

Framing Otherness on Twitter: gender, elections and networks

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Abstract

This study analyses the frame resonance in the Twitter debate of Gustavo Petro and, especially, of Francia Márquez's rhetoric during the presidential elections campaign of 2022. I specifically study the potential resonance of the notion of Otherness in tweets attributed to women and to men. I apply several methodological protocols including network analysis and topic modeling. The results are positive on the frame resonance of the campaign and Francia Márquez rhetoric in both groups, showing ideological-political engagement from a semantic view more than a gendered connection. However, semantic relatedness to the particular framing studied here appears to be stronger in women than in men. Addressing Twitter attributes such as mentions and hashtags is similar in both groups.

Keywords

frame resonance, otherness, gender, network analysis, topic modeling, E-I index

Introduction

In the 2022 presidential elections, Gustavo Petro and Francia Márquez were elected as the President and Vice President of Colombia, respectively. Both are from the progressive left-wing party, Colombia Humana. Their rhetoric during the campaign highlighted subjects such as bringing infrastructure to rural areas, transitioning to a green economy beyond the current reliance on oil, and shifting from a military response to illegal armed groups towards a strategy centered on dialogue and agreements. Consistent with these ideas, Petro and Márquez championed the concept of “paz total” or “total peace,” which aimed to revitalize the peace agreement (PA) signed in 2016 between the Revolutionary Armed Forces of Colombia (FARC) and the Colombian government, aiming to end over five decades of internal armed conflict. This *paz total* narrative focused on establishing negotiations with various illegal armed factions, including the guerrilla organization known as Ejército de Liberación Nacional (ELN) or National Liberation Army. Their

planning also considers peace dialogues with smaller armed factions and paramilitary groups such as the Clan del Golfo. Furthermore, to accomplish *paz total* they highlighted the need to address historically marginalized communities in Colombia and to fight gender and racial inequality, something that could be interpreted as prioritizing the Other in the agenda of the government.

Here I account on the Other as difference, and as having significant ontological weight, but through an alternative ontological framework based on a *relational ontology*, as suggested by Jabri (2023). This framework addresses Otherness as varying susceptibilities, knowledge and ethics-politics. This perspective acknowledges that difference is not simply assumed or predetermined ontologically but is constructed by the individual and a broader spectrum of narratives and institutional practices. As such, I will deliberate about marginalized communities that represent Otherness in the country not for embodying something exotic (Guerrero & Soler, 2020), but as having a relational political and ontological nature.

While several analysts found Petro's and Márquez's proposal overly ambitious and challenging due to Colombia's structural issues, they also note that their proposal marks a notable shift from the narratives of traditional political framing in the country (Polga-Hecimovich, 2022; Janetsky, 2022; Tobia, 2022). But how did the Twitter audience elaborate on this narrative proposal especially when approaching Otherness? To contextualize further, Francia Márquez originates from Cauca, an economically disadvantaged Colombian region beaten by conflict and violence stemming from illegal mining and drug trafficking. As a black woman, environmental activist from a young age, feminist, and social leader, Márquez embodies the Other in a polarized nation such as Colombia, eliciting a spectrum of emotions, from admiration to hatred. Throughout the campaign, Márquez's rhetoric seemed to confront directly the issues of Otherness, including those of Afro-descendant and indigenous communities and women. My study thus endeavors to assess the influence of Márquez's rhetoric on Twitter discussions, focusing on the concept of frame resonance, as articulated by Gamson and Modigliani (1989). The research also investigates the potential for homophilious formations within Twitter networks concerning tweets about Márquez.

As such, the study scrutinizes a dataset of tweets mentioning Francia Márquez's Twitter account during the last week of the second round of elections, including the final voting day. I employ several methodological approaches, including content analysis via topic modeling and network analysis of hashtag co-occurrences. I also delve into the potential homophilious effect by calculating the external-internal index for detecting group embedding according to mentions by females and males.

Preliminary findings suggest that mentions do not significantly demonstrate a homophilious gender effect. Rather, they reveal a greater ideological-political alignment with Márquez's framing by women than by men. However, the content analysis shows a tendency of women to adhere more strongly to the rhetorical proposal by Márquez, that I postulate here as a framing of Otherness.

This research holds significance within the broader scholarship on narratives in peacebuilding. Scholars have highlighted the relevant role of Otherness in the success of peace-making, suggesting that at the heart of a peace process lies a reframing of narratives about the 'Other' (Rodríguez, 2020). Moreover, existing research underscores the criticality of citizen participation in peacebuilding processes (Haass, Hartzell & Ottmann, 2022). However, there is a gap

in scholarship concerning the relationship between citizen attitudes towards the peace process and their impact on broader societal and systemic levels (Hass, Hartzell & Ottmann, 2022; Dittman et al. 2017; Balcells & Justino, 2014). There is also a deficiency in studies examining public attitudes towards the Other, both in the context of the PA and during elections.

On the other hand, existing research has examined the framing of female presidential candidates, often through the lens of agenda-setting theory, which suggests that media follows stereotypes when representing these women (Gibbons, 2022). In the specific context of Colombia, studies suggest the emergence of a novel interpretive frame recognizing victims in national narratives, a phenomenon that originated from the PA (Rodríguez, 2020). Additionally, recent analyses highlight the progressive proposals put forth by Petro and Márquez, noting their emphasis on social and environmental justice as a potential beacon of hope for the country (Hernández & Gualdrón, 2022). My study, however, offers a novel perspective by focusing on public cognition in response to the rhetoric of a female social leader who symbolizes Otherness within the country. By undertaking this line of inquiry, I expect to contribute to ongoing research exploring the potential emergence of a new cultural pathway in Colombia, a trend that, despite the challenges, has been taking shape over the past few years.

Literature review

In this study, I take on the concept of framing as "an interpretive act," as suggested by Snow and Vliegenhart (2023), mediated by culture. This interpretive act is not only subjective but intersubjective (Skillington, 2023) when negotiating meaning. Furthermore, framing is a multifaceted concept applied in various disciplines including communication (Entman, 1993), political communication (Ching & Druckman, 2007), sociology (Goffman, 1974), social movements (Snow et al., 1986, Snow, Vliegengart & Katelaars, 2019, Stelmach & Boudert, 2022) and public opinion (Gamson & Modigliani, 1989). This notion allows scholars to examine individuals' interpretations of events and their ways of orienting within the world (Van der Meer, 2018).

Nonetheless, in his article on social movements theory, Van Dijk (2023) posits a dual perspective within this concept that, according to the author, often leads to confusion among scholars. For Van Dijk, on one hand, numerous approaches employ the concept of *frames*, which primarily relates to the study

of ideologies and values. On the other hand, different studies align more closely with the idea of *framing*, which pertains more to the discursive and cognitive methods individuals use to orient themselves and engage in the process of constructing world meaning. A significant point of van Dijk's critique is the inclination within social movement studies to underscore the dynamics of frames—often tied to micro-practices—rather than broader structural considerations.

In their response to Van Dijk's critical piece, Snow & Vliegenthart (2023) posit that the use of frames as both a verb and a noun, whether referring to behavior or discourse, is due to its elasticity. Further to this argument, I assert that these two viewpoints are more likely to converge. This convergence arises from the intricate relationship between action and cognition, making it difficult to separate the two. While this article does not specifically address social movements, I will predominantly refer to "frame resonance" because of my primary interest in discursive practices on Twitter, particularly during the time Francia Márquez was running for the position of vice president.

Initially, the concept of framing proposed by Goffman (1974) refers to the "definition of the situation" according to frames of interpretation that depend on the context. However, context is an ongoing production in social situations. Later, from a communication perspective, Entman defines framing as a way of organizing experience that "essentially involves selection and salience. To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem, definition, causal interpretation, moral evaluation [...]" (Entman, 1993, 52). Furthermore, Entman posits that framing involves various factors, including the sender of the message, the content itself, the audience and the cultural aspects. A message cannot gain influence without affecting the audience's perception or focus. In other words if it does not have a resonating effect on the public.

Delving deeper into the concept of resonance, Gamson & Modigliani (1989) proposed the idea of cultural resonances, building upon their preliminary characterization of frames as *packages*. They argue that not all symbols carry the same weight or influence. Some *packages* inherently resonate more powerfully as their content and linguistic expression align with predominant cultural narratives. This alignment enhances the appeal of a package, making it seem intuitive and familiar. Consequently, individuals attuned to these overarching cultural narratives find such packages more relatable due

to their shared features (1989: 5). Extending on this, through Gamson's (1992) metaphor that "ideas resonate," cultural resonances delineate the capacity of an idea to reverberate within a belief system. In this line, Baden & David (2018) underscored that while innovative ideas usually challenge societies, prompting individuals to engage in meaning-making, only certain interpretations truly resonate. This resonance is most likely when these interpretations either reaffirm established values or align with collective belief systems.

