clear, our aim is not to suggest that Facebook is morally good. No doubt, criticism of Facebook can be both timely and called for. What we propose is just to pay descriptive attention to how ubiquitous algorithms like Facebook's are already being critiqued and justified by various actors.

Edgerank as a self-justifying ordering of current events

Edgerank and other web algorithms have often been critiqued in a way that focuses on how well they handle current events and public concerns. The justifications with which these criticisms have been met are useful for understanding how Edgerank and its orderings can be made to seem fair. Indeed, Boltanski and Thévenot argue that public situations put special pressure on actors to justify their claims. One quite persistent critique of social media in general, and Facebook in particular, has been that they do not order publics in a justifiable way, since they are part of the alleged creation of 'echo chambers', 'filter bubbles' and 'walled gardens'. Sunstein argues:

'For aggregating information, the Internet offers great risk as well as extraordinary promise. Both the risk and the promise come from the fact that with the Internet, it is easy to obtain the views and even the collaboration of hundreds, thousands, and conceivably even millions of people. Every day, like-minded people can and do sort themselves into echo chambers of their own design, leading to wild errors, undue confidence, and unjustified extremism. But every day, the Internet also offers exceedingly valuable exercises in information aggregation, as people learn a great deal from the dispersed bits of information that other people have. Many people are curious, and they often seek out perspectives that run counter to their own.'¹³

Sunstein establishes a difference between those who are 'curious' and those who are less so. The latter squander the 'extraordinary promise' of information aggregation on the web by closing themselves off in networks of people similar to themselves, reducing the Internet to something that echoes rather than challenges their opinions. While Sunstein focuses on the 'errors' and 'undue confidence' that such closed networks might lead to, Pariser's¹⁴ offers a critique that draws on solidarity and democracy as resources under threat:

'Ultimately, democracy works only if we citizens are capable of thinking beyond our narrow self-interest. But to do so, we need a shared view of the world we inhabit. We need to come into contact with other peoples' lives and needs and desires. The filter bubble pushes us in the opposite direction—it creates the impression that our narrow self-interest is all that exists. And while this is great for getting people to shop online, it's not great for getting people to make better decisions together. (...) Personalization has given us ... a public sphere sorted and manipulated by algorithms, fragmented by design, and hostile to dialogue.'¹⁵

Here, Pariser assumes that there is a clear-cut divide between a market sphere and a public sphere. In the former, personalization is great, but in the latter it is detrimental. Pariser points explicitly to algorithms (including Edgerank, on page 28) as manipulating the public sphere by connecting people and creating solidarity. The algorithms filter out that which could challenge our 'narrow self-interests', the critique goes.

Reading these quotes, one might question the assumption of pre-existing opinions that are then merely 'echoed' on the web. However, what is of interest here is how Facebook responded to these criticisms. To a large extent, Facebook accepted the premise of the arguments made by Pariser and Sunstein: That networks closing themselves off are a thing to avoid. Rather than simply rejecting the relevance of this critique, Facebook carried out a study to prove the hypothesis wrong:

'Some claim that social networks act like echo chambers in which people only consume and share information from likeminded close friends, stifling the spread of diverse information. Our study paints a different picture of the world.'¹⁶

Bakshy, an in-house Facebook data scientist, and his colleagues carried out a field experiment of the kind that only researchers internal to Facebook can conduct. The experiment enrolled in total 253 million unknowing Facebook users as 'subjects in situ' to demonstrate that those exposed to signals about their friends' information sharing were more likely to share information than those not exposed to such signals¹⁷. Crucial to the purpose of rejecting the echo chamber allegation, the paper claimed that this demonstrated how novel information spread on Facebook with the help of weak ties, drawing on Granovetter's¹⁸ classic paper:

'...we found that even though people are more likely to consume and share information that comes from close contacts that they interact with frequently (like discussing a photo from last night's party), the vast majority of information comes from contacts that they interact with infrequently. These distant contacts are also more likely to share novel information, demonstrating that social networks can act as a powerful medium for sharing new ideas, highlighting new products and discussing current events.'¹⁹

Here, Facebook's researcher justifies the world of Edgerank by claiming that it operates exactly in the opposite way of echo chambers. What makes Facebook's ordering device justifiable is that it affords newness (new ideas, new products, current events) and engagement (sharing, discussing). It is worth noting that Bakshy does not particularize the Facebook platform as something made for casual and non-political activity. Instead, Bakshy shows how Facebook and its network form can in fact facilitate a justifiable mode of discussion of current events. In other words, Bakshy does not retreat to a position where social media cannot do justice to public concerns. At the same time, he defends Facebook's orderings according to their own criteria of connectedness. He does not find it important to show the correctness of information on Facebook, which would answer Sunstein's critique on its own premises of avoiding error. Nor does Bakshy find it relevant to claim that Facebook's orderings can be said to represent the general interest, which would mean to answer Pariser's critique on its own premises of solidarity and deliberation.

