The Five Star Movement: a democratic tsunami or another one-man show?

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Abstract

This paper focuses on the political discourse of the Five Star Movement (FSM) and its implications for the future of democracy beyond the Italian borders. Its winning formula looks like a digital Utopia able to counteract the current political disenchantment: an influential blog connecting a horizontal network of citizens; a constant interaction between web tools and offline mobilization; the online selection of representatives. However, issues such as internal democracy and transparency, low levels of participation, and the ambiguous role of the leader (Beppe Grillo) have fostered criticisms and raised fundamental questions about its illiberal policy. The paper, thorough an automated content analysis of every article posted on the blog of the movement since 2005, shows the evolution of the topics at the core of the discourse of the FSM. This allows establishing which topics constitute the core elements of the FSM and which ones, on the other hand, have been raised strategically over time. While we apply a completely unsupervised data-driven approach for topic modeling, we use the insights from this first step for an empirical refinement and use the derived model for the detection of appearance and occurrence of the central topics. The preliminary results show that the FSM is a party which does not show any ideological position in terms of the traditional left/right divide, and which relies primarily on a meta-discourse about direct-democracy and populism while facing different themes depending on the current political and social situation, representing a case of purely populist party.

Keywords: Populism, Five Star Movement, Democracy, Internet, Political Leadership, Political Participation, Populism, Automated Content Analysis
The Five Star Movement (FSM) has been the focus of Italian political debate since its surprising result at the national elections in 2013, when it became the first party in terms of votes\(^1\), even if penalised by an electoral system which reduced its impact in the parliament. Since then, many articles have appeared both in newspapers and scientific journals. This study aims to analyse the political message of the movement from an unusual perspective. First, it focuses on the salience of topics over time, in order to determine the core political message of the party and which topics, on the contrary, have been raised strategically in order to gain consensus. Second, through sentiment analysis, it will be determined the positive or negative evaluation of the FSM in relation to the topics identified in the first phase. This will be investigated through the automated content analysis (ACA)\(^2\) of the English version of the blog of the movement (www.beppegrillo.it/en). Symbolic and legal headquarters of the movement, voice of the leader Beppe Grillo and official political line of the movement, the blog represents a unique opportunity to investigate the position of a political party which communicates on a daily basis about a great variety of issues. In particular, this gives an idea of how political parties which consider the media system as part of a corrupt elite can reach a broad audience without relying on traditional media channels. Online communication could represent the future of political communication, and the FSM’s blog represents the best way to analyse this phenomenon. Through the automated content analysis of the blog of the movement we will follow two distinct but complementary directions. First, we will try to determine whether the idea of direct democracy à la populist represents a constant element of the FSM’s discourse, or if its importance rather diminished over time. In the first case, we could conclude that populism understood as popular participation in politics constitutes one of the keys of the party’s success, together with its ability of strategically raising issues with a good timing. Second, we will analyse which topics have been at the centre of the party’s discourse over time, in order to verify its post-ideological approach. If the topics change consistently over time we can conclude that the FSM’s political position is pragmatic rather than ideological.

This paper, besides using an original methodological approach, aims at contributing to the vast literature about democracy and populism through the analysis of a party we consider as relevant in order to understand the essence of populism in its purest form. Indeed, we define the FSM’s approach to politics as populist in the strict sense, with no "thick" ideologies attached to it\(^3\). According to Mudde (2004, 544), being populism a thin-centered ideology, "it can be easily combined with very different (thin and full) other ideologies, including communism, ecologism, nationalism or socialism". In a Manichean way, the actors involved in the political process are only two: the people and the elite, one the nemesis of the other. However, in the FSM’s political discourse the concept of the people is not presented in national, cultural, or economic terms, but rather as a homogeneous and compact entity with no further qualifications. Atually, it is not possible to clearly define who the people is for the FSM, while it is much easier to identify those who are not part of it. This represents a peculiar political approach to democracy; in fact, even those populist parties that define themselves as "neither right nor left-wing", such as the French Front National or the British UKIP, they actually propose an idea of people in cultural and nationalist terms, and on almost every issue they position themselves coherently with their right-wing approach.