In their 2019 article, Snow, Vliegenthart, and Ketelaars distinguish several types of framing within the sphere of social mobilization, including discursive processes. When discussing frame resonance, these authors characterize it as an attribute of the frame that varies in efficacy and can be seen as a result of successful frame alignment processes. They further identify resonance as contingent upon the credibility and salience of the frame, as well as its appeal to everyday experience. Resonance is portrayed as a dynamic process, influenced by the framing context and the cultural beliefs of the audience. The authors also underscore the role of emotions in framing processes, warning against "moral shocks" that could alienate supporters by evoking strong negative emotions.

In the context of political campaigns, scholars have further investigated various emotions, grouping them under the construct of emotional frames (Himmelboim et al., 2014; 2016). Sahly, Shao & Kwon (2019) note that political persuasion research often centers on the valence of positive and negative emotions (Himmelboim et al., 2014). Their own research delved into the linguistic cues used by presidential candidate Hilary Clinton and Donald Trump on Twitter and Facebook, which could signal positive or negative emotional frames and subsequently impact audience engagement. Their findings indicated that audiences were more engaged with Trump's frames on Twitter.

Positive emotions such as hope can also be highlighted and align with frame resonance in the context of presidential election. Anderson (2014) proposes the concept of hopefulness, which is a recurrent background of emotions envisioning a relationship to the future and imbuing action. Hopefulness acts as a background of encouraging relationships, imbuing a renovated sense of possibility. Turning to the Colombian political arena, Hernández & Gualdrón (2022) suggest a nuanced assessment of the current political climate through the lens of affective politics. Within this perspective, they underscore the potential of Petro and Márquez's political strategy to advocate for *vidas dignas*, which

translates to *lives with dignity*. As the subsequent analysis will illustrate, throughout their campaign, Márquez consistently alluded to marginalized and often overlooked populations, possibly laying groundwork for acknowledging Otherness. Accordingly, an overarching question is whether this narrative, intertwined with otherness and affective politics, found resonance among its audience.

Networked homophily and gender

In their seminal work, McPherson, Smith-Lovin & Cook (2001) describe homophily as the tendency of individuals to associate with others with similar attributes, ideas, beliefs or opinions. In the context of social media, research finds these environments as an opportunity to analyse and predict political behavior but tends to be skeptical linking homophily with the formation of echo-chambers and biased political positions.

However, existing research has shown that the diffusion of information is not entirely polarized, and that indeed polarization in online discussion might have been overestimated, such as the large study by Pablo Barberá's et al., (2015) suggests. Likely, the study by Esteve del Valle (2022) mentions that homophily is not necessarily bad or even that a small range of polarization is good for the political discussion. In the author's words:

Contrary to popular belief, homophily can have positive effects on political behavior. Prior work shows that political homophily provokes dense clusters within group ties that put pressure on participating in costly or risky political activities [...]. Indeed, political homophilous networks have a significant advantage in facilitating political actions which require social confirmation, such as attending political protests, engaging in discussion about controversial topics, or turning out to vote [...]" (82).

Various studies have explored gender differences in Twitter behavior. For example, Holmberg & Hellsten (2015) investigated gender differences in discussions about climate change on Twitter. They found that while men and women used similar language, women more frequently used mentions and hashtags related to organizations and campaigns. This observation suggests that women were more engaged with the topic of the study. Scarborough (2018) analyzed Twitter sentiment towards feminism and identified a pronounced gendered attitude. However, the author advised caution in relying solely on sentiment analysis

as it might not fully account for racial and educational variations in gender attitudes. In the context of elections, McGregor & Mourão (2016) studied the interaction between candidates and voters on Twitter during the 2014 US elections. They observed a more male-dominated rhetorical presence, even though women often played a significant role in shaping the debate networks. Collectively, these studies indicate that Twitter serves as a valuable platform for analyzing public opinion from a gender perspective, especially during election seasons.

Case study

Colombia is a country characterized by substantial diversity, home to various distinct populations. A significant number of these groups have endured exclusionary politics, violence, and social injustice. The perpetuation of these practices can be attributed in part to marginalizing practices directed towards Otherness, represented by minority groups, predominantly composed of black, indigenous, and peasant communities inhabiting rural regions, women and the LGBTQIA+ community. This systemic marginalization is perpetuated by specific narratives and terminologies embedded in political rhetoric, educational laws, media discourses, and academia (Guerrero & Soler, 2020). Moreover, in the public imagination, the framing of the Other is often deeply rooted in racism and exclusion (Guerrero & Soler, 2020).

As mentioned in the introduction, research posits the proposal of a peace agreement as a switch of narratives towards the Other (Rodríguez, 2020). As such, in terms of framing, Colombia has experienced in the last six years two political events that might foster switching the traditional perspective on Otherness in the country. The first is the 2016 PA between the FARC-EP. The second is the subsequent election of Gustavo Petro and Francia Marquez in 2022, both highlighting in their campaign the need of accomplishing the PA.

Recent studies indicate a renewed trust in the PA, with many viewing it as a symbol of hope for disarmament and reforms in recent years (Weintraub et al., 2023). However, the PA has also encountered criticism both in public opinion (García, Rodríguez-Saga, & Seligson, 2014) and other sectors, largely due to its perceived association with extractive and mining economic practices, which appear to be at odds with its foundational aims (Paarlberg-Kvam, 2017). Furthermore, in the post-PA period, Colombia has faced unique challenges compared to other post-conflict situations (Georgi, 2023). Notably, violence

continues to be a significant issue (Mejía, Luque, & Gómez, 2019). This ongoing unrest has seen an uptick in criminal activities, territorial conflicts over coca crops, and unauthorized mining operations. Regrettably, by the end of 2022, this wave of violence had culminated in the murder of over 1,200 activists, many of whom were social leaders that represented marginalized communities and Otherness in the country (Georgi, 2022).

In their campaign rhetoric, Petro and Márquez focused on what they termed *paz total* (complete peace) as the main goal of their government. The coalition between Petro and Marquez is viewed as a potential catalyst for social justice and reparation, emphasizing a form of progressivism that also advocates for environmental justice (Hernández & Gualdrón, 2022). Their lemma was *Colombia, potencia mundial de la vida* [Colombia World Power of Life] that would also entitle the National Development Plan 2022-2026. Overall, their rhetoric opposes the everlasting rhetoric of war, and is portrayed as aiming to overcome violence that took over after the signing of the PA. This narrative, different from the war on drugs or the war on terrorisms already stated in the beginning of the 2000s, echoes the vision on the PA by activists and members of communities that have faced the conflict over decades (Georgi, 2023).

Francia Márquez's political journey, originating from Cauca—a region with significant conflict and socio-economic constraints—serves as a representation of the “Other” in Colombia's societal context. Her identity as a black woman, environmental activist, feminist, and social leader amplifies this narrative. Her campaign narratives, intertwined with her personal experiences, frequently underscore the adversities encountered by marginalized groups. Her discourse referencing elders, women, youth, LGBTQIA+ members, and indigenous communities emphasize that their current adversities align with historical battles for dignity and recognition. Márquez's phrases, “hasta que la dignidad se haga costumbre” [until dignity becomes habit] and “vivir sabroso” [living with taste], succinctly convey her vision of a symbiotic relationship with nature and a life characterized by respect and dignity. Moreover, her most retweeted messages are as follow:

Esto es por nuestras abuelas y abuelos, las mujeres, los jóvenes, las personas LGBTQI+, los indígenas, los campesinos... (45.589 RT)

[This is for our grandmothers and grandfathers, the women, the youth, the LGBTQI+ people, the indigenous, the peasants...]

Esta lucha no empezó con nosotros, empezó con nuestros ancestros. Hoy con dignidad y grandeza recogemos los frutos de esa siembra. (15.671 RT)

[This fight didn't start with us, it began with our ancestors. Today, with dignity and grandeur, we reap the fruits of their sowing].

Taking into account the above mentioned, I propose here to analyse whether the rhetoric by Marquez resonated in the public debate around the elections. A second question is whether Francia Márquez's narrative was better received by women than men, in other words, whether there is a homophilious effect in the Twitter network on occasion of the elections.