With Boltanski and Thévenot, it becomes possible to see these critiques and responses not as something that can be solved, but as rhetorical moves that draw on different and in this case incompatible commonplaces. This is possible through Boltanski and Thévenot's theory of plural *moral grammars* that in their idealized forms offer different *worlds* in which specific justifications can be made. In *On Justification*, they construct six such grammars or 'polity models' that 'gives direction to the ordinary sense of what is just'²⁰. These grammars all have some of the same abstract features, although they embody them in rather different ways. The plurality includes a civic moral grammar and an industrial moral grammar that can be used to elaborate where the critiques of Pariser and Sunstein are coming from.

Pariser's critique of Edgerank as a device that enhances unchallenged self-interests is a classical critique from the civic grammar, because this grammar is opposed to all that personalizes. The civic grammar orders beings in relation to their capacity to represent the general interest and requires actors to leave their own interests and particularities behind. Edgerank and the wider Facebook infrastructure precisely does not favor collective beings (states, unions, etc.), but personally engaged individuals. It is telling that Bakshy in no way seeks to show how statements that gain traction on Facebook talks on behalf of collectives. What matters to Bakshy is Edgerank's ability to further network activity with people or things thereby engaging on a personal level rather than transcending it.

Sunstein's critique of Edgerank as something that gives rise to errors in judgment can be said to draw upon the industrial grammar²¹. In this moral grammar, things are worthy if they have the capacity to know through scientific methods and control an external reality. Websites like Wikipedia and to a certain extent Google might answer to such criteria, but Facebook's Bakshy does not find it relevant to qualify Edgerank with reference to its ability to filter out false statements.

Facebook's lack of response to civic and industrial critiques raises the question of how Edgerank can then handle current events in a justifiable way, now that they have chosen not to claim to provide the means for collective judgment or correctly inform public debate. What Bakshy (and Facebook) does instead can be read as staying 'within' the world of Edgerank, which precisely sees recent engagement and the expansion of network activity as valuable in itself. The expansion of network activity that the Edgerank algorithm and news feed is argued to facilitate is what makes the social network suitable for the discussion of current events.

Bakshy's defense against the filter bubble critique emphasizes how Edgerank facilitates the expansion of network activity, by bringing distant members of a network in contact with one another – the quality of bridging. Bakshy's defense of Edgerank explicitly uses the bridging ability of the algorithm to qualify it as a justifiable way of mediating the discussion of current events. This is an algorithmically produced vision of how to order beings around a Facebook user, including which ones to include and to exclude.

Following Boltanski and Thévenot, these examinations have allowed us to take a first step in specifying how Edgerank offers a just vision of the public. We have established that it is possible to defend Edgerank on its own grounds against critiques from other moral grammars. But we have yet to investigate the anatomy of Edgerank as a moral grammar in itself. While Facebook's response to critiques such as those from Pariser and Sunstein suggests that the orderings of the Edgerank algorithm can provide a just vision of the public, Bakshy's defense did not flesh out how the algorithm achieves the evaluations that underlie this ordering.

The moral grammar of the Edgerank algorithm

At this point, the qualities used by Bakshy to justify Edgerank in the face of external critiques point to affinities between the moral grammar of Edgerank and *the projective grammar*, which is the moral grammar governing the so-called connectionist world, as depicted by Boltanski and Chiapello²². Both Edgerank and the projective grammar sort beings according to whether or not they are active and foster activity. They share the same ontological and anthropological assumptions that the world is made of networks, that things exist through their relations and that all humans have a desire to connect. Relevance in both cases is highly time specific and space specific (in a network topology). The connectionist world changes *too quickly* for traditional figures like the Father, for instance, to have authority. It is also *too distributed* to assume such a thing as generally relevant beings or general interest. One must keep on being active and engaging others. If one is not able to do so, it is proof of a lack of flexibility, suggesting that one has been unable to adjust to an ever changing world²³.

This affinity between the logic of contemporary web algorithms and the projective world has already been taken up by Mager²⁴. Drawing on Boltanski and Chiapello's argument that the genesis of the projective grammar happened side by side with the formation of a new spirit of capitalism, Mager suggests that this spirit plays a central role for understanding 'algorithmic ideology'. She seeks to show how the new 'capitalist spirit gets embedded in search algorithms by way of social practices'²⁵.

We agree with Mager that there is an interesting connection between what Boltanski and Chiapello call the connectionist world and the rise of algorithms that handle, order and mediate our relations. But our aim here is to investigate the Edgerank algorithm as an active rhetor, not just a carrier of the new spirit of capitalism. We seek to keep the possibility open that the projective grammar is not just embedded in the Edgerank algorithm, but reappropriated and altered by Edgerank. In order to pursue this aim we turn to another empirical event where the moral grammar of Edgerank was specified further.