The FSM, as mentioned above, shows two characteristics that distinguish it from almost every other populist party\(^4\). More precisely, these two features usually appear separately, but in the FSM they coexist. First, beside proposing an idea of direct democracy where the popular sovereignty is opposed to an allagedly corrupt and parasitic elite, typical of every populist party, the FSM also implements these ideas through an extensive system of

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\(^1\) 25.6% at the Low Chamber (Camera dei Deputati).

\(^2\) See the section about the research design for methodological details.

\(^3\) See Freeden (1998) for the concept of thin and thick ideologies.

\(^4\) Podemos, in Spain, has a similar approach towards the Web tools for direct democracy, but on the other hand it is clearly a left-wing party.
Web tools that allow grassroots participation, although as we will explain later later - with severe limitations due to the structure of the movement. Second, the concept of ideology is rejected as a relic of the past, as an obstacle to the realization of the common good, giving the party his typical techno-populist flavor. If this post-ideological approach is typical of many other parties, in the FSM it is pushed to extremes and seems to be more than just a cosmetic operation to widen its base of voters. In the next section, both the party’s approach towards direct democracy and its post-ideological attitude will be discussed and placed in the context of existing literature. Next, a section will be devoted to the formulation of our research hypothesis which will be followed by the methodological details of our analysis.

**Direct democracy and rejection of ideologies**

The FSM’s idea of direct and participative democracy based on populist assumptions of popular sovereignty is at the same time an extremely interesting and thorny issue. On the one hand, it is true that the FSM is the only party in Italy which provides its activists with many web tools for participation, but on the other hand many problems and contradictions persist. What seems to be far from solved, in particular, is the conflict between ideas of direct democracy and the internal vertical structure of the party (Bordignon & Ceccarini 2013, 438): “the ‘proprietary’ and top-down management of the Five Stars symbol makes elected members subordinate to non-appealable sanctions (expulsions) from the central node of the membership network, which is in Grillo’s hands”. Rather than a bottom-up movement, the FSM often looks like a top-down structure based on tele-plebiscitarian mechanisms.5 Two members of the movement, Giovanni Favia and Valentino Tavolazzi, have been banned because they raised the issue of internal democracy, and more in general it seems almost impossible to express any dissent without being expelled through an online plebiscite solicited by Beppe Grillo. In 2014, four activists who have been asking to meet the leaders of the party to discuss in particular the issue of internal transparency, since they had not received any answer they decided to occupy the stage where Grillo was speaking during an event of the party. They were subsequently expelled from the movement. As Bordignon and Ceccarini (2014, 62) accurately noticed 2014, “the idea of democracy ‘from below’ entails the rejection of hierarchical structures: ‘everyone is worth one’ is the principle on which the Movement’s message is based. (...) In spite of insistence on the ‘shared’ nature of the political action carried out by the M5S, its organisation is strongly conditioned by Grillo’s ‘ownership’ of the brand name, which gives him considerable room for manoeuvre in making decisions and in managing internal dissent”. The situation is particularly problematic when it comes to members of parliament, since the role of MP is understood in terms of imperative mandate, in contradiction with the Italian constitution (article 21). In two years, 18 FSM Senators left or have been expelled and now only 36 remains. In the Low Chamber, 91 of the out of 108 still remain among the ranks of the FSM. In order to establish an intermediate body between the two leaders and the rest of the movement, in 2014 was introduced a *direttorio* (it could be translated as “executive board”) composed of five Deputies. Grillo became "guarantor" of the movement leaving to the five MPs the political direction of the movement. Even if the members of the *direttorio* have been approved via an online consultation, the activists of the movement had just the possibility to ratify the decision, since the list was established a priori and only a "yes or no" decision was available. The structure's role, moreover, is still unclear (Franzosi, Marone & Salvati, 2015). More in general, it seems that the contribution from the bottom is relegated to a marginal role, and employed only when compatible with the directions from above, or as a resource to be used in election campaign. As Béja noticed (2013, 102), the structure of the party is pyramidal, and not horizontal nor rhizomatic as it is