Twitter

Entman & Usher (2018) postulate that digital technologies harbor the potential of public-minded individuals committed to upholding truth and democratic standards, thereby promoting the dissemination of information and narratives that defy elite manipulation and control. However, scholarly literature provides a juxtaposition of evidence, raising questions as to whether these platforms exacerbate network polarization or merely reflect pre-existing offline relationships and viewpoints. I chose Twitter because this is a highly used social media platform in Colombia and because research has linked Twitter to analyse elections and the PA. In 2023 Gustavo Petro's Twitter account had 6.7 million followers, and Francia Márquez, 1,2 million. Fabra-Mata & Mygind (2019) pointed out that Colombia ranks among the Latin American nations with the highest social media engagement rates, including Twitter usage. Their investigation uncovered additional insights into public sentiment and discourse related to the Colombian peace process via Twitter. They found that the Twitter analysis facilitated scrutiny of suppositions derived from archival evidence, and they detected no discrepancies between data collected from Twitter and data gathered through other sources during their assessment.

Furthermore, Casarin et al. (2019) reinforce this focus on Colombia and Twitter by referencing a statement by the Council of the Americas, which places Colombia in the 12th position worldwide in terms of the number of Twitter accounts. This fact underlines the importance of examining the Colombian case specifically. Moreover, Twitter is noted as the second most frequently used social media platform by organizations and political parties. The researchers from this study found persuasive

evidence suggesting that politicians have been adept at discerning and employing combinations of sensitive words to raise the chances of their messages being retweeted, thereby impacting political outcomes.

Data and method

I collected around 893,861 tweets mentioning Francia Márquez's Twitter account using Mozdeh. These tweets were posted between June 14 and 19 of 2022 when addressing the hashtag #EleccionesPresidenciales2022 [#PresidentialElections2022], covering the final days of the presidential campaign and the second round of elections held on June 19. After filtering the tweets by removing duplicates, 187,244 tweets remained. I employed the gender detection of Mozdeh to identify tweets posted by women and men, based on the information provided by Twitter users. Mozdeh uses a list of common male and female first names and compares these lists to the first name that users provide to Twitter to differentiate between both genres. As a result, the data was narrowed down to 29,037 tweets that were attributed to females and 54,848 tweets to males. The other tweets (53%) were not classified because the algorithm could not relate them to any gender or the names were not provided. I do not use any other demographic data for this research because the information from Twitter is limited to gender identification.

I used several approaches to analyze the content of the tweets and to investigate the semantic relatedness of Twitter users to the narratives proposed by Marquez, and the possible similarities or differences between females and males.

Topic modeling is a fundamental technique in Twitter content analysis, aiding in identifying abstract themes and conceptual structures within tweets (Stelmach and Boudet, 2022). The most used model in topic modeling is Latent Dirichlet Allocation (LDA), a probabilistic method, as described by Blei (2012), that uses computational strategies to gauge the likelihood of prevailing topics in texts and the occurrence of specific words within those topics. Ahmed & Klan (2023) and Yl'a-Anttila et al. (2021) note that this technique simplifies linguistic complexity by highlighting co-occurring words that provide meaning insights. Moreover, when applied to a set of documents, topic analysis can delineate distinct thematic groups and ascertain their significance in each document (DiMaggio et al., 2013), thereby facilitating pattern recognition in large data sets.

As such, in the first protocol I used LDA topic modeling on the whole tweet dataset and its subsets,

focusing on both male and female Twitter users, using a modified version of the Mozdeh-provided routines in R (Blei, Ng & Jordan, 2003). I specifically adapted the algorithm for the Spanish language by incorporating Spanish stop words and stemming. To enhance the visualization and ranking of the derived topics and terms, I employed the LDAvis library in R.¹ LDAvis, as introduced by Sievert & Shirley (2014), serves as a visualization tool for extracted topics, providing a comprehensive examination of related terms. This tool is valuable for a) grasping the meaning of a topic, b) ascertaining the prevalence of topics, and c) understanding inter-topic relationships (Ahmed & Klan, 2023: 9). LDAvis presents a web-based interactive visualization, offering an innovative approach to rank terms within a topic based on their "relevance" – a mix of the probability of terms under a topic and its "lift", which is how specific the terms are to that topic (Das & Sarkar, 2022). Moreover, I used LDAvis to label topics and interpret the results, aligning with methodologies suggested by Das & Sarkar (2022).

Notably, this approach can be effectively leveraged to investigate the manifestation of homophily by discerning how certain groups are uniquely linked to particular themes or ideological perspectives (Jiang, Su & Shah, 2021). In my research, the tweets

¹ I used a modified version of the R program provided by Mozdeh (see: <http://mozdeh.wlv.ac.uk/resources/TopicModelMozdehTweets.R>). Adjustments were made to the list of stop words and the stemming algorithm was transitioned from English to Spanish. Subsequently, the output was integrated into the LDAvis package, using conversion code sourced from: <https://rpubs.com/cosmopolitanvan/topicmodeling>.

Initially, the R program cleanses the tweets by eliminating elements such as URLs, user names, punctuation, numbers, and stop words. It then undertakes basic Spanish stemming using the "SnowballC" library. Comprehensive details of this process are available at: <http://snowball.tartarus.org/algorithms/spanish/stemmer.html>. Following this, the R program initiates the LDA topic modeling algorithm, utilizing the number of topics specified by the user, and employing the "Gibbs" method. The subsequent output channeled into the LDAvis package facilitates the creation of an interactive web-based visualization of the identified topics. This visualization includes an "intertopic distance map" based on multidimensional scaling, which offers a visual representation of the variance between topics. Moreover, the package enables users to determine a "lambda" value, which assists in ranking terms in each topic based on a more nuanced "relevance" score. Conventionally, terms are prioritized purely on their topic-specific probability. This approach might inadvertently highlight "non-specific" terms that simply possess a high frequency across multiple topics, potentially hindering clear interpretation of individual topic meanings. To address this, LDAvis incorporates a "lift" factor, which considers the specificity of a term to a particular topic (i.e., the frequency of a term within a specific topic in relation to its overall frequency across the corpus). The lambda value thus allows users to rank terms by considering both their raw frequency and their lift.

attributed to male and female users were subjected to topic modeling, with the aim of discerning differences or similarities between these groups with respect to their engagement in Francia Márquez's discourse.

In the second protocol I proposed association mining comparisons for which I used the differences in proportions between tweets attributed to males and females provided by Mozdeh. The z-test for the difference in proportions is a statistical technique that assesses whether there is a notable disparity between percentages or proportions in two distinct groups. Based on sample data, this type of hypothesis test helps in drawing inferences about the proportions within groups. As such, here the difference in proportions z provided a list of words, including hashtags and mentions, that were more frequently used by females in comparison to males in their tweets and vice versa. Even though the listed terms are not per se the most frequent, they are "significantly more used by one group of tweeters in comparison to the other" (Holmberg & Hellsten, 2015). Mozdeh uses the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995) on chi-square values to minimize the probability of finding false positives in big datasets. I only used the results that were statistically significant with $p < 0.05$.

Additionally, I compared the mentions by both groups of males and females in order to see whether there was a homophilic tendency with mentions of the same gender. For this analysis I applied the external-internal (E-I) index, a method for assessing group embedding by scrutinizing the ties within and between groups. This approach has been utilized in research, for example, to measure levels of polarization among different groups (Esteve del Valle, 2022). In my study, the E-I index was calculated to evaluate the ties with mentions in tweets, from a gender perspective. Accordingly, I counted the number of unique mentions, the total quantity of mentions, and the count of mentions either to a male from the male usernames list or to a female from the female mentions list for both gender sets. This process allowed me to estimate the E-I index for both genders. However, it is important to note that this process necessitated making a few assumptions:

- I assumed that Mozdeh could assign the same proportion of usernames from both genders to a binary gender with reasonable accuracy. This assumption was made with the understanding that the gender assignment would be mostly correct with approximately equal percentages, or with a minor percentage deviation.
- Furthermore, I assumed that male and female tweeters were approximately equally likely to

mention other Twitter users that had been tweeting in the selected hashtag.²

I employed a last protocol to detect co-occurrences between hashtags and authors in gender-separated datasets, aiming to uncover patterns in the way females and males engage in the Twitter debate about elections. This technique of analyzing co-occurrences has previously shed light at identifying homophily in the academic field, as evidenced by the connections among symposia speakers (Johnson, Smith & Wang, 2017), or discerning potential social circles that nodes might have within patterned clusters (Hsieh & Li, 2021). Adopting the whole matrix approach by Hellsten and Leydesdorff (2020), my methodology required initial removal of Spanish accents from the tweets, followed by prefixing author names with "AU". I then processed the tweets through Frqtw.exe, acquiring the node frequency distribution (Hellsten & Leydesdorff, 2019). Subsequently, using tweet.exe, I generated a co-occurrence 2-mode matrix (Hellsten & Leydesdorff, 2019), imported this network into Pajek, and applied the Louvain algorithm (Blondel et al., 2008) to partition it into clusters. This partitioning aimed at highlighting similarities within the clusters. The final step was exporting this clustered network to VOSviewer for a comprehensive visualization.