In 2010, Facebook engineers presented the Edgerank algorithm at Facebook's 'f8' conference. This is how it was later reproduced on

the technology news site Tech Crunch²⁶:

News Feed Optimization – EdgeRank

$$\sum_{edges\ e} u_e w_e d_e$$

u_e - affinity score between viewing user and edge creator

w_e - weight for this edge type (create, comment, like, tag, etc.)

d_e - time decay factor based on how long ago the edge was created

Figure 1, The EdgeRank formula as presented at Tech Crunch in 2010.

It would of course be problematic to interpret this exact algorithm as the complete truth about Edgerank. Indeed, the presentation of the algorithm was not an attempt at giving a community of researchers insight into the technical details of computation at Facebook. But it does not follow that this publicly available instantiation of the algorithm has to be interpreted as 'mere rhetoric' in the sense of an instrumental move made by Facebook. The presentation at the f8 conference was targeted at people trying to do business with Facebook – in other words, people who – like social media marketers – were trying to find out how to live with Facebook and its algorithm. This means that it is possible to read the algorithm as a formulaic expression of some of the key principles that governs the world of Edgerank. While Facebook is a very multifaceted phenomenon, this specification of the Edgerank algorithm can be read as a consistent formula that makes it possible to analyze it as a moral grammar.

What is important to this part of our investigation is the tension within moral grammars between equality, hierarchy and the common good. Any valuation practice orders its beings through some kind of equivalency principle. To justify this hierarchy, the ordering has to invoke what Boltanski and Thévenot call a higher common principle, which is a principle that aims at making an order acceptable because it can be said to make the world a better place for both the superior and the inferior man. In our case what we wish to do is to analyze Edgerank as if it were a moral grammar and try to get a sense of the kind of political philosophy it can be said to enact. That is, in what 'world' could Edgerank be a justifiable way of ordering beings? To do this we will ask some of the same questions to the Edgerank algorithm as Boltanski and Thévenot ask in order to carve out the different worlds²⁷.

a. What beings populate the Edgerank world and what are the states of worthiness?

The term *beings* here refers to the objects and subjects that exist within a given world. These objects and subjects are recognized and valued to different degrees within a given world. The value of beings determine and justify their position, which is what Boltanski and Thévenot refer to as their state of worth. Asking these questions to the public version of the Edgerank algorithm presented above, the algorithm can be said to recognize edges, or relations, between Facebook users and Facebook posts. As such, there are three main kinds of beings in the Edgerank world: Users (subjects), posts (objects) and relationships (qualifiers). The relationships work as qualifiers in the sense that they determine to what extent the objects submitted by subjects should be visible (in the news feed), which is the expression of worthiness in the world of Edgerank.

A couple of noteworthy things follow from this. First, subjects and objects only come into existence through their relations with each other. A post by a Facebook user with no friends does not exist in the world of Edgerank, and would not be able to be displayed in the news feed, since it has no worth at all. As such, an object (post) with no subject is unthinkable in the world of Edgerank. A user with no friends does not exist; objects can only be thought of as connected to specific subjects. Any object, any piece of information, has to be qualified by social relations. In a sense, then, information is fundamentally 'social'.

The same thing is true the other way around: A user with no relationships to any posts cannot show up in the news feed, since it is based on relations. As such, subjects without objects are equally non-existent in the world of Edgerank. A Facebook friendship relation that is not active, in the sense that it does not create any objects, is hardly a relation at all in the eyes of Edgerank, although it would constitute an edge in general network analysis terms.

This algorithmic valuation of engagement differs from other ways of ordering relations between subjects. In a nation state, for instance, subject-subject relations exactly do not have to involve engagement with a common object, because subjects can be related through the category of nationality, which requires transcending their own personal affiliations and talking on behalf of national interests. In the world of Edgerank, such a stabilization of relations is hard to imagine, since the relations are by definition always provisory and highly vulnerable to shifts in recent engagements. These observations align well with the project regime where *activity* is key²⁸. The question then is how this activity being valued by Edgerank more specifically:

b. What are the higher common principles and the proper form of evidence in the Edgerank world?

In order for actors to compare and order beings within a given situation, they need a principle that at once makes comparison possible and ordering justifiable. The evidence put forth in order to assign worth needs to be presented in an appropriate way, which complies with the world under consideration²⁹. For example, one cannot present rumors at scientific conferences, because other types of evidence external to the subject are necessary.