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6. Article 21: “All have the right to express freely their own thought by word, in writing and by all other means of communication.”
usually presented by its members and leaders. At the bottom of the structure there are millions of voters, then the tens of thousands who animate the discussions on the blog (to which Grillo, in ten years, never responded), above come the members of the movement, local and national elected officials, and - on top - Beppe Grillo and Gianroberto Casaleggio. Bordignon & Ceccarini (2013, 434) accurately described the FSM's idea of direct democracy and its implementation through the web: "with the web, political delegation itself has no further reason to exist. Citizens, in so far as they are the real 'owners' of the state, must exercise a constant action of guidance and control. Politicians are, at the most, 'employees' with a temporary mandate, fixed-term workers continually monitored and sub judice". Corbetta and Vignati (2014, 62) on the other hand, rightly pointed out that the party's appeal for direct democracy, rather than a genuine interest for the role of the citizens in the decision-making process, has been employed as a way of masking its lack of political programme. What we want to show in our analysis is whether or not the idea of direct and participatory democracy has remained at the centre of the party's discourse, or if it has rather been gradually abandoned, in an attempt to obscure a highly problematic aspect of the movement and its structure.

The second aspect we address in this paper is the FSM's anti-ideological position, resulting in a combination between populism and technocracy which is highly peculiar. The popular desire of a moral renewal of the political, financial, and media elites represents a favorable condition for the success of a populist movement, but it clashes with the democratic practices when it aims at replacing the parliament with a one-party assembly working as a sort of omniscient software able to interpret the common good through algorithms. Beppe Grillo declared that they want "100% of Parliament, not 20% or 25% or 30%. When the movement gets to 100% when the citizens become the state, the movement will no longer need to exist". It is unclear how this can coexist with parliamentary mechanisms of political representation of different social needs and demands. There would be no space for social conflict or different interpretations of what the common good should represent. However, if more than a quarter of the Italian citizens who voted in 2013 chose the FSM, it means that this provocative model captures a diffused malaise towards the status quo. If both communism and fascism failed, as well as their moderate evolutions under the name "center-right" and "center-right", and on top of that the mainstream political parties are regularly involved in scandals related to corruption and bad management of public funds, the FSM's proposal clearly captures a relevant problem. The solution is presented as a sort of technopolitism where the common good is identified by an interaction between the people's will and the role of experts. Consequently, in this scenario there is no space for ideology. In 2013, during a conversation with one of the leaders of the neo-fascist movement Casa Pound, Beppe Grillo said that the FSM will not take a position on fascism. "This question does not concern me", he said, "the FSM is an ecumenical movement".

Once any ideology is discarded as a relic of the past, what remains is a movement which is strongly issue-oriented, where the political program is considered as a sacred text. In particular, there are five specific themes (the five stars of the name) that guide the political action of the party as the cardinal points, triggering a total overlap between the party and program. As explained by Bordignon and Ceccarini (2014, 68) exploiting the fitting metaphor of the FSM as a bus introduced by Ilvo Diamanti (Diamanti [1993] 1995, 87; 2012), "many passengers have boarded the bus driven by Grillo (and by Casaleggio), using it to ride to 'their' specific destinations. (...) They are united above all by criticism of the parties, which are seen as increasingly self-referential, closed within the