Results

First protocol: topic modeling

I implemented the topic modeling approach using routines provided by Mozdeh in R, and applied this method to the whole tweet dataset, as well as to subsets attributed to both male and female Twitter users. I chose the number of topics empirically to maximize the number of discernible topics per dataset. As such, 10 topics were chosen for the whole dataset (Table 1). Conversely, 4 topics were selected for datasets attributed to female users (Table 2) and 5 for male users (Table 3). Importantly, I excluded mentions of @petrogustavo and @franciamarquezm, as their inclusion led to visualizations with highly overlapping topics in the left panel.

LDAvis displays 30 main terms per topic. Of these, I selected the top 10 based on a weighted combination of their frequency, as demonstrated by the red bars in Figures 1 to 3, and their semantic relevance. These terms, underscored by red bars

² Since I was only using the Twitter account name lists generated by Mozdeh it was not possible to ascertain the gender of mentions made to Twitter users outside of this hashtag.

Table 1. Topics and terms of the whole dataset on the base of 187,244 tweets.

Terms	Topics & tokens %
1 «vam»,»graci»,»esper», «mujer»,»seg»,»muj»,»dignid»,»amor»,»luch», “vid”	Women-dignity 10.3%
2 “apoy”, «navarrowolf», “angelamroble», «antanasmockus», «corrupt», «cuent», «aliriouribemunoz», «guerriller», “mentir”, “trabaj”	Support-issues 10.2%
3 «vot»,»cambi»,»petropresident»,»vid»,»sal»,»necesit», “famili»,»gent»,»colomb»,»paz»	Change 10.1%
4 “petro”, «president»,»vicepresident»,»franc»,»primer»,»quiero»,»gustav», «vic», “marquez»	Petro-Francia 10.1%
5 “viv», «sabros»,»social»,»quer»,»paz», “derech», “histor», “pact”, “trabaj”, “comun”	Better life 10.1%
6 “usted”, “ingrodolfohndez», «sab»,»habl»,»rodolf», «mied»,»castillomarel», “debat”, “respet”, “alavaroleyv”	Opponent candidate 9.9%
7 «pued», «ecoanec»,»alexlopezmay», «ver», “adrianaluci”, “santialarconu”, “dianangel”, “polodemocr”, “odi”, “bien”	Supporting figures 9.9%
8 “colomb”,»gan»,»hoy»,»puebl»,»nuev»,»dios»,»colombian»,»felicity»,»nadi»,»histo ri»	Victory 9.9%_
9 «politica»,»campa»,»mism»,»arielanaliz», «urib», “van”, “eljulistasoque”, “corrupcn”, “verdad”, “candida”	Politics 9.8%
10 alfonsopr»,»margaritarosadf»,»gustavoboliv»,»pactocol»,»aabenedetti»,»pizarrom ariaj»,»pactohistor»,»mafecarrascal»,»sofiapetro»,»veronicalcocerg»	Supporting figures 9.8%

in the LDAvis figures, denote words linked to the topic. The term relevance is modulated by the weight parameter λ . For all three datasets, the term rankings were adjusted to a relevance metric lambda of 0.6 ($\lambda=0.6$). As indicated in existing literature, this value optimally balances term frequency within a topic against its overarching frequency (Sievert and Shirley, 2014; Das & Sarkar, 2022), ensuring the omission of overly generic terms. As highlighted by Das & Sarkar (2022: 13), “the width of the blue bar denotes the ‘corpus-wide frequencies of each term’ while the red bar showcases ‘the topic-specific frequencies of each term.’” Furthermore, concerning the left and right panels of the visualizations, according to Sievert & Shievert (2014: 63), they are interconnected. When a topic is selected on the left panel, the most relevant terms for that topic appear on the right panel. Conversely, when a term is chosen on the right panel, its distribution across various topics is shown on the left panel. The left panel of the visualization consists of an “inter topic distance map.” The topics are plotted as circles in the two-dimensional plane. Their centers are determined by computing the distance between topics (using Jensen-Shannon divergence) and then by using classical multidimensional scaling (using

Principal Components) to map to two dimensions (Chuang et al., 2012). The area of the circles is a measure of the prevalence of each topic (in the results here all topics were about the same size). The right panel depicts a horizontal bar chart whose bars represent the individual terms that are the most useful for interpreting the currently selected topic on the left (according to the chosen lambda relevance value). A pair of overlaid bars represent both the corpus-wide frequency of a given term as well as the topic-specific frequency of the term, as in (Chuang et al., 2012).

To delve deeper into the Twitter debate and taking into account the volume of tweets excluded in the gender-based division, I initially identified the topics of the whole dataset (Table 1). This step was followed by topic modeling of the gender-specific datasets (Tables 2 & 3). I then identified topics that closely aligned with narratives put forward by Petro and Márquez (see Figures 1, 2, 3). For the whole dataset, topics 1, 3, 5, and 10 cluster together on the left panel of Figure 1. Nevertheless, I spotlighted topic 1 due to its terms concretely aligning with the narrative proposed by Márquez, and the relevance of these terms to the topic. Despite this, several of the topics

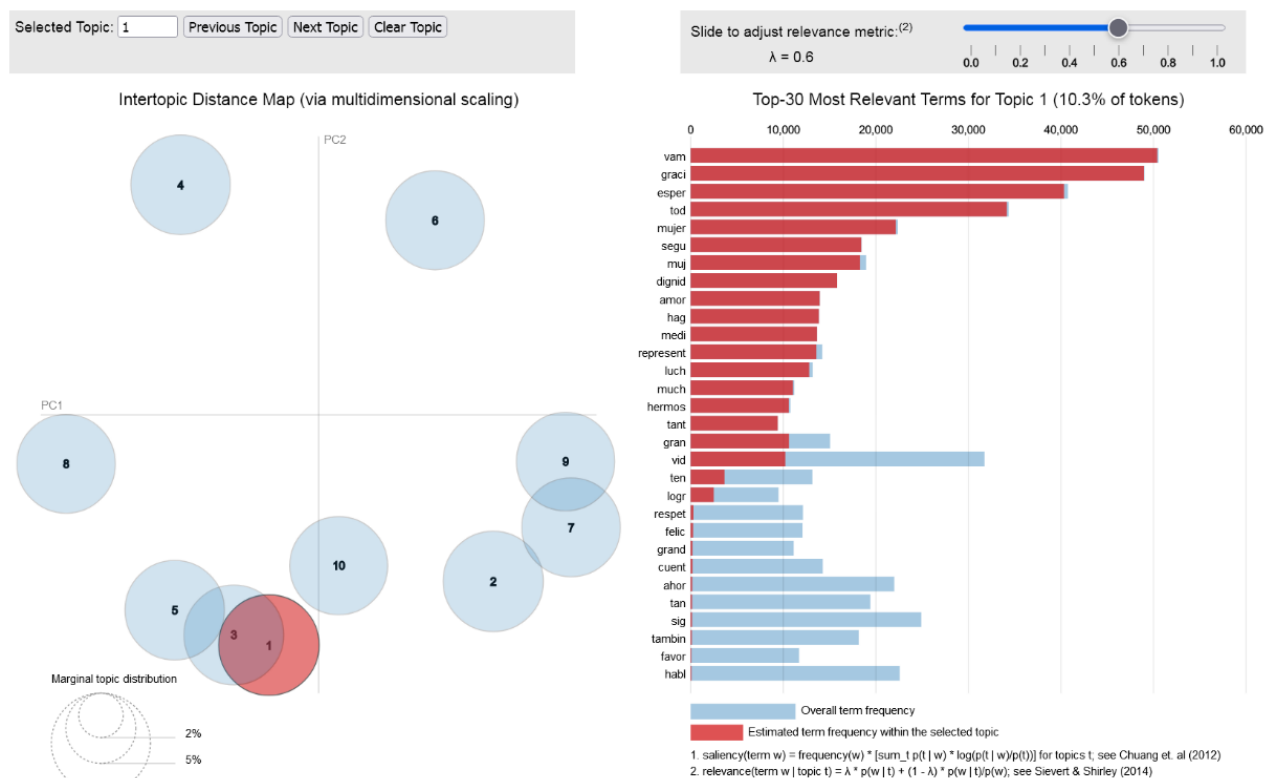


Figure 1: Topic modeling based on 187,244 tweets mentioning the account of @FranciaMarquezM. Topic 1. The interactive visualization can be found here

in Table 1 relate to the campaign themes of Petro and Márquez, while others appear disjointed.