The Edgerank formula specifies three components of the higher common principle on which the algorithm bases its ongoing evaluation work of assigning worthiness to objects (and the subjects connected with them). To start from the beginning of the formula, the first higher common principle is *previous interaction*. An object is deemed more worthy if it has the potential to connect subjects that have already engaged with each other. For example, if a Facebook user has previously exchanged messages with the user that has now engaged with a given post, that post will be more likely to show up in the first user's news feed. The order of worthiness expressed by the News Feed is thus based on the principle that the strength of existing social ties contributes to establishing a just order. In establishing this 'affinity score', Edgerank does not have to rely solely on what is made visible through the news feed. Other resources exist, such as the frequency of chat messages between users, or even the frequency of visits to each other's profiles – indicators of

engagement that are not made visible through the news feed governed by Edgerank, where subject-subject relations mainly count indirectly.

The second higher common principle expressed in the Edgerank formula is the *depth of engagement*. The question that Edgerank raises here is how a subject engaged with an object: Did the user create the post, comment on it, like it, share it, or tag someone in it? Facebook explicitly states on its help pages that it considers visual content more engaging than text, and that getting users to comment is worth more than getting them to like something³⁰. Some kinds of engagement are thus considered 'deeper' and worth more than others. What Edgerank seems to do here is to take the typology of edges built into Facebook and perceive it as a ladder of engagement, where deeper engagement justifies more visibility in the news feed.

As its third and last higher common principle, Edgerank values *newness*. From the moment where an edge is established, it starts to 'decay', and the longer time that passes, the less worthy of appearance in the news feed the relation becomes. After the creation of a post, any subsequent engagement with it, such as liking or commenting, can renew the 'freshness' of the object. As such, even old pieces of content should be able to appear in the news feed if they suddenly gain traction in terms of engagement. Linear time is thus not assumed in any strict sense in the world of Edgerank.

To sum up these three components, we can say that Edgerank produces a just order of relations between its subjects and objects guided by the higher common principle of *recent engagement* (where depth of engagement with both the subject(s) and the object(s) in the relationship being evaluated counts). The other question was about the proper form of evidence in the world of Edgerank. What the three standardized variables make possible is exactly an ongoing algorithmic calculation that then serves as the proper form of evidence that propels a given being into a state of worthiness. The last set of questions then have to do with what kinds of situations are produced by these orderings.

c. What are Edgerank's harmonious figures of order, its natural relations, and its appropriation in practice?

According to Boltanski and Thévenot, harmonious figures of order are the realities that 'conform to the principle of equity' within a given world³¹. In the connectionist world, the network is a harmonious figure that defines the realities that form by encompassing the beings and distributions of worth that populate that world. In a network the people who are engaged with others are the most valuable because they foster activity, but they also occupy a state of worth in that they are connected. Similarly, in the Edgerank world, the beings that matter are those that can engage their users. Even if the algorithm is optimized and tweaked, there is reason to think that these changes do not break with this basic test, because the purpose of Edgerank is exactly to deliver engagement.

As a consequence, the Edgerank algorithm aims at ordering its beings so that users are affected. This is reflected in a Facebook infrastructure that seeks to make engagement possible by constantly promoting users to like, share and comment. Following Boltanski and Thévenot, the natural relationship between beings is expressed by the verbs most common in the world under scrutiny³². In the world of Edgerank, the verbs 'like' and 'share' point to positive engagement in networks as the natural relationship between entities. The actions of liking and sharing are in harmony with an equivalency principle that values engagement. The fact that to *dislike* or *prevent from sharing* are not possible actions in Facebook reveals how Edgerank enacts a world where engagement is always a positive thing.

Here, it becomes clear that Edgerank's rhetoric is not just imposed discursively, but also materially by the Facebook interface in which the Edgerank algorithm operates. This interface is geared to speak to the algorithm, which values 'likes' and 'shares'. Edgerank is thus best understood as a rhetor that operates both discursively and socio-technically. This is explicated by the way Facebook posts are automatically co-authored by pieces of computer code that counts the number of likes, comments and shares that a given post has attracted, and publishes these numbers as part of the post. The significance of these numbers lies also in their computational relationship with the Edgerank algorithm, which uses them to curate the news feed.

As such, Edgerank distributes rhetorical power beyond the individual author of Facebook posts to other users and computer code whose actions 'loop' explicitly back into Facebook posts³³. The result is that the rhetorical significance of a Facebook post lies as much in its *potential* to create a new audience and a new setting, as in the content of the original post³⁴. Any post on Facebook can become great as long as it generates relationships – edges – that propel it to greatness in the world of Edgerank. This puts pressure on the justifiability of Edgerank in practice, because its ability to generate a just vision relies on qualifications that are generated automatically. Here is a potential break with the connectionist world and its project grammar, which requires authentic relationships (see below).