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7 Summarized by Grillo's refrain 'Each person counts for one' or 'Everyone is worth one', meaning that there are no political leaders taking decisions, but only citizens collectively managing the political process.
8 This element is considered separately for analytical purposes, however it is strictly related with the idea of direct democracy described above.
9 The "caste" (casta).
institutions (and the television studios) and distant from ordinary people. The FSM started as a left-wing movement and eventually became a ‘catch-all’ party (Bordignon & Ceccarini, 2013; Diamanti, 2014). Indeed, when it started in 2005 as a grassroots movement coordinated online, it showed several similarities with the no-global movements which failed to express a coherent program after Seattle (1999) and Genova (2001). In terms of programmatic issues, the five stars indicate the principal points of reference: public water, sustainable transport, sustainable development, free Internet access, and environmentalism. However, other issues have been addressed over time and are present in the program of the party as well. In 2007, the first V-Day, a public show in Bologna, intended to give visibility to the collection of signatures for a law of popular initiative concerning the mechanisms of candidates selection for the Parliament. In 2008, the topic of the second V-Day was the role and structure of mass media and newspapers, even if in this occasion the movement did not manage to collect the needed signatures for three popular referenda. Other main campaigns of the FSM concerned the issue of the national telecommunications provider (Telecom) and the support to the No-Tav movement which opposes the construction of a new speed railway line between Turin and Lyon. The ability of the FSM to capture the most salient issues during the campaign for the 2013 elections has been described by Conti and Memoli (2015, 523). Indeed, considering the five issues that a survey revealed as the most salient for the electorate at the time, the party “(...) ranked first in three issues [environmental protection, welfare expansion, market regulation], and second in another issue [political corruption]. This result is reinforced by the fact that 68.4 per cent of the overall content of the Five Star Movement’s manifesto was entirely dedicated to these four issues (63.2 per cent, if we consider only the three where the party ranked first)”. Analysing which topics remained at the centre of its political discourse over time, and which ones have been used strategically, will allow to determine whether or not the FSM’s populist approach towards direct democracy and its absence of ideology can be considered as key elements of its success.

**Research hypothesis**

The main goal of this paper is to understand which topics remain salient over time in the FSM’s discourse and which ones, on the other hand, have been raised in a more strategic way. The topic analysis will follow two lines: on the one hand we measure the relevance of the concept of direct democracy understood in a populist way, and on the other hand the salience of six specific topics.

What we define as *meta-discourse* about direct democracy concerns the idea of the FSM of a new concept of politics based on popular sovereignty, in other words as a participatory and bottom-up process which is made possible through online tools. These devices allow several functions typical of direct democracy like voting for candidates and representatives, conducting consultations on issues such as e.g. the expulsion of party members, determining the party’s position on specific issues on which there was no previous discussion, performing the selection of the candidate as president of the Republic, and ad hoc referenda on specific issues.

This topic will be considered in combination with that of populism. We define populism according to Cas Mudde’s definition\(^{12}\), based on two complementary aspects. On the one hand, the positive portrayal of the people, whose sovereignty should not be restricted; on the other hand, the negative definition of elites as corrupted. We combine the discourse about direct democracy and the populist rhetoric because they present a logical continuity, constituting the two pillars of the meta-discourse of the party about its ideal type of democracy. Indeed, it is not possible to think about unrestricted popular sovereignty without direct democracy and vice versa, even if many populist parties rely on charismatic leaders contradicting the ideal of grassroots democracy. The FSM has his own

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\(^{12}\) Mudde (2004, 543): I define populism as an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, ‘the pure people’ versus ‘the corrupt elite’, and which argues that politics should be an expression of the volonté générale (general will) of the people.
charismatic leader, but it is true that, at the same time, tries to solve this populist paradox by implementing tools for direct democracy. It is debatable whether or not the citizens can profit from these tools, but this question goes beyond the scope of this paper. What we want to understand can be formulated as follows. Did the idea of democracy change over time in the discourse of the FSM? In particular, did the reference to a populist conception of democracy based on unrestricted popular sovereignty remain a constant topic in the party’s discourse? Which role does the web play in the idea of democracy expressed by Grillo on his blog?