Consequently, Figure 1 showcases terms associated with Topic 1, derived from the 10-topic selection of the complete dataset. Many terms correspond with Márquez's proposal, starting with two referring to women: *mujer* [woman] and *muj* [women]. The term *dignity* is also present, previously acknowledged as highly representative of her narrative on the 'Other.' Other significant terms include *amor* [love] and *vida* [life], both connecting with the frequently used term *esper* [hope]. As noted, this topic overlaps with topics 3 and 5. While topic 3 is less relevant than topic 1, topic 5 is comparably significant. Both topics 3 and 5 pertain to the narrative of Petro's and Márquez's campaign, including terms like *paz* [peace] and others such as *viv* [to live], *sabros* [tasty], and *camb* [change].¹ Topic 10, which might be included in the potential cluster, includes national and political figures that supported the campaign by Petro and Márquez, as well as Petro's wife's and daughter's mentions.

Table 2 presents four topics and their associated terms from the dataset comprising tweets attributed

to women. I excluded mentions of the Petro and Márquez Twitter accounts, resulting in no overlaps in the left panel. The first topic focuses on themes, figures, and hashtags related to the presidential campaign. In contrast, the subsequent three topics align with Petro's and Márquez's narratives. The third topic seems to exhibit a higher estimated term frequency, with an increased emphasis on the 'Other' in the context of gender. This topic features terms such as *mujer* [woman], *muj* [women], and references two national female figures. One of these figures is affiliated with the political party and holds a senatorial position. These terms coalesce with other words such as *vida* [life] and *dignidad* [dignity], as illustrated in Figure 2.

Table 3 prompts four topics along with their associated terms derived from the dataset containing tweets attributed to males. Mentions of the Petro and Márquez Twitter accounts were once again excluded. Topics 1, 3, and 5 align closely with the narratives of Petro's and Márquez's campaigns, incorporating terms such as *paz* [peace], *vid* [life], *cambi* [change], and *amor* [love]. Topic 5 highlights names and mentions of national and political figures who support

Table 2. Topics and terms on the base of 29.037 tweets attributed to females mentioning the account of @FranciaMarquezM.

Terms	Topics & tokens %
1 «ingrodolfohndez», «alfonsopr», «futur», «soypetrosoypaz», «apoy», «pac», «migente», «votarpor», «votartempran», «pactocol»	Elections 25.5%
2 «petr», «cambi», «president», «vicepresident», «vamos», «gan», «nuev», «paz», «esper», «democrac»	Change-peace 25.3%
3 «margaritarosadrf», «vid», «mujer», «muj», «pueb», «dios», «represent», «esper», «dignid», «pizarromariaj»	Women 24.7%
4 «viv», «quier», «pued», «sabros», «trabaj», «mejo», «pod», «navarrowolf», «ver», «pact», «angelamrobledo»	Living with taste 24.4%

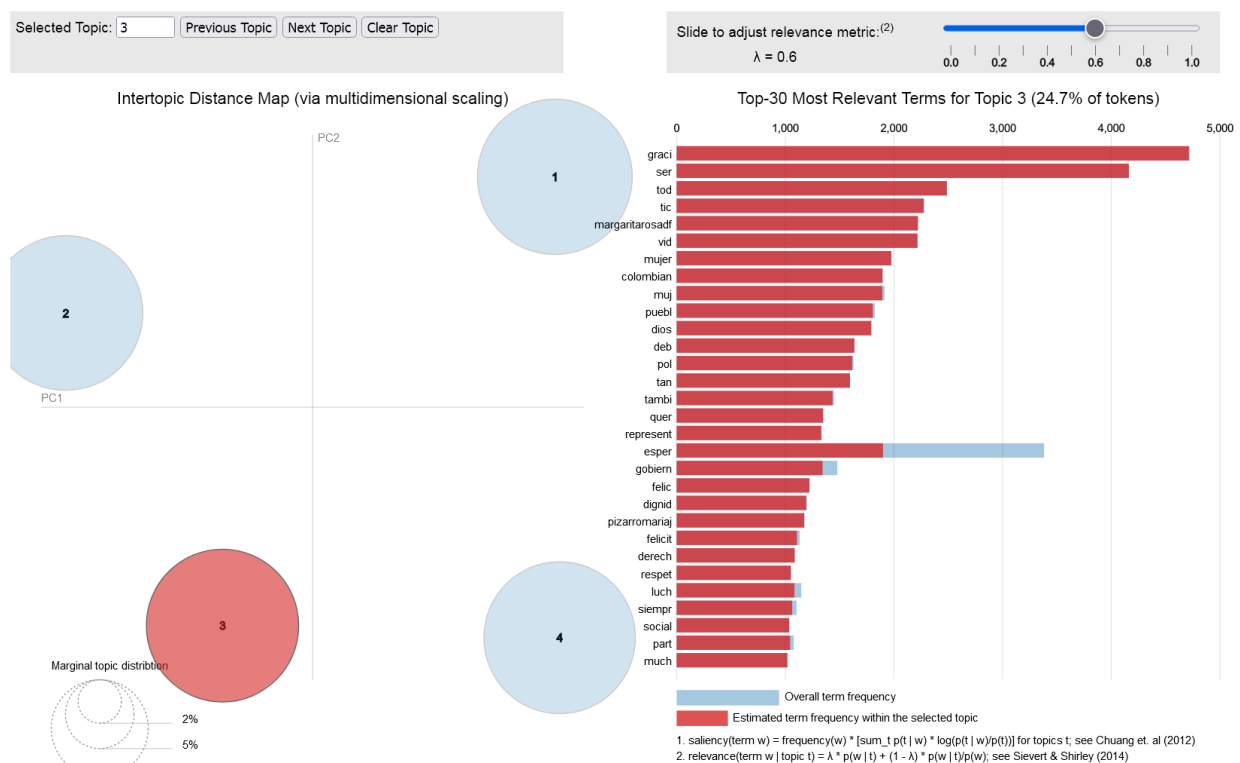


Figure 3: Topic modeling based on 29,037 tweets by women mentioning the account of @FranciaMarquezM. Topic 3. The interactive visualization can be found here

their campaign. Topic 2 also contains the mentions of political figures that supported their campaign, while Topic 5 appears more contentious. This topic elicits words tied to 'pacto histórico', but it also presents terms associated with challenges such as corrupti [corruption] and mied [fear]. Furthermore, this topic introduces references to the opposing candidate, ingrodolfohndez [engineer Rodolfo Hernández], and the former president, Uribe.

Figure 3 showcases the visualization of Topic 1, which seems to resonate more with Francia Márquez's narrative. This is evidenced by the inclusion of her name franc [Francia] and terms such as viv [to live], sabros [tasty], dignid [dignity], and mujer [woman]. Notably, the term aselin [assassin] is also present, contrasting with the term vida [life], potentially highlighting the ongoing concerns about the killing of women and female social leaders in the country.

Table 3. Topics and terms on the base of 54.848 tweets attributed to males mentioning the account of @FranciaMarquezM.

Terms	Topics & tokens %
1 «viv», «apoy», «pac», «sabros», «arielanaliz», «social», «franc», «dignid», «asesin», «mujer»	Pact-Francia 20.4%
2 «ser», «pued», «navarrowolf», «angelamrobled», «antanasmockus», «ver», «mal», «aliriour», «ibemuoz», «gloriasniet», «gobiern»	Political figures 20.4%
3 «col», «cambi», «esper», «vid», «pueblo», «mejor», «nuevo», «paz», «histori», «democraci»	Change 20%
4 «ingrodolfohndez», «alfonsopr», «gustavoboliv», «aabenedetti», «pactocol», «pactohistor», «urib», «radiocolombi», «corrupt», «mied»	Pact-Colombian issues 19.7%
5 «colombian», «margaritarosadf», «pizarromariaj», «segu», «sofiapetro», «gustav», «tobonsanin», «famil», «amor», «susanaboreal»	Supporting figures 19.5%