In order to explore this, we need to expand the empirical site to take into account the audience in front of which Edgerank was presented in 2010. While the above analysis of the Edgerank algorithm has explicated a great deal, it rests primarily on a formal depiction of the algorithm that does not tell us much about how it is its orderings are justified by actors practically involved in the Edgerank world. As Mackenzie and Vurdubakis³⁵ put it, computer code is often presented in a way that 'promises completeness and decidability', but it is full of ambiguity in its execution. Following Boltanski and Thévenot, the way their abstract models of moral grammars play out is different within each moral grammar according to specific situations. Their advice is that to get a more substantial understanding of justification practices, one has to take a closer look at specific moral grammars in specific situations.

Tensions in the world of Edgerank

Following Boltanski and Thévenot, what becomes important are settings in which the prudent way of acting in the 'world of Edgerank' is being explicated to different degrees. The Facebook marketers, to whom the Edgerank algorithm was presented in 2010, are worth consulting here, because they hold a concrete interest in understanding how to make themselves relevant in the world of Edgerank: For them, the algorithmically ordered news feed is the key to gaining exposure for the brands they do marketing for. The main source of the relative fame of Edgerank is exactly the attention paid to it by internet marketers, who care about whether Facebook posts made by corporate Facebook pages show up in the news feeds of users. People calling themselves social media marketers produce a wealth of blog posts about this issue, including many references to Edgerank, as a Google web search on the term testifies to³⁶. Their considerations can be read as not only about how to live with Facebook, but more specifically as allowing us to glimpse into the practical wisdom, or *prudence*, of the Edgerank world³⁷.

The Edgerank grammar that we fleshed out above offers a standardization of engagement that makes it possible for algorithmic calculations to be positioned as the proper form of evidence. However, the qualities of standardization, experimentation and optimization have strong connections to the industrial grammar, which was precisely the main antagonist for the management literature that Boltanski and Chiapello read as appealing to a new projective grammar. In this literature, the key was to move away from standardized

and structured work relation with predefined objectives³⁸. As opposed to this industrial world, the projective grammar lends people to 'organize themselves and invent local rules that are not amenable to totalization and comprehensive rationalization by some putative organization department'³⁹. What the above analysis ended up indicating is that this tension might be an important part of living with Edgerank, because both personal engagement *and* standardization plays key roles in the world of Edgerank.

This tension can be explored further by investigating how engagement itself is being problematized by actors in their quest for finding prudent ways of acting in accordance with the moral grammar of Edgerank. For some Facebook marketers, it turns out that knowing the Edgerank formula can in fact be misleading, because they find that there is no instrumental mathematical solution to success on Facebook. As one 'social media corporate community manager' puts it in the concluding section of a blog post called *Show Up In The Facebook News Feed! 8 Things That Really Work*:

'Put people first. While understanding how the News Feed works is important, what's most important is that you're putting the needs, interests, and expectations of your audience first. After all, social media is about connecting with your audience and building relationships with the people who matter most. Focus on creating content that's relevant to them and you won't have any problem getting noticed in the News Feed.'⁴⁰

The quote downplays the importance of knowing the details of the Edgerank algorithm, because what is really important is to produce relevant content for the 'people who matter most'.

Drawing on the work of Boltanski and Chiapello, this is a good example of how business advice can be read as more than a recipe for productivity, because it 'simultaneously has a high moral tone, if only because it is a normative literature stating what should be the case, not what is the case'⁴¹. In this case, the quote suggests that what should be rewarded on social media is *connecting in relevant ways*.

This points to a qualification of engagement that is also built into Edgerank: A like is not valued as highly as a comment in terms of depth of engagement, so what becomes important is to connect in a genuine way that sparks interaction in the sense of meaningful dialogue rather than trying to 'game' the algorithm with a high quantity of likes. Another social media marketer makes this point remarkably clear when she explicitly emphasizes the need to 'stop chasing algorithms'⁴². Instead, she argues, posts made by commercial brands have to be truly engaging to work:

'If you make a customer like your Facebook page to get a discount code, or retweet a tweet to enter a contest, all you've learned is that they wanted whatever was on the other side of that interaction. You didn't offer them content that engaged them on any kind of personal or emotional or intellectual level, you haven't reinforced a significant aspect of your brand story for them, you've just dangled a carrot in front of them and gotten exactly the predictable reaction anyone could have expected.'⁴³

The marketer's advice is that the key to calculative success in relation to the Edgerank algorithm and similar social media logics is in fact to take a non-calculative approach. The social media marketing business might seem to be about how to lure people into feeling engaged, but in fact there is no way to buy people's engagement. You have to appeal to them on a 'personal or emotional or intellectual level'. In fact, you have to be genuinely engaged yourself in order to engage other people through social media. What might on the surface appear to be a meaningless business, is in fact meaningful and exciting for the people doing it. As the marketer states in the beginning of the same blog post:

'I love social media. This, I'm sure, isn't surprising given what I do for a living and the things I write about, but I really do love it.'⁴⁴