We expect to find, over time, less and less references to direct democracy and its implementation through web tools, considering that the FSM had to adapt its purely theoretical definition of direct democracy to the concrete circumstances in which it can be applied. This is mainly due to the transformation of the FSM itself: from grassroots movement to full-fledged political party with elected representatives in parliament. As mentioned above, the horizontal structure which should ensure the faithful application of the idea of participatory democracy clashes with the private management of the party by Grillo, owner of the symbol and arbiter of any important decision within the party. In particular, we expect that a turning point with respect to the rhetoric of direct democracy took place close to the national elections of 2013. When the contradiction between democracy from the bottom and top-down management of the party explodes, we expect that the emphasis on the slogan "everyone is worth one" diminished drastically since for the party it represents a difficult issue to deal with in a consistent manner.

H1) We expect to find, over time, less and less references to direct democracy and its implementation through web tools.

The meta-discourse about democracy being the first axis of the analysis, the salience of specific and concrete topics over time represents the second axis. In particular, six of them will be considered. In first place, the analysis will focus on the five stars, in other words, the backbone of the party program: public water, sustainable transport, sustainable development, free Internet access, and environmentalism. It is particularly challenging to distinguish the topic of an article and for this reason we will merge three topics in one: environmentalism, sustainable development and sustainable transport, being strictly intertwined, will constitute a macro-topic called "environment". To sum up, the five stars will be grouped as follows: free Internet, public water, environment.

In general, since they have always constituted the raison d’être of the movement, we assume that these topics will show a high degree of salience over time. Moreover, it is interesting to establish which issues gained more prominence in which periods, in order to establish how flexible the five pillars of the movement are. For example, an analysis of the votes of the FSM in the European parliament shows that in the period 2014-2015 the FSM has been consistent with its "original political features and values, its pro-environmental and libertarian/post-ideological roots".

H2) We expect the "original" topics of the FSM to remain salient over time.

We want to introduce a second group of programmatic topics as well; they are partly derived from the literature about the FSM, and partly they derive from the first step of our analysis (unsupervised topic modeling). This group includes: corruption, Europe, and the media system. The topic concerning the corruption of the political system is one of the strong arguments of the FSM for the critique of the status quo. Direct democracy is advocated as a necessity also because of the conditions of representative democracy in general and the moral conduct of the parties in particular. In a country like Italy, which witnessed in 1992 a major corruption scandal that decreed the

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13 They would be eight but they became six since we merged three topics linked to environmental issues in one single topic, as explained hereafter.
15 Known as "Tangentopoli", originated by a series of judicial investigations conducted by the then prosecutor Antonio Di Pietro, one of the political figures of reference of Grillo, at least in a first phase of the FSM.
end of the existence of all political parties that had characterized the political scene since the post-war period, this issue is particularly sensitive. According to the analysis offered by Conti and Memoli (2015, 528), we expect however this issue to lose its salience over time. Indeed, "although it was one of its original issues, the Five Star Movement progressively de-emphasized it, and focused instead on other issues. This is another sign of its attempt to distinguish itself from the other parties and to present itself in an uncontested prophetic fashion". H3) We expect the topic about corruption to become less and less relevant over time, in particular since 2013.

A different situation characterizes the position of the FSM vis à vis the European issue, here broadly understood as a set of sub-issues related to the single currency, the European integration process, national sovereignty, the role of the European institutions and the opacity of their democratic procedures. As Corbetta and Vignati (2014, 56) pointed out "Grillo’s euroscepticism does not stem from deeply rooted ideological motivations; rather, it feeds on the gravity of the current crisis and the fears that this arouses in the public. Thus, his arguments on Europe, which are based on a catastrophic depiction of reality (Italy has already failed, but is being kept afloat artificially by the banks, which are looking after their own interests to the detriment of the people), tend to single out scapegoats and to invoke a simplistic solution (in this case, the referendum on the euro)". This seems thus to represent a perfect example of a strategically raised issue. It does not belong to the core of the FSM’s program, but it became highly salient because of its prominence in the national debate. Indeed, according to Franzosi, Marone, and Salvati (2015, 113) "only in the months preceding the Italian general elections of 24-25 February 2013, did Beppe Grillo begin to speak out against the EU". Moreover, this issue is particularly exploitable from a populist perspective, since the European elites represent an inviting target for a critique of the loss of popular sovereignty in favour of institutions perceived as distant and not representative. The issue of European integration can thus be addressed, once more, as a direct democratic issue, in this case taking the form of a referendum on the euro. However, the FSM’s idea of direct democracy seems to be controversial once again. Beppe Grillo, while declaring that he was willing to respect the will of the Italian people, made it clear that he would have preferred to leave the euro, affecting in this way the citizen’s opinion, exposed only to the explanations of Eurosceptic experts selected by Grillo to illustrate via blog the possible consequences of the decision. H4) We expect the topic concerning Europe to be more and more salient over time, in particular from 2012.