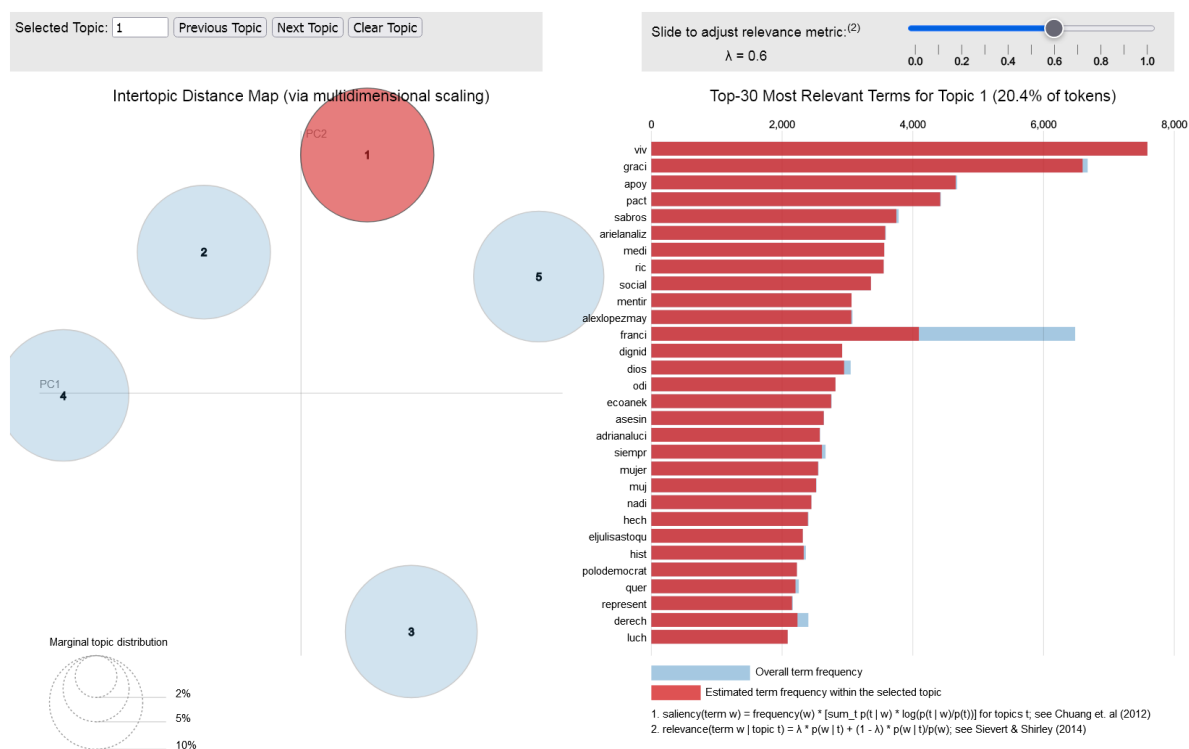


Figure 4: Topic modeling based on 54.848 tweets by men mentioning the account of @FranciaMarquezM. Topic 1. The interactive visualization can be found here

Second protocol: Content of tweets and mentions

The second protocol is about the significant proportionate differences between both groups of females and males tweets. Part of this protocol is dedicated to the content, and the other part to the mentions (Table 4). The comparison of the content in both groups, females and males, is an extension

of the first protocol but on this occasion, I chose the statistically significant relevant proportionate differences of the frequencies of words used by both groups. This step was the same for the mentions. For space reasons, I translated the words into English. Additionally, to protect the identity of the private mentions, I anonymized them by turning their names into their activity.

In terms of the content, the proportionate differences of the words by males show a greater approach to the Colombian political panorama in comparison to the females group by mentioning, for instance, the names of several politicians that would be in the new government cabinet. Additionally, several words are negative such as: they will burn, hatred, violence, criminal, assassins, devil, rat, among others. Finally, four words are more positive: dream, values, let's do, proud. Other words are related to the campaign rhetoric such as pact and equality. In turn, the proportionate differences of the words by females are more positive such as: peace, I love, future, happiness, proud, thanks and several more. In addition, other words refer to plural actions such as we will have, we do, we deserve, we love, we are, we believe. Finally, other words refer to Márquez: vicepresident, francía and márquez , and to Márquez's rhetoric: women, to live, tasty and habit.

To investigate any possible homophilious influences on the network with respect to gender, I conducted an analysis of mentions exhibiting statistically significant proportional differences between the two genders. This step aimed to analyse whether female Twitter users predominantly mentioned other females. However, the data revealed no great disfference between the two groups.

In the male Twitter user group, out of the total references, 14 were directed towards male politicians, 1 to a male activist, 2 to independent journalists, 7 to female politicians (with 2 of these 7 identifying as indigenous), 2 to female groups and movements, 2 to female activists, and 2 to female artists. Additional mentions included those to political parties and news channels. Therefore, the composition of mentions made by male Twitter users includes 17 males and 13 females.

In the female Twitter user group, the proportionally significant differences in mentions included 3 female activists, 1 women's movement, 1 female writer, 1 former female president, 1 female influencer, and 1 female journalist opposing the Petro and Márquez campaign. Moreover, female Twitter users also mentioned 2 male activists, 2 male politicians, 1 political analyst, and 2 male influencers. In total, female Twitter users mentioned 8 females, one of whom was from the opposing ideology, and 7 males.

These findings seem to reveal the absence of gender-based homophilious influence in the attribution of mentions. Rather, the results suggest the potential presence of political or ideological homophily in both groups, given the high incidence of mentions attributed to activists and social movements. To

confirm the previous results, I calculated the external-internal (E-I) index as it is shown in Table 5.

According to 2021 data from Statista, the gender distribution of Twitter users comprises 41.5% female and 58.5% male users.

Assuming these overall gender statistics from Twitter are accurate, it can be inferred that males are tweeting relatively more than females, particularly within this specific dataset. The ratio of male to female tweets (54848:29037) compared to the overall gender ratio on Twitter (58.5:41.5) suggests that males are tweeting approximately 44.0% more than females.

To further analyze this phenomenon, I calculated the E-I (external-internal) index for each gender. The female E-I index is calculated as $(9530 - 6598) / 16128$, which equals 0.18. In contrast, the expected E-I index, derived from overall Twitter gender statistics, is $(58.5 - 41.5) / 100$, which equals 0.17.

Similarly, the male E-I index is computed as $(16236 - 26711) / 42947$, yielding -0.24. The expected E-I index, according to overall Twitter gender statistics, is $(41.5 - 58.5) / 100$, yielding -0.17.

These calculated E-I indices for both male and female users within the studied dataset closely mirror the expected E-I indices based on the overall gender distribution on Twitter, suggesting a predominantly neutral preference for mentioning either male or female Twitter users. Nonetheless, there is a slight indication of gender homophily among male users, which aligns with the findings from the analysis of proportional differences.

Third protocol: Co-occurrences between authors and hashtags

This phase of the study seeks to find the most frequent co-occurrence between authors and hashtags across two gender groups under consideration. The intention is to evaluate the extent of each group's semantic involvement with the campaign narrative, incorporating an additional layer of investigation centered around their interactions with a Twitter attribute, namely hashtags.

Within this framework, hashtags co-occurring with female authors are distributed into seven identifiable clusters (see fig. 5). The cluster on the right, colored in purple, shows the association between the hashtag #cambio (#change) and the nation, Colombia. The term 'change' has consistently been linked with the Petro-Márquez campaign, with both self-identifying as 'the government of change.' Within the female dataset, this notion of change closely co-occurs with other prominent lemmas such as #colombiapotenciadevida

Table 4. Comparison of words and mentions proportionally more used by the two genders.

words males	DiffInP z	words females	DiffInP z	at males	DiffInP z	at females	DiffInP z
orchestrated	12	peace (in plural)	-33.7	@petrogustavo	10.8	@independent news channel	-25.6
pettiness	11.8	we will have	-31.7	@women's movement	10.5	@ news channel	-11.7
wake up!	11.8	we do	-30.7	@female artist	9.6	@women's movement	-7.4
to generate	11.2	reasons	-29.8	@women from political party	9.3	@female activist	-7.1
to look for	11.2	past	-27.6	@male politician	8.9	@male political analyst	-7.1
to lie	10.9	future	-23.8	@male politician	8.9	@National Registry of Civil Status	-6.8
resentment	10.5	millions	-19.8	@male politician	8.6	@female activist	-6.6
decency	10.2	I have	-19.5	@male politician	8.4		-6.5
						@male activist	
values	10.1	thanks	-16.6	@male politician	8.1	@female activist	-6.2
colombians	9.9	help us	-16.5	@male politician	7.9	@male activist	-6.1
dirty	9.8	vicepresident	-15.4	@male politician	7.8	@male activist/ influencer	-6
lies	9.7	hope	-14.1	@female politician	7.4	@female writer	-6
hatred	9.4	mary	-13.1	@female politician	7.3	@female former president	
to burn	9.2	woman	-13	@female politician	7.2	@male politician	-5.9
it/they will burn	9	women	-12.8	@female politician	7	@female influencer	-5.6
burning	8.9	francia	-12.5	@female artist	7	@chancellor's office	
hunger	8.9	virgin	-11.8	@activist movement	6.9	@male influencer	-5.3
tired of	8.8	I love	-11.8	@male politician	6.8	@male politician	-4.8
equality	8.7	mother	-11.2	@male politician	6.7	@female journalist-opposition	-4.7
white	8.7	proud (female)	-11.1	@political party	6.7		
roy	8.4	happiness	-10.4	@news radio station	6.6		
it goes	8.4	festival	-10.1	@female indigenous politician	6.3		
pact	8.4	duet	-9.9	@news journal	6.3		
dream	8.4	we (women)	-9.4	@news journal	6.2		
campaign	8	dance	-8.8	@political party	6.2		
rodolfo	7.5	reach	-8.8	@political party	6.2		
farc	7.3	we are	-8.8	@male politician	6		
they go	7.3	deared	-8.7	@female activist	5.9		