The two quotes from the blog post by Huber show that in this situation, Edgerank's principle of engagement transcends itself and is used as a source of criticism of Edgerank itself. Prudent action in the world of Edgerank then means to refrain from focusing on the algorithm and pursue engagement in a qualitative rather than quantitative way. This points to a tension between automation and the 'authenticity' requested by the bloggers, but it also shows how Edgerank can be justified: It is seen as rewarding behavior that is not strategic and based on specialized knowledge of the algorithm. This is how 'superior beings' (in this case, those with a lot of *recent engagement*) can justify their advantageous position in front of 'inferior beings' in the Edgerank world. The superior being creates content that engages its viewers and make them want to share, like and comment. As noted above, this is a world that only exists through engagement. One consequence of this is that the superior being also makes life worth living for the inferior being through his/her ability to engage others.

Further contributing to justifying this principle of equivalence is the idea that 'you are only as great as your last post' (and the engagement it generated), which means that anyone can *in principle* become great persons as long as they make themselves relevant to those they want to impress. These means of justification help explain how the marketer is able to begin her blog post by emphasizing that optimizing the presence of a brand in the Facebook news feed is about *meaning*, and something that one can *love* to have as a job.

These observations of the practical wisdom, or prudence, of actors with experience in the world of Edgerank confirms Boltanski and Thévenot's recommendation that we should not draw too strong a contrast between Edgerank as the creative rhetor and the users as a passive receptive audience. Rather, as Zulick notes, we should treat the creation of form and the recognition of form as the same creative act. That is, both the Edgerank algorithm and the user needs to invent and re-invent the *dwelling place* wherein the grammar of Edgerank is justifiable, a process which is at once ethical and aesthetic⁴⁵.

The question raised by these observations about the tension between automation and authenticity in practice raises the question of why it is fair to use an algorithm at all. If personal intuition and meaningfulness is so central for determining relevance on Facebook, why rely on algorithms to scan and quantify your social milieu, and order it in a hierarchical fashion? Why not stick to the local, intimate and authentic connections valued by the projective grammar?

Automated ordering for authentic engagement

The explication of the tension between authenticity and automation in the world of Edgerank leaves us with the more general question of how normative expectations and resources shift when the connectionist world is explicitly facilitated by algorithms. Following Boltanski and Chiapello's work on the genesis of the projective regime, what is at stake here is not just a software studies interest in how algorithms mediate and order social relations and information. This particular rhetorical analysis implies that what is at stake is also the discursive and socio-technical scaffolding of new commonplaces. In other words, there is a question of how algorithms become part of the construction of a just, edge-ranked public.

Boltanski and Chiapello are aware of two dominant ways of conceiving a network. In the first, networks are part of the personal search for meaning through engagement with others⁴⁶. In the second, the network is conceived as a system and judged and acted on in its totality. With Boltanski and Chiapello, only the first conception is understood as able to appeal to our moral sense, which means that the computational aspect has to be subordinated to as something that facilitate contacts and not something that explicitly judges them.

Edgerank's ability to judge thus also marks a potential boundary of Edgerank's capabilities as rhetor. Following James J. Brown, the standardizing work done by Edgerank has the robotic and procedural features that qualify it as a 'robot rhetor,' which takes a certain 'input, applies procedures, and generates output'⁴⁷. However, Boltanski and Thévenot's model assumes a moral sense which gives any rhetor the ability to comply with situations in a natural way, which is the ability to use the adequate principles of justice in a given situation⁴⁸. In the first instance this focus on the moral sense of human actors seems to mark off the Edgerank algorithm as incapable of guiding the organization of a just public.

But in the second instance, Edgerank creates the reality in which its moral grammar is appropriate. So perhaps Edgerank does not have a situational sense of what is natural, but it does have a 'generative' capacity to create the situation it needs to seem morally adequate⁴⁹. While the algorithm might rely on automation, this automation is positioned by Facebook as a timely response to changes within the network world, where the proliferations of relations and exponential growth in potentially relevant connections has necessitated automated calculations of relevancies. The argument can be found in one of Facebook's patents, entitled *Generating a feed of stories personalized for members of a social network*:

'As social networking has grown more popular, the information available to each member has become voluminous. Accordingly, members may be inundated with information that does not interest the members. Further, members may find themselves unable to find in a timely and efficient manner the information that does interest them, such as information about their friends and their community. There is therefore a need for systems and methods for generating dynamic relationship-based content personalized for members of a web-based social network.'⁵⁰

According to this argumentation, Edgerank maintains a special ability to take care of current events exactly because it automates what we might call connectionist evaluations. The patent can be read as adding an important specification to the world of Edgerank, because it sees the standardized and automated ordering of social relations as associated with an enhancement rather than a loss of meaning. While risking denunciation as being inauthentic, engagement through Edgerank allows for time-efficient and thus flexible engagement in a vast number of projects, including the potential of engaging in projects that would not have been visible without the algorithm.