The last topic concerns the role of the media system, which constitutes one of the main targets of the FSM’s critique of the status quo. Indeed, it represents both a personal issue for Beppe Grillo, who worked for the national television before being ostracized, and a typical populist theme, since the media are seen as a tool of mainstream political parties to control public opinion. However, the relationship of the FSM with the mainstream media system is twofold, since the party on the one hand refuses to be part of the media system and communicates mainly through its blog, but on the other hand it is cunning in exploiting the visibility offered by the old media, especially television, in a more or less direct way. As noticed by Diamanti (2014, 11), Grillo "(...) exploits television to his own advantage, pushing the lever of communication to 'full on' when an election is in sight. The Internet, the Worldwide Web and the social networks act in close relationship with the ‘old’ media, and in particular with television". We do not have any clear expectation about the salience of this issue over time. One could argue that, similarly to the position about direct democracy and its implementation through online tools, the FSM found increasingly difficult to criticize the media system since it heavily relies on it in order to gain visibility. In 2012, a member of the FSM, Federica Salsi, has been expelled from the party because she decided to participate to a talk show. In 2014 Grillo continued to declare that the members of the movement should not participate to TV shows, but on this issue the representatives of the movement have expressed widely differing opinions. Moreover, Grillo himself gave several interviews in strategic moments of the various campaigns carried out so far. Quite surprisingly, in March 2015 Grillo opened to the possibility for the FSM’s activists to take part in TV shows,
admitting that he may have been wrong on this issue\textsuperscript{16}. It is problematic to establish clear expectations about the salience of this topic over time in the discourse of the FSM. On the one hand, one could expect it to decrease, especially in 2015, because Grillo eventually decided to be more flexible on this regard, in order to gain visibility and to please a part of the representatives of the movement; on the other hand, the controversial nature of the relationship between the media system and the movement may have contributed to the saliency of the topic over time.

H5) We expect the topic about the media system to remain stable or to decrease in terms of salience over time.

If the hypothesis will be confirmed, we will be able to establish two important feature of the FSM. First, that its populist rhetoric about direct, participatory, and electronic democracy has been gradually abandoned. This could have happened following the transformation of the 5SM itself: created as a network of citizens activated by the online campaigns launched by the blog, it eventually became a national party with elected representatives both in the European and the Italian parliament. This would mean that, on the one hand, the approach of the FSM to direct democracy was an important part of his initial successes but, on the other hand, the party had hard times in making it consistent with a concrete situation that contradicts those ideals in many aspects. Second, if the salience of the identifies changed significantly over time, especially the five topics represented by the “five stars”, it will be possible to argue that the FSM’s success relies broadly on the ability to strategically interpret the social and political Zeitgeist of the country, adapting its discourse over time in order to remain popular and attract electoral consensus. It would not be possible to draw conclusions, however, about the nature of this adaptability. It could derive from the constant link of the party with its constituency, but also from the ability of the duo Grillo-Casaleggio in dictating from above the agenda of the party, probably following the indications derived from surveys and other comparable instruments. Finally, this could also be explained as a combination of these two factors.