Continued **Table 4. Comparison of words and mentions proportionally more used by the two genders.**

words males	DiffInP z	words females	DiffInP z	at males	DiffInP z	at females	DiffInP z
fact	7.3	we want	-8.6	@male activist	5.9		
benedetti	6.9	victory	-8.1	@male independent journalist	5.8		
violence	6.8	happy	-8.1	@female indigenous politician	5.6		
devil	6.7	let's go	-7.9	@newspaper	5.6		
senator	6.7	feminist	-7.8	@male politician	5.4		
assassins	6.6	god	-7.7	@female activist	5.4		
petro	6.6	music	-7.6	@news channel	5.4		
criminal	E	we go ahead	-7.5	@male politician	5.4		
crisis	6.5	emotion	-7.4	@army member	5.3		
let's do	6.5	I feel	-7.4	@male politician	5.2		
eln	6.4	confident (woman)	-6.4	@political party	5		
power	6.4	beauty	-6.3	@female politician	5		
rat	6.3	history	-6.3	@political party	4.9		
followers	6.3	to live	-6.3				
tendencies	6.2	wisdom	-6.3				
bandits	6.1	we love	-6.3				
uribism	6.1	to help	-6.2				
proud (male)	6	we deserve	-6.1				
estate	5.9	márquez	-6				
gustavo	5.9	we will go	-6				
to grow	5.8	excited (woman)	-5.9				
communist	5.7	I cry	-5.8				
they are	5.7	I admire	-5.8				
old	5.7	represented (woman)	-5.7				
equal	5.6	to give us back	-5.7				
historic	5.6	to dream	-5.7				
politics	5.5	hearing	-5.7				
prada	5.5	faith	-5.7				
boss	5.5	we believe	-5.7				
cuba	5.3	habit	-5.6				
case	5.3	tasty	-5.6				

Note 1: The proportionally more frequent terms and mentions used by women are represented in Mozdeh with a negative z score to differentiate them from the men's list.

Note 2: The list presented here does not mean that the words related to the groups are only used by that group but that they are significantly more used by them.

Table 5. E-I index of the mentions between the group of females and between the group of males.

	FEMALE SET	% of total	MALE SET	% of total
(Total number of tweets in total dataset: 187244)				
Total no. of tweets in classified dataset	29037	15,5	54848	29,3
Total no. unique classified usernames	11827	40,7	22842	41,6
(Total overall mentions (incl. non classified))			215902	
Total females from list mentioned	6598	6,3	16236	7,5
Total unique females from list mentioned	1090	16,5	1399	8,6
Total males from list mentioned	9530	9,0	26711	12,4
Total unique males from list mentioned	1630	17,1	2943	11,0
Total male and female mentions	16128	15,3	42947	19,9
E-I index	0,18		-0,24	
Expected E-I index (from overall twitter stats)	0,17		-0,17	

(#ColombiaPowerOfLife) and the future-focused metaphor, #petroavanzacolombiagana [#PetroPregressesColombiaWins].

The most predominant connections within the network are positioned on the left, revealing co-occurrences between peace and Petro, such as #soypetrosoy paz (#IamPetrolamPeace). This significant connection also encompass the campaign proposition #pactohistorico (#HistoricalPact), and hashtags promoting appropriate voting behaviors.

Positioned centrally within the network is a cluster incorporating phrases attributed to Márquez, such as #vivirsabroso (#LivingWithTaste), located at the upper side, and #hastaqueladignidadsehagacostumbre (#UntilDignityBecomesHabit), and #progresistasigueprogresista (#ProgressiveFollowsProgressive), both at the lower central portion of the graph. Alongside these hashtags, nodes opposing the campaign and Petro are closely situated, indicating a lack of differentiation within the clusters. The selected authors emerge as structuring various parts of the network and subnetworks. Moreover, at the very bottom of the visualization, a cluster featuring the co-occurring hashtags #buenaventuravotaen paz (#BuenaventuraVotesInPeace) and #buenaventurasinviolencia [#BuenaventuraWithoutViolence] is discernible. Buenaventura is Colombia's primary port on the Pacific coast, crucial for imports and exports, particularly with the Pacific region including Asia and the western coast of the Americas. Its strategic location significantly influences Colombia's econo-

my and trade. However, this is also an impoverished region and place for traffic and violence.

Visualizing male tweeters in association with hashtags yields four distinct clusters (see fig. 6). A blue cluster situated on the left of the graph incorporates numerous hashtags opposing Petro. In contrast, a large cluster referencing Petro and Márquez is centrally located. Several hashtags echoing #vivirsabroso (#LivingWithTaste), such as #vamosavivirsabroso (#Let'sLiveWithTaste), and #pactosabroso (#TastyPact), along with others reflecting Márquez's rhetoric such as #hastaqueladignidadsehagacostumbre (#UntilDignityBecomesHabit), are positioned from the center towards the lower part of the graph. Co-occurring hashtags supporting Petro are positioned on the upper side of the cluster. The most frequent hashtags are encapsulated within the yellow and green cluster, representing change and the country. The hashtags #colombiapotenciadevida [#ColombiaPowerOfLife], and the future-oriented metaphor, #petroavanzacolombiagana [#PetroPregressesColombiaWins], are also part of the male tweeters' visualization, situated on the extreme right of the graph with thin ties.

A salient distinction between the male and female visualizations is that while both groups engage with similar hashtags, the frequency of connections with Márquez's rhetoric seems to be more pronounced in the female group. Nonetheless, in both groups, the connections between these co-occurring hashtags are noticeably weaker than the hashtags referencing