This quest for meaningful navigation of digital social networks has a human actor at its center that, as we have shown throughout the paper, constantly tests the fairness of Edgerank's orderings. This dependency on the particular user in the 'edge-ranked public' creates a constant feedback loop between the more quantitative calculation of relevance produced by the algorithm and the qualitative valuation of the Edgerank results by the user. There is a double vision at play that is interdependent, and whose two parts both can be used to critique the other. The user can reject Edgerank's orderings as irrelevant, inauthentic noise and retreat to person-to-person communication channels. On the other hand, the Edgerank algorithm can make person-to-person communication seem like an inefficient way to get in contact with what engages you.

As such, Edgerank is itself being judged on its 'ability to extract meaning out of a constant flow of information that is of interest'⁵¹, and produce an algorithmically generated flows of information that offer specific 'visions' of what is of importance in our environments⁵². By situating the Edgerank algorithm in the critical situation of information overload, it has become clear that its orderings are never universally justified or complete unjustified. Instead, Edgerank offers a certain vision whose fairness is constantly being tested by its users. These tests, however, do not only come from moral grammars that are external to Edgerank, but also rely on the very visions that Edgerank produce. In this moral grammar, current events are ordered according to a principle where information is fundamentally 'social' in the sense of always being qualified by subject-subject relations, or *recent engagement*.

Following Koed Madsen, such devices for algorithmic sense-making can have an impact on social inquiry 'similar to the way city hall meetings, focus groups and surveys have shaped our approach to managing and organizing (...) controversies during the last decades'⁵³. Coming back to Boltanski and Thévenot, this ongoing development of the resources with which we justify our orderings of critical situations needs our empirical attention. The explication of the edge-ranked public has the potential to open for new critiques (and thus new kinds of justifications) of both the imperatives of the network world and the role that algorithms play in our everyday lives.

Conclusion

In this paper we have tried to 'think with the Edgerank algorithm' and describe how it can be said to create a just vision of the world. We have proposed analyzing it as a rhetor that explicates its ordering rather than a power that operates through the technologically unconscious. To do this we derived a methodological strategy from the work of Boltanski and Thévenot, which states that one has to loyally deploy a world to be able to describe how a certain vision, with its sorting of the relevant from the irrelevant, can be seen not only as useful but also just. We therefore analyzed the Edgerank formula as a world with specific beings and a specific moral grammar that guides prudent action and is a resource for judgment. This was not done by analyzing the algorithm alone, but also through paying attention to how the algorithm is appropriated, critiqued and justified by various actors engaged with the algorithm, something that gave us a better sense of how the Edgerank grammar is used to guide action and justify a specific vision of current events in the Facebook news feed.

We found that prudent action in the world of Edgerank is to be authentically engaged and able to engage others. It follows that a central tension in the Edgerank grammar is that between authenticity and automation. The automated calculation of relevance is on the one hand necessary for users in a world filled with signals, and on the other hand always in danger of flattening the world to a point where the user is unable to be affected by it. This is a problematic balance, since the Edgerank algorithm has to create a vision that orders its beings in accordance to what will engage its user. If it fails this test, it has not produced a just vision, according to its own principles. The tension shows how the engagement-oriented moral grammar that Edgerank enacts and draws upon to justify its own ordering also transcends it and can in turn be used to critique it.

Understood in this way, algorithms like Edgerank no longer appear as vessels of hidden power or exploitation, but as explicit attempts at envisioning the just public. Rather than having to wait for social scientists to reveal and critique the political philosophy of Edgerank, the moral grammar of Edgerank becomes a source of situated criticism of the Edgerank algorithm itself. This argument certainly overplays the extent to which Edgerank is an explicated political philosophical construct, but this seems necessary to fully deploy and give shape

to the edge-ranked public, something we think is of critical importance in a time when personalized automated algorithms are central agents in the construction of our political associations.