\textbf{Research Design and Methodology}

The best way to analyze the political discourse of the FSM is represented by the immense archive consisting of all the articles that appear on a daily basis on the official blog of the movement (http://www.beppegrillo.it/en/). One could argue that it represents the point of view of a single individual, Beppe Grillo, and this is partially true. However, one should take into consideration the particular role of Grillo as megaphone, founder of the movement, and political (charismatic) leader of the FSM, as well as the fact that according to the “non-statute” of the party (or “non-party” as it is described in the document), the blog represents the legal headquarters of the FSM. Therefore, we claim that the official position of the FSM and Grillo’s posts on the blog completely overlap. Another critique could relate to the guest bloggers whose articles often appear on the blog. However, we can once more argue that all the material which appears on the blog is coherent with the political line of the party. Moreover, the blog’s articles constitute a particularly interesting unit of analysis because of two additional features: first, the blog itself is considered as highly influential (in 2008 it ranked 9\textsuperscript{th} among the 50 most powerful blogs, according to the Guardian)\textsuperscript{17}. Second, considering the particular position of the FSM regarding the media system, TV and newspapers in particular, it constitutes a rare example of a party with a relevant parliamentarian role which only communicates through an online tool, relinquishing any other traditional media. This lead to an extreme flexibility in the party’s discourse, since the salience of the different issues, and the position towards these issues, vary on a daily basis, according to the nature of the medium and the use of this tool by Grillo and his staff. In order to

\textsuperscript{16} From an interview to the “Corriere della Sera”, 4 March 2015, consulted last time in July 2015: http://www.corriere.it/politica/15_marzo_04/beppe-grillo-5-stelle-e234954-e235-11e4-9c34-ed66504116e.shtml

enlarge as much as possible the number of people potentially interested in this study we will use the English version of the blog. Further studies could focus on the comparison with the other two versions of the blog: the Italian and the Japanese, trying to establish whether it is possible to detect any difference in the political discourse of the movement when using different languages.

Assembling the Corpus

In a first step we automatically download all the (monthly) overview sites from the blog18 (). In a second step we parse the HTML source code and extract the most important metadata like the date of the blog entry as well as the title and the text. This task is far from trivial in the sense that we also have to take erroneous HTML source code into account. Detecting these cases can pose some difficulties. The corpus in its present form consists of 2976 articles from the blog, stemming from the timeframe between October 2005 and July 2015.

(Figure 1, about here, with number of articles per month)

Topic Detection

As a first step we apply unsupervised topic modeling, using therefore the Latent Dirichlet Allocation (LDA) algorithm (Blei et al.) and also the Non-negative matrix factorization (NMF) which has been discussed for this purpose (Stevens). Both algorithms are able to create topics from a given collection of texts which then are interpretable via the most important words for the topics (the importance is the probability for the words of occurring with the topics). For this first explorative phase, we produced yearly topic models consisting of 50 topics. It must be mentioned that those algorithms also tend to produce some topics which semantically do not make much sense if given a high number of occurring topics in the first place (although we ran the experiment with an adaptive prior alpha). Since we want to have as many insights as possible into the possible breadth of topics, we rather start with a high number of topics, which we filter out then manually. Below, e.g., there is a selection of the 50 topics we identified for all the articles published on the blog in 2012.

**Topic #2:** movement, star, star movement, election, movimento stelle, movimento stelle star movement, stelle star movement, stelle star, stelle, movimento, party, m0, political, sicily, citizen, participation, politics, vote, national election

**Topic #7:** greece, european, europe, euro, european union, greek, union, pig, country, eu,trip, bond, spain, italy, market, financial, crisis, currency, happen

**Topic #31:** worker, sack, article, people, job, young people, trade union, right, maurizio, young, frignero, minchionne, fiat, trade, na, labour, company, idea, problem, wage

**Topic #35:** food, eat, seed, planet, grain, maize, resource, increase, water, land, price, hunger, world, global, plant, produce, people, variety, specie, united state

**Topic #36:** tv, channel, tv channel, interview, red cross, news, rai, cross, public tv channel, public tv, character, tv frequency, frequency, host, party, programme, like know, assign, information, entity

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18 The address of the blog is: [http://www.beppegrollo.it/en/](http://www.beppegrollo.it/en/)
Already after a short analysis of the 50 topics identified for 2012, it is possible to understand that many core topics have been raised. There is the idea of the Five Star Movement as a tool for citizens to implement participative democracy (topic 2 and 50); the electoral law and the role of the mainstream parties (topic 44); the economic crisis in Europe, involving the role of Greece and Germany (topic 7); environmental issues (topic 35 and 39); unemployment (topic 31); the media system (topic 36).