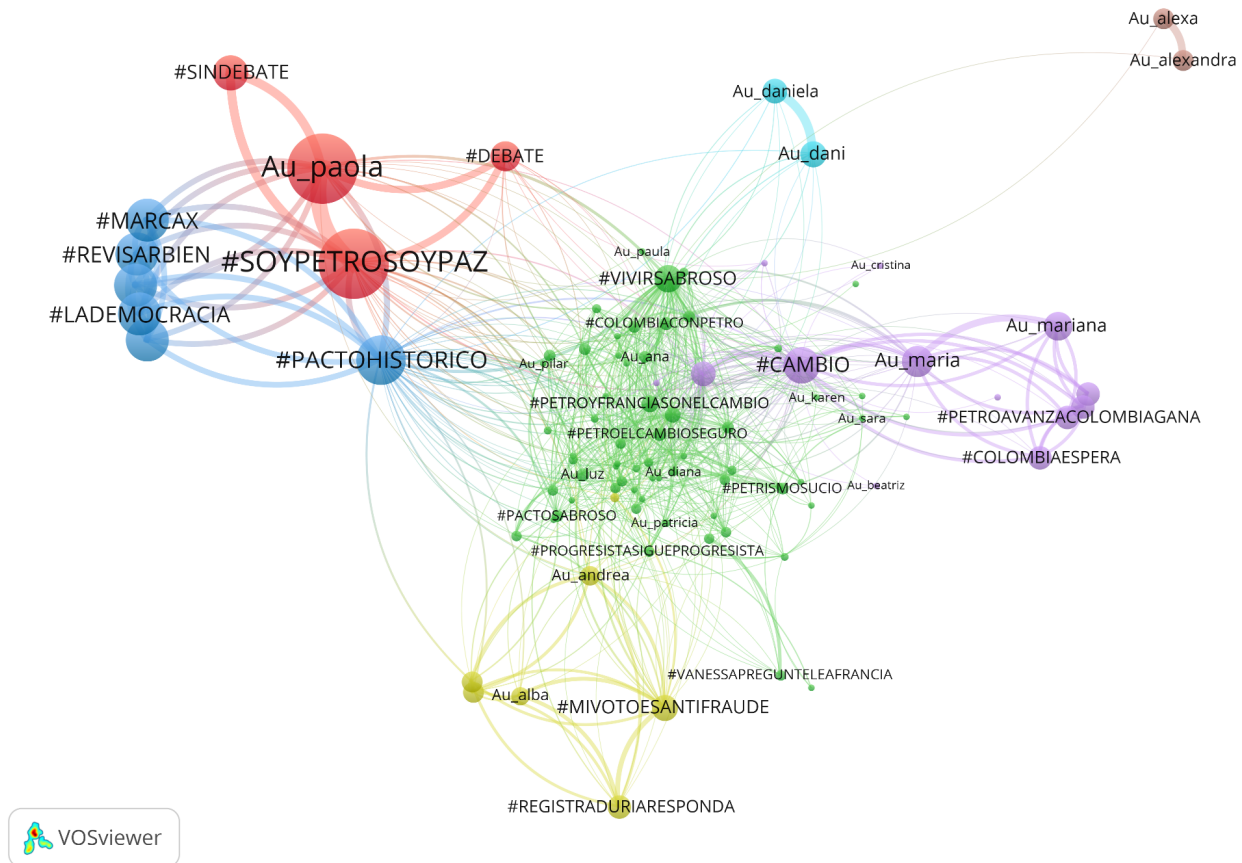


Figure 5: Co-occurrences visualization based on 10 more frequent female authors and 38 more frequent hashtags from a dataset of 29.000 tweets. The size of the nodes denote their frequency. The interactive visualization can be seen here https://app.vosviewer.com/?json=https://drive.google.com/uc?id=1nNYzAi0PgT_R8aHzZ6XcKve7iHmfWHQX

the campaign and the associations among Petro, peace, change, and life.

Conclusions

In this paper I aimed to trace the framing resonance of the discourse surrounding the Petro-Márquez campaign of 2022 on Twitter. Framing theory offers a suitable lens for understanding how events, situations, and topics are presented and understood, especially in the realms of social media and political campaigns. I proposed three approaches to interpret the potential frame resonance in the Twitter audience.

The first protocol primarily utilized a topic modeling methodology, employing tools such as Mozdeh in R. One striking observation from this analysis was the gender-based differentiation in narratives. Female Twitter users exhibited a pronounced emphasis on gender-specific themes, especially the representation

and importance of women in society. Their narratives prominently highlighted terms symbolizing life and dignity. In contrast, male Twitter users presented a broader spectrum of discourse, discussing both their support for the political figures Petro and Márquez, as well as critical views on societal issues such as corruption and threats against women.

The second protocol focused on the variances in content between male and female users, their patterns of mentions, and the External-Internal (E-I) index. Females leaned more towards positive discourses, emphasizing collective actions and sentiments of peace and happiness. In contrast, male discourse spanned the broader Colombian political landscape, including both negative and positive terminologies. This approach further revealed that mention patterns did not reflect strong gender biases. Instead, they suggested a potential preference for political or ideological affiliations, indicating that

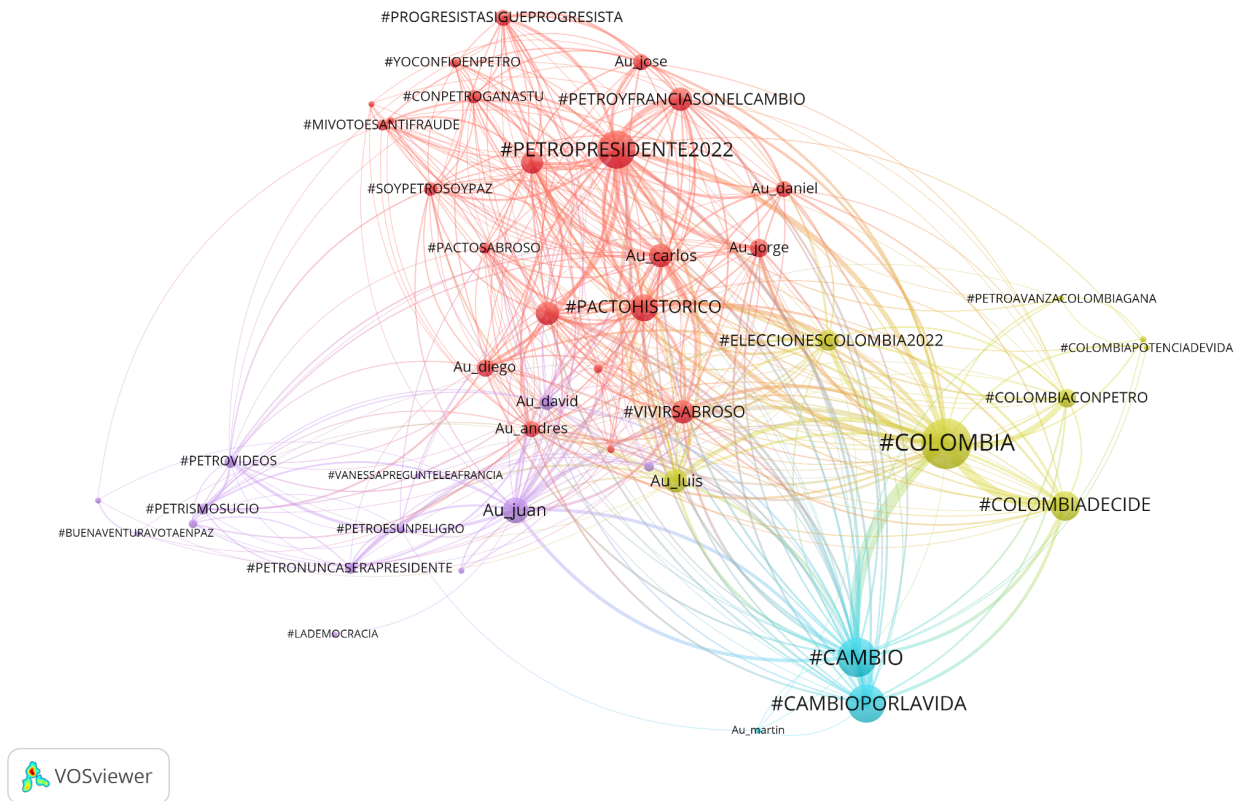


Figure 6: Co-occurrences visualization based on 10 more frequent male authors and 38 more frequent hashtags from a dataset of 54,848 tweets. The interactive visualization can be seen here: <https://app.vosviewer.com/?json=https://drive.google.com/uc?id=1X9UtGCgFc9Ek5vD-ZtiYUy4Wj1fUN2T>

political ideologies might have a more substantial influence on online interactions than gender. These results contrast the findings of Esteve del Valle & Bravo (2017) that pointed to a homophilic tendency among political figures on Twitter. However, a deeper look through the External-Internal (E-I) index revealed subtle gender homophily among male users.

The third protocol aimed to delve deeper into the relationship between authors and their use of hashtags, categorized by gender. By analyzing hashtag co-occurrences, the study sought to gauge the depth of user engagement with the Petro-Márquez campaign. Female users displayed a nuanced connection to the campaign, associating closely with national sentiment hashtags and revealing a substantial emphasis on Márquez's rhetoric. In comparison, male users demonstrated a more compartmentalized approach, either in support of or opposing the campaign. Nevertheless, a common theme emerged across both genders: an

active engagement with campaign-centric hashtags, though with varying focus and intensity.

In general, the results suggest that while both genders deeply engage with the campaign's core themes, the nuances of this engagement differ. Hashtags and mentions significantly influence discourse, underscoring themes of change, peace, and visions for Colombia's future.

Petro and Márquez's emphasis on "vidas dignas" and the acknowledgment of marginalized communities was not just political posturing. They were crafting frames that aligned with contested cultural narratives, aiming to make their campaign messages resonate profoundly with their audience. The potency of these frames can be measured by their resonance, which is evaluated based on credibility, relevance, and alignment with daily experiences (Snow, Vliegenhart & Katelaas, 2019). Another key aspect to consider is the concept of Otherness, which is rarely addressed directly, but that is also constructed through narratives. Historically influenced by cultural

and historical dimensions, narratives surrounding it have the potential to approach otherness inclusively. With movements such as Black Lives Matter and Me Too marking the global zeitgeist, and socio-political changes in countries such as Chile and Perú, there is a potential shift. In Colombia, social leaders, activists, and movements, including women's movements, have over recent decades championed narratives that looked for inclusion in the Peace Agreement. These voices were echoed in the narratives of Petro and Márquez. However, persistent challenges arise, especially when progressive agendas are entangled with extractivist economic models. Additionally, when issues such as polarization and marginalization are common in diverse countries such as Colombia, it is also important to study to what extent narratives in social media such as the narratives I studied here may also contribute to polarize and what would need to be addressed to include different audiences.

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