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Notes

1. See Bernhard Rieder, 'What Is in PageRank? A Historical and Conceptual Investigation of a Recursive Status Index', *Computational Culture* 2 (2012); and Siva Vaidhyathan, *The Googlization of Everything*, 1 edition (Berkeley: University of California Press, 2011). ↩
2. Taina Bucher, 'Want to Be on the Top? Algorithmic Power and the Threat of Invisibility on Facebook', *New Media & Society* 14, no. 7 (1 November 2012): 1164–80 ↩
3. see Astrid Mager, 'Algorithmic Ideology', *Information, Communication & Society* 15, no. 5 (2012): 769–87; Tarleton Gillespie, 'The Relevance of Algorithms', in *Media Technologies: Essays on Communication, Materiality, and Society*, ed. Pablo Boczkowski, Kirsten Foot, and Tarleton Gillespie (Cambridge, MA: MIT Press, 2013); and Andreas Birkbak and Hjalmar Bang Carlsen, 'The Public and Its Algorithms: Comparing and Experimenting with Calculated Publics', in *Calculative Devices in a Digital Age*, ed. Louise Amoore and Volha Piotukh (Routledge, Forthcoming). ↩
4. see Adam D. I. Kramer, Jamie E. Guillory, and Jeffrey T. Hancock, 'Experimental Evidence of Massive-Scale Emotional Contagion through Social Networks', *Proceedings of the National Academy of Sciences* 111, no. 24 (17 June 2014): 8788–90, doi:10.1073/pnas.1320040111. ↩
5. Nigel Thrift, *Knowing Capitalism* (London: SAGE Publications, 2005). ↩
6. See David Beer, 'Power through the Algorithm? Participatory Web Cultures and the Technological Unconscious', *New Media & Society* 11, no. 6 (9 January 2009): 985–1002. ↩
7. see especially Noortje Marres, *Material Participation: Technology, the Environment and Everyday Publics* (Basingstoke: Palgrave Macmillan, 2012); Andreas Birkbak, Morten Krogh Petersen, and Torben Elgaard Jensen, 'Critical Proximity as a Methodological Move in Techno-Anthropology', *Techné* (Forthcoming). ↩
8. Luc Boltanski and Laurent Thévenot, *On Justification: Economies of Worth* (Princeton, NJ: Princeton University Press, 2006). ↩
9. *Ibid.*, 68. ↩
10. *Ibid.*, 69. ↩
11. For Boltanski and Thévenot, moral grammars or orders of worth are explicitly not to be understood as tied to specific spheres of social life nor specific social groups, see Boltanski & Thévenot, *On Justification*, 16. They should rather be seen as potentialities in every part of social life. Our use of the concept is guilty of undermining these characteristics of moral grammars. We do this for two reasons: First, we prefer to start by analyzing Edgerank on its own terms and not as an enactment of one of the six orders of worth proposed by Boltanski and Thévenot. Second, we would like to use the moral grammar of Edgerank to point to certain potential moral grammatical displacements within the connectionist world, occurring as a result of the explicit algorithmic ordering of everyday life. See the last sections of the paper. ↩
12. Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, *Media Technologies: Essays on Communication, Materiality, and Society* (MIT Press, 2014). ↩
13. Cass R. Sunstein, *Infotopia: How Many Minds Produce Knowledge* (Oxford University Press, USA, 2006), 8. ↩
14. See Eli Pariser, *The Filter Bubble: How the New Personalized Web Is Changing What We Read and How We Think* (New York, N.Y.: Penguin Books/Penguin Press, 2012). ↩
15. *Ibid.*, 108. ↩
16. Eytan Bakshy, 'Rethinking Information Diversity in Networks' (Facebook Data Science Notes, 2012) ↩
17. *Ibid.* ↩
18. Mark Granovetter, 'The Strength of Weak Ties', *American Journal of Sociology* 78, no. 6 (1973). ↩
19. Bakshy, 'Rethinking Information Diversity in Networks.' ↩
20. Boltanski and Thévenot, *On Justification*, 74. ↩
21. Sunstein's critique could also be specified as epistemic. In our interpretation an epistemic critique, at least in its dominant form, is a specific form of industrial critique. One that relates to correct descriptions of an external reality for the sake of correspondence. ↩
22. Luc Boltanski and Eve Chiapello, *The New Spirit of Capitalism* (Verso, 2005). ↩
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24. Mager, 'Algorithmic Ideology.' ↩
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27. Boltanski and Thévenot, *On Justification*, 140–144. ↩
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36. Bucher, 'Want to Be on the Top?' ↩
37. Boltanski and Thévenot, *On Justification*, 148. ↩
38. Boltanski and Chiapello, *The New Spirit of Capitalism*, 135. ↩
39. *Ibid.* ↩

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43. Ibid. ↩
44. Ibid. ↩
45. Margaret D. Zulick, 'The Ethos of Invention. The Dialogue of Ethics and Aesthetics in Kenneth Burke and Mikhail Bakhtin.', in *The Ethos of Rhetoric* (University of South Carolina Press, Columbia, 2004). ↩
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47. James J. Brown Jr, 'The Machine That Therefore I Am', *Philosophy and Rhetoric* 47, no. 4 (2014): 497. ↩
48. Boltanski and Thévenot, *On Justification*, 146. ↩
49. In relation to algorithms generative capacities see Scott Lash, 'Power after Hegemony Cultural Studies in Mutation?', *Theory, Culture & Society* 24, no. 3 (5 January 2007): 55–78, doi:10.1177/0263276407075956. ↩
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53. Ibid., 64 ↩

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