Considering the topics present in the articles from 2014 presented below, it can be noticed that some of the core topics are present while others gained relevance. There is a reference to the electoral law (topic 3); the economic situation, both national and international, is more and more present (topic 4 and 27 about Italy, topic 15 about a referendum to leave the Euro zone); there is a reference to the health system (topic 14); renewable energies are considered (topic 24); the elections for the European Parliament and the alliance with the British party UKIP, unsurprisingly, are present as well (topic 40).
looking for, confirming their salience; second, it provided a first impression about the hypothesis we formulated. Indeed, it is possible to observe the absence of themes linked to Euroscepticism in the first phase of the blog, while for example the rhetoric about the role of the FSM as a tool for direct and representative participation seems to remain stable. This preliminary analysis was an explorative step which allowed us to identify prototypical articles that we used for the second step of our analysis, which adopts a more sophisticated approach.

Semi-supervised Topic Detection

While some of the topics detected by the unsupervised method match with the deductively derived topics mentioned beforehand, the conceptualization and detection of others must be accomplished in another fashion. We tried an approach in which we leverage prototypical articles for certain topics. As a first step, we identify a few documents in the corpus for which we assume that they are as typical as possible for the given topic. This is necessarily a qualitative approach, based on the manual analysis of the articles, selected as a random sample of the whole corpus, in order to identify items that can be defined prototypical relatively to a certain topic. In the next step, we model the documents in the vector space, and apply a tfidf-weighting (which reduces the dimension in the vector space to the presumably most distinguishing and important ones). Then we create for each topic a centroid, that is, given the annotated documents per topic we create a prototypical representation of this topic as a single point in the vector space. In the third step, we are then able to compare all the non-labeled documents to the existing centroids and calculate the nearest centroid, using cosine distance as a measurement for the comparison of the weighted document vectors. This provides us with the possibility to determine the similarity of any document in the corpus to the given topics. Of course, next to assigning the topic with the nearest centroid we are also able to take the differences between the similarities to the different centroids into account and apply a multi-labeling step as well. Until now, a 5-fold cross-validation gave us results above 0.81 accuracy for 9 topics, while having only annotated 10 documents per topic. We furthermore plan to leverage the already annotated documents by iteratively assigning only the nearest documents from the whole corpus to the topic and broaden our dataset for the classification task which will follow.

Sentiment analysis

Sentiment analysis has received growing attention in the last decade in computational linguistics (see Pang and Lee 2008, and Liu and Zhang 2012) and has gradually progressed from a binary recognition of tonality in reviews (cf. Pang et al. 2002) towards a more sophisticated and fine-grained analysis. In addition to the differentiation of the underlying models and approaches, including the detection of holder, target, and aspects of the sentiment (Zhang and Liu 2014), also new domains of application have evolved. Balahur et al. (2009) and Balahur et al. (2010) have investigated the application of sentiment analysis to news texts and point to the challenges of the new domain and the importance to keep journalistic content and the citations reported in the texts apart. However, van Atteveldt (2008: 135) has shown in a comprehensive automated media content analysis that the evaluation of the overall tonality of the news delivered results of high reliability in comparison to a manually created gold standard. We apply a sentiment analysis system similar to the one discussed by Taboada et al. (2011), but with a new implemented verb resource (Klenner et al. 2014) which has already shown promising results in an application scenario in which the overall tonality of news text could reliably be determined (Wueest et al. 2014).

(Missing parts: analysis and conclusions)
